LAWRENCE TECHNOLOGICAL UNIVERSITY
GRADUATE CATALOG
2025-2026

ANNOUNCEMENT OF GENERAL INFORMATION AND COURSES IN THE COLLEGES OF:

ARCHITECTURE AND DESIGN
ARTS AND SCIENCES
BUSINESS AND INFORMATION TECHNOLOGY
ENGINEERING
AND
HEALTH SCIENCES

FOR THE ACADEMIC YEAR 2025–2026

Contents

VISIT THE CAMPUS

Lawrence Technological University welcomes prospective students, family members, employers, and others to visit. While on campus, prospective students are encouraged to discuss their educational plans with admissions staff and to meet current Lawrence Tech students, professors, or deans. Register for a tour or event at upcoming.ltu.edu. Call the Office of Admissions at 248-204-3160 to arrange an appointment or to request additional information. The Office of Admissions is open (except holidays) Monday & Tuesday, 8 a.m. – 5:30 p.m., and Wednesday - Friday, 8 a.m. – 4:30 p.m.

ABOUT THIS GRADUATE CATALOG

This *Graduate Catalog* is a compendium of opportunities available at Lawrence Technological University. It includes information on academic programs, requirements for admission and graduation, rules, regulations, and expectations. Failure to read this *Graduate Catalog* does not excuse students from the requirements and regulations described herein. While every effort is made to provide accurate and current information, the University reserves the right to change rules, policies, fees, curricula, courses, and other programs described to reflect faculty or administrative action. This *Graduate Catalog* is accurate as of the publication date. Course descriptions are available online through BannerWeb at my.ltu.edu. For information about undergraduate programs, refer to Lawrence Tech's *Undergraduate Catalog*.

STUDENT IMAGES

Lawrence Technological University reserves the right to use images of student work and of students on campus, or at any of its offsite locations, for the purpose of promoting the University. Students not wishing to be photographed should notify the Office of the Registrar in writing when they register each semester.

OPEN DOOR POLICY

The president's door is always open to students. Usually after consultation with instructors, department chairs, college deans, the dean of students, the provost, or other responsible administrative offices, students will find that any concerns will be satisfactorily addressed. If not, students may contact the president's executive assistant, who will prepare a briefing and arrange a convenient appointment between the student and the president. Contact the President's office at president@ltu.edu

ACADEMIC CALENDAR

FALL 2025 SEMESTER

April 7 – August 24	Registration open
August 24	Last day to register before traditional semester courses start
August 25	Traditional semester courses begin; add/drop period begins
August 30 – September 1	Campus closed for Labor Day break
September 1	Last day to add/register for a class on Banner Web
September 2	Classes resume after Labor Day break
September 2	Beginning today - All adds and registrations require Instructor and Department Chair approval on paper Registration Form
September 7	Last day to drop traditional semester courses with refund (no refund for classes dropped after September 7)
September 8	Withdrawal period begins for traditional courses
September 16	Faculty Assessment Day - all day and evening courses are cancelled
November 21	Last day to withdraw from traditional semester courses
November 25	Last day of classes before Thanksgiving break
November 26	No Classes, Campus is open
November 27 – 30	Campus closed for Thanksgiving break
December 1	Classes resume after Thanksgiving break
December 6	Commencement (Fall 2025 graduates)
December 12	Last day of traditional semester classes before Final Exams
December 15 - 18	Traditional Semester Final Exams
December 18	Fall 2025 semester ends
December 23	Grades due for traditional semester courses (11:59 p.m.)

SPRING 2026 SEMESTER

November 3 – January 11	Registration open
January 11	Last day to register before traditional semester courses start
January 12	Traditional semester courses begin; add/drop period begins
January 19	Last day to add/register for a class on Banner Web
January 19	Campus closed for Martin Luther King Day
January 20	Beginning today - All adds and registrations require Instructor and Department Chair approval on paper Registration Form
January 25	Last day to drop traditional semester courses with refund (no refund for classes dropped after January 25)
January 26	Withdrawal period begins for traditional courses
March 8	Last day of classes before mid-semester break
March 9 - March 13	Mid-semester break (no classes in session)
March 16	Classes resume after Mid-semester break
April 10	Last day to withdraw from traditional semester courses
May 4	Last day of traditional semester classes before Final Exams
May 5 – May 8	Traditional Semester Final Exams
May 8	Spring 2026 semester ends
May 9	Commencement (for Spring and Summer 2026 graduates)
May 13	Grades due for traditional semester courses (11:59 p.m.)

SUMMER 2026 SEMESTER

April 6 – May 17	Registration open
May 17	Last day to register before traditional semester courses start
May 18	Traditional semester courses begin; add/drop period begins
May 22	Last day to add/register for a class on Banner Web
May 23	Beginning today - All adds and registrations require Instructor and Department Chair approval on paper Registration Form
May 25	Last day to drop traditional semester with refund (no refund for classes dropped after May 24)
May 25	Campus closed for Memorial Day
May 26	Classes resume after Memorial Day break
May 26	Withdrawal period begins for traditional courses
July 3 - 4	Campus closed for Independence Day break (no classes in session)
July 6	Classes resume after Independence Day break
July 10	Last day to withdraw from traditional semester
July 24	Summer 2026 Semester ends
July 29	Grades due for traditional semester courses (11:59 p.m.)

The University reserves the right to make adjustments to the academic calendar as necessary.

Please note that for Non-Traditional Semester courses that start or end at times other than indicated or are of a different length, different dropping, adding and refund dates apply. Please review the Non-Traditional Semester Courses Dates and Deadlines information sheet located on the website. It is the student's responsibility to be aware of these dates. Final grades for Open Learning courses are due from the instructor on the Wednesday of the following week after the class ends. Dates for Open Learning courses are available on the website of the Office of the Registrar on the Open Learning schedules, by calling the Enrollment Services Office at 248.204.2280, or emailing enrollmentservices@ltu.edu.

IT scheduled downtime for upgrades and maintenance (subject to change):

Weekend of September 13, 2025
Holiday Break – December 24, 2025 - January 1, 2026
Weekend of March 7, 2026
Weekend of May 01, 2026
Weekend of August 1, 2026

BE CURIOUS. MAKE MAGIC.

Lawrence Technological University is one of only 13 private, technological, comprehensive doctoral universities in the United States. Leading-edge, technology-infused academic programs, dynamic campus life, NAIA, varsity, junior varsity, club, and intramural athletics, and proven career placement also help make LTU unique. Lawrence Technological University (Lawrence Tech) is for students who are curious, innovative, and want to make a difference. Students who want to create what does not exist – "Make Magic" – for the benefit of mankind. An independent, accredited university founded in 1932, Lawrence Tech offers more than 100 academic programs at the associate, bachelor's, master's, and doctoral degree levels. The University is composed of Colleges of Architecture and Design, Arts and Sciences, Business and Information Technology, Engineering,

and Health Sciences and, also, the Specs@LTU program. Approximately 3,000 students are enrolled in full-time, part-time, day, evening, weekend, online, credit, and non-credit programs.

Lawrence Tech combines the benefits of a close, caring, small-college atmosphere with the academic depth and scope of a larger university. Lawrence Tech takes a personal approach to education, and the University attracts students who think big and dare to make a difference. They're highly motivated students with a tremendous will to succeed, to excel, and to seek out the best in whatever they do.

Lawrence Tech has a reputation for excellence. Most students claim that the University's programs are rigorous and challenging – programs that unapologetically demand commitment. It is because of these high standards and their educational preparation that Lawrence Tech graduates report they arrive in the workplace prepared and ready to do their jobs.

Independent studies also confirm that Lawrence Tech students rapidly achieve placement success. The Brookings Institution ranks LTU fifth among U.S. colleges and universities for boosting graduates' earning potential. PayScale reports that salaries of LTU bachelor's graduates are among the top 11 percent of all U.S. universities. Lawrence Tech provides a rigorous, high-quality education – an education that clearly pays off. In addition, over 80 percent of students are employed or registered for graduate school at commencement, above the national average.

The University's heritage and educational philosophy is summed up in the University motto, adopted shortly after Lawrence Tech was founded in 1932 – "theory and practice." It means that Lawrence Tech seeks to explain not only why something should work, but also how it works in real situations and applications. Many LTU faculty have years of successful industrial and professional experience in addition to their academic credentials. They've learned what succeeds in the "real" world and they do their best to make sure that students do, too.

The University also maintains close partnerships with the industries and professions that its students and graduates serve in order to provide students with the skills employers need. Lawrence Tech's proximity to some of the world's leading industrial, technological, business, and scientific enterprises also gives students the opportunity to participate in co-ops, internships, part-time jobs, and networking opportunities.

Lawrence Tech students are strongly encouraged to interact with the professional world throughout their academic career. A number of professional societies are active on campus and help students network with men and women already working in specific fields. Many of the academic programs also require participation in professional projects that seek to solve real problems facing practicing architects, engineers, managers, scientists, and others. The projects expose students to a host of real-world challenges, and Lawrence Tech students regularly earn top awards in competitions that pit them against students from other colleges and universities.

MISSION, VALUES, VISION, AND CAUSE

Lawrence Technological University was founded as an independent, nonprofit, institution of higher learning. On a regular basis, the University community – including trustees, administrators, staff, faculty, students, and alumni – meets to review, establish, and achieve the ambitious goals set forth in the Strategic Plan, to reflect upon hopes for the future, and to elucidate the purposes for which Lawrence Tech operates and serves. The latest edition of Lawrence Tech's Strategic Plan can be viewed at https://www.ltu.edu/about/strategic-plan.

Part of this planning process is to review and direct the evolution of the mission, vision, and LTU defining pillars that guide Lawrence Tech's progress. These statements are:

MISSION

Lawrence Technological University is committed to fostering cross-disciplinary, experiential, and forward-facing education that empowers students to excel in technology, scholarship, and design in all disciplines

VISION

To be the University that transforms lives.

LTU DEFINING PILLARS

- Technological eminence
- Research and creative practices focus
- Industry immersion
- Interdisciplinary agility
- Professional excellence

ACCREDITATION AND MEMBERSHIPS

Lawrence Technological University is accredited by the Higher Learning Commission (HLC) (www.hlcommission.org/312.263.0456). The HLC accreditation report is on file in the University's library and is available for public review by patrons. Various graduate and undergraduate degrees are additionally accredited through appropriate national professional agencies:

Architecture: NAAB
Business and Information Technology: AACSB
Chemistry: American Chemical Society
Engineering: ABET
Game Design, Graphic Design, Product Design (previously Industrial Design), Interior Design, and Transportation Design: NASAD
Interior Design: CIDA
Cardiovascular Perfusion Program (Provisional accreditation): AC-PE
Nursing: CCNE
Physician Assistant Program (Accreditation-Provisional): ARC-PA

LAWRENCE TECH'S INSTITUTIONAL MEMBERSHIPS INCLUDE:

Advanced Acceptance Program
American Association of Collegiate Registrars and Admissions Officers
American Association of University Administrators
American Library Association
American Society for Engineering Education
Association of College Administration Professionals
Association of College Admissions Counselors (national, Michigan, and Ohio)
Association of College and University Housing Officers
Association of Collegiate Schools of Architecture
Association of Fundraising Professionals
Association of Independent Technological Universities (AITU)
Association of International Educators (NAFSA)
Association of the United States Army
Association of Title IX Coordinators (ATIXA)
Association to Advance Collegiate Schools of Business (AACSB)
Automation Alley
Building the Engine of Community Development in Detroit (BECDD)
College Board
Council for Advancement and Support of Education
Council for Higher Education Accreditation
Council of Interior Design Accreditation
Detroit Athletic Club
Detroit Economic Club
Detroit Regional Chamber of Commerce
Detroit Zoological Society
Digital Manufacturing and Design Innovation Institute
Educational Teleconsortium of Michigan
EDUCAUSE
Engineering Society of Detroit (ESD)
Higher Learning Commission (HLC)
Leave a Legacy Southeast Michigan
MI-AHEAD
MichBio
Michigan Academy of Science, Arts and Letters
Michigan Association for Foreign Student Affairs
Michigan Association of Collegiate Registrars and Admissions Officers
Michigan Campus Compact
Michigan Community College Virtual Learning Collaborative
Michigan Economic Developers Association
Michigan Independent Colleges and Universities (MICU)
Michigan Israel Business Bridge
Michigan Student Financial Aid Administrators
Michigan Venture Capital Association

Midwest Association of Student Financial Aid Administrators
National Academic Advising Association
National Architectural Accreditation Board
National Association of Colleges and Employers
National Association of Independent Colleges and Universities
National Association of Intercollegiate Athletics
National Association of Schools of Art and Design
National Association of Student Financial Aid Administrators
National Defense Industry Association
National Financial Aid Association
Oakland County Workforce Development Board
Partnership for Philanthropic Planning
Planned Giving Roundtable of Southeast Michigan
The Sloan Consortium
Southfield Arts Commission
Southfield City Centre
Southfield SmartZone
TiE - Detroit (The Indus Entrepreneurs Organization)

Lawrence Tech is also a member of several chambers of commerce in the surrounding counties of Oakland, Wayne, and Macomb, including Southfield and metro Detroit, and the U.S. Chamber of Commerce.

Faculty and staff are additionally members of a wide variety of local, state, and national professional organizations appropriate to their disciplines. Professional organizations with active student chapters at Lawrence Tech are listed in the Services for Students section of this *Catalog*.

RETROSPECTIVE

"All the worthwhile and precious things in life are only obtained through continuous and exacting effort, and their worth is in direct proportion to the effort put forth for their attainment."

Russell E. Lawrence
1889–1934

It was a firm belief in the future that motivated Russell E. Lawrence to found a university in 1932, in the midst of the economic chaos of the Great Depression. While less farsighted individuals made predictions of gloom, Russell Lawrence and his brother, E. George Lawrence (who led Lawrence Technological University from 1934 to 1964), turned a dream of preparing students for leadership in the new technical era into reality.

For more than 90 years, Lawrence Tech has continued to prosper and accelerate its growth, hone its educational philosophy of theory and practice, build important community and professional alliances, and forge partnerships with the firms, organizations, and industries who hire Lawrence Tech alumni.

Wayne H. Buell, who served as president from 1964 to 1977 and as chair of the Board of Trustees and chief executive officer until 1981, worked to build a firm foundation for the University's early emergence as a technological leader. He first advanced the notion that Lawrence Tech was a private college serving a public purpose.

Lawrence Tech's first residence hall, the Buell Building, the Don Ridler Field House, a major addition to the engineering facilities, the return of graduate programs, and the massive growth of computer facilities marked the presidency of Richard E. Marburger, who served as president, 1977–93, and also as chair of the Board of Trustees and chief executive officer, 1981–93.

Charles M. Chambers became president in 1993 and served as chancellor in 2006. During his presidency, he oversaw significant enhancement of the University's international reputation as a distinguished center of technological education and research. A Strategic Plan and Campus Master Plan were adopted to guide the University. Other achievements include construction of the University Technology and Learning Center, the Edward Donley Residence Hall (formerly North Housing), the A. Alfred Taubman Student Services Center, and the Center for Innovative Materials Research; a redeveloped campus quadrangle; establishment of a Faculty Senate; conversion of the computer system to a client server model with full Internet2 connectivity and online library access; creation of Michigan's first completely wireless laptop campus; and expanded bookstore, dining, and student activity facilities.

Lewis N. Walker was named interim president in February 2006, became president in July 2006, and chancellor in July 2012. He had previously served as provost, the University's chief academic officer, and executive vice president. Under Walker, Lawrence Tech aggressively expanded programs in emerging economic sectors such as robotics, defense, and sustainability, including "fast track" certificate programs to help professionals retool themselves for new careers. He was committed to developing the leadership skills of Lawrence Tech's students and worked with faculty to add a leadership component to the curricula of all undergraduate programs. He forged partnerships with universities worldwide that brought international students to campus and provided further opportunities for Lawrence Tech students to study abroad. He also oversaw the reinvigoration of student life and return of varsity sports to campus.

Virinder K. Moudgil, Lawrence Tech's seventh president, assumed office in July 2012. He had a long career as a professor and university administrator, and was an active researcher in the molecular mechanisms of steroid hormone action and the hormonal regulation of breast cancer. At LTU, Moudgil presided over the construction of the A. Alfred Taubman Engineering, Architecture, and Life Sciences Complex, Home of the Marburger STEM Center; and the Lloyd E. Reuss and East Residence Halls. He also launched the Global Village program to help all LTU students learn more about other cultures and the interconnectedness of the world economy.

Tarek M. Sobh was appointed as the eighth president of Lawrence Technological University and assumed office on January 1, 2022. Sobh, a licensed professional engineer, served as vice president of academic affairs and provost at Lawrence Tech from 2020 to 2022. Sobh is a noted scholar who has authored more than 250 refereed journal and conference papers and book chapters, in addition

to 27 books. He serves or has served on the editorial boards of 18 journals, and has served on the program committees of over 300 international conferences and workshops in the robotics, automation, sensing, computing, systems, control, online engineering and engineering education areas. Sobh has presented more than 150 keynote speeches, invited talks and lectures, colloquia and seminars at research meetings, university departments, research centers, and companies. His background is in the fields of robotics, computer science and engineering, control theory, automation, manufacturing, AI, computer vision and signal processing. In 2023, Sobh created a fifth college, The College of Health Sciences, that houses the Cardiovascular Perfusion, Nursing and Physician Assistant programs.

Lawrence Tech was founded on the principle that every person should have the opportunity for a college education. From the beginning, there were no restrictions on admissions relating to race, sex, color, creed, or national or ethnic origin – only the requirement that students qualify for admission and have the desire to succeed. Working students could earn a baccalaureate degree by attending evening programs, day programs, or a combination of the two – a feature unique in 1932 and still remarkable today.

The school was originally called Lawrence Institute of Technology. Its present name, Lawrence Technological University, was approved on January 1, 1989, by the State of Michigan, and more clearly describes Lawrence Tech's undergraduate and graduate mission.

Lawrence Tech was founded as a college of engineering with only a few hundred students and a handful of faculty. Today it offers more than 100 programs in five colleges, with a total enrollment of approximately 3,000 students, and employs more than 400 full- and part-time faculty. In terms of enrollment, Lawrence Tech is among Michigan's largest independent colleges.
In 1950, associate programs were added to Lawrence Tech's baccalaureate offerings. In 1952, the College of Management was re-established, having its origins in an earlier industrial engineering curriculum. Master's degree programs in management were launched in 1989. The College of Architecture and Design evolved in 1962 from the former architectural engineering department and in 1993 launched a Master of Architecture program. The College of Arts and Sciences was established in 1967. Master's degree programs in engineering were begun in 1990, and in Arts and Sciences in 1997. Doctoral programs were launched in 2002. As of 2021, Lawrence Tech is continuing the legacy of Specs Howard School of Media Arts and is offering certificates through the Specs@LTU program.

Concurrently, there has been an enormous expansion and improvement of facilities. The University's first campus was located in Highland Park, in a building leased from Henry Ford adjacent to the huge manufacturing facility where he built the Model T and perfected the moving assembly line. As enrollment grew, the University acquired acreage in Southfield and in 1955 opened its first building on what had been a General Mills research farm. The campus has since expanded to more than 107 acres and 17 major buildings, as well as the Frank Lloyd Wright-designed Affleck House in Bloomfield Hills, which was donated to the University in 1978.

In 1977, Lawrence Tech shed its "commuter" classification by opening the nine-story South Residence Hall (formerly South Housing). The 1980s and 1990s were distinguished by the opening of the Wayne H. Buell Building and the Don Ridler Field House, numerous improvements to existing buildings, and a substantial increase in state-of-the-art laboratory and computer equipment. The University Technology and Learning Center opened in 2001, Edward Donley Residence Hall (formerly North Housing) in 2002, and the A. Alfred Taubman Student Services Center and the Center for Innovative Materials Research in 2006. The University's third student residence, the Lloyd E. Reuss Residence Hall, opened in 2015 as a first-year student community. The Taubman Engineering, Architecture, and Life Sciences Complex Home of the Marburger STEM Center, which connects the Science and Engineering Buildings, opened in fall 2016.

In 2011, competitive athletics returned to campus with the University's entry into the National Association of Intercollegiate Athletics.

The University also offers programs at learning centers in southeastern and northern Michigan, as well as international programs in Asia, Europe, Mexico, and the Middle East.

DAY, EVENING, WEEKEND, AND ONLINE CONVENIENCE

Lawrence Tech's programs are designed for traditional students as well as for working professionals. The great majority of the University's classes are offered in day and evening schedules that complement each other. Lawrence Tech is one of only a few universities to offer a selection of bachelor's and graduate degree programs in the evening. Lawrence Tech has long been a pioneer in addressing the needs of all students and developed some of the nation's first evening class programs in 1932.

A number of courses and programs are offered online and these are designed with the same quality and flexibility as traditional offerings. Others are delivered in hybrid mode, meaning that some class sessions are held in the classroom while others are held online.

Undergraduate and graduate classes are usually offered on a semester calendar – two semesters of 16 weeks each. The fall semester begins in late August and ends in mid-December. The spring semester begins in January and ends in mid-May. There is also a summer session that offers students the opportunity to accelerate and continue academic progress or make up deficiencies. Certain programs may also be offered on special schedules that accelerate class meetings over shorter periods. Consult the Office of the Registrar about these opportunities.

CLASSES AND FACULTY

Lawrence Tech's moderate size encourages close interaction among students, faculty, and staff. Classes are generally small, especially for upperclassmen, and individual initiative is stressed.

Lawrence Tech has more than 300 full- and part-time faculty members. Faculty exemplify the University's motto of "theory and practice," by bringing both academic experience and a wealth of personal real-world research, business, or industrial experience to the classroom or laboratory. In addition to courses taught by Lawrence Tech's full-time professional faculty, it isn't unusual for

students in appropriate disciplines to take classes taught by adjunct faculty who are successful corporate executives, practicing accountants, managers, entrepreneurs, engineers, architects, attorneys, and scientists. Such exposure is deliberate on the part of the University and seeks to help students develop an awareness of the most current real-world problem-solving applications of their academic studies.

Lawrence Tech students find their professors are typically easily accessible and eager to discuss individual questions, academic progress, or concerns outside of class. The University has a tradition of an "open door" policy with faculty, department chairs, deans, the president, and other administrative staff.

DIRECT STUDENT INTERACTION

The successful Lawrence Tech student generally arrives on campus with a full measure of ability, initiative, motivation, and self-reliance. These students appreciate the institutional position that the University exists for, and interacts with, the student – not relatives, spouses, or friends wishing to represent them. The fact that Lawrence Tech students are of a maturity that requires no such representation helps ensure that they are prepared for responsible full- or part-time employment during their academic career and, following graduation, for professional employment or continued study.

AFTER GRADUATION

While many of Lawrence Tech's more than 35,000 degree-holding alumni reside right here in Michigan, you can find an LTU alum in nearly every corner of the world. Lawrence Tech's Alumni Association works to keep alumni everywhere connected to the University in a variety of ways that include special gatherings and events as well as regular communication about exciting alumni news and University programs. Learn more about getting involved with your alma mater following graduation at ltu.edu/alumni. The association's website also provides access to everything from lifetime email accounts and event calendars to job search assistance. The association holds meetings and sponsors a variety of activities and services for members in Southeastern Michigan and formal and informal chapters elsewhere in Michigan and other states, including Arizona, California, Florida, and Georgia. Several chapters based on academic interest are also active. The Office of Philanthropy and Alumni Engagement coordinates alumni activities and serves as a campus liaison for alumni worldwide.

PROFESSIONAL AND WORKFORCE DEVELOPMENT

Lawrence Technological University recognizes that professionals already in the workforce need resources to quickly advance their skills, resulting in career growth and ultimately an increase in economic mobility for themselves and their families.

LTU offers Professional and Workforce Development Programs, Certificates and Credentials that enhance organizational competitiveness and provide individuals with technologically relevant interdisciplinary skill sets that advance their careers.

LTU also provides individuals seeking credentials to start their careers or change their career path require skills-based programs as well.

Specs@LTU is a great example of how LTU is creating professional and workforce development programs to meet the needs of students at all levels. LTU is continuing the legacy of Specs Howard School of Media Arts through Specs@LTU programs in Broadcasting, Digital Media Arts and Graphic Communications. See more at https://ltu.edu/pwdev/specs-at-ltu/ .

We are adding programs throughout the year. For further information on LTU's Professional Development Programs, visit https://ltu.edu/pwdev/ .

YOUR CAMPUS AND COMMUNITY

Lawrence Technological University's 107-acre campus is located at the center of the nation's #1 region for engineering, technology, and architecture in the Oakland County city of Southfield, a suburban community of more than 70,000 people.

Lawrence Tech's location is one of the University's greatest assets, providing many nearby opportunities for students to network with practicing professionals, participate in career-related organizations, and find internships, co-ops, and full- and part-time employment during college and after graduation. Southeastern Michigan is a hub of American business and industry. It is a manufacturing and corporate center, the site of some of the world's outstanding technological accomplishments, and a focal point for cultural activities and recreation. According to the Michigan Economic Development Corporation, Michigan has recorded $11.8 billion in foreign direct investment from 2016-2020 within several key industries such as automotive, renewable energy, and industrial equipment. The MEDC also states that, "Michigan's collection of world-class talent is among the top reasons why businesses locate and expand in the state. Employers find that Michigan has one of the most talented, diverse and abundant workforces in the country and has the programs, resources and state-wide support that continues to build talent with in-demand skills that help businesses thrive."

Within a 15-mile radius of campus are world headquarters for many of the nation's leading research, industrial, and manufacturing firms. And while the area's economy is substantially more diverse than in the days when the region was dubbed the world's auto capital, much of the United States' auto production still takes place within 70 miles of the campus – in some of the planet's most sophisticated, highly automated, and innovatively managed work environments. The Detroit Regional Chamber states that Michigan is home to 96 of the top 100 automotive suppliers to North America and more than $10 billion is spent on automotive research and development annually, which amounts to 75% of the U.S. total.

Lawrence Tech is part of the Oakland County/Automation Alley SmartZone, one of the state's foremost concentrations of and magnets for high-tech business and enterprise.

Oakland County ranks 13th nationally in total exports, with businesses producing $14.5 billion in merchandise exports, according to the Oakland County Economic Outlook. The county is a leading center of international commercial activity and home to more than 1,000 firms from 39 countries. More than one-third of Michigan's research and development facilities are located in the county, and 64 of the global 100 automotive original equipment manufacturers have operations in the county. In addition, Oakland County has one of the leading high-tech workforces anywhere in the nation. Job creation and diversification are transforming Oakland County's economy from manufacturing-based to knowledge-based through Oakland County's Emerging Sectors initiative. Since inception, the initiative has generated more than $5.4 billion in private investment and has created and retained more than 93,000 jobs.

Nearby recreational opportunities abound – there are more than 1,400 lakes, rivers, and streams, 65 miles of trails, 76 public and private golf courses, and close to 500 institutions of art, culture and the humanities in Oakland County according to the Oakland County Annual Report. Major entertainment facilities within a half-hour's drive include Pine Knob and Meadow Brook outdoor music theaters, Little Caesars Arena (home of the NHL Detroit Red Wings and NBA Detroit Pistons), Ford Field (home of the NFL Detroit Lions), and Comerica Park (home of the MLB Detroit Tigers). Additional attractions include the Cranbrook Museums, the Detroit Zoo, the Detroit Institute of Arts, Detroit Historical Museum, Motown Museum, The Henry Ford, Charles H. Wright Museum of African American History, and more.

UNIVERSITY BUILDINGS

The **Gregor S. and Elizabeth B. Affleck House**, designed by Frank Lloyd Wright and completed in 1941, was given to LTU in 1978 by the late Affleck's children, Mary Ann Lutomski and Gregor P. Affleck. The home is located in the nearby city of Bloomfield Hills. It is considered an outstanding example of Wright's Usonian work. The Affleck House is managed by the College of Architecture and Design.

The **Alumni House** (Building #20), built in 1959 and substantially upgraded in 1996, is used for alumni events and houses additional staff from the Office of Philanthropy and Alumni Engagement.

The **Applied Research Center** (Building #15), houses labs and offices for the Motorsports student teams (Formula SAE®, Formula Electric, Baja SAE®, Supermileage SAE®, and SAE® Aero Design); the transportation design program's clay modeling studio; a wind tunnel; and the Johnson Controls Vehicle Engineering Systems Laboratory, which features a unique 4 x 4 chassis dynamometer.

The **Architecture Building** (Building #4), completed in 1962, houses classrooms, studios, and faculty offices for the College of Architecture and Design. A 325-seat auditorium is also located here, as well as a gallery for changing exhibits.

The **Wayne H. Buell Management Building** (Building #5), completed in 1982, is a 115,000-square-foot structure dedicated to the memory of Lawrence Tech's third president. It houses the College of Business and Information Technology, library, dining commons, and bookstore. The Offices of the President and the Provost are also here. A fully enclosed two-story atrium hosts a variety of special

events and offers a pleasant spot for students to eat, study, or visit with friends. The atrium also features an ATM, Einstein Bros. Bagels, and Blue Devil Cafe express outlet.

Connected to the Engineering Building is the **Nabil Grace Center for Innovative Materials Research** (CIMR) (Building #1), a state-of-the-art laboratory for the research, development, and testing of carbon-fiber composites and other advanced materials, such as ceramics and polymers for defense, homeland security, automotive, and infrastructure applications. Dedicated in 2008, CIMR was made possible by an $11 million cooperative research agreement with the Army Research Lab and the U.S. Army Tank-Automotive Research, Development and Engineering Center – an unprecedented federal partnership with a private Michigan university. This unique center has been developed and overseen by Grace, dean of the LTU College of Engineering, who was instrumental in its construction and operation, and who has spent a lifetime researching advanced construction materials. Grace's name was added to the CIMR in August 2021.

The **Edward Donley Residence Hall** (formerly Housing North) (Building #12), opened in 2002, provides modern, fully furnished, air-conditioned, apartment-style units and accommodates more than 200 students. The Edward Donley Residence Hall was dedicated in 2016 in honor of alumnus and devoted LTU supporter Ed Donley, BME'43, HD'76, HD'87. See the Housing section of this *Catalog* for additional information.

The **East Residence Hall** (Building #13), opened in 2018, accommodates 308 freshman students. The four-story building features furnished community-style rooms that each accommodate two students. The building has communal laundry, two-bathroom facilities on each floor, a game room, bike storage facility, a music practice room, and lounges throughout.

Lawrence Tech's **Engineering Building** (Building #9) was the first building on the Southfield campus when it opened in 1955. Expanded in 1987, the building contains classrooms, laboratories, and offices for the College of Engineering.

The **Enterprise Center** (Building #18) office complex was acquired by the University in 2015 and accommodates offices for Finance and Administration, Business Services, Human Resources, Campus Facilities, the Centrepolis Accelerator (a business accelerator space), the Southfield SmartZone, and Southfield Michigan Works!

The **General Services Building** (Building #17) houses the offices of the University architect, athletic coaches, Campus Safety, and Mail Services, as well as a high-tech esports arena.

The **Quadrangle** at the center of campus features crisscrossing paths, granite benches, Champion trees, a grassy bioswale that filters rainwater, and Ockham's Wedge, a sculpture by world-renowned artist Beverly Pepper. The Quad also caps a field of 120 geothermal wells that heat and cool the Taubman Center, which has no gas hookup.

The **Lloyd E. Reuss Residence Hall** (Building #14), opened in 2015, accommodates 150 upperclassmen students. The two-story building features five living areas with 16 double-occupancy

units. Each area has its own lounge with kitchenette space. Amenities include a central laundry on both floors, a multi-purpose room, game room, and two conference-type spaces. See the Housing section of this *Catalog* for additional information.

The **Don Ridler Field House** (Building #15), built in 1987, memorializes Don Ridler, the beloved coach and athletic director who led Lawrence Tech basketball teams of the 1940s and 1950s to national prominence. The building includes a 1,500-seat gymnasium, exercise track, two weight and conditioning room, saunas, racquetball courts, and locker facilities.

The **Science Building** (Building #7), opened in 1967, has been extensively renovated and equipped with upgraded computers, labs, and multimedia equipment. It contains classrooms, laboratories, and faculty offices for the College of Arts and Sciences – including the Departments of Natural Sciences; Mathematics and Computer Science; and Humanities, Social Sciences, and Communication. The 303-seat Mary E. Marburger Science and Engineering Auditorium is located at the south end of the building.

The **South Residence Hall** (Building #21)**,** opened in 1977 and renovated in 2019, provides fully furnished air-conditioned apartment-style units for nearly 400 students. See the Housing section of this *Catalog* for additional information.

Lawrence Tech's **A. Alfred Taubman Student Services Center** (Building #5), named for a former student and one of the University's most generous benefactors, is a 42,000-square-foot facility at the center of campus with the DTE Energy One-Stop Center – providing convenient one-stop access to the Offices of Admissions, Financial Aid, the Registrar, Cashier, Dean of Students, Career Services, International Programs, Student Life, Clinical Counseling Services, University Housing, Laptop Help Desk, Disability Services, Writing Center, and more. The building, which was completed in 2006, is also Leadership in Energy and Environmental Design (LEED) Silver-certified. It functions as a living laboratory of energy-efficient technologies, including a soaring atrium and vegetated "green" roof.

The **A. Alfred Taubman Engineering, Architecture, and Life Sciences Complex, Home of the Marburger STEM Center** (Building #8) opened in the fall of 2016 with new facilities for LTU's robotics program, science labs, and biomedical engineering labs, as well as space for multidisciplinary student collaboration. It, too, has many sustainable features. The building connects the **Science** and **Engineering** buildings.

The **University Services Building** (Building #16) houses Philanthropy and Alumni Engagement, the College of Health Sciences, including the Office of the Dean, and the Workplace Violence Reduction Center.

Lawrence Tech's **University Technology and Learning Center** (Building #3), opened in 2001, is an 87,000-square-foot building housing a variety of technology labs and classrooms, as well as architecture and design studios. It also houses the University Gallery, Maibach Inter-Faith Lounge, Lear Auditorium, DENSO Interactive Center, and Media Services Studio. The building connects the **Architecture** and **Engineering** buildings.

Athletic fields are used for football, soccer, lacrosse, and flag football games.

BUILDING HOURS
In general, campus facilities are open from 7 a.m. to 10 p.m. seven days a week, excluding holidays. Students may use the facilities 24 hours per day provided the dean of their college, a faculty member, or faculty advisor has approved and forwarded to the Office of Campus Safety an extended-access authorization via email. Faculty members and faculty advisors should check with the dean of their respective college regarding the policy on allowing extended access to the facilities of that college. The dean, faculty member, or advisor may forward extended-access authorizations via email to ltu_safety@ltu.edu. Please allow 24 hours advance notice for extended hours requests. Individuals found not in compliance with this policy may be subject to the University discipline system. Students using campus facilities, especially after hours, must carry their Lawrence Tech identification card with them and must present it if requested to do so by a Lawrence Tech Campus Safety officer.

SERVICES FOR STUDENTS

ACADEMIC AND CAREER RESOURCES

ACADEMIC ADVISING is not just selecting classes. While that is an important component, our meetings focus on the whole student and how we can help you navigate college both inside and outside the classroom to achieve your goals.

ACADEMIC COACHING is a resource to supplement your course content. An academic coach will meet with you to help you understand how to best study, take notes, and take tests given your personal preferences and learning styles.
PEER TUTORS have successfully completed key coursework in their programs and have been hired to tutor fellow students in those subjects. Tutors are available for math, natural sciences, architecture, design, business, computer science, and engineering courses.

THE HORLDT WRITING CENTER is led by faculty who teach the writing courses you will take. Faculty writing tutors help students with specific writing concerns related to their upcoming assignments.

TESTING ACCOMMODATIONS are available to students who have accommodations to take their exams in a quiet, non-distracting space and for a longer length of time. Testing is also available for makeup exams as needed for all students.

WORKSHOPS are offered each semester to address current needs and obstacles students are facing academically.

COLLABORATION SPACE is available to all students with tables, games, puzzles, and art supplies to take much needed “brain breaks”.

Please visit our website at ltu.edu/ssc for the latest information and to schedule an appointment. We can also be reached by phone at 248-204-4120 or email at -studentsuccess@ltu.edu. You are also welcome to drop in at any time in C201!

HORLDT FAMILY WRITING CENTER

The Horldt Family Writing Center provides comprehensive communication support to LTU students in all disciplines. We are staffed by faculty consultants and work one-on-one with students in-person, virtually, and asynchronously to help plan, develop, and revise written work.

In addition to these sessions, the writing center offers a variety of KCP Writing Workshops throughout each semester. Join us to improve your writing strategies for common documents and tasks like the argumentative essay, incorporating evidence, citation styles, posters and presentation, application materials, and more. The writing center also operates a summer workshop series the week before the fall semester. The nine-hour workshop better prepares students for academic writing and focuses on analysis and argument.

The Horldt Family Writing Center operates fall, spring, and summer semesters. Schedule an appointment with us by visiting: https://ltu.mywconline.com/.

Hours, writing workshop schedule, and link to appointments can be found on our website: https://ltu.edu/student-life/student-support/ssc/horldt-family-writing-center/

CAREER SERVICES

The Office of Career Services provides a wide variety of services and programs that, beginning as soon as freshman year, can help students develop their career plans and establish goals by identifying their abilities, values, and interests along with targeting occupations that reflect those skills, interests, and career goals.

Services include career advising, on-campus employment, cooperative education and internships, career workshops, resume critiques, mock interviews, career fairs, employer presentations, and on-campus interviews. Lawrence Tech's online career resource center, Handshake (https://joinhandshake.com/), lists opportunities for students and alumni. Handshake also allows students to create professional profiles, upload their resumes, follow employers' news feed, register for career fairs and expos, research employers, and much more.

The Office of Career Services is located in the A. Alfred Taubman Student Services Center (C404), and is open daily from 8:30 a.m. to 4:30 p.m. Appointments can be made on your Handshake account or by calling 248.204.3140.

Students may work on campus in the colleges, departments, and offices such as Campus Dining; Student Recreation, Athletics, and Wellness; and the University Bookstore. Students may view available positions through Handshake (https://www.joinhandshake.com). Student assistants are a great asset to the University.

Need help writing a resume? Contact the office to meet with a Career Services staff member for assistance.

JOB SEARCH SERVICE
The Office of Career Services maintains a database of available part-time and full-time jobs with businesses and industries seeking candidates from Lawrence Tech. Opportunities are posted on a regular basis.

BOOKSTORE
The Bookstore is located on the third floor of the Buell Building. A one-stop shop for books, supplies, snacks, Lawrence Tech apparel and gifts! Textbooks, access codes and study materials are available in store and online at lawrence-tech.bncollege.com.

Fall and spring semester hours are Monday through Thursday, 10 a.m. –4 p.m., Friday, 10 a.m. – 2 p.m., and select Saturdays for special events. For information on extended times, visit lawrence-tech.bncollege.com. For questions, contact the store via email at bkslawrencetech@bncollege.com or by phone, 248.204.3030.

LIBRARY
Lawrence Tech's library is conveniently located on the lower level of the Buell Building, one flight below the atrium, and boasts an attractive indoor garden area with year-round greenery. The library houses a broad selection of books, periodicals, databases, full-text eBooks and periodical articles, microforms, and other material selected to enhance the University's curriculum areas. Resources are available on campus and remotely. Collection strengths include engineering, technology, architecture, health sciences, and business. The library also maintains graduate theses and dissertations from LTU graduate students. Among the library's unique resources is the 3,000-volume working library of the late renowned architect Albert Kahn.

Professional reference librarians are skilled in locating information both in the Lawrence Tech collection and at other institutions across the country and globally. Additionally, they provide individualized and group instruction on maximizing use of library resources and various literacies. Students have full access to the collection for browsing and independent research, with personalized research assistance available. The library's 24/7/365 chat reference service provides immediate access to a professional librarian regardless of when the physical library is open.

While the library's discovery catalog, TechCat+, is available to the public on the Lawrence Tech website (https://libguides.ltu.edu/home), its premium content, including databases and full-text material tailored to serve the needs of Lawrence Tech curricula, is accessed via password-protected authentication. Students can access this content using their campus network log-in information whether on- or off-campus. The library hosts more than 1,900,000 print and electronic materials including over 110,000 print and electronic journal titles.

When an item is unavailable on campus or online, the library has negotiated agreements with several local academic and public libraries for direct borrowing privileges or, in some cases, for

borrowing through a special arrangement. As an alternative, materials can be requested and shipped directly to Lawrence Tech from Michigan libraries via the MeLCat service or from libraries across the nation through the use of interlibrary loan. It is recommended that students always make the Lawrence Tech library their first stop when beginning a research project in order to get help in finding the best available materials.

LIBRARY ACCOUNT

Current students can create a unique library account that can be accessed through the "My Account" feature of the library's online catalog (https://ltu.on.worldcat.org). Once logged in, students can place requests in TechCat+, review their account, save searches and titles to a folder, share the folder, or send to a citation manager. For questions about how to use this feature or for any other questions, contact the library at 248.204.3000, or email library@ltu.edu.

DTE ENERGY ONE-STOP CENTER

Located in the A. Alfred Taubman Student Services Center, the DTE Energy One-Stop Center assists students and alumni with records and registration, financial aid, and student accounting transactions. The One-Stop is open Monday and Tuesday from 9 a.m.–5:30 p.m., and Wednesday through Friday from 9 a.m.–4:30 p.m.

IDENTIFICATION CARD

Lawrence Tech's student identification card (ID card) combines a photo with a proximity chip/magnetic strip/bar code and a cash debit option that allows students to load their card with LTU Dollars, which can be spent at all Lawrence Tech dining locations. The ID card also serves as the student's library card and should be presented at the circulation desk when checking out books or using the Reserve Desk. Instructions for applying for a card are provided to new students during Orientation and Registration (O & R). There is a $10 replacement charge for lost ID cards. Replacement ID cards must be purchased at the DTE Energy One-Stop Center. If an ID card is damaged and needs to be replaced, the student must present it at the DTE Energy One-Stop Center to have the replacement charge waived. Identification cards are provided to currently registered Lawrence Tech students.

FIELD HOUSE/RECREATION

The Don Ridler Field House includes a gymnasium, two weight and conditioning rooms, running track (1/11th mile), and men's and women's locker rooms with showers and saunas.

FIELD HOUSE HOURS

Start of School – Mid-May

Monday–Thursday	5:30 AM –12 AM
Friday	5:30 AM – 10 PM
Saturday	9 AM – 5 PM
Sunday	3 PM - 12 AM
Football Saturdays	Facilities closed all day

May–August

Monday–Friday	8:00 AM –10 PM
Saturday and Sunday	9 AM –5 PM

ACTIVITIES AND ORGANIZATIONS

Whatever your particular interests or needs, you can find a campus activity or organization that will provide not just fun and friendships but also opportunities to hone your professional and leadership skills. Joining a campus club or organization can help you prepare for life after college or simply provide a great way to relax and recharge. As they look back on their college years, alumni often say that some of their most rewarding experiences came from their participation in co-curricular activities. To see a list of our registered student organizations, visit our website at https://www.ltu.edu/studentactivities/organizations.

Students interested in forming new organizations should contact the Office of Student Life. Student Government approval is necessary for official recognition and funding assistance. To be eligible to run for office in any campus organization, students must have a cumulative GPA of at least 2.3. They will be asked to withdraw from office at the end of any semester in which their semester GPA falls below 2.0.

STUDENT GOVERNMENT

Lawrence Tech's Student Government is recognized by the University administration as the official representative for the entire student body. It offers the opportunity for students to better themselves and their University through involvement in campus activities. The Student Government provides an avenue for every student to express concerns, while endorsing Lawrence Tech organizations, clubs, and teams.

The Student Government is composed of three interacting branches working in cooperation with each other:

- Student Administration (president and executive vice president)
- Student Senate (senators and senate leader)
- Student Judiciary (parliamentarian and Judicial Review Committee)

The president and executive vice president are elected each spring. Students may join the Student Senate, even as freshmen, during a campus election in September. They may represent their college, area of residency, or student interest. Meetings are bi-weekly and legislative. Funding bills, resolutions, and other matters are discussed and implemented. There is compensation for all Student Government positions! If you have any questions or would like to run for a Senate seat, please contact stugov@ltu.edu.

GREEK LIFE

Social fraternities and sororities are regulated on campus by Greek Council which serves as a governing body that assists the individual Greek life organizations in maintaining standards, while also creating opportunities to collaborate and socialize. The Greek Council provides long-term support of Greek life on campus and coordinates and organizes "All Greek" events such as the recruitment weeks, song and skit, and Greek Day competitions.

Greek life not only provides opportunities for students to perform civically and socially and to develop long-term relationships, as well as leadership and communication skills, but they also take academics just as seriously. If you have any questions or would like further information, please contact greekcouncil@ltu.edu.

Greek Letter Organizations

Fraternities

Alpha Sigma Phi
Kappa Alpha Psi
Phi Beta Sigma
Phi Kappa Upsilon
Sigma Phi Epsilon
Theta Tau (Co-Ed Professional Engineering Fraternity)

Sororities

Chi Omega Rho
Delta Phi Epsilon
Delta Sigma Theta, Inc
Delta Tau Sigma
Kappa Beta Gamma

ATHLETICS AND INTRAMURALS

The following programs are administered by the Department of Athletics, Student Recreation, and Wellness, located in the Don Ridler Field House. Any questions regarding Student Recreation can be directed to sturec@ltu.edu; additional questions regarding Athletics can be directed to athletics@ltu.edu

VARSITY ATHLETIC PROGRAMS

Lawrence Technological University Athletics is committed to providing a competitive, culturally diverse, and gender-equitable sports program that operates within the rules and regulations of the University and the National Association of Intercollegiate Athletics (NAIA). The department, along with its student-athletes, strives to uphold the five "Champions of Character" core values of respect, responsibility, integrity, servant leadership, and sportsmanship. Lawrence Tech currently competes in:

Co-Ed Band (Marching/Pep)
Co-Ed Cheer Team
Co-Ed Dance Team
Co-Ed eSports
Men's and Women's Basketball
Men's and Women's Bowling
Men's and Women's Cross Country
Men's and Women's Golf
Men's and Women's Lacrosse

Men's and Women's Soccer
Men's and Women's Tennis
Men's and Women's Track and Field
Men's and Women's Volleyball
Men's and Women's Hockey (ACHA)
Baseball
Softball
Football

CLUB SPORTS
Each club sport is a student-led organization composed primarily of students, faculty, and staff. Each club is formed, developed, governed, and administered by the student membership of that particular club, working with the LTU recreation staff. The key to the success of this program and each club is student leadership, interest, involvement, and participation. The recreation staff is available to students for consultation on concerns and ideas, and for administrative assistance.

INTRAMURAL SPORTS
Lawrence Tech offers a comprehensive intramural sports program free for all students, alumni, and field house members. Intramural sports include, but are not limited to, basketball, soccer, and volleyball. A current LTU ID is required for all student participants.

CAMPUS DINING
The Blue Devil Café, located on the second floor of the Buell Building, is open during the Fall and Spring semesters and provides "all-you-care-to-eat" meal options that include staffed food stations – Ignite Grill Station, Pizza Pi, Iron Skillet Exhibition Station, Global Kitchen International Station, Grains and Greens Salad Bar, a made-to-order Deli Station and a variety of soups and baked goods. Campus Dining also oversees the Einstein Bros. Bagels and the Blue Devil Market in the Buell Building atrium, which offers grab-and-go salads, sandwiches, sushi, snacks, and beverages. Grubhub mobile ordering is also available for both Einstein Bagels and the Blue Devil Market.

Lawrence Tech offers residential and commuter meal plans and Devil Dollars. Meal plans are used at the Blue Devil Café. Devil Dollars work like a debit card and can be used to make tax-free purchases at all Lawrence Tech dining locations and the Jet's Pizza on 9 Mile Road. **Lawrence Tech requires all residential students to participate in a meal plan.**

As the exclusive food service vendor for the University, Aramark has the exclusive right to provide all food services, including catering and concessions, for all University purposes including events offered by student organizations. Questions regarding this policy may be directed to the catering manager of campus dining at 248.204.3224.

ATM (CASH)
There is an automated teller machine (ATM), hosted by Michigan First Credit Union, located in the atrium of the Buell Building, which is available any time the building is open. This unattended station allows withdrawals, deposits, or account transfers, using debit cards with Cirrus, Plus, Pulse, Star, or

Quest network logos or a Visa, MasterCard, Discover, or American Express credit card and a personal identification number. For local Michigan First Credit Union branches, call 800.664.3828.

COMPUTER AND ONLINE LEARNING RESOURCES

The LTU Laptop Initiative is an integral tool in the success of LTU students. A uniform suite of up-to-date industry-standard software applications with an industry retail value of more than $15,000 is installed on each laptop. Software applications specific to each college and degree program are included, ensuring that LTU students have all the software resources required for their declared majors. In addition to providing access to industry-standard software and hardware, LTU's laptop program includes onsite and remote technical support of its software and hardware, allowing students to focus on their learning.

Each fall semester, specially configured high-performing laptops, complete with software, are available to all undergraduate students (including direct-entry architecture, architectural engineering, direct entry computer science majors) after program conditions are met. Undergraduate students may obtain a laptop upon registration for classes, payment of a refundable $500 security deposit, and acceptance of the terms and conditions of a laptop agreement. Graduate students may also obtain a laptop for a charge of $95 per credit hour if laptops are still available at the end of the undergraduate laptop distribution period. Laptops are distributed at the beginning of every semester. Identically configured laptops are also provided to Lawrence Tech faculty, providing seamless interaction between students and faculty in the classroom.

All students, faculty, and staff are provided an LTU email account with all the associated functions of Google Workspace for Education, including file storage using Google Drive. Wireless networking is available across the entire campus, making access possible anywhere in the academic cluster and the residence halls. Students may use several public printers across campus located in the Help Desk, the Engineering Building, the library, the Architecture Building, and each of the residence halls.

COMPUTER AND NETWORK USE POLICY

Access to modern information technology is essential to Lawrence Technological University's mission of providing students, faculty, and staff with educational services of the highest quality; however, the users of LTU computing systems and software, internal and external data networks, as well as access to the internet must comply with institutional and external standards for appropriate use in order to protect users and LTU information. Policies and resulting technologies reflect the University goal to protect an individual's physical and information safety. To ensure such compliance, Lawrence Technological University established the Computer and Network Use Policy. This policy should be read in conjunction with other University policies; it supplements, and does not supersede, these policies. IT Policies can be found under the "Administrative-IT Services'' Google Share Drive. Policies and procedures are subject to change throughout the year at the discretion of the University.

PRINTERS

HotSpot printers are located in the library (pay at the desk), in the printLab, and in the atrium of the Buell Building. Black-and-white prints are free. There is a charge for color printing.

The Architecture printLab provides students and faculty with an array of services, ranging from wide-format and three-dimensional printing and support studio spaces that facilitate trimming/assembly, screen printing, and bookmaking projects. Specialized printers produce large-format CAD plots, as well as photo-quality prints and posters. After hours, 24/7 self-service laser printing is available for both color and black-and-white documents on publicly accessible printers located in the lounge area adjacent to the printLab Print Desk. In addition, there are also work surfaces, paper cutters, rulers, and other basic office tools.

Public Printer Access

The following black-and-white printers are available to all Lawrence Tech faculty, staff, and students, and may be installed on laptops without special permissions:

Printer Name	**Location**
PublicHelpDesk	C203 (Help Desk)
PublicAAC	C201 (AAC)
PublicEngLounge	Engineering Building Lounge
PublicLibrary	Library
HousingEast	East Hall
HousingDonley	Donley Residence Hall
HousingSouth	South Residence Hall
HousingReuss	Reuss Residence Hall
PublicSTEM	STEM Building
PublicScience	Arts and Sciences Lounge
CoadNorthBW	Architecture North wing
CoadprintLabBW	Architecture printLab

Note: In order to save paper and cut costs, print jobs will not print until they are released. All public printers have a release station with instructions.

Hot Spot Printing

Printing is available directly via email from a smartphone, laptop, or tablet to one of our convenient campus locations:

Buell Building (Atrium)

Library

Send an email to papercut@ltu.edu with the document you want to print attached. Then visit any of the locations above. Use the release station to release/pay for your print.

- Black-and-white printing is free
- Color printing is $.50/page for 8.5" x 11"; $1/page for 11" x 17"
- Payment is available through PayPal or directly at the device by payment card
- You can print Microsoft Office documents, Adobe documents, and image files (.jpg, etc.)

HELP DESK

The Help Desk, located in the A. Alfred Taubman Student Services Center (C203), provides support to all students, faculty, and staff, including problem diagnosis, laptop distribution, return, and repair; wireless network configuration; password changes; email setup; and more. Laptop diagnosis and minor repairs are handled by appointment. For repairs or diagnosis taking longer, a loaner laptop may be provided if needed. Computer and other device support and repair are limited to LTU-owned equipment.

Help Desk is the first point of contact for all IT needs. Help Desk provides support by phone, email, remote and in-person. After hours and weekend support is available by email. For current Help Desk hours, location and more information about the laptop program, visit https://www.ltu.edu/ehelp/.

MY.LTU.EDU

Lawrence Tech's comprehensive service portal, my.ltu.edu, offers an expanding variety of resources and conveniences. Among them is Canvas, the University's learning management system, a comprehensive and flexible eLearning software platform that is used to help facilitate learning. The University's learning management system offers students the 24/7 access to professors and fellow students that is not available in the typical classroom environment. Professors post their syllabi and class lectures, for immediate retrieval anytime, anywhere. Other features available through Canvas are discussion boards for posting questions to and receiving answers from other students and the professor in the class; the ability to submit assignments to professors; access to Zoom for synchronous communication; and many others.

ONLINE STUDENT SERVICES

Lawrence Tech offers convenient online student services. Students can register for courses, view their academic records and account balances, make tuition payments, and conduct financial aid transactions through BannerWeb from any location at any time.

Students may register online using their nine-digit student identification number and their PIN. Students are required to meet with their advisor prior to registering for classes. In order to be allowed to register, students must not owe a balance from previous semesters.

Students may also view and print an unofficial copy of their student transcript through Bannerweb. For a copy of an official transcript the student will need to request one through the Registrar's

Website or though their Bannerweb. Official transcripts will not be released for international students in F-1 or J-1 visa status who have any pending financial obligations to the university. See also Computer and Online Learning Resources.

LTU ONLINE

Several LTU degrees are available fully online. Online programs provide access to LTU degrees for students outside of the local area. LTU Online is designed to help address these challenges and bring the quality of a Lawrence Tech education to students wherever their work or family takes them. LTU Online offers core and elective courses in the following programs:

Doctor of Business Administration
Doctor of Health Sciences
Dual Master of Business Administration and Master of Architecture
Dual Master of Business Administration and Master of Engineering Management
Graduate Certificate in Cybersecurity
Graduate Certificate in Healthcare Administration
Graduate Certificate in Healthcare Data Analytics
Graduate Certificate in Healthcare Data Science
Graduate Certificate in Project Management
Master of Architecture
Master of Arts in Design and Technology
Master of Business Administration (Concentration: Business Data Analytics, Cybersecurity, Finance, Healthcare Administration, Project Management)
Master of Engineering Management
Master of Healthcare Administration
Master of Science in Industrial Engineering
Master of Science in Information Technology (Online concentration: Cybersecurity, Data Analytics, Project Management)

Other degree and certificate programs are under development; students should visit LTU Online (ltu.edu/ltuonline) for current information.

All LTU Online degree and certificate programs are academically equivalent to on-campus programs and are fully accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools.

DEAN OF STUDENTS

The Office of the Dean of Students, located in the A. Alfred Taubman Student Services Center C405, serves as the central resource for activities that are coordinated through the Division of Student Affairs. The dean of students serves as the primary advocate for students and works to ensure that students are offered a quality college experience. Staff members in the Division of Student Affairs provide services to help students successfully complete their academic studies and coordinate opportunities for fellowship, fun, and rewarding college experiences. The office offers personal, confidential, and nonbiased assistance in addressing any concerns a student may have regarding his

or her rights or responsibilities as a member of the campus community. Services coordinated by the Office of the Dean of Students include:

STUDENT EVENTS AND ACTIVITIES
The Office coordinates annual social events to encourage students to interact with other students on campus. Popular programs include the fall semester New Student Convocation, First Year Ignite, Welcome Week, movie nights, and off-campus trips. Students can also enjoy Homecoming and a host of sporting events.

STUDENT CODE OF CONDUCT/ACADEMIC HONOR CODE ADJUDICATION

Honesty, integrity, and caring are essential qualities of an educational institution, and a concern for values and ethics is important to the whole educational experience. The Student Code of Conduct outlines the rights and responsibilities and expected levels of conduct of students in the University community. Fundamental to the achievement of community among the members of the University is the recognition by all such members that each shares a responsibility to observe University regulations. This obligation, which is an extension of the citizen's responsibility to observe the law of the land, is an essential corollary to participation in the academic rights afforded to members of the University. A student voluntarily joins the Lawrence Technological University community and thereby assumes the obligation of abiding by the standards prescribed in the Student Code of Conduct. The University, through the Office of the Dean of Students, maintains the exclusive authority to impose sanctions for behaviors that violate the Student Code of Conduct and the Academic Honor Code, COC.

SUPPORT SERVICES
Students needing assistance with personal or academic challenges during their college career are welcome to contact the Office of the Dean of Students, who can act as advocates.

CLINICAL COUNSELING SERVICES

Clinical Counseling Services offers currently enrolled graduate and undergraduate students mental health counseling and related services. We provide services and programming to support the personal development, academic success, and psychological well-being of our students.
Therapy services are provided on a short-term basis to assist students who are experiencing things like: anxiety, depression, academic concerns, relationship issues, stress, minority stress or marginalization, identity development, sexual violence, adjustment to university life, family conflict, grief, organization and time management challenges, trauma, and more. Please note our office cannot provide testing or documentation for Student Access accommodations or emotional support animals.

Clinical Counseling Services is located within the Office of the Dean of Students, C405. Additional information about our services and how to schedule appointments can be found at ltu.edu/counseling. Contact us at clinicalcounseling@ltu.edu, or 248.204.4100.

STUDENT ACCESS

The Office of the Dean of Students 248.204.4100 coordinates Lawrence Tech's compliance with Sections 503 and 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act. The University does not discriminate against students with disabilities in recruitment, admission, or treatment after admission. In addition, the University makes reasonable accommodations to allow students with disabilities to fulfill academic requirements and provides effective auxiliary aids to ensure that they are not excluded from programs because of their disabilities. Eligibility for accommodations is based on medical documentation and determined on an individual basis.

For additional information on eligibility for services, accommodations, and student responsibilities, visit Office of Student Access (ltu.edu) or contact the Office of Student Access at 248.204.4100 stuaccess@ltu.edu to set up an appointment. Students who believe that the University may not be meeting these responsibilities, or who believe that they have been otherwise discriminated against based upon their disability may contact the Section 504 officer in the Office of the Dean of Students, Lawrence Technological University, 21000 West Ten Mile Road, Southfield, MI 48075-1058.

HOUSING

Housing at Lawrence Tech provides more than just a room in which to sleep and study. The living and learning environment that is fostered within University Housing supports students' academic, social, cultural, and personal growth. The University Housing staff is committed to assisting residents in all aspects of their collegiate experience by providing a safe and healthy environment in which to pursue their academic goals, promoting the ideals of community living by emphasizing personal responsibility and respect for others, creating opportunities for student involvement and personal development, and offering advice and information to residents.

The friendships that develop among University Housing residents is unequaled by any other living option. Residents who take advantage of this environment tend to improve both their academic performance and their satisfaction with their college experience. Each residence hall community offers opportunities for students to get involved in numerous activities and programs.

Lawrence Tech has four residence halls: Edward Donley Hall, South Hall, Lloyd E. Reuss Hall, and East Hall, which is reserved for first-year residents. East Hall features furnished community-style rooms that accommodate two students. The building has communal laundry and two community style bathrooms on each floor. Reuss Hall is home to our sophomore housing and also features furnished community-style rooms that accommodate two students.

Donley Hall and South Hall feature furnished one and two-bedroom apartment-style suites that accommodate two to four students, depending on the size of the suite. Both buildings include private bathrooms and full kitchens. Washers, dryers, and dishwashers are available in each suite in Donley Hall. Free laundry facilities are located within South Hall. All the residence halls provide air-conditioning and wireless connectivity. Free parking close to each building is available for residents. Reuss, Donley and South are reserved for upper-class students only.

Anyone seeking on-campus housing should complete a Housing Application and Contract via their Status Page using their Admissions account and pay the application fee. Students are encouraged to apply for housing as soon as they are admitted.

Applicants must be admitted to Lawrence Technological University in order to live in University Housing. Students may apply for University Housing before registering for classes but will not be allowed to take occupancy of their assigned room until they are registered. For the fall and spring semesters, undergraduate residents must maintain full-time status (12 credits) per semester or have a co-op or an internship to be eligible for housing. For more information, please contact the Office of University Housing at 248.204.3940.

Lawrence Technological University encourages all students with 59 credits or less, including international students, to reside in on-campus housing.

RENTER'S INSURANCE
See Student Insurance.

STUDENT LIFE
The Office of Student Life, located on the fourth floor of the A. Alfred Taubman Student Services Center (C404), provides programs and services for the entire LTU community. The Student Life team coordinates a variety of opportunities for students to become involved on campus, in the City of Southfield and throughout the Metropolitan Detroit area. The office's core mission is student success and the office is here to provide a variety of opportunities that encourage growth as a student and a leader while at LTU. Engagement beyond the classroom will enhance the collegiate experience and advance success after graduation.

Students are encouraged to connect with each other in the variety of student organizations, participate in a leadership programs, or serve the community through volunteering. The Office of Student Life helps students flourish as leaders and community members.

Student Life serves as a support and advocacy network, offering assistance to students throughout their academic journey. Programs include welcome receptions, cultural events that foster intellectual, social, and personal growth, and discussions and guest speakers addressing relevant social, cultural, and academic topics.

The office is responsible for planning campus wide events such as Welcome Week, Homecoming, and De-Stress Fest as well as freshmen orientation weekend, called First Year Ignite.

PROGRAMS AND SERVICES
Among the many programs and services provided and/or supported by Student Life are:

First Year Ignite
Homecoming Week
Programming that promotes community on campus and in the City of Southfield

Student Government
Greek Life
Student Organizations
Welcome Week
De-Stress Festival (Fall and Spring)

STUDENT AFFAIRS
The Division of Student Affairs coordinates efforts, programs, and services that support the development of a vibrant learning community on campus. The division's purpose is to support students, staff, and faculty in achieving the mission of Lawrence Tech by creating communities that foster and support student learning and development.

Offices included in the Division are Dean of Students; Campus Dining; Career Services; Clinical Counseling Services Student Access; Student Life; University Housing; and the campus switchboard. The Office of the Dean of Students serves as the central resource for activities coordinated by Student Affairs. Events, programs, and services provided through these offices are designed to enhance student involvement and student leadership development.

STUDENT ENGAGEMENT

RAFFLE OR CHARITABLE GAMING EVENT GUIDELINES
The Michigan Bureau of the State Lottery Charitable Gaming Division (State Lottery) (michigan.gov/cg/) generally does not qualify the following for licensing: teams, classes, clubs, and other groups sponsored by the school or school district. Applications in support of these functions should be submitted in the name of the school or school district.

Also, college fraternities and sororities are specifically prohibited under Act 382 of the Public Acts of 1972, as amended, for conducting gambling activities in Michigan.

Any student organization requesting to host a gambling tournament or raffle must first contact the Office of Student Life to receive guidance on completing the appropriate forms and applications. The student organization is responsible for submitting the application(s) and/or form(s) to the State Lottery along with the required application fees. Additionally, the student organization must obtain a signed letter from the director of Student Life summarizing and approving the raffle or charitable gaming event.

The application review process will take approximately six (6) weeks for the State Lottery to complete. Students should seek guidance from the Office of Student Life approximately eight (8) weeks prior to the event. If you have any additional questions or if you would like to view the sample forms from the State Lottery, please follow the links contained within this section.

michigan.gov/documents/cg/BSL-CG-1451_605560_7.pdf
Michigan.gov/documents/cg/BSL-CG-1655_500424_7.pdf

RALLIES/MARCHES/PROTESTS

Student organizations, student groups, and/or individual students who desire to hold a rally, march, demonstration, and/or protest on the LTU campus should contact the Office of Student Engagement two (2) days prior to holding the event.

The professional staff member for the Office of Student Engagement will inform the representative student for the various organization, group, or individual what the requisite steps are in order to complete the necessary forms for space reservation on campus, use of public-address equipment or amplified sound, and notification to Campus Safety.

SPIRIT ROCK

The Spirit Rock, located between the Architecture and Design building and Donley Hall, exists to provide students and student organizations the opportunity to express their spirit and pride in Lawrence Technological University and various LTU sanctioned student organizations. To maximize this opportunity, students are expected to respect the following regulations:

- The rock is not to be moved.
- Derogatory, profane, or obscene words, images, or messages on the rock are prohibited.
- There is no limit to the number of times the rock may be painted in total or by any one organization.
- With the exception of painting, the physical condition of the rock shall not be altered in any way that will change its shape, size, or orientation.

STUDENT COMMUNICATIONS/EMAIL

Lawrence Tech's official method of communication with students is through the use of University email. All students are issued a free ltu.edu email account. They are expected to check their Lawrence Tech email accounts frequently and regularly for notices related to enrollment and financial matters, including important deadlines and dates.

Students' email account IDs are composed of the first letter of their first name and the first eight letters of their last name followed by a number if there are duplicates. Email can be accessed off campus at webmail.ltu.edu. For assistance, contact the Help Desk at 248.204.2330.

Students should note that when using Canvas, their Lawrence Tech email address is loaded to their courses as their default email address. This means that when posting notices on discussion boards, etc., within Canvas, students' Lawrence Tech email accounts are visible to others within the class. Students can change their default email address within Canvas to route their Canvas email to another account.

Canvas also functions as a major communications and safety hub of the University, with student groups, professional organizations, and administrative offices having their own organizations within Canvas.

STUDENT INSURANCE

Students needing health insurance can go to the official site of the Affordable Care Act (healthcare.gov). International students should go to the Office of International Programs where there are several different choices for health insurance.

Lawrence Technological University advises all students living in the residence halls to obtain personal property insurance (renter's insurance). Many students may have their personal property covered under their parents' homeowner's insurance policy; check with the insurance provider to determine applicable coverage. Personal property insurance for those students not covered by their parents' homeowner's policy or for students seeking additional coverage is available through National Student Services, Inc. For additional information, visit nssi.com.

STUDENT LOUNGES

Student lounges are located in the fireplace area of the Engineering Building and in the lobby of the Science building. The atrium of the Buell Building provides a spacious area for socializing and an Einstein Bros. Bagels and P.O.D. (Provisions on Demand), hosted by Campus Dining. The Commuter Student Lounge is in S202 of the Science Building.

STUDENT RECORDS

Lawrence Tech students may view their academic transcripts, account information, and other student-related information through BannerWeb at my.ltu.edu. Student records are located in a secure area that requires the student's Banner identification number (excluding the initials) and PIN to access the information.

TECH TRANSIT

Tech Transit serves students by providing transportation service to hot spots around Lawrence Tech's campus and the City of Southfield. For more information, visit the Tech Transit website at https://www.ltu.edu/tech-transit.

INTERNATIONAL STUDENTS AND TRAVEL

INTERNATIONAL PROGRAMS

The Lawrence Tech community places great value on the cultural and intellectual diversity that international students bring to the University. The Office of International Programs serves as the primary contact for international students and scholars on campus. This population includes undergraduate, graduate, ~~and~~ doctoral students, and research scholars.

The office advises foreign nationals on status maintenance, government regulations, visa requirements, and work authorization, and provides a host of other resources. The office works to resolve student compliance issues with Homeland Security and United States Citizenship and Immigration Services (USCIS), as well as processing and updating documentation. This includes updating and maintaining the Student and Exchange Visitor Information System (SEVIS) to comply with government reporting requirements, authorizing F-1 work authorization for Curricular Practical Training (CPT) and Optional Practical Training (OPT), STEM extensions, J-1 academic training, program extensions, and other SEVIS updates. The office also works to update faculty, staff, and

students on government regulations and issues impacting international students studying in the United States.

International Programs provides a mandatory ~~and~~ comprehensive orientation, held the week before classes begin each semester, to support international students in acclimating to their new environment.

The Office of International Programs is located in the A. Alfred Taubman Student Services Center (C304) and can be reached at 248.204.3160 or by emailing international@ltu.edu. Normal office hours are Monday–Friday, 8 a.m.–4:30 p.m.

STUDY ABROAD

Lawrence Tech offers a wide variety of opportunities for students looking to study abroad for a full semester or participate in other international experiences that range from one week to an entire summer. Study Abroad offers students a unique blend of academic opportunities combined with a vibrant cultural experience. Many students take advantage of their extra time to also visit places outside of their host city or even host country.

Study Abroad programs include opportunities in Germany, England, Ireland and Italy to name a few.

Going overseas for a summer term or a semester is the best way to develop leadership skills with a new global perspective. There is no better way to understand and appreciate the history, culture, and language than through immersion during your international adventure. Learn more about study abroad programs by visiting LTU's website.

CAMPUS SAFETY, PARKING AND POSTAGE

DEPARTMENT OF CAMPUS SAFETY

LTU Campus Safety is a private, non-sworn, safety and security department. The jurisdiction of the Campus Safety Department includes all University property owned, leased, controlled, or occupied by the University. Campus Safety Officers have administrative authority to ask persons for LTU identification and to determine whether individuals have lawful business on campus. Campus Safety Officers also have the authority to issue parking tickets, which may be billed to the financial accounts of students, faculty, and staff. The Department of Campus Safety is located in the General Services Building, Building 17, Room G102.

CRIME REPORTING

All members of the campus community are encouraged to accurately and promptly report potential criminal activity, suspicious behavior, or any emergencies on or near campus. Campus Safety can be reached can be contacted 24/7/365 at 248.204.3945 at any time and contacted via email at ltu_safety@ltu.edu.

ANNUAL SECURITY AND FIRE SAFETY REPORT

LTU complies with the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act, also known as the Clery Act. LTU publishes an Annual Security and Fire Safety Report . The purpose of this report is to make the campus community aware of LTU's policies concerning response to reports of crimes, harassment, fires and violations of University policy, as well as provide crime statistics for events occurring on campus, in residence halls, in university owned buildings, and on public property surrounding the University

property or running through the campus. The campus community is defined as students, staff, faculty, and vendors on campus, as well as other parties who may frequent the campus or have an interest therein. The Annual Security and Fire Safety Report can be found at https://ltu.edu/student-life/campus/campus-safety/reports/.

Additionally, anyone may receive a physical copy of the ASR by contacting the Campus Safety at 248.204.3945 or at ltu_safety@ltu.edu.

EMERGENCY NOTIFICATIONS

In the event of an emergency or a situation involving an immediate threat to the health or safety on the campus community, Campus Safety will send an Emergency Notification. Examples of incidents involving Emergency Notification include severe weather, fire, active assailant, and hazardous materials spills (HazMat). LTU utilizes the RAVE platform for Emergency Notifications via email and text. The University may also post information on social media accounts (currently Facebook and X/formerly Twitter) and on the University's website.

Members of the LTU community are automatically opted-in to receive emergency notifications through their LTU email accounts. To opt-in to receive emergency notifications via text students, faculty, and staff must register at: www.ltu.edu/campussafety.

All members of the campus community are strongly encouraged to register their mobile telephone numbers for Emergency Notifications.

LOST AND FOUND

It is LTU policy that all found articles be turned into the Campus Safety office at suite G102 in General Services Building (#17). Campus Safety delivers all found University-issued laptop computers to the Help Desk Center at suite C203 in the A. Alfred Taubman Student Services Center in the Buell Building (#5). For all other items, Campus Safety attempts to contact their owners if they are both identifiable and members of the LTU community. Found items are discarded after remaining in storage at the Campus Safety office for 30 days.

LOCKERS

Lockers in the Architecture Building and the University Technology and Learning Center (UTLC) are assigned by the College of Architecture and Design, 248.204.2880.

MOTOR VEHICLES AND PARKING

VEHICLE REGISTRATION

All vehicles parked on the LTU campus must be registered and display a valid parking permit. Parking permits may be obtained from Campus Safety. Please see https://ltu.edu/student-life/campus/campus-safety/services/#parking for further information on parking.

Multiple vehicles may be registered, but each one requires a separate Parking Permit. Members of the LTU community who park unregistered vehicles on LTU's campus may receive LTU Violation Notices or have their vehicles towed at their expense.

CAMPUS PARKING

There are several parking lots on campus for faculty, staff, and students, but there are rules and regulations to use them.

- All parking lots are lined and vehicles are to be parked within the designated spaces. There is no parking on the diagonal-lined areas in any parking lot.
- No parking is permitted on any campus drive.
- Authorized and assigned parking belongs to an LTU department and/or one individual.
- Vehicles parked illegally will be issued LTU violation notices and may be towed at the owners' expense.

POSTAL AND PACKAGE SERVICES

The Department of Mail Services is located in suite G100 at the General Services Building (#17). It is open from 7 a.m. – 3 p.m. weekdays and **closed on weekends and holidays**. Mail Services receives all incoming campus mail and packages and delivers them to designated, secure locations around campus. For residence halls, mail and packages are delivered to their respective information desks. Those expecting mail at other buildings or offices on campus should contact Mail Services directly to confirm the delivery location for their mail and packages. Mail Services may be reached by phone by dialing 3718 from any campus phone or 248.204.3718 from any other phone. Mail Services may also be reached by email at ltu_mail@ltu.edu.

The United Parcel Service (UPS) has an outbound package kiosk located outside of the General Services Building (#17) on the southeast side of the building near the garage door.

VETERAN INFORMATION

VETERAN'S EDUCATIONAL BENEFIT INFORMATION

LTU recognizes the contributions of the members of the Armed Forces. Military and veteran students are eligible for a reduced tuition rate. The University is approved for admission of students receiving veteran subsidies. Students who are currently serving, veterans, or dependents of such are encouraged to communicate their status during the admissions process and/or to their advisor or military support team member on their campus.

Veterans Affairs provides a wide range of benefits to veterans. Questions regarding GI Bill® benefits, Michigan National Guard educational benefits, or any funding related to veterans should be directed to the Veterans Education Hotline at 888.442.4551. Veterans may also contact the U.S. Department of Veterans Affairs (benefits.va.gov/gibill) with questions concerning program eligibility.

The monthly allowance for LTU veterans is based on the veteran's number of credit hours, number of dependents, and enrollment in a qualified program according to Veterans Affairs guidelines. All veterans receiving GI Bill® benefits are expected to maintain Satisfactory Academic Progress (see https://www.ltu.edu/financial-aid/sap for details).

VETERAN'S BENEFITS AND TRANSITION ACT COMPLIANCE

As part of the Veterans Benefits and Transition Act of 2018, section 3679 of title 38, United States Code (Public Law 115-407) was amended and effective August 1, 2019, the State Approving Agency

(SAA), or the Secretary when acting in the role of the State Approving Agency, shall disapprove a course of education provided by an educational institution that has in effect a policy that is inconsistent with the areas below.

LTU will permit any covered students to attend or participate in the course of education during the period beginning on the date on which the individual provides to the educational institution a certificate of eligibility for entitlement to educational assistance under chapter 31 or 33 (a "certificate of eligibility" can also include a "Statement of Benefits" obtained from the U.S. Department of Veterans Affairs (VA) website – eBenefits – or a VAF 28-1905 form for chapter 31 authorization purposes) and ending on the earlier of the following dates:

- The date on which payment from the VA is made to the institution
- 90 days after the date the institution certified tuition and fees following the receipt of the Certificate of Eligibility

LTU will not impose any penalty, including the assessment of late fees, the denial of access to classes, libraries, or other institutional facilities, or the requirement that a covered individual borrow additional funds, on any covered individual because of the individual's inability to meet his or her financial obligations to the institution due to the delayed disbursement funding from VA under chapter 31 or 33.

In addition, LTU may require the covered individual to take the following additional actions:

- Submit a certificate of eligibility for entitlement to educational assistance no later than the first day of a course of education.
- Submit a written request to use such entitlement.
- Provide additional information necessary to the proper certification of enrollment by the educational institution.
- LTU requires additional payment or imposes a fee for the amount that is the difference between the amount of the student's financial obligation and the amount of the VA education benefit disbursement.

*A Covered Individual is any individual who is entitled to educational assistance under chapter 31, Vocational Readiness and Employment (VR &E), or chapter 33, Post-9/11 GI Bill® benefits.

GI Bill® is a registered trademark of the U.S. Department of Veterans Affairs (VA). More information about education benefits offered by VA is available at the official U.S. government website at https://www.benefits.va.gov/gibill.

Students receiving Veterans Administration Educational Assistance benefits are expected to maintain the same standards of academic progress and social conduct as all other students. LTU provides information about students receiving Educational Assistance benefits to the Veterans Administration in accordance with federal mandate.

The State Approving Agency (SAA) has imposed the following requirements on LTU in order for students to receive veteran's benefits:

- Undergraduate degree students will be checked for academic probation, for certification purposes, based on a 2.0 cumulative GPA.
- LTU will notify the VA immediately when the student has a cumulative GPA below 2.0 for two consecutive semesters.
- Certification remains denied until the student achieves a cumulative GPA of 2.0 or higher.
- If students withdraw from any classes or receive a failing grade for not attending, LTU will notify the VA of the date when the official withdrawal was done or will report the last attendance date as recorded by the course instructor.
- LTU informs students who request certification for veterans' benefits in writing of the credit granted for previous training. Students are also informed in writing of the number of credits necessary to complete the course or program for which they are enrolled. LTU notifies the VA of the credit granted and the reduction in training time.

For more information regarding veterans' benefits, students should contact the veterans' certifying official at 1-866-925-3884.

ADMISSION TO THE UNIVERSITY

The University has a selective admissions process – the objective of which is to identify men and women who have the highest potential for advancement in their chosen field of study. While the applicant's academic record is a reliable measure for the prediction of academic success, the admissions decision is more complex than admitting students on the basis of a numerical formula. With this intent, Lawrence Technological University considers, in addition to the applicant's previous academic record, factors that demonstrate an aptitude for successful study.

For the admission requirements for any of Lawrence Tech's undergraduate degree programs, see the *Undergraduate Catalog*.

ADMISSION TO GRADUATE PROGRAMS

To begin the application process, apply online at ltu.edu/apply. In order to be considered for a graduate program, students must submit the following to the Office of Admissions:

1. Completed Application for Graduate Admission (ltu.edu/apply)
2. $50 application fee (nonrefundable)
3. Official transcripts of all completed college work
4. Any additional material as required by the college offering the degree (i.e., GMAT/GRE scores, resume, letters of reference, portfolio, etc.). These requirements are described under the specific program of interest later in this *Catalog* and online.

Application materials received will be carefully evaluated by the college's Graduate Admissions Committee. To facilitate this process, the graduate applicant must provide all documentation at the

time designated by each college. After the application has been reviewed by the committee, the student will be notified of the results by the Office of Admissions. The Office of Admissions will be the student's point of contact from the application stage through the start of classes; the only exceptions are for certain events specified by the pertinent college.

In general, a cumulative undergraduate GPA of at least 3.0 is required for regular admission to the graduate programs. For specific admission requirements, please see the program listings, which follow in this *Catalog* and online.

GRADUATE ADMISSIONS TESTS

Certain programs may require one of the standardized graduate tests for admission. The GMAT and GRE exams are administered regularly throughout the United States and various foreign countries. Arrangements to take the test should be made by visiting mba.com for the GMAT or ets.org/gre for the GRE.

TRANSFER STUDENTS

Policies pertaining to transfer students from other accredited graduate programs may be found later in this *Catalog* in the description of the specific program of interest. Each graduate program establishes its own policies on transfer credit. Students considering transferring to Lawrence Tech from other universities must follow the same admission requirements as described above in the Admission to Graduate Programs section. Any questions concerning credit evaluations must be resolved by the end of the first semester at Lawrence Tech.

Students may be required to submit additional evidence (e.g., course syllabi, catalog descriptions, portfolio, and tests/examinations) in order to justify the transfer of credits. The college's Graduate Admissions Committee may require the applicant to demonstrate proficiency in the subject either through an interview or a written examination prepared by faculty members who have expertise in the subject/discipline.

NON-DEGREE SPECIAL STUDENTS

Graduate students who elect to take courses but who do not wish to pursue a degree program may enroll for one semester as a special student by submitting the following to the Office of Admissions:

1. Completed Application for Graduate Admission, which can be found at www.ltu.edu/apply (This application is good for one semester. A student must reapply for each semester he or she wishes to be a non-degree student.)
2. $50 application fee (nonrefundable)
3. Unofficial copies of transcripts from institutions attended

Special students must meet the normal requirements for graduate admission. Lawrence Tech students have enrollment preference over special students.

A special student who wishes to obtain regular admission to a graduate program must make a regular application to that program and meet all admission requirements.

Credit for courses taken while a special student may be applied toward the degree if approved by the college's Graduate Admissions Committee as part of the admissions process. When courses taken as a special student are applied toward a degree, the cumulative GPA will be computed from all graduate courses taken at Lawrence Tech.

INTERNATIONAL STUDENT ADMISSION REQUIREMENTS

International students must have above-average grades in their post-secondary academic coursework and meet all graduate admission requirements. In addition, the following items must be submitted to the Office of Admissions no later than 90 days before the start of the desired semester of enrollment:

1. Completed Application for Graduate Admission (ltu.edu/apply) signed by the student
2. $50 application fee (nonrefundable)
3. Official transcripts from all colleges attended sent directly from the issuing institutions
4. Course-by-course WES evaluation of official college transcripts (see wes.org) if requested by the Office of Admissions
5. Official English proficiency test scores (TOEFL, IELTS, or Duolingo English Test, MET or PTE)
    a. TOEFL: 79
    b. IELTS: 6.0
    c. Duolingo English Test: 105
    d. Michigan English Test: 60
    e. PTE Academic Test: 50 for graduate students
6. Documentation of support
7. Documentation of Support Verification Form
8. Visa Transfer Form (for F-1 students transferring from a U.S. college or university)
9. Sponsor Letter
10. Foreign address
11. Copy of passport

ENGLISH AS A SECOND LANGUAGE (ESL)

Lawrence Tech has partnered with Language Center International (LCI) to provide English language training to students that have not met the minimum English proficiency requirements. Upon successful completion of the ESL program at LCI, students will be considered to have the required proficiency level and will be eligible to enroll in their intended program at LTU.

ADMISSION DECISION CLASSIFICATIONS

REGULAR ADMISSIONS

Student meets all academic requirements and has submitted all required documents.

CONDITIONAL ADMISSION

Student meets all the academic requirements but additional documents are needed to complete the application file. Most commonly a condition is a final transcript or confirmation of a degree.

PROVISIONAL ADMISSION
Student is admitted with provisions by the academic department. The provisions are identified by faculty to improve areas of deficiency. Supplemental coursework or a minimum GPA requirement are frequently specified provisions. Provisions are reviewed by a faculty advisor on a semester-by-semester basis.

PROVISIONAL CONDITIONAL ADMISSION
Student is admitted but is required to take supplemental coursework identified by faculty or meet a minimum GPA requirement. Provisions will be reviewed with a faculty advisor on a semester-by-semester basis. Student also needs to submit additional documents to complete the admission file.

DENIED
Upon review of application materials, student does not meet the requirements for admission.

CHANGING MAJORS
Currently enrolled students wishing to change majors must fill out the Change of Curriculum form, which can be obtained at the DTE Energy One-Stop Center or at https://www.ltu.edu/registrar/forms-to-print. Evaluation of credits and admission into the new program will be determined by the program's Graduate Admissions Committee.

INTERRUPTION OF STUDIES
Students who do not enroll for classes during a period of three calendar years must reapply for admission. Readmission is not automatic; admission policies, curricula, and requirements of the academic programs at the time of readmission will apply. Students returning less than three calendar years from their previous enrollment may register in their original program without readmission. However, returning students who wish to change colleges or have transfer credit from other institutions must fill out the Change of Curriculum form, which can be obtained at the DTE Energy One-Stop Center or at https://www.ltu.edu/registrar/forms-to-print. These students will be subject to the curricula and requirements of the chosen program upon their return.

RETURNING ALUMNI
The application fee is waived for Lawrence Tech alumni applying to master's and doctoral programs.

ADMISSIONS ADVISING AND TOURS
The Office of Admissions is open year-round (except holidays). Admissions counselors are available on a walk-in basis on weekdays. Students are encouraged to call the Office of Admissions at 248.204.3160 or email graduateadmissions@ltu.edu if they have any questions, require information, or would like to schedule a tour of the campus.

TUITION AND FEES

Lawrence Technological University sets tuition rates with the goal of providing students with the best possible learning experience. The emphasis is on quality. Concurrently, the University has a long tradition of prudent management that has allowed it to contain costs and provide students

with extraordinary value for their tuition investment, but never at the expense of Lawrence Tech's primary emphasis.

Tuition at Lawrence Tech is used to cover many of the costs associated with a student's learning experience. Remaining expenses are funded through support from the University's alumni and friends, including gifts from individuals, corporations, and foundations.

Tuition and fees are normally established on an annual basis. However, the University reserves the right to make changes in these charges or to initiate or delete charges without notice. There are additional program fees that are associated with a select list of programs offered at Lawrence Tech and are subject to change without notice.

The schedule of current tuition and fees is published separately from this *Catalog* and is available at https://ltu.edu/academics/general-information/#tuition or from Lawrence Tech's Offices of Admissions, Business Services, or Enrollment Services/Office of the Registrar.

PAYMENT OF TUITION AND FEES

Tuition and fees are due in two installments each semester. If full payment cannot be made by the deadline, the following options are available:

1. Enroll in Tuition Management Systems, which provides for making monthly payments
2. Provide Billing Authorization Forms (Tuition Vouchers) when the student's employer is to be invoiced by the University
3. Apply for student financial aid. Consideration is granted on estimated eligibility and is subject to application timing and accuracy. Students are fully responsible for any charges that are not covered by financial aid

The options stated above are available only when all prior balances have been paid in full. Monthly late charges will be assessed on all accounts with past due balances. Diplomas, and/or permission to register will not be issued if an outstanding balance appears on a student's account.

METHOD OF PAYMENT

Students can make payments on their accounts using any of the following methods:

1. Use a credit card via BannerWeb at my.ltu.edu
2. Pay with cash, check, money order, or credit card at the DTE Energy One-Stop Center in the A. Alfred Taubman Student Services Center
3. Mail a check, money order, or appropriate credit card information
4. Phone (248.204.2280) or fax (248.204.2228) appropriate credit card information to the DTE Energy One-Stop Center
5. Via the drop box located to the side of the entrance to the DTE Energy One-Stop Center

COSTS FOR WITHDRAWAL

Costs for withdrawal are established as stipulated by federal regulations. The deadline to drop a class with a full refund and the deadline to withdraw from a class in a given semester can be obtained from Enrollment Services/Office of the Registrar or by viewing the Academic Calendar for that year: https://ltu.edu/academics/registrar/#Academic-Calendars.

A full tuition refund will be granted for all drops completed within the Drop/Add period.

After the Drop/Add period, no refunds are provided. Activity fees, graduation fees, and course fees are non-refundable and are not included in the withdrawal credit calculation. Balances remaining after the drop/withdrawal adjustments must be paid based upon the University policy for payment of tuition and fees. Credit balances will be refunded.

The semester begins on the first day of classes as listed in this *Catalog*, unless otherwise indicated.

The date of withdrawal is the date the student's withdrawal form is validated by Enrollment Services/Office of the Registrar, the postmark date of the letter of withdrawal, or the date the student completes the withdrawal on BannerWeb at my.ltu.edu.

All students withdrawing from classes may have their financial aid eligibility adjusted or canceled for the semester, and will be subject to Lawrence Tech's federal Return to Title IV and Satisfactory Academic Progress policies. For additional information, see the Financial Aid section in this *Catalog*.

STUDENT TUITION AND FEE APPEAL PROCESS

Students who withdraw from classes after the tuition refund deadline and believe, based on the conditions outlined on the registrar's website (Tuition and Fee Appeal Form) that they may qualify for a refund, should submit a Tuition and Fee Appeal Form to Enrollment Services/Office of the Registrar, along with a letter explaining the rationale for the request. All supporting documentation should be submitted at this time (e.g., documentation of a medical issue). The appeal will not be accepted or reviewed without all information in hand or prior to the student's official withdrawal from the course. Student are advised to discuss the implications of withdrawal on Financial Aid, Veteran's Benefits, international status, athletic eligibility, housing, and other concerns before submitting an appeal.

The DTE One-Stop Center will prepare a packet of information for the Tuition and Fee Appeals Committee that includes the student's current semester schedule, the tuition statement for the current semester, and a list of the student's courses and grades. The Committee (comprised of representatives from various departments on campus) reviews each student request and makes a determination as to whether to grant an exception to University policy. The Committee may also contact the student's instructor(s) to inquire about the student's attendance record and current grade in the course. The Office of the Registrar then sends a letter via email to the student with the decision.

Exceptions to University policy are made only in rare circumstances, such as a debilitating illness. Requests made because of difficult work schedules or class schedules may not be considered.

FINANCIAL AID

Financial assistance at Lawrence Technological University is granted without regard to an applicant's race, sex, color, age, handicap, marital status, or national or ethnic origin. Both new and enrolled students interested in federal, state, and institutional financial aid programs are strongly encouraged to complete the Free Application for Federal Student Aid (FAFSA). The primary application piece required for federal, state, and institutional financial aid consideration, the FAFSA can be completed online at studentaid.gov.

The FAFSA must be completed annually; applications for aid commencing in the fall semester can be submitted no earlier than October 1 for the upcoming year. To maximize their chance of receiving financial aid, students are encouraged to complete the FAFSA by May 1.

All financial aid applications will be processed, and eligibility will be established, based on the availability of funds. Also, some students are selected for a review process called Verification. Verification requires that students and/or spouses provide additional documentation prior to the review of their application. If students are selected for Verification, they will be notified by the school that they must provide the needed information. This information should be delivered or mailed to the DTE Energy One-Stop Center in the A. Alfred Taubman Student Services Center, or emailed to financialaid@ltu.edu as soon as possible for early consideration.

In order to make the application review and awarding processes as smooth as possible students must provide accurate and timely information and documentation. Generally speaking, it can take between two and six weeks from the time the FAFSA is submitted to the time an offer notice is prepared and sent.

New students at Lawrence Tech are notified of their financial aid offer beginning in December. Returning students are notified of their financial aid offer beginning in late May, once final grades are posted then Federal and State aid is processed.

Students should visit https://ltu.edu/admissions/financial-aid/ for up-to-date financial aid information and links to scholarship search websites. Students should contact the Office of Financial Aid at 248.204.2280 or financialaid@ltu.edu if they have any questions regarding the financial aid application process or their eligibility status.

It is very important that the FAFSA be completed every year. All federal loans must be accepted and originated one month prior to the end of the semester or period of enrollment to allow adequate time for processing and disbursement of funds.

LOANS FOR STUDENTS

FEDERAL DIRECT UNSUBSIDIZED LOANS

The Federal Direct Unsubsidized loan program carries both annual and cumulative (lifetime) limits. The SAR (Student Aid Report) lists students' cumulative loans, but it is important that students also keep records of all their loan transactions. Students can also look up their loan history and payment options online at studentaid.gov.

Direct Loan Maximums per Year	
Student Level and Dependency Status	**Maximum Unsubsidized**
Graduate/professional	$20,500

Lifetime Limits (from all schools attended):	
Student Level and Dependency Status	**Maximum Direct (unsubsidized)**
Graduate/professional	$138,500*

***The graduate debt limit includes loans received for undergraduate study.**

If students reach their lifetime loan limit, they cannot receive any more of that type of loan. If they exceed their limit, aid already disbursed will be returned to the lender or may have to be repaid by the students. Students are encouraged to borrow only what they need for educational expenses and to keep track of their cumulative debt. Alternative lending may be an option if students need additional loan funding to assist them with continuing their education.

Students are responsible for the interest on an unsubsidized loan while in college and until the loan is paid in full. Payment options can be viewed at studentaid.gov.

Students must be enrolled at least half-time (three credit hours) in an eligible degree program at Lawrence Tech to qualify for this loan. Graduate students may borrow up to the maximum listed above per year based on full-time enrollment (nine credit hours). Loan eligibility is evaluated each semester and subject to change due to changes in enrollment status. Need is not a factor for this loan, and the student is responsible for paying interest on the loan during the grace and deferment periods. Payment options can be viewed at studentaid.gov.

If you have graduated from LTU and are not enrolled in a new degree program but continue to register for courses, you are not eligible for financial aid. You must be enrolled in a new degree program and registered at least half time to be eligible for financial aid.

FEDERAL DIRECT GRADUATE AND PROFESSIONAL PLUS LOANS
(FOR GRADUATE AND DOCTORAL STUDENTS)

The Federal Direct Graduate and Professional PLUS loan program offers graduate and professional students the opportunity to borrow federal funds up to their cost of attendance minus all other aid sources. To apply for a Grad PLUS loan, graduate and professional students must fill out the FAFSA, pass a credit check, complete Grad PLUS Entrance Counseling, sign the Master Promissory Note online, and apply for the maximum direct loan for which they qualify. PLUS loans may be used for

tuition, housing, food, books, and some transportation expenses. For questions, contact financialaid@ltu.edu or go to studentaid.gov for additional information.

ALTERNATIVE LOANS
In addition to the direct loans, graduate students have access to a variety of alternative loans. The application process and terms for alternative loans vary by program and credit worthiness and may require a co-borrower. Visit https://ltu.edu/admissions/financial-aid/loans/ for additional information.

WORK-STUDY PROGRAMS
The Federal Work-Study Program is designed to help students pay for their education by providing opportunities for them to be employed and earn a paycheck during the semester. Students may work on campus in a variety of capacities, such as in academic departments, administrative offices, libraries, or in landscaping and maintenance. A student must demonstrate financial need as determined by completion of the FAFSA to be eligible for the work-study programs. Contact the Office of Career Services at 248.204.3140 for a listing of available work-study positions. For information on the Federal Work-Study program, visit studentaid.gov.

ADDITIONAL FINANCIAL AID INFORMATION

BASIS FOR AWARDS
Students with the greatest need, as determined by standard federal methodology (resulting from completion of the FAFSA), receive the highest consideration for need-based funding depending on the availability of funds and the timing of the application. Students meeting published application deadlines will have a greater chance of receiving preferred types of financial aid funds.

BASIC COSTS
Personal expenses for room, board, clothing, recreation, laundry, travel, books, and incidentals vary according to individual lifestyle. An estimate for the total cost of a student's education can be made by adding tuition and fees to these items. The Office of Financial Aid provides an estimated cost of attendance at https://ltu.edu/admissions/financial-aid/attendance-cost/. This estimate can be used to determine eligibility for need-based funding.

SATISFACTORY ACADEMIC PROGRESS
All students receiving financial aid are required to maintain satisfactory academic progress. Graduate students must maintain a minimum GPA of at least 2.75 to remain eligible for financial aid. Failure to achieve this standard will result in the suspension of eligibility until a cumulative GPA of 2.75 is reached. Please note that a college or department may require more than a 2.75 GPA to remain in satisfactory academic standing.

Students are also expected to make normal progress toward graduation by completing at least 67 percent of all attempted credit hours. Students who withdraw from or drop one-third or more of the courses in which they have enrolled during the year will not meet the standards of academic progress for financial aid consideration.

In addition, students will not be eligible for aid once they have attempted 150 percent of the total number of credit hours required to complete their program of study. Students should consult their academic advisor to determine the appropriate course load to assure academic success and completion of their degree within the specified number of credit hours.

Contact the DTE Energy One-Stop Center or visit https://ltu.edu/admissions/financial-aid/sap/ for information regarding the appeal and renewal procedure when standards of progress are not met.

U.S. CITIZENSHIP
Students must be U.S. citizens or eligible non-U.S. citizens as defined by the U.S. Department of Education to qualify for financial aid programs. Federal regulations and University policy significantly limit the types of financial assistance for international students.

DEFAULTED STUDENT LOANS
Students who have defaulted on student loans, owe a refund on a grant, or owe college tuition will not be eligible for any financial aid until the obligation is fulfilled and monies are paid back to the University, the federal government, the state government, or the lender of interest.

VERIFICATION OF FINANCIAL STATEMENT AND OTHER APPLICATION INFORMATION
Lawrence Tech reserves the right to request documentation from its students for verification. Students refusing to provide documentation information will be denied financial aid.

All financial aid applications will be processed and eligibility will be established based on the availability of funds. Also, some students are selected for a review process called Verification. Verification requires that students and spouses provide additional documentation prior to the review of their application. If students are selected, they will be notified by the school that they must provide the needed information. This information should be turned in or mailed to the DTE Energy One-Stop Center in the A. Alfred Taubman Student Services Center by April 1 for early consideration. All information provided after April 1 will be reviewed and processed but will be considered late. Students must provide accurate and timely information and documentation to make the application review and awarding processes as smooth as possible. Generally speaking, from the time the FAFSA is submitted to the time a financial aid offer is prepared and sent, it can take between two to six weeks.

FINANCIAL AID AND CREDIT HOUR REDUCTION
Financial aid may be reduced or canceled if a student takes less than six credit hours per semester. Award amounts for need-based financial aid are based on the number of credit hours attempted and a student's demonstrated financial need. Students planning to drop all or part of their classes should contact the DTE Energy One-Stop Center to discuss the effects on their financial aid awards for the semester.

REFUNDS OF EXCESS FINANCIAL AID
When financial aid and other payments exceed a student's charges, the student is entitled to a refund. Student accounting will refund excess financial aid to the student, parent, or other payment

source within 14 days of the posting of a credit balance. A check will be mailed to the current mailing address on file, or students can elect to have the check directly deposited.

CANCELLATION OF LOAN

Federal Direct Unsubsidized and Federal Direct PLUS loan borrowers have the right to cancel their loan disbursements within 14 days of the disbursement notice. Should students decide to cancel the disbursement of their federal loans, they should contact the Office of Financial Aid at financialaid@ltu.edu in writing within the specified time period. By canceling the disbursement, students will be responsible for any unpaid tuition and fees, as well as repayment of loan funds already paid to them.

ENROLLMENT STATUS

All initial awards are based on full-time status. Student loan eligibility will be reevaluated and may change due to changes in enrollment status. Students must be enrolled in an eligible degree program, and most funds require at least half-time (for graduate students, three or more credit hours) enrollment status. Student awards are subject to change due to changes in enrollment status and/or funding levels at any time.

ADJUSTMENTS TO AID

Within certain time limits, tuition adjustments may be made to the student's financial account. There are times, however, when students receive no tuition credit/refund for dropped courses. See the Tuition and Fees section of this *Catalog* or visit https://ltu.edu/admissions/tuition-and-fees/. It is the student's responsibility to know these dates and adhere to them.

WITHDRAWAL FROM LAWRENCE TECH

Students may be billed for a portion or all of their incurred charges if they withdraw from the University. The bill calculated as a result of withdrawal will depend on the effective date of the withdrawal, the percentage and amount of institutional refund, and/or the last date of class attendance.

Students must also terminate any work-study employment. If students have received any federal loans, they should contact the lender and complete an exit interview. Students' eligibility for financial aid will be determined, or recalculated, by the use of federally mandated procedures which may affect the aid already applied toward their account or previously refunded to them. Depending on when the withdrawal occurs, students may be required to repay all or part of the aid received.

If a student receiving Title IV funds completely withdraws from classes through 60 percent of the term, the University is required to determine how much of the financial aid was earned up to the time of withdrawal (https://ltu.edu/admissions/financial-aid/policies/#return-title-iv-funds). The University and/or the student must return unearned Title IV funds to the federal government. This situation could result in the student owing aid funds to the University, the government, or both.

Students should always check with the DTE Energy One-Stop Center prior to withdrawal for advice on the impact it will or could have on their financial aid.

AUDITING CLASSES, CERTIFICATE PROGRAMS AND GUEST/SPECIAL STUDENTS
Students who audit classes, are enrolled in certificate programs, or are guest/special students are not eligible to receive financial aid.

LTU STUDENT-ATHLETE HANDBOOK

Dear Lawrence Tech Student-Athletes,

On behalf of the coaches, trainers, and our staff of the Lawrence Technological University Department of Athletics, we extend a warm welcome to each of you as valuable members of the University and LTU Athletics. We are excited to embark on this journey with you and are committed to supporting your academic growth, athletic success, and personal development during your time here.

To help make the most of your experience, we encourage you to take a few moments to familiarize yourself with the information provided in this student-athlete handbook. It serves as a valuable resource for both incoming and returning student-athletes, offering insights into the rules and regulations of Lawrence Tech's Department of Athletics as well as the National Association of Intercollegiate Athletics (NAIA). While this handbook provides essential guidance, we also recommend referring to other university publications, such as the University Student Handbook and the University website, for a comprehensive understanding of available resources and support.

As you navigate through your academic and athletic pursuits, remember that a diverse range of services is at your disposal. We encourage you to explore and utilize these resources to enhance your overall educational and athletic experience.

We take immense pride in having you as an integral member of the Lawrence Tech Athletic Program. Our commitment is to create an environment that fosters your success, enabling you to achieve your full potential as both a student and an athlete. Rest assure, we are dedicated to doing our utmost to assist you on your journey to success.

Welcome to Lawrence Technological University, and here's to rewarding and fulfilling experience ahead!

Go Blue Devils!

Mary Ann Meltzer
Director of Athletics

LAWRENCE TECHNOLOGICAL UNIVERSITY DEPARTMENT OF ATHLETICS

MISSION STATEMENT
Lawrence Tech Athletics provides a transformative collegiate experience through theory and practice. We empower our student-athletes to achieve academic and athletic excellence by

fostering a growth mindset and community. The welfare of our student-athletes is the driving force behind how and why we serve.

VISION STATEMENT
To inspire and empower our student athletes to be champions in academics, athletics, and community engagement.

PURPOSE STATEMENT
We are passionate about coaching and mentoring our student athletes to help prepare them to be successful in life and become compassionate leaders who contribute to society.

BELIEFS:

1. We are dedicated to delivering exceptional leadership and service through team of highly skilled professionals and coaches. Our focus is on recruiting and retaining student-athletes while fostering the growth of a diverse and inclusive athletic program. We strive to provide opportunities for individuals to excel in academics, leadership, and personal and team responsibilities.
2. Recognizing the potential for a successful intercollegiate program to bring positive recognition to the University, its faculty, staff, alumni, and the broader community. Our coaches, staff, and student-athletes are committed to embodying the core values of the NAIA Champions of Character. These values include integrity, respect, responsibility, sportsmanship, and servant leadership.
3. Intercollegiate athletics offer unique experiences that enrich the educational journey, serving as a valuable component of the overall learning process and contributing to the development of future leaders.
4. Our student-athletes commit to upholding the highest standards of conduct, adhering to the Student Code of Conduct and embracing the dress and grooming guidelines set forth by our coaches and staff. They aspire to be exemplary models, demonstrating integrity and responsibility in every aspect of their lives.

CODE OF CONDUCT
All members affiliated with the Department of Athletics at Lawrence Technological University, including student-athletes, must comply with the rules and standards set forth by the University, NAIA, and any other associations or agencies aligned with the University. It is expected that they support and help others fulfill their obligation to adhere to these regulations. Non- compliance may lead to consequences such as suspension, removal from the team, and/or forfeiture of athletic scholarships. Furthermore, individuals may face additional sanctions imposed by the University or legal actions, as applicable.

NON-DISCRIMINATION POLICY
Lawrence Technological University (LTU) is dedicated to fostering a work environment that is void of sexual harassment, discrimination, sexual misconduct, and retaliation. LTU values and upholds the equal dignity of all the members of its community and strives to balance the rights of the parties in the resolution process during what is often a difficult time for all those involved.

The university strictly abides by all federal, state, and local civil rights laws that prohibit discrimination in both employment and education. LTU ensures that its employment practices are free from gender-based discrimination. Title IX and university policies explicitly prohibit sexual harassment, sexual assault, dating and domestic violence, stalking, and sexual exploitation.

ATHLETIC MEMBERSHIPS

Lawrence Technological University is a member of the National Association of Intercollegiate Athletics, Wolverine Hoosier Athletic Conference, American College Hockey Association, Mid- States Football Association and National Association of Collegiate Esports which permits our student-athletes to be nationally ranked and assists coaches in scheduling and recruiting.

Lawrence Tech's Department of Athletics, including all staff, coaches, and student-athletes are governed by ALL rules established and set forth by the University, NAIA, ACHA, MSFA, USBC and NACE. The NAIA certifies and determines the eligibility of all our student-athletes.

DEPARTMENT OF ATHLETICS ADMINISTRATION CONTACT INFORMATION

Staff Directory	Title	Extension	Email
Mary Ann Meltzer	Director of Athletics	3885	mmeltzer@ltu.edu
Josh Pickens	Associate Athletic Director and Head Men's Basketball Coach	3859	Jpickens@ltu.edu
Andrew Herrick	Assistant Athletic Director for Athletic Operations	7929	aherrick@ltu.edu
Marloes Blokdijk	Assistant Athletic Director for Student-Athlete Welfare and Development	3855	mblokdijk@ltu.edu
Blake Schalm	Athletic Communications Director		bschalm@ltu.edu
Scott Kujawa	Athletic Recruitment Manager	2122	skujawa@ltu.edu
Carla Klobuchar	Administrative Assistant	3857	cklobuchar@ltu.edu
Kyle Benkarski	Head Strength and Conditioning Coach	7933	kbenkarsk@ltu.edu
Ty Faulkner	Faculty Athletic Representative	3526	tfaulkner@ltu.edu
Selvana Evans	Athletic Degree and Audit Specialist	3111	sportseligibility@ltu.edu

*An updated staff directory including coaches, graduate assistants, athletic trainers and support staff can be found at https://ltuathletics.com/staff-directory

ACADEMICS AND ATHLETICS

The athletics department, in corporation with our Academic Achievement Center, is committed to providing academic support to all Lawrence Tech students-athletes, including counseling, class registration, tutoring, study hall, progress toward graduation, and upholding the academic integrity of Lawrence Tech. Every student at the university will be designed a faculty academic advisor. Each student-athlete is first and foremost a student. As such, you will be required to comply with all the policies, rules, and regulations applicable to all members of the Lawrence Tech body, as well as NAIA academics standards.

Your experience as student-athlete at Lawrence Tech is of great important to the coaches, staff, and administration of the Lawrence Tech's Athletics Department.

Student athletes who are found in violation of the Academic Honor Code (Which can be found in the LTU student handbook) are to be suspended 10% of the team's competitions. Any Violation more than their first can result in removal from the team.

STUDENT-ATHLETE ACADEMIC SUCCESS (TIPS)

Student-athletes are expected to attend all their assigned classes daily. The following recommendations are included to help facilitate a great educational experience at Lawrence Tech.

- Introduce yourself to your professors early in the semester.
- Notify your professors in advance of classes that will be missed due to competition.
- Sit in front, ask questions, and show respect. Focus on the lecture and be an active participant.
- Know your professor's office hours and meet with them questions arise.
- Be on time or early for every class.
- Turn in assignments on time and do any extra credit that may be offered.
- Review notes every night.
- If you will miss class due to travel for athletics competition, coordinate with your professors to turn in assignments prior to departure, arrange to take exams early and/or promptly make up all work missed upon return.
- Adhere to the University Academic Honor Code.

ATHLETIC ATTENDANCE POLICY

All student-athletes are expected to be on time and attend every class. Each student-athlete is responsible for notifying their professors in advance of any absence due to athletics competition. It is advised that student-athletes present each of their professors with class dates that will be missed, due to athletic competition, at the start of each semester. Assignments and exams should be completed in a timely manner at the direction of the professor.

If a student-athlete is found to be missing class, the student-athlete, head coach, and the Athletic Director will meet to determine a necessary course of action. Unexcused absences from class may result in a student-athlete being withheld from athletic participation or dismissal from the athletics program.

ATHLETIC REGISTRATION

Students-athletes must always be enrolled as a full-time student (12 credits hours) for undergraduate student-athletes and (9 credit hours) for graduate student-athletes to be eligible for practice, competition at Lawrence Tech, and to be a graduate assistant.

Any student-athlete who drops below 12 credits hours or 9 credit hours becomes immediately ineligible for athletic practice and/or competition, Failure to comply with this 12-hour rule or 9-hour rule can result in athletic ineligibility, for feature of games and/or loss of athletic a scholarship. We encourage all our student-athletes to graduate in five (5) years or less and will require you to register for at least 12 hours or 9 hours per semester.

EXTACURRICULAR ELIGIBILITY

Students who chose to participate in extracurricular activities must be academically eligible to participate. This includes Lawrence Tech's academic eligibility and NAIA academic eligibility. The participation policy reads:

Students, faculty, and others at Lawrence Tech embrace the core values of integrity, respect, responsibility, sportsmanship, and servant leadership. Where internal commitment to these values falters, external discipline is needed to help the individual and preserve the character of the whole. As this regard's scholarship, students at Lawrence Tech (including part-time students) whose cumulative GPA falls below the standard required for good Academic Standing (GPA below 2.0) will be placed on Academic Probation.

Students who are placed on Academic Probation are declared ineligible for any athletic participation and any extracurricular activities that typically involve time commitments of five or more hours per week. Examples, clubs, drama productions, student government, pep band, intramural sports and on campus employment.

GREEK LIFE AND ATHLETICS

Students are prohibited in engaging in joining Greek Life until after their first full season of competition.

If as student-athlete participates in their sport over the fall and spring semester, they will be eligible to join a fraternity or sorority at the beginning of their 2nd year.

If a student-athlete participates in a sport where their first season is complete at the end of the first semester (i.e. soccer, women's volleyball, cross country), they are eligible to join a fraternity or sorority the second semester of their first years.

This policy is effective for all students new to Lawrence Tech. This applies to first-year freshman, and first year transfers at Lawrence Tech.

DRUGS AND ALCOHOL

Student-athletes are required to abstain from the use of illegal drugs and alcohol. A first offense violating the university's drug and alcohol policy will result in a warning. A second violation will lead to student-athletes sitting out a minimum of 10% of regular-season games, along with any additional disciplinary actions determined by the team's head coach. Subsequent violations could lead to loss of scholarship or dismissal from the team.

NAIA ELIGIBILITY

1. An entering freshman student must be a graduate of an accredited high school or be accepted as a regular student in good standing as defined by the enrolling institution.
2. An entering freshman student can be eligible immediately by achieving an overall high school grade point average of 2.300 or higher on a 4.000 scale. Alternatively, an entering freshman student can become eligible by meeting two of the three entry-level requirements below. The three entry-level requirements are as follows:
    - A minimum score of 18 on the ACT or 970 on the SAT (Evidence-Based Reading and Writing and Math) for tests taken beginning May 2019. EFFECTIVE DATE May 1, 2019 (for tests taken beginning May 1, 2019).
    - An overall high school grade point average of 2.000 or higher on a 4.000 scale.
    - Rank in the upper half of the student's high school class, as it appears on the final high school transcript after the student's date of graduation. The class rank must appear on the student's transcript, leaving certificate or other academic document. If the student's class rank does not appear on the above-mentioned documents, the rank can be provided to the NAIA Eligibility Center via the NAIA High School Portal.
3. The student must be identified and enrolled in a minimum of 12 institutional credit hours at the time of participation.

ADMINISTRATIVE WITHDRAWAL

The University administration reserves the right to administratively withdraw a student at any time whose conduct or academic standing they regard as unacceptable. Depending on the situation, the student will either:

1. Receive no grade in all classes and receive a refund on tuition and fees.
2. Receive a "W" grade in all classes and no refund on tuition and fees.

Fees and tuition will be refunded according to the standard refund schedule.

DISMISSAL FROM A TEAM

If a student athlete is dismissed from a team (voluntarily or not), it is their responsibility to return all team-issued gear/equipment. Failure to do so will result in a hold on their student account.
In recognition of students who achieve superior scholastic records, a Dean's List is published at the close of each semester, and an appropriate notation is made on students' academic records. This includes all students who have carried a minimum of 12 credit hours and have earned a GPA of 3.5 or higher. Part-time students must complete two semesters with at least six credit hours each semester and earn a GPA of 3.5 or higher to be included on the Dean's List. If students have selected confidentiality status, their names will not appear on published lists.

CLASS STANDING

Students with less than 30 hours are classified as freshmen. Students with at least 30 hours but less than 60 hours are classified as sophomores. Students with at least 60 hours but less than 90 hours are classified as juniors. Students with 90 hours or more are classified as seniors.

GRADE POINT AVERAGE

The grade point average (GPA) is determined by totaling the number of quality points earned (QPE) multiplied by credit hours earned (CHE) in each class and dividing the number of credit hours attempted (CHA).

GPA = Total QPE x CHE / CHA

TUTORING

Tutors should be scheduled through the Academic Achievement Center. Tutoring is a privilege. Please be responsible in your use of tutors. This means:

- Utilize tutors throughout the semester.
- Attempt homework assignments before meeting with the tutor.
- Actively participate in the tutoring session by having a list of appropriate questions ready to ask.
- You are expected to meet with your assigned tutor on a regular basis.
- If you cannot make an appointment, you must notify your tutor at least 24 hours in advance.
- If you have questions or problems, please contact Gladys Aviles at 248.204.4120.

EXPECTATIONS OF THE STUDENT-ATHLETE

1. Attending all scheduled classes and tutorial sessions.
2. Arrive on time for tutoring sessions and bring all necessary textbooks, notebooks, writing instruments, assignments, and other relevant materials. Print lecture notes, study guides, and practice exams before attending tutoring sessions.
3. Be prepared for all tutoring sessions. This entails, but is not limited to:

    - Attending all class meetings and taking notes on all materials presented.
    - Attempting assignments prior to the tutorial session.

- Being prepared with questions for the tutor to address in the tutorial session.

Student-athletes should not expect to be taught material in tutoring sessions. Tutors are there to help, not first-time instruction.

1. Plan for all assignments. Student-athletes should not expect to receive emergency assistance the night before an exam.
2. Cooperate with tutor(s) by following all recommendations made regarding study methods and practices.

YOU MUST ALWAYS DO YOUR OWN WORK; TUTORS CANNOT DO IT FOR YOU.

There are certain things you should never expect your tutor to do:

- Reading: You must do your own reading. Even if you are behind in your reading, your tutor will not do it for you, nor will they provide summaries of material.
- Write Papers: Tutors cannot edit papers, i.e., make suggestions for you to improve, and they will never write any portion of your paper for you.
- Type Papers: Tutors are not responsible for typing your papers. You are responsible for typing your own papers.

ATHLETIC TRAINING

The Lawrence Technological University (LTU) athletic training staff is dedicated to giving the student-athlete the best healthcare and customer service possible. As a student-athlete at LTU, expect to receive considerate and respectful care. We will honor your right to be informed and involved in making decisions about your healthcare. Below is a summary of pertinent sports medicine policies. All sports medicine policies are publicly available at www.ltuathletics.com/

INSURANCE COVERAGE

Student-Athletes that are residents IN the United States:

- If your current primary insurance is MEDICAID, you will need to purchase supplemental collegiate athletic injury coverage through LTU in order to participate. This link to purchase and additional information can be found on the LTU athletics website: https://ltuathletics.com/sports/2024/6/24/first-care-insurance.aspx
- If your primary insurance is provided by the MILITARY, you can CHOOSE if you would like to purchase supplemental insurance to help with coverage. If you decide to not purchase this, please note that NO claims will be filed with the school insurance as a result. This link to purchase and additional information can be found on the LTU athletics website: https://ltuathletics.com/sports/2024/6/24/first-care-insurance.aspx

Student-Athletes that are residents OUTSIDE of the United States:

- All international student-athletes (excluding Canada) MUST purchase international insurance coverage through LTU in order to participate. This link to purchase and additional information can be found on the LTU athletics website: https://ltuathletics.com/sports/2022/1/10/sports-medicine-staff-International-S-A-Health-Care.aspx
- Canadian student-athletes have the OPTION to purchase an international insurance plan. If you decide to not purchase this plan please be aware you will be required to return to Canada for all non-emergency medical care (e.g., x-rays, MRIs, specialist appointments). Emergency medical services will still be accessible in the U.S.. This link to purchase and additional information can be found on the LTU athletics website: https://ltuathletics.com/sports/2022/1/10/sports-medicine-staff-International-S-A-Health-Care.aspx

Norma Bonnell
5071West H Avenue
Kalamazoo, 49009-8501
Phone: (269) 381-6630 ext 3057
Fax: (269) 381-3055

First Agency Inc will contact you if any additional information is needed to process your claim. Please provide your full cooperation to ensure your claim will be settled in the least possible time.

LAWRENCE TECHNOLOGICAL UNIVERSITY PARENTS OF INTERCOLLEGIATE ATHLETES

LAWRENCE TECHNOLOGICAL UNIVERSITY ATHLETICS INSURANCE INFORMATION LETTER
Medical insurance coverage and claim processing can be a complicated and confusing process, especially with children in college living several miles from home. Intercollegiate athletics sets additional hurdles with the need for prompt and efficient medical care that may often be hindered due to limited insurance coverage. Student-athletes are required to have some form of primary coverage prior to participating in intercollegiate athletics. While that coverage may provide adequate medical coverage for your son or daughter at home, it may be limited in providing local coverage in the area, especially if you belong to an HMO and certain PPO's.

Lawrence Technological University purchases a **Secondary or Excess Intercollegiate Sports Accident Insurance Plan** for Intercollegiate Athletic Injuries ONLY. Your son/daughter is **AUTOMATICALLY** provided coverage under this secondary policy if he/she is a Lawrence Technological University **Intercollegiate** Athlete AND sustains an injury that qualifies as Intercollegiate Sports-related. Intercollegiate Sports-related injuries are defined as those that occur during activities that are **school-sponsored (practice, play and travel) and supervised** by a staff member. The Lawrence Technological University Intercollegiate Sports Accident Insurance Policy has a $500 deductible (per Injury) and provides up to $35,000 of benefits (per Injury) after the primary coverage has paid its maximum toward the claim. This *plan does NOT cover non-sports related conditions under any circumstances.*

ANY INJURY SUSTAINED MUST BE REPORTED TO THE LAWRENCE TECHNOLOGICAL UNIVERSITY ATHLETIC TRAINING STAFF IMMEDIATELY. Information regarding the claims filing process for the Lawrence Technological University Intercollegiate Sports Accident Insurance Policy will be initiated with the student-athlete if the student-athlete requires off-campus medical care. Failure of your son or daughter to report injuries to the athletic training staff in a timely manner or not following appropriate claims procedures may affect payment of your claim.

Please also note the NAIA Catastrophic Injury Insurance Program covers student-athletes who are catastrophically injured while participating in a covered Intercollegiate Sports activity (subject to all policy terms and conditions). The NAIA policy has a $35,000 deductible, which is satisfied by the Lawrence Technological University Intercollegiate Sports Accident Insurance Policy and provides additional coverage in the event of a catastrophic injury.

The goal at Lawrence Technological University is to minimize as much out-of-pocket expense to student-athletes and parents as possible when Intercollegiate Sports-related injuries occur. We highly advise you to investigate your son/daughter's health insurance needs while attending Lawrence Technological University and participating as an intercollegiate student-athlete.

Thank you,

LTU Athletics Department

Please also note the NAIA Catastrophic Injury Insurance Program covers student-athletes who are catastrophically injured while participating in a covered intercollegiate activity (subject to all policy terms and conditions). The policy has a $35,000 deductible, which is satisfied by the Lawrence Technological University Student Athlete Injury Insurance plan and provides additional coverage in the event of a catastrophic injury.

I strongly encourage you to call your athletic trainers with any questions regarding the Lawrence Technological University Student Athlete Injury Insurance Coverage.
The goal at Lawrence Technological University is to minimize as much out-of-pocket expense to athletes and parents as possible when athletic injuries occur. We highly advise you to investigate your son/daughter's health insurance needs while attending Lawrence Technological University and participating as an intercollegiate athlete.

PRE-PARTICIPATION PHYSICALS
A pre-participation physical is an annual requirement for all student-athletes. Student-athletes will be notified of physical dates by their coaches and the athletic training staff. Much of the LTU pre-participation physical process is completed online. Instructions will be sent to new and returning student-athletes by coaches and athletic training staff as their assigned pre- participation physical exam date approaches. Each student-athlete must complete all required forms before receiving their pre-participation physical exam. A parent/guardian must sign the appropriate documents if the student-athlete is under the age of 18. Any student-athlete who is considered a minor may not participate until a parent/guardian has properly completed all the documents. **The pre-participation**

physical exam must be administered by an LTU team physician prior to participation in any athletic activity (practice, competition, or strength and conditioning).

All student-athletes who have received medical care in a facility outside of LTU must bring in all applicable medical documentation for review by the athletic training staff. Please bring any copies of x-rays and/or MRIs on a CD, copies of doctor's or specialist notes, return-to- play notes or restrictions, radiology reports, etc. Failure to do so may result in delayed medical clearance. If a student-athlete has a pre-existing injury or illness, the sports medicine team (physicians, fellows, and athletic trainers) may come together and consult regarding participation status on an individual basis.

Student-athletes may be required to complete additional testing based on their medical history, especially those that are suggestive of potential cardiovascular abnormalities. Individuals will be referred for an additional diagnostic work-up as deemed necessary for medical clearance by the team physician. If for any reason the student-athlete is not medically cleared for intercollegiate athletic participation, they will be notified by the team physician and/or the athletic training staff. Costs associated with any tests, consultations, and/or medical procedures needed to gain medical clearance for participation will be the responsibility of the student-athlete.

INJURIES AND PHYSICIAN REFERRALS

It is important that student-athletes report all illnesses and injuries, including those which may not be sport-related, to the Athletic Training staff as soon as possible. The Athletic Training staff will facilitate follow-up care as needed. It is within the rights of a student- athlete to seek a primary or secondary medical opinion outside of the medical referrals of the Athletic Training staff.

The student-athlete should inform the Athletic Training staff so that they may facilitate return-to-play in a safe and timely manner. All student-athletes under the care of an outside physician must provide documentation of diagnosis and restrictions to the Athletic Training staff before they will be allowed to return to participation in LTU athletics.

Student athletes receiving medical care from an outside physician are required to bring a signed clearance note in order for them to return to sports at LTU. Once this note has been received by the Athletic Training staff, the student will need to receive final clearance from a LTU team physician before they can return to LTU athletics.

LTU TRAINING ROOM RULES

1. The Athletic Training staff, including student workers, is committed to providing our intercollegiate student-athletes with the best possible healthcare. Please treat our staff in a professional, courteous, and respectful manner.
2. Use of the Athletic Training Facility is reserved strictly for student-athletes involved in the Lawrence Technological University intercollegiate athletics program.
3. Student-athletes are not permitted in the Athletic Training Facility outside of posted hours.

4. Student-athletes must swipe in with their student ID every time they enter the Athletic Training Facility.
5. Student-athletes should report to the Athletic Training Facility for taping, treatment, and rehabilitation in proper attire (gym shorts, shoes, and t-shirts).
6. Shoes off the tables.
7. No cleats, boots, etc., in the Athletic Training Facility.
8. Bags and sport equipment should not be brought into the Athletic Training Facility. These items should be left in the hall, which is designated as the “Bag Zone,” or in the locker room.
9. No food or drink is allowed in the taping or treatment areas.
10. Abusive and/or foul language, horseplay, loud talking, and/or loitering will not be tolerated. You will be asked to leave.
11. All student-athletes must shower before receiving treatment.
12. No supplies are to be taken from the Athletic Training Facility without the permission of a staff athletic trainer.
13. Student-athletes are not to operate equipment to perform “self-treatments”.
14. The phone, computer, and copy machine in the Athletic Training Facility are off-limits to all student-athletes.
15. No tobacco products are to be used in the Athletic Training Facility.
16. Cell phones are permitted in the Athletic Training Facility. However, their use is prohibited for all photography and/or social media that would infringe upon another athlete's rights to privacy.
17. It is the responsibility of the student-athlete to follow the instructions of the athletic training staff, team physician, and/or the directions of other medical professionals. Failure to do so may result in a delay in participation.
18. Student-athletes are responsible for providing the athletic training staff with complete and accurate information regarding their medical history, medications, allergies, insurance, and contact information.

NAIA RULES AND REGULATIONS

Annually, the Athletic Director and/or our Associate Athletic Director will review appropriate NAIA rules and regulations with each team. Each student-athlete is responsible for having a basic understanding of NAIA rules in such areas as eligibility, playing and practice season, semesters of attendance, amateurism, financial aid, and other areas outlined in this handbook. Each student-athlete will be reviewed annually by the Faculty Athletic Representative (FAR) to determine eligibility for the upcoming season of participation. The University will certify that the student-athlete meets all academic and athletic eligibility requirements of the University and the NAIA to practice and/or compete.

A basic knowledge of NAIA and University rules is a necessity to prevent unwanted rules violations that can affect your eligibility to compete. If you are aware of an NAIA or University violation, you are required under the Student Code of Conduct and the NAIA Champions of Character program to report such information to the University immediately. You may inform your Head Coach or the Athletic Director.

TEN SEMESTER RULE/ SEASONS OF COMPETITION

Student-athletes may compete for a total of four (4) seasons in one sport. The NAIA defines a season of competition as participation in one or more intercollegiate contests, whether as a freshman, junior varsity, or varsity participant, or in any other athletic competition in which the University, as such is represented during a sport season. You must complete your four seasons of eligibility within your first ten (10) semesters of full-time enrollment. If you have not participated in any competition(s) for the current academic year, you will not be charged a season of competition; however, if you are enrolled as a full-time student, each semester will count toward your ten (10) semesters of full-time enrollment.

20% SOC RULE NAIA

Participation in more than 20% of the maximum allowable number of intercollegiate contests or dates (excluding scrimmages) at an NAIA institution, whether in a varsity, junior varsity, or freshman program, during the 24-week season. Any participation in NAIA-approved postseason shall result in a season of competition. The NAIA shall count seasons of competition based on intercollegiate participation charged by another intercollegiate athletic association. For the minimum number of contest per sport please go to https://interpretations.naia.org/article-v-section-b-item-19-20-season-of-competition-rule/

This new exception was proposed by the Competitive Experience Committee and will cover intercollegiate athletic participation beginning on August 1, 2021. The intention is to institute a minimum number of intercollegiate contests a student must participate in before they would be charged a season of competition. The numbers above are equivalent to a student competing in the minimum number of intercollegiate contests to be charged a season of competition. For example, a basketball player would be charged a season of competition if she competed in seven contests. Don’t forget that competition in NAIA approved postseason will automatically charge a student a season of competition regardless of the number of games they compete in.

All types of contests will count towards the total except for scrimmages. This is a continuation of the previous bylaw that stated a student would not be charged for competing in scrimmages only. A key point of this legislation is that the 20% calculation is based on the frequency of play limits for each sport. For the purposes of this bylaw, it does not matter how many games your team competes in. Take basketball again, if your team only plays in 15 games any students who only compete in six contests will not be charged a season of competition. Even though the student played in more than 20% of the games the team held.

This amended legislation removes the unattached exception. As you might know, the unattached exception had undergone massive changes recently and the proposers felt this bylaw change simplified this bylaw. Not to mention it makes this bylaw more equitable across all sports the NAIA sponsors. Instead of an athlete and coach trying to thread the unattached exception needle, they now know exactly how many contests an eligible student can compete in before they are charged.

Seasons of competition for non-intercollegiate competition will continue to be reviewed in the same manner. Furthermore, the NAIA will continue to take previous seasons charged or not charged by previous athletic associations at face value.

ACADEMIC ELIGIBILITY REQUIREMENTS

The NAIA and Lawrence Tech require student-athletes to meet certain academic requirements each semester and academic year to ensure that they are progressing toward a degree. Academic eligibility requirements are based on the number of terms of full-time enrollment, number of credits completed, and grade point average at Lawrence Tech.

Freshman: If you are an entering freshman, you must meet two of the three entry-level requirements:

- Achieve a minimum score of 18 on the ACT or 860 on the SAT. Tests must be taken on a national testing date (residual tests are not acceptable). Scores must be achieved on a single test.
- Achieve a minimum overall high school grade point average of 2.000 on a 4.000 scale.
- Graduate in the top half of your high school graduating class.

Sophomore:

- To participate in your second season of competition, you must have accumulated at least 24 semester credit hours and have a previous semester and cumulative
- Cumulative grade point average of at least 2.0.

Junior:

- To participate in your third season of competition, you must have accumulated at least 48 semester credit hours and have a previous semester.
- Cumulative grade point average of at least 2.0.

Senior:

- To participate in your fourth season of competition, you must have accumulated at least 72 semester credit hours and have a previous semester
- Cumulative grade point average of at least 2.0.

The GPA requirement must be maintained each semester and will be certified before each semester. If a student-athlete does not meet the GPA requirement at the conclusion of the fall semester, he/she will be ineligible to compete in the spring semester, and subsequent semesters until GPA requirements are met.

Although the University may accept transfer credits from other institutions, **the cumulative and previous semester GPA is based upon grades received while attending Lawrence Tech.**

AGENTS & AMATEURISM

A student-athlete must be an amateur to compete in intercollegiate athletics. A student-athlete may lose his/her complete eligibility or eligible years of intercollegiate competition if he/she:

- Uses his/her athletic skills (directly or indirectly) to pay in any form in their sport.

- Accepts a promise of pay (even if pay is after graduation).
- Sign a contract or commitment to play professional sports.
- Receives (directly or indirectly) a salary, reimbursement of expenses, or any other form of financial assistance from a professional sport organization.
- Competes on a professional athletics team even if no pay or remuneration for expenses is received.
- Enters a professional draft.
- Enter into an agreement (written, oral, handshake) with an agent.

FINANCIAL ASSISTANCE OR IN-KIND BENEFITS (EXTRA)

Any financial aid or assistance to student-athletes in money or in-kind, except that which comes from members of their immediate family or from those upon whom they are legally dependent, shall be administered by the University under policies and procedures established by the University. Under no conditions may an individual or organization provide direct financial assistance to a student-athlete. Receipt of such additional assistance or benefits that do not meet the guidelines listed above will result in sanctions against the student-athlete, the program in which the athlete competes, and the University. Financial aid or assistance that is available to all Lawrence Tech students is not considered an extra benefit and is permissible.

PERMISSIBLE BENEFITS

- Complimentary admissions to sporting events.
- Academic support services
- Tutoring
- Use of computers, internet (for academic work only)
- University Scholarship (both academic as well as athletic) - administered only through the Financial Aid Office
- Transportation related to formal athletic competition.

IMPERMISSIBLE BENEFITS

- Discounts and credits
- Free or reduced cost services
- Telephone and credit cards.
- A loan or gift of money
- A guarantee of bond

- An automobile or use of an automobile
- Signing or co-signing a loan - This includes student loans.
- Payment for transcripts or admission fees
- Spending money or grant money not approved by the Financial Aid Office

This list is not exhaustive and only contains examples of benefits that a student-athlete may or may not receive. Remember, any benefit received except that which comes from immediate family or legal guardians must be administered by the University Financial Aid Office.

Benefits that come directly from university employees, boosters, or other individuals or corporations that are not available to all students or specific groups or are being given to a student-athlete based on their participation in athletics is a violation. If a student-athlete is presented with an extra benefit, he/she must inform their Head Coach and the Athletic Director immediately. Failure to do so could result in a loss of eligibility, forfeiture of games, and/or suspension or withdrawal from the athletics program.

ATHLETIC AWARDS
Each athletic team honors various athletes with team awards.

EMPLOYMENT
Lawrence Tech monitors all student employment on campus to ensure the following:

- Students may only be paid for work performed.
- Students may only be paid at an equivalent rate to any other employee with similar experience and duties in the locale of the employer.
- Students can work 20 hours a week during the school year.

CAMP/CLINIC EMPLOYMENT
A student-athlete may be employed at Lawrence Tech, other institutions, or privately-owned camp/clinic, provided he/she is paid for work performed and paid at a rate equivalent to other camp/clinic employees with similar experience and responsibilities.

- A student-athlete must perform general duties related to coaching/officiating.
- A student-athlete may not be paid based on athletic ability or reputation.
- A student-athlete may not be paid only for lecturing or demonstrating at a camp/clinic.

In addition to compensation, a student-athlete may receive travel expenses provided such travel expenses are given to all employees of the camp/clinic. A student-athlete may not conduct his/her own camp/clinic at any time.

PRACTICE & COMPETITION SCHEDULE
Under NAIA rules, each sport shall have a maximum 24-week practice and competition season. A week is defined as Sunday (12:01 am) through Saturday (11:59 pm). Any practice or competition during this period shall constitute one of the 24 weeks permitted. Practice is defined as an activity organized and/or directed by an identified member of the coaching staff of that sport in which appropriate equipment is used or instruction and/or evaluation of the athlete takes place.

In accordance with NAIA guidelines, the maximum number of varsity games, contests, or playing dates the University may schedule is listed below. No student may compete in a sport in an academic year in more than the number of games, contests, or playing dates listed below. In-season, student-athletes may participate in a maximum of twenty hours of countable athletically related activity each week with no more than four hours of countable activity per day.

LTU MANDATORY ONE DAY OFF POLICY

During the academic year which is the first day of classes to the last day of classes, student-athletes shall not engage in any countable athletically related activities on one calendar day per week during the playing season and two days per week outside the playing season. The required day(s) off may occur on any day of the week and may change from week to week. A "week" is defined as Monday (12:00 AM) through Sunday (11:59 PM).

COUNTABLE ATHLETICALLY RELATED ACTIVITIES

The following are considered countable athletically related activities:

1. Competition Days
2. Scheduled practices, which is defined as any activity organized and/or directed by any member of the coaching staff in which either (a) appropriate equipment is used or (b) instruction and/or evaluation of the athlete takes place. Practices is considered to have occurred if one or more coaches and one or more student-athletes engage in any of the following:
    - Film Sessions, Team or Individual Meetings, Recruiting Activities (including student-host duties), Fundraising Activities, Community Service Events, Travel to and from away/home games, Team building activities, and all activities/events requiring the individual or team commitment.

NON-COUNTABLE ATHLETICALLY RELATED ACTIVITIES

The following are considered non-countable athletically related activities:

- Study hall, tutoring or academic meetings, Study hall, Voluntary weight training not conducted by a coach or staff member, Voluntary sport-related activities (e.g., initiated by student-athlete, no attendance taken, no coach present), Training room activities (e.g., treatment, taping), rehabilitation activities, and medical examinations.

Exceptions:

1. Unforeseen Circumstances - travel complications, weather or health related issues.
2. Canceled Competitions - When an institution’s competition is canceled prior to the start of competition or can canceled prior to the competition being considered a completed event in accordance with the playing rules of that sport, a sport may use that as its required day off as long as they don’t engage in any further countable athletically related activities during that day.

RECRUITING

Student-athletes can participate in the recruiting process under certain circumstances. These activities can include telephone contact, pick-up games, and hosting a prospective student. The topics below cover permissible and impermissible activities for student-athletes about recruiting.

STUDENT HOST

The most common recruiting activity student-athletes participate in is during a potential student-athlete visit.

- The student host should be enrolled on campus and be in good academic standing.

- The student host should live in accordance with the University's Student Code of Conduct.
- The student host should not use personal transportation and take the potential student off-campus.
- No purchases should be made for the potential student-athlete.
- No free goods should be given to the potential student-athlete.
- The student host and potential student-athlete may receive complimentary admission to an on-campus athletic event.

TELEPHONE CALLS

A student-athlete may participate in telephone calls to a recruit under the direction of a coach. A student-athlete who is attending another institution is not to be contacted unless a formal release has been obtained by the Lawrence Tech's Department of Recreation, Athletics, and Wellness. Prior approval is required.

TRYOUTS

A student-athlete may participate in organized tryouts with a recruit while the recruit is on campus, during an open house, or official visit. A prospective student-athlete is limited to two (2) on-campus tryouts.

TRANSFER RULES

The decision to transfer from Lawrence Tech to another institution is one that requires careful consideration. Below is a summary of NAIA rules regarding transfer which may help you better understand the decision you are considering:

- Before you begin to discuss the possibility of transferring to another institution, the institution to which you may be transferring must first receive written permission from Lawrence Tech's Department of Athletics.
- To obtain permission to speak with other schools, you must first inform your coach about your interest in transferring. It is important that you and your family understand that if you contact another school, they are obligated to notify Lawrence Tech.
- If a student-athlete desires to transfer to another NAIA institution, he/she must complete the Official NAIA Transfer Eligibility Statement, and it must be filed with the Eligibility Chair prior to participation.
- Transfers to NCAA institutions may meet "one-time transfer exceptions" and should be consulted with the athletic department of the institution after written permission to speak with is given by Lawrence Tech.
- If you are not granted permission to discuss transfer possibilities or the transfer exception, you may request a meeting/hearing with the Faculty Athletics Representative to appeal against the decision.

CODE OF ETHICS

The Department of Athletics requires all associated within the department, including student-athletes, to abide by all rules and standards of the University, NAIA, ACHA, USBC, or other

associations or agencies to which the University adheres and to assist others in fulfilling their commitment to do the same. Failure to do so may result in suspension, dismissal from the team, and/or loss of athletic scholarship in addition to any additional University or legal sanctions where applicable.

As a student-athlete, you acknowledge and accept the requirements and responsibilities that result in being an official representative of the University. You may be the only association an individual or a group may have with the University and your behavior, whether positive or negative, through your athletic success, academic achievement, and actions will be a direct reflection of the University. Being a student-athlete at Lawrence Tech is a privilege and
should be treated as such.

LAWRENCE TECHNOLOGICAL UNIVERSITY

First and foremost, you are a student of Lawrence Tech and must abide by all University rules and regulations including, but not limited to, those detailed in the Student Handbook, the Student Code of Conduct, the Academic Honor Code. The Student Handbook covers several areas of conduct, including, but not limited to, sexual harassment, the honor code, residence life, use of technology, sexual misconduct, and drug and alcohol use.

LAWRENCE TECH DEPARTMENT OF ATHLETICS

In addition to general University policies, as a student-athlete, you are responsible for abiding by all Department of Athletics and team rules established by your coaching staff. Although some rules may be team-specific, the following rules apply to all student-athletes participating in intercollegiate athletics at the University:

- Always represent yourself in a positive manner; do not embarrass yourself, your team, your family, or Lawrence Tech.
- As a student your first responsibility is to gain an education. This means you should be in attendance for every class. Absences due to formal athletic competition will be excused; however, you are responsible for notifying your professors in advance and coordinating any homework assignments, tests, etc., that may be missed. If you are ill, you must contact your professor and coach in advance and coordinate any material missed. Failure to attend class may result in suspension from competition.
- Understanding the importance of being punctual is critical. Be on time for every commitment that you have. This includes turning in your academic work on time.
- Give 100% both mentally and physically to your academics and athletics.
- Do not violate the Student Code of Conduct at any time, whether on or off-campus, during weekends, breaks, summer, off-season, etc.

Each of these rules emphasizes responsibility, accountability, and integrity for student- athletes at Lawrence Tech. Upholding these standards ensures that student-athletes not only excel in their sports but also maintain a positive image, prioritize their education, demonstrate punctuality, give their best effort in all endeavors, and uphold the values of the university.

NAIA

Each student-athlete is expected to abide by all NAIA rules and regulations and meet the necessary NAIA requirements for eligibility. Lawrence Tech admonishes all student-athletes to always act with honesty and sportsmanship and represent the honor and dignity of fair play and the generally recognized high standards associated with wholesome competitive sports.

Unethical conduct by a student-athlete may include but is not limited to the following:

- Failure to provide information relevant to a possible violation of NAIA regulations when requested by the NAIA or Lawrence Tech.
- Academic fraud or providing false academic information.
- Providing a prospective student-athlete with an extra benefit.
- Knowingly providing false or misleading information concerning a possible violation of NAIA regulations.

If you have any reason to believe that an NAIA violation has occurred with yourself, your team, your coach, etc., you must immediately report such information to the Athletic Director or someone within the Department of Recreation, Athletics, and Wellness Administration.

SPORTSMANSHIP

The NAIA and Lawrence Tech encourage and promote sportsmanship by student-athletes, coaches, administrators, and spectators at all Lawrence Tech events. While representing Lawrence Tech as a competitor or spectator, profanity, racial or ethnic comments, or other intimidating actions directed at officials, athletes, coaches, or other team representatives will not be tolerated and are grounds for removal from the site of competition and other action at the discretion of the Department of Recreation, Athletics, and Wellness.

ATHLETIC FINANCIAL AID

SOURCE OF FINANCIAL AID

The rule emphasizes that all financial aid provided to student- athletes must be awarded through the university's Financial Aid Office. This ensures transparency, accountability, and fairness in the distribution of financial resources to support student-athletes' education. By centralizing the process through the Financial Aid Office, the university can effectively track and manage financial aid packages, preventing discrepancies or potential violations.

UNAUTHORIZED FINANCIAL AID

Student-athletes are cautioned against accepting any financial aid that has not been officially awarded through the university's Financial Aid Office. This includes monetary benefits or incentives offered by external parties, such as boosters, alumni, or sponsors. Accepting unauthorized financial aid can have serious consequences, including loss of eligibility, forfeiture of games, and sanctions from the NAIA. These measures are in place to maintain fairness and integrity in collegiate athletics, preventing undue influence or unfair advantages for certain athletes or teams

CONSEQUENCES OF VIOLATIONS

The guideline highlights the potential repercussions of accepting unauthorized financial aid. Loss of eligibility means that student-athletes may no longer be allowed to participate in athletic competitions, impacting both the individual athlete and the team. Forfeited games can result in negative consequences for the team's standings and reputation within the conference or league. Additionally, NAIA institutional sanctions may be imposed on the university, affecting its overall athletic program and reputation within
the collegiate sports community.

REPORTING PROCEDURES
Student-athletes are instructed to immediately report any offers or instances of unauthorized financial aid to the appropriate university authorities, such as the Athletic Director or Department of Athletics Administrator. This reporting mechanism enables swift action to address potential violations and uphold compliance with NAIA regulations. It also reinforces the university's commitment to transparency and accountability in managing its athletic programs.

GAMBLING
The NAIA opposes all forms of legal and illegal sports wagering. Sports wagering has the potential to undermine the integrity of sports contests and jeopardizes the welfare of student- athletes and intercollegiate athletics.

Lawrence Tech strongly supports a no-gambling policy on sports and strongly discourages all forms of gambling, including gambling unrelated to athletics events, such as poker, blackjack, etc. Gambling can be very addictive and has the potential to jeopardize your health, welfare, athletic, and/or academic success. Gambling can include betting through a bookie, online pools, family pools, Facebook pools, fantasy leagues, or any other wagering designed to award anything of tangible value to a winner. Involvement in gambling, regardless of how minor, may jeopardize your status at Lawrence Tech and your athletic eligibility.

STUDENT-ATHLETES SHOULD NOT PARTICIPATE IN THE FOLLOWING:

- Bet on any sports contest (cash, t-shirts, dinner)
- Pool betting (March Madness, fantasy leagues)
- Provide any "inside" team information, injuries, morale, game plans, to any individuals.

HAZING
Lawrence Tech does not condone hazing under any circumstances within the student body, including student-athletes.

Hazing is defined as an abuse of power and relationships, and its purpose is to demean others. Lawrence Tech is committed to the belief that abusive behavior, harassment, and assault do not build character, do not build leadership skills, and do not foster group loyalty or unity.
Hazing is any action or situation created intentionally, whether on or off university property by student clubs/organizations, athletic teams, individual students, or student groups, to produce mental or physical discomfort, endangerment of life, embarrassment, harassment, intimidation, or

ridicule. The willingness of a student to be involved in any hazing activity does not render an Anti-Hazing Policy unenforceable.

Examples include, but are not limited to, the following:

- Personal servitude
- "Boot Camp" Mentality
- Sleep deprivation.
- Altering physical appearance, i.e., head or eyebrow shaving, branding, etc.
- Forced or required consumption of liquids, solids, spicy or unusual foods, non-food items.
- Paddling or swatting in any form
- Coerced physical activity that causes fatigue.
- Exposure to inclement weather
- Lack of access to sanitary conditions
- Confinement in any room or compartment
- Acts of vandalism or acts that aid in the destruction of property.
- Physical or psychological shock
- Publicly wearing apparel and/or partaking of stunts is not normally considered to be in good taste.
- Participating in degrading or humiliating games and activities
- Misuse, theft, or destruction of property.
- Kidnapping, road trips, hunting for items (stealing)
- Engaging in behavior that is in violation of Lawrence Tech's regulation, standards, code, or state and federal laws.

Hazing is in violation of Lawrence Tech's Student Code of Conduct, University policy, and according to the Michigan Hazing Law – Public Act 111 of 2004 – MCL 750.411t.

Individuals and/or groups who participate in hazing activities may be subject to university charges, criminal charges filed by Lawrence Tech and/or injured parties, and civil liability from injured parties. Student-athletes found to be involved in hazing may be subject to additional penalties at the discretion of the Department of Recreation, Athletics, and Wellness that may include, but are not limited to, the following: suspension, dismissal from team and/or loss of athletic talent grant.

HOW TO REPORT HAZING INCIDENTS:
Any student who believes he/she is a victim of hazing is encouraged to report the incident.

Hazing may be reported to any of the following offices or individuals, or any member of the athletic staff:

Dean of Students	Kim Jerdine	248.204.4114
Department of Campus Safety	Tim McGillivary	248.204.3945
Athletic Director	Mary Ann Meltzer	248.204.3885

MEDIA RELATIONS

The Lawrence Tech Department of Athletics is the publicity and media relations office for Lawrence Tech's intercollegiate athletic programs. Blake Schalm is the contact for the department and can be reached at 248.204.3867

The role of the Athletic Department Communication office is to effectively communicate to the news media and fans information about our athletic programs. The office provides game- day stats, news releases, and feature stories. It is also responsible for responding to news media inquiries and arranging all media interviews with student-athletes, coaches, and athletics administrators.

The Department of Athletics encourages and facilitates coverage of Lawrence Tech's athletic teams, student-athletes, and coaches by the media. The University generally encourages all student-athletes to make themselves available to the media, as they are ambassadors and representatives of the University. All interview requests for student-athletes must be coordinated through the Athletic Communications Department. Attempts to work around your academic and athletic schedules will be considered before making any commitments. The University does not have control over what the media prints or the stories they present; however, if we cooperate and work together, it is our hope that the stories reported will be a positive reflection on the University.

STUDENT-ATHLETE ROLE & RESPONSIBILITY

As a student-athlete at Lawrence Tech, you are an ambassador and representative of the University. The University generally encourages all student-athletes to work with the Athletic Department and be available to the media when requested. The local community, your hometown, and extended families are interested in you, your individual accomplishments, as well as those of the team on which you participate.

Student-athletes are expected to carry themselves professionally and represent LTU at a high standard. Behaviors on social media should professionally and positively reflect the University and the Athletic Department.

You shall not make any public appearances, either in person or by means of radio, television, newspaper, etc., or willingly allow the use of your name in connection with your relationship to the University when such appearance or use of the name will result in unfavorable reflection upon the University. Remember, regardless of whether you are wearing a uniform, you are always a representative of your team and the University.

TIPS FOR ANSWERING MEDIA QUESTIONS

- Be on time.
- Always be polite to the media.
- Dress appropriately.
- Anticipate questions.
- Do not speak negatively about officials, opponents, coaches, teammates.
- Do not answer questions you do not wish to respond to. (No comment, I don't want to get into that, I'd rather not discuss the subject-are acceptable).

- Don’t fidget or use phrases like “you know” or “like I said before”.
- Be confident but not cocky.
- Never make “off the record” comments.
- Thank the reporter after the interview and be gracious for the opportunity.
- Stay calm and have fun.

CELEBRATING YOUR SKILLS

As a student-athlete, you will have the opportunity to acquire certain skills and attributes through your participation in collegiate athletics. These skills will assist you in your current and future academic, professional, and personal endeavors and will provide you with the tools to succeed.

- Able to handle multiple tasks simultaneously.
- Can make decisions under pressure.
- Understands the importance of time management.
- Views constructive criticism as a growth opportunity
- Possesses a strong work ethic.
- Always striving to improve
- Coachable and willing to learn.
- Focused
- Aggressive
- Maintains a high energy level.
- Disciplined
- Self-motivated
- Understands accountability.
- Seeks and loves a challenge.
- Always prepared.
- Can execute a game plan.
- Understands the value of teamwork.
- Result-oriented
- Competitive nature
- Handles pressure well.
- Goal-oriented
- Possesses strong character.
- Confident

CHAMPIONS OF CHARACTER

"ATHLETIC TALENT MAY BE A GIFT, BUT CHARACTER HAS TO BE DEVELOPED."

As a member of the NAIA, we strive to earn the title of Champions of Character. As a student-athlete at Lawrence Tech, you are expected to live in accordance with the standards of the University, reflecting the core values of the Champions of Character program, and assist others in fulfilling their commitment to do the same.

MISSION

The NAIA Champions of Character initiative will create an environment in which every NAIA student-athlete, coach, official, and spectator is committed to the true spirit of competition through the five core values: respect, integrity, responsibility, servant leadership, and sportsmanship.

VISION
The NAIA Champions of Character program is a response to the deteriorating culture of sport in America and focuses on character to reclaim the true spirit of competition, entitled Champions of Character. It is possibly NAIA's single most important initiative ever, and it complements the mission, values, and honor code of Lawrence Technological University.

Student-athletes, coaches, administrators, and spectators are challenged to take responsibility for their behavior both on and off the field of competition. We want coaches with the courage and ability to hold their athletes to "standards higher than victory." At Lawrence Technological University, our desire is to recruit, retain, and graduate young people who can demonstrate the values of our mission as well as the five core values of the Champions of Character program as detailed below:

RESPECT
Those associated with sport show respect by treating themselves, other people, institutions, and their sport according to the highest standards of conduct. It implies civilized and gracious behavior to players, coaches, fans, and parents.

RESPONSIBILITY
Athletes show responsibility by making academic progress toward graduation their top priority. They solve problems rather than make excuses and are reliable team players. Students should be accountable for their actions and decisions, and coaches and administrators should maintain high standards of competence and conduct.

INTEGRITY
For student-athletes and their coaches, integrity means keeping commitments and conducting themselves with honesty. Coaches must subscribe to the Coaches Code and Code of Ethics, and student-athletes must know and understand the Champions of Character Student-Athlete Pledge.

SERVANT LEADERSHIP
This core value refers to putting the group first and taking responsibility for personal and group roles while performing at one's best. Students demonstrating servant leadership have the primary purpose of serving others while striving to become personal and team leaders. The servant-leader provides a critical service to society and sets a great example.

SPORTSMANSHIP
We expect the conduct of educational sports to adhere to the highest standards of sportsmanship. Administrators, coaches, students, fans, and parents are expected to act appropriately even when others do not, and to demonstrate fairness and equity in all contests and relationships.

STUDENT ATHLETE PLEDGE

Each game and practice I participate in will provide me with an opportunity to be a Champion of Character.

I pledge, as an NAIA student-athlete, to accept the five core character values of the NAIA and will do my best to represent the NAIA, Lawrence Tech, my teammates, and myself by:

- Respecting my opponent, the officials, my teammates, my coach, myself, and the game.
- Taking Responsibility for my actions in all areas of my life.
- Having the Integrity to stand by my word.
- Providing Servant Leadership where I serve others while striving to be a personal and team leader.
- Being an example of Sportsmanship by holding myself to the highest standards of fair play.

Participating in athletics goes beyond simply playing a game; it presents an opportunity to embody and uphold the values of sportsmanship, integrity, responsibility, respect, and servant leadership. By committing to the Champions of Character Student-Athlete Pledge, athletes pledge to be exemplary representatives of not only themselves but also their teams, Lawrence Tech, and the NAIA. This pledge reinforces the importance of demonstrating respect for opponents, officials, teammates, and oneself, as well as taking responsibility for one's actions both on and off the field. Additionally, it emphasizes the significance of integrity in upholding one's word and values, as well as providing servant leadership by serving others and leading by example. Lastly, it underscores the value of sportsmanship by adhering to the

highest standards of fair play, fostering a culture of respect and integrity within athletic competition.

NAME, IMAGE AND LIKENESS (NIL) POLICY

This policy is based on NAIA guidelines and the Michigan State NIL Statues

1. Creation and Distribution of Student Policy
   a. Lawrence Technological University shall have a policy for students which imposes reasonable and mandatory restrictions on Name, Image, and Likeness (NIL) Agreements made by Student-Athletes. Such restrictions shall be reasonable and not create an undue burden on the student-athlete's ability to earn compensation through NIL Agreements.
   b. This Student-Athlete NIL Policy shall be provided in writing to all student- athletes at least annually.

UNIVERSITY REVIEW OF NIL AGREEMENTS

c. The University designates its Athletic Director as the appropriate official to receive proposed NIL Agreements submitted by student-athletes. Proposed agreements that are submitted shall be promptly reviewed by the Athletic Director or, in the absence

of the Athletic Director, by the Associate Athletic Director or Assistant Athletic Director(s). The purpose of any review shall be to determine whether the proposed agreement conflicts with the Student- Athlete NIL Policy and or state statutes.

i. Within three (3) business days after a student-athlete has submitted a proposed NIL Agreement, the University must provide the student-athlete, in writing:
   1. A statement that the NIL Agreement is not in conflict with the requirements of the Student-Athlete NIL Policy or
   2. A description of any conflicts with the Student-Athlete NIL Policy identified by the University.

d. In either case, the University may identify concerns or make recommendations regarding compliance with University policies.

PROHIBITED ACTIONS BY UNIVERSITY EMPLOYEES

e. Neither the Athletic Director nor any coach, administrator, or other University employee shall negotiate any part of an NIL agreement on behalf of a student-athlete or prospective student-athlete, nor advise a student-athlete regarding any terms or content for an NIL Agreement except as necessary to cause the agreement to comply with the Student-Athlete NIL Policy. Employees may encourage a student-athlete to consult a legal or other professional advisor with respect to a proposed NIL Agreement.

f. No University employee shall give or promise compensation for the use of Name, Image, or Likeness of a current or prospective student-athlete for any purpose, including for the purpose of recruiting or inducing the student-athlete to enroll at the University or to participate in any sport or athletic competition.

g. No University employee shall direct that compensation be given for the use of the student-athlete's name, image, or likeness.

APPEALS: EQUITABLE ENFORCEMENT OF RESTRICTIONS

The Athletic Director shall ensure that all restrictions applicable to NIL Agreements, as set out in the Student-Athlete NIL Policy, are enforced fairly and equitably. If a student appeals the application of any restriction to his or her proposed NIL agreement, the appeal shall be resubmitted to the Athletic Director, who shall determine whether the proposed NIL agreement complies with the restrictions(s) in question and whether restrictions are being applied in an equitable manner.

h. If a student-athlete appeals the Athletic Departments decision regarding a conflict between the Student-Athlete NIL Policy and the students proposed NIL Agreement, a written determination shall be provided to the student promptly. In most cases, the student-athlete should be notified of the appeal decision within five (5) business days.

ACADEMIC REGULATIONS

The policies and procedures described in this *Catalog* determine the academic status of undergraduate students enrolled in the University. Exceptions to these policies and procedures may be considered only upon a written request to the Office of the Provost or the

designated/appropriate office. In the case of a lapse of future catalogs, the policies, procedures, and curricula in this *Catalog* will apply to all students. For policies pertaining to graduate programs, see Lawrence Tech's *Graduate Catalog*.

CLASSIFICATION OF STUDENTS

Classification as a part-time or full-time student is based upon the weekly academic load that the student carries. Graduate students are considered full-time when enrolled for nine or more credit hours. Graduate students are considered three-quarter time when enrolled for six to eight credit hours. Graduate students are considered part-time when enrolled for three to five credit hours.

CREDIT HOUR

Lawrence Tech's courses are based on a semester system, and course credits are based on the amount of classroom, lab and/or studio hours within each specific course.

Lawrence Tech graduate students are allowed to take a maximum number of 25 credits per semester unless otherwise stated by the Registrar's office which is dependent on student status.

The United States Department of Education and the Higher Learning Commission require that its affiliated institutions have a policy for assigning credit hours for all types of courses, disciplines, programs, credential levels, formats, regardless of modality.

ACADEMIC CALENDAR

LTU follows the standard academic calendar, 30 weeks of instruction for the academic year, with semesters 15 weeks in length, fall and spring, excluding final exam week and designated university closing periods. Summer sessions and accelerated (short) sessions/courses vary in length.

CREDIT HOUR DEFINITION

LTU's definition of a credit hour complies with federal and accreditation expectations and provides consistency throughout the University. LTU follows the Carnegie unit of measure for assigning credits to its undergraduate and graduate academic courses:

1. One credit is equivalent to 50 minutes (minimum) of direct faculty instruction and a minimum of two hours out-of-class student work each week for approximately fifteen weeks. However, the U.S. Department of Education has made clear that it does not intend to prescribe "seat time" minimums.

2. An equivalent amount of work Is required in courses and academic activities where direct Instruction is *not* the primary mode of learning. A credit hour can also be an **equivalent** amount of work for other activities as required in direct instruction, or the equivalent amount of work for other academic activities as established by the University including but not limited to internships/clinical experiences, directed studies, laboratories, studio/work, and other work leading to the award of credit hours. Credits are awarded on the basis of documented learning objectives, expected learning outcomes, and student workload expectations within a specified period of academically engaged time.

3. Hybrid and online courses require an **equivalent** amount of instruction and student work as required by in-person courses. Regardless of mode of instruction, LTU courses should be consistent in terms of quality, assessment, learning outcomes, requirements, etc. as courses offered face-to-face. Courses must demonstrate active academic engagement through interactive methods, including but not limited to, synchronous virtual classrooms, interactive content modules and tutorials, group discussions, virtual study/project groups, discussion boards, etc. Simply logging on, either by faculty or students, does not constitute active student learning. Credit hours assigned to a course delivered online must equal the number of credit hours for the same course delivered face-to-face with the same department prefix, number, and course title.

This table provides a per-week 'time on task' breakdown for courses based on credit hours and a typical 15-week semester and the Faculty Instruction and Student Engagement Time:

Credits	Faculty Instruction	Student Engagement	Total Faculty/Students minutes per semester
1	50 minutes	120 minutes	2,550 minutes
2	100 minutes	240 minutes	5,100 minutes
3	150 minutes	360 minutes	7,650 minutes
4	200 minutes	480 minutes	10,200 minutes
5	250 minutes	600 minutes	12,750 minutes
6	300 minutes	720 minutes	15,300 minutes

LTU COURSE FORMATS AND APPLICATION OF CREDIT HOUR POLICY

This credit hour definition applies to all courses at all levels (undergraduate, graduate, and professional) that award academic credit, regardless of format/delivery method, and is based on a 15-week semester. Academic units are responsible for ensuring that credit hours are awarded only for work that meets the requirements outlines in this policy. This policy allows a mandatory examination period to be counted in the minutes of instruction. Any exceptions to this policy must be approved by the Provost.

ACCELERATED SESSIONS: Courses offered in periods less than the standard 15-week semester in which the credit hours offered are the same as standard semester courses must maintain the same content and substantive learning outcomes as the standard semester version of the course. These courses must meet the definition of total faculty/student time within the time frame the accelerated version is offered (50 minutes per credit).

LECTURE/SEMINAR: Course focuses on principles, concepts or ideas, lecture, discussion, and demonstration. A semester credit hour is earned for fifteen, 50-minute sessions of direct faculty instruction and a minimum of two hours of student preparation time outside of class per week throughout the semester. A typical three-credit hour course meets for three, 50-minute sessions or two, 75-minute sessions a week for 15 weeks.

LABORATORY: Practical application type courses where the major focus is on "hands on" experience to support student learning (use of equipment, activities, tools, machines generally found in a laboratory). One to two laboratory credits represent a minimum of one hour per week of lecture or discussion plus a minimum of two to four hours of scheduled supervised or independent laboratory work.

STUDIO: Courses taught as applied study on a private or semi-private basis. Private instruction ranges from 30 to 60 minutes with independent practice and peer collaboration as prescribed by the instructor and required by the course project.

INTERNSHIP/FIELD EXPERIENCE: Courses developed for independent learning and the development and application of Job related or practical skills in a particular discipline. These courses allow for observation, participation, and fieldwork and are generally offered off campus. Internship time includes a combination of supervised time by approved experts outside the University, student assignments, and work products supervised by a University instructor.

CLINICAL EXPERIENCE: Supervised experiences where students are afforded an opportunity to apply skills and techniques acquired from assessment and intervention-oriented course material. Number of hours varies by academic program based on clinical placement site hour requirements and student assignments.

INDEPENDENT STUDY: Courses that permit a student to study a subject or topic in considerable depth beyond the scope of a regular course. Students meet periodically, as agreed upon with the faculty member, for the duration of the course. University faculty provides guidance, criticism, and review of the student's work. Students demonstrate competency through the completion of a final assessment either by submitting a final paper, project or portfolio, etc. as required by the faculty member. Credit hours are assigned based on the amount of activity associated with the course, faculty supervision, and amount of student outside work.

THESIS/DISSERATION: Courses, where students are working on independent projects such as thesis/dissertation, will conform to the standard minimum of 50 minutes of student work per credit hour, per week, throughout the course of the semester or the equivalent amount of work distributed over a different period of time.

HYBRID: A course is considered hybrid (or blended) when it is composed of both online learning and classroom learning and Incorporates the best features of both environments to meet the learning objectives of the course. Hybrid courses blend specified hours of direct instruction with online interactive methods, that may include but are not limited to, synchronous virtual classrooms, interactive content modules and tutorials, group discussions, virtual study/project groups, discussion boards, etc. to achieve equivalence in terms of quality, assessment, learning outcomes, requirements, etc. as their face-to-face counterpart.

OLINE (SYNCHRONOUS): Online courses offered in a synchronous format require students to and faculty to meet virtually for 50-minute sessions of direct faculty instruction and a minimum of two hours of student preparation time outside of class per week throughout the semester.

ONLINE (ASYNCHRONOUS): In online asynchronous courses occur instructors and students do not meet in the same space at a prespecified time. Online asynchronous courses must be **equivalent** in terms of quality, assessment, learning outcomes, requirements, etc. as courses offered face-to-face with the same department prefix, number, and course title. Faculty must demonstrate active academic engagement through interactive methods, including but not limited to, interactive tutorials, group discussions, virtual study/project groups, discussion boards, chat rooms, etc. Simply logging on, either by faculty or students, does not constitute active student learning. Credit hours assigned to a course delivered online must equal the number of credit hours for the same course delivered face-to-face.

GRADUATE GRADING SYSTEM

A record of grade points is kept in the student's permanent record and is used to determine his or her overall scholastic average. The following grades are computed in the grade point average:

Grade	Points per Credit Hour
A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
C-	1.7
F	0.0
WF	0.0 (failure due to non-attendance)

The grades D, D+, and D- are not used in graduate programs. The minimum grade considered a satisfactory grade at the graduate level is a C-.

The following grades are not computed in the GPA:

CR	Credit
DG	Deferred Grade
EX	Excused Credit
I	Incomplete
IP	In Progress
NC	No Credit
NR	No Report
TR	Transfer Credit
W	Withdrawal
WN	No credit due to non-attendance
X	Audit

ZZ Transfer Courses in Progress

RECOMPUTATION OF GRADE POINT AVERAGE

Graduate students can repeat one course during their academic career and have the initial grade/s removed from their grade point average. The following grades may be repeated and the grade point average recalculated at the graduate level: B-, C+, C, C-, F, and WF. The latest attempt must have resulted in a passing grade (an "F" grade is not considered a passing/earned grade). Until that point, all grades will appear on the transcript and will be computed into the grade point average.

The repeat process at the graduate level is not automatic and requires departmental approval. A request for a repeated course to be removed from the grade point average should be submitted to the student's Department Chairperson.

To be recomputed, the latest attempt must be the same course as the first and must be part of the University's normal course offerings. Directed study or special sections may not be used for recomputation purposes.

The University does not guarantee that a course will be offered in a future semester; it may be deleted from the curriculum and subsequently may not be recomputed.

When the recomputation is completed, only the credit hours and grade for the latest attempt will be reflected in the grade point average (assuming the grade received is passing). Courses that are not counted in the grade point average are indicated by an "E" (for exclude) in the column that is labeled "R" (for repeat). The passing course will have an "I" (for include) in the same column.

INCOMPLETE GRADE

An instructor has the right to submit a temporary grade of "I" (Incomplete) in a grade report at the end of the semester under the conditions outlined in the Academic Regulations section of the University undergraduate and graduate catalogs. A written request for a grade of "I" can be initiated by a student to the instructor, or the instructor can make a written recommendation to a student. The conditions and procedures for issuing a grade of "I" are as follows:

a) The instructor has determined that the student has satisfactorily completed the major portion of the course requirements.
b) The instructor has determined that the student is unable to complete the remaining course requirements during the period of the semester due to unanticipated circumstances beyond the control of the student.
c) The instructor has determined that it is possible for the student to work independently after the end of the semester, or the instructor agrees to meet with the student after the end of the semester, to satisfactorily complete the course requirements in a reasonable amount of time.
d) Prior to the end of the semester the student and the instructor have fully completed, signed, and dated the Incomplete Grade Form, as issued by the Office of Enrollment Services. The student and the instructor have fully agreed in writing to the reason for

granting the incomplete, the remaining work the student must complete to satisfy the course requirements, and the date when the work must be submitted for final evaluation. The instructor and the student both retain copies of the completed, signed, and dated Incomplete Grade Form

e) Prior to the end of the semester the instructor has submitted the completed Incomplete Grade Form to their department chair or their direct supervisor, who will keep the record on file. The department chair or direct supervisor has submitted the completed Incomplete Grade Form to the Registrar through Enrollment Services.

A student receiving an "I" grade must complete the remaining work according to the written agreement made with the instructor on the Incomplete Grade Form. The student cannot attend the class during a subsequent semester, as a mechanism to fulfill the required completion plan. If course attendance is critical to completing the course requirements, the student needs to register and retake the course again. A grade of "I" is a temporary grade and does not constitute a passing grade for the course. When a student has fulfilled the agreement, the instructor must evaluate the work and issue a final course grade through the Change of Grade Form, as issued by the Office of Enrollment Services. If no grade has been issued by the instructor after a period of one calendar year following the signed date on the Incomplete Grade Form the "I" grade will be converted to an "F" by the Registrar.

GRADE CHANGES

The electronic entry of grades submitted by instructors at the end of each semester is the official record of grades. Changes to any grade may be made only to correct errors in calculation, transcription, or scoring, or to resolve grades of "I." Grade changes, when necessary and merited, are initiated and approved by the instructor through the Change of Grade Form as issued by the Registrar, which is completed and signed by the instructor, and forwarded to the department chair or immediate supervisor. The form is then received, dated, and signed by the department chair or immediate supervisor, and forwarded to the Registrar. The Registrar may determine that the Provost's approval is also required in exceptional or unusual circumstances. Any disputes concerning grades must be resolved within one semester after the course was completed.

DISPUTE OF GRADES

Students who wish to dispute their grades have one (1) semester to address the issue. The appropriate procedure for disputing grades, along with any other aspect of a course, is as follows:

1. The student must first speak with the instructor of the course;
2. If the resolution is not what the student hopes to achieve, the next course of action is to speak with the department chairperson for the course;
3. Again, if the outcome from addressing the issue with the department chair is not what the student hopes to achieve, the student should then address the issue with the dean of the college of the course;
4. Finally, if that resolution is not what the student hopes to achieve, the last and FINAL course of action is to speak with the provost. The ruling of the provost is FINAL and no longer disputable by the student.

AUDITING CLASSES
Anyone wishing to audit a course must submit an audit request/registration form. This form is available in Enrollment Services/Office of the Registrar. No credit is granted for audited courses. Full tuition will be charged, and the tuition credit policy applies if the student withdraws. Once classes begin, a student may not change enrollment status from audit to credit or from credit to audit.

ADDING A COURSE
A registered student may add an open course (or courses) within the registration and initial add/drop period (typically the first week of the semester) via BannerWeb, provided that all prerequisites are satisfied and no holds prevent registration.

In the second week of the Fall and Spring semesters, a student will need to complete the Registration Form and obtain all required department and college signatures before submitting the form to Enrollment Services/ Office of the Registrar. The form is available online at https://ltu.edu/academics/forms-to-print/.

Any changes to a student's schedule are effective on the date changes are entered by the student on BannerWeb. A student is not permitted to attend courses without being officially registered. Permission for a person to attend a class without being registered may be given by the dean of the college or the affected department chairperson on a case by case basis. Instructors unsure of a student's status should direct the student to the department chair.

DROPPING A COURSE
A student may drop a course via BannerWeb anytime between registration and the drop deadline, typically at the end of the first week of classes. A full tuition adjustment will be made to the student's financial account. Drop and add dates for each semester are available on BannerWeb at my.ltu.edu and at Academic Calendar.

If a hold limits the registration function on BannerWeb, a student may complete the Registration Form and obtain all required department and college signatures before submitting the form to Enrollment Services/ Office of the Registrar. The form is available online at Enrollment Services Forms.

A student who drops a course during the first two weeks of classes during the fall or spring semesters will have no grade or record of the course on his/her transcript.

Dropping below full-time status can negatively impact financial aid, scholarships, University Housing, athletic eligibility, etc. Students with an F-1 or J-1 visa cannot drop below full-time status without prior approval from the Office of International Programs.

WAITLIST
Although the University makes every effort to project how many students will be eligible to take a specific course, sometimes more students wish to register for a course than class capacity can accommodate. In some instances, the department may institute a waitlist option for a course.

A student can access the waitlist (if enabled) through the standard process of adding a course on BannerWeb during open registration. All pre-requisite and hold requirements (if any) must be met.

A student is not guaranteed a seat in the course, regardless of position on the waitlist. The student will be notified by waitlist@ltu.edu to their LTU email if a seat becomes available. The student will then have 24 hours to finalize the course add in BannerWeb.

A student should avoid the waitlist whenever possible, especially if other sections of the same course have open seats. A student may not register for an open seat in the course and then try to get on the waitlist for another section.

Waitlisted courses do not count toward enrolled hours. In the event of a seat not becoming available, a student who does not otherwise have full-time status may experience a negative impact to financial aid, scholarships, housing, athletic eligibility, etc. Students with an F-1 or J-1 visa cannot drop below full-time status without prior approval from the Office of International Programs.

For more details about the waitlist process, please refer to https://ltu.edu/academics/registration-and-scheduling/#waitlistfaq.

WITHDRAWING FROM COURSES

A student who chooses to withdraw from a course or courses must do so via BannerWeb within the approved withdrawal period for the course. An official semester calendar is available on BannerWeb at my.ltu.edu and at https://ltu.edu/academics/registrar/.

All withdrawals must be initiated by the student to assure that a "W" will appear on the master grade roster and subsequent transcripts. The posted date of the withdrawal will be the date that the student completes the process on BannerWeb.

A student who withdraws from a course within the withdrawal period will receive a grade of "W." After the deadline, a student will not be permitted to withdraw from the course, and will receive a grade determined by the instructor (not a "W").

A student who does not attend courses or who misses a designated number of classes and who does not withdraw from the course will be issued the grade of "WF," or in the case of a developmental or ESL class, "WN." These grades indicate failure due to non-attendance and are further explained below this section.

When a W, WF, or WN are assigned, tuition and fees are not refunded. Exceptions to University policy are made only in rare circumstances, such as a debilitating illness. Requests made because of difficult work or class schedules are highly unlikely to be considered.

Withdrawing from a course can negatively impact financial aid, loans, scholarships, University Housing, athletic eligibility, etc. Students studying at Lawrence Tech with an F-1 or J-1 visa cannot drop below full-time status without prior approval from the Office of International Programs.

WITHDRAWAL DATES FOR SUMMER AND SHORTER COURSES
GRADES FOR COURSES DROPPED

Students who drop a course during the first two weeks of classes during the fall or spring semester will receive a "Drop" on their Registration Form and no grade will appear on their transcript.

Students who withdraw from a course after the add/drop period and within the withdrawal period will receive a grade of "W."

The last day to withdraw from summer semesters and short courses within the regular fall and spring semester is adjusted for the shorter time period as follows:

Class Duration Period	Last Day/Week to Withdraw
up to one week	third day
up to two weeks	first week
up to three weeks	second week
up to four weeks	third week
up to five weeks	fourth week
up to six weeks	fifth week
up to seven weeks	sixth week
up to eight weeks	sixth week
up to nine weeks	seventh week
up to 10 weeks	eighth week
up to 11 weeks	ninth week
up to 12 weeks	10th week
up to 13 weeks	11th week
up to 14 weeks	12th week
up to 15 weeks	13th week

Drop and Withdrawal schedules for each semester may be obtained from Enrollment Services/Office of the Registrar and are available at https://ltu.edu/academics/registrar/.

ATTENDANCE

Attendance requirements are unique to each course section as per the instructor, department, and/or college. The attendance policy and how attendance impacts a student's grade will be posted in the course syllabus.

NON-ATTENDANCE PROCESS

A student with non-attendance or excessive absences, who has not withdrawn from the course, will be issued the failing grade of "WF" or "WN;" non-attendance is indicated by the last date of attendance as reported by the instructor.

For online courses, non-attendance is lack of participation in the online course (e.g., not submitting assignments, not contributing to the online discussions).

WHAT IS A WF GRADE?

- A "WF" grade indicates failure due to non-attendance.
- It reduces the number of credit hours in which the student is enrolled (e.g., if a student is enrolled in 12 credit hours and receives a WF grade in a 3-credit course, the student's total enrolled credit hours becomes nine credit hours).
- It is calculated in the GPA as an "F" grade (see the Recomputation of Grade Point Average policy for more information on retaking the course).
- An "F" grade will be converted to a "WF" grade by the Office of the Registrar, if an instructor enters an "F" grade at the end of the term with a last date of attendance beyond the withdrawal deadline.

WHAT IS A WN GRADE?

- A "WN" grade indicates failure due to non-attendance in a developmental or ESL course.
- It reduces the number of credit hours in which the student is enrolled (e.g., if a student is enrolled in 12 credit hours and receives a "WN" grade in a 3-credit course, the student's total enrolled credit hours becomes nine credit hours).
- It does not count in the GPA.
- An "NC" grade will be converted to a "WN" grade by the Office of the Registrar, if an instructor enters an "NC" grade at the end of the term with a last date of attendance beyond the withdrawal deadline.

Non-attendance can be reported any time after the drop period. The non-attendance process is as follows:

- Instructor notifies Enrollment Services of non-attendance.
- Enrollment Services contacts the student by email informing him/her that the office has been notified of the student's non-attendance.
- The student has 10 days to respond by either withdrawing from the course (if it is still within the withdrawal period) or by resolving the issue with the instructor.
- If the student does not take action, a "WF" or "WN" grade is issued. Both "WF" and "WN" grades indicate failure due to non-attendance. A "WN" grade is used for developmental and ESL courses; a "WF" grade is used for all other courses.

A student will not be permitted to withdraw from a course after the deadline, and will receive a grade as determined by the instructor (not a "W" or "WN").

SCHEDULE OF CLASSES

Programs for graduate students are outlined in this *Catalog*. Class schedules giving the particular days and hours of the various classes offered are made available online during registration each semester at ltu.edu and on BannerWeb at my.ltu.edu.

GRADE REPORTS

Grades are available online at the end of each semester through BannerWeb at my.ltu.edu. Students must make a request to Enrollment Services/Office of the Registrar to have their report cards mailed.

CHANGE OF CLASS SCHEDULE

Beginning the first day of classes, students may change their schedule by adding or dropping courses online on BannerWeb at my.ltu.edu. Students are responsible for completing their own Drop/Add procedure and retaining confirmation of the transaction. Classes must be added during the first week of classes.

All changes to students' schedules are effective on the date conducted via BannerWeb. Students are not permitted to attend courses without being officially registered.

PREREQUISITES FOR COURSES

A student is responsible for satisfying the prerequisites listed in this *Catalog* for all courses in which he or she is registered. Only the department chair or dean of the college offering the course can approve a prerequisite waiver. If approved, the waiver is for one semester only and does not exempt the student from taking the prerequisite in the future.

A student who is determined to have enrolled in a course without satisfying the required prerequisites or obtaining an authorized waiver will be administratively withdrawn at any time during the semester and will forfeit tuition and fees according to the normal University tuition credit policy.

ACADEMIC PROBATION

FAILURE TO MAKE ACADEMIC PROGRESS

Any student whose overall grade point average falls below 3.0 at the end of a semester will be placed on academic probation. Students on academic probation are required to have an advisor's approval to register or to add or drop any class.

ACADEMIC SUSPENSION AND DISMISSAL

Any student whose cumulative grade point average remains below 3.0 at the end of four consecutive semesters will be suspended from the University for a minimum of one calendar year. Students can appeal the suspension by a written request to the department chair of their major.

Students who have been suspended and subsequently readmitted who fail to meet the conditions of their readmission will be dismissed from the University. Students dismissed from the University under these circumstances may not be readmitted.

The University will not accept transfer credit for courses taken at another college or university during a period of one calendar year following suspension.

EXCESSIVE REPEATING AND WITHDRAWAL

Any student is expected to successfully complete all the courses in which he or she is registered and are encouraged to carefully plan a schedule to avoid overloads and conflicts. A student who engages in excessive withdrawal from classes or who repeats a required course more than once is subject to academic review and may be placed on academic probation regardless of the overall GPA. Continuation of this behavior may result in suspension. Students may register for the same course up to three times. After that point, the signature of the dean of the student's college is required to register. Circumstances demonstrably beyond the student's control may excuse him or her from this requirement, but poor scholarship will not.

ACADEMIC STANDING COMMITTEE/READMISSION

Graduate students who have been suspended from the University because of academic reasons may, after one calendar year, submit a written petition for readmission to the Academic Standing Committee (academicstandingcommittee@ltu.edu). This petition should be received at least six weeks before the first day of class of the semester in which the student wishes to return.

Evidence of planning, curriculum load, and work activities are taken into consideration when reviewing petitions for readmission. Petitions should be well organized, typed, and should include the student's current address, phone number, student number, curriculum, and reasons why the student had previous academic difficulty and why the student now feels he or she can be successful if readmitted.

The petition may include a letter from an employer attesting to competent work and maturity. An official transcript of courses taken at another institution must be submitted at the time the student applies for readmission. However, credit is not allowed for any work taken at another institution for the period of one calendar year following suspension. Once admitted, a student is required to abide by the graduation requirements outlined in the *Graduate Catalog* at the time of readmission. A student's requirements for graduation may be subject to reevaluation.

Students wishing to reapply to a graduate or professional degree program after having been suspended must also complete a regular application for admission.

Students reapplying to the Master of Architecture program in the College of Architecture and Design must resubmit a portfolio of work completed in previous design courses, including any work they may have done in a professional capacity while away from the academic setting. The work submitted must be in accordance with admission guidelines.

Students who have been suspended and subsequently readmitted and who then fail to meet the conditions of their readmission will be dismissed from the University. Students dismissed from the University under these circumstances may not be readmitted.

DOUBLE-DIPPING UG/GR CREDIT

Graduate degree programs at Lawrence Tech consist of a combination of 5000, 6000 and 7000 level courses. In accordance with HLC Assumed Practices, at least 50% of the degree program must be completed with 5000, 6000 or 7000 level courses. No classes below 4000 level may be used to satisfy

credit on a graduate record or can be transferred as higher-level credit for a graduate degree. As per the Double dip policy at LTU, a student may take up to 9 credits at the 4000, 5000, 6000 or 7000 level that can be applied to both their undergraduate degree and their LTU graduate degree (this does not apply to students who transfer to another university for a graduate degree).

The double dipped course(s) will appear on the transcript as transfer credit and includes the final grade received in the course(s). The grade will impact the grade point average on both the undergraduate and graduate level transcripts.

ENROLLMENT AT OTHER INSTITUTIONS

Students are expected to complete all courses for a Lawrence Tech degree at the University once they have been admitted. Transfer credit is generally not given for courses taken at other institutions after enrollment at Lawrence Tech, unless those courses cannot be completed at the University.

Students enrolled at Lawrence Tech may not take courses at other institutions after admission to Lawrence Tech and expect those credits to transfer without the prior written permission of the Credit Review Committee. Any courses taken in violation of this policy will be denied transfer or additional credit.

To be eligible for guest credit, students must have:

1. Achieved a 3.0 GPA at Lawrence Tech
2. Satisfied the prerequisites for the course(s) that they wish to take at another institution. If prerequisites are in progress for the requested course(s) at the time of submission of the Guest Credit Approval form, a letter from the instructor(s) is required stating the student's grade in the course(s) as of that date and the instructor's opinion (at that point in time) of the student's capability to continue successfully in the requested course
3. Completed the Guest Credit Approval form (available in Enrollment Services/Office of the Registrar or at https://ltu.edu/academics/forms-to-print/).

Students must submit the Guest Credit Approval form to Enrollment Services/Office of the Registrar at least one month before the desired course begins. The Credit Review Committee reviews each request individually; please allow four to five weeks for processing. Enrollment Services will send the committee's decision to the student's LTU email account.

The student must receive at least a 3.0 GPA in the approved course to have it accepted at Lawrence Tech. It is the student's responsibility to have the official transcript sent to Enrollment Services/Office of the Registrar at Lawrence Tech. Until the official transcript arrives, the credit will not be placed on the student's transcript. In addition, only the course will transfer to Lawrence Tech, not the grade. Lastly, approved guest credit courses may not be transferred back to Lawrence Tech to be used in grade point average recomputation.

TRANSCRIPTS (RECORDS)

A permanent record of all credits earned at or transferred to the University is maintained for each student in Enrollment Services/Office of the Registrar. These transcripts are preserved indefinitely. All graduates are mailed an unofficial copy of their academic transcripts at Lawrence Tech as soon as possible after their degree is earned.

At all other times, students are charged a nominal fee for same-day processing of official copies of their Lawrence Tech transcripts. If selecting normal two business day processing, students are not charged for official copies of their Lawrence Tech transcripts. A student can have an official copy of his or her academic transcript from Lawrence Tech sent out after completing a transcript request form which can be found on the Registrar's Website or through Bannerweb. Official transcripts will not be released for international students in F-1 or J-1 visa status who have any pending financial obligations to the university.

CREATIVE WORK

All creative work produced in order to satisfy course requirements, including, but not limited to, drawings, models, digital files and other documents, become the property of the University and may be kept or returned at the sole discretion of the college offering the course. When such work is kept, arrangements will be made for the students to receive suitable photographic copies as a record of their work.

FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT (FERPA)

The Family Educational Rights and Privacy Act (FERPA) affords students certain rights with respect to their education records. These rights are:

1. The right to inspect and review the student's education records within 45 days of the day the University receives a request for access. Students should submit to Enrollment Services/Office of the Registrar written requests that identify the record(s) they wish to inspect. The University Registrar will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the Enrollment Services/Office of the Registrar, where the request was submitted, the University Registrar shall advise the student of the correct official to whom the request should be addressed.
2. The right to request the amendment of any of the student's education records that the student believes are inaccurate or misleading. Students may ask the University to amend a record that they believe is inaccurate or misleading. They should write the University official responsible for the record, clearly identify the part of the record they want changed, and specify why it is inaccurate or misleading. If the University decides not to amend the record as requested by the student, the University will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.
3. The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent to school officials with legitimate educational interests. A school official is defined as

a person employed by the University in an administrative, supervisory, academic, or support staff position (including the law enforcement unit and health staff); a person or company with whom the University has contracted (such as an attorney, auditor, or collection agent); a person serving on the Board of Trustees; or a person assisting another school official in performing his or her tasks. A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibility.

4. The right to file a complaint with the U.S. Department of Education concerning alleged failures by the University to comply with the requirements of FERPA. The name and address of the office that administers FERPA is:

   Family Policy Compliance Office
   U.S. Department of Education
   400 Maryland Avenue, SW
   Washington, DC 20202-4605

At Lawrence Technological University the following information is considered Directory Information about a student: dates of attendance, major field of study, class level, degrees and awards received, anticipated degree date, and confirmation that the student is enrolled (enrollment status).

In accordance with the provisions of the Family Educational Rights and Privacy Act (FERPA), this Directory Information can be released to the general public and may be listed in the campus directory, if one is published. Students may withhold this information from being released by completing the Student Request for Non-Disclosure Form. By completing this form, students are requesting that information NOT be released to non-University personnel nor listed in the campus directory, if one is published, for one year. This request remains in effect until removed by the student. Please note that in compliance with federal regulations, there are situations in which particular information may be released, upon presentation of official documents, to designated state, local, or government agencies.

Students should consider carefully the impact of their decision to request confidential status. This means that after submission of the form, requests for this information from non-University persons or organizations will be refused. Friends or relatives trying to reach a student will not be able to do so through the University; information that the student is enrolled at Lawrence Tech will be suppressed, so if a loan company, prospective employer, family member, etc., inquiries about the student, they will be informed that there is no record of the student's attendance.

Lawrence Tech will honor the student's request to withhold this information but cannot assume responsibility for contacting the student for subsequent permission to release the Directory Information. Regardless of the effect upon the student, Lawrence Technological University assumes no liability as a result of honoring the student's instructions that this information be withheld.

Once a student has designated a confidential classification, it will remain until the student cancels it. If a student wishes the classification removed, the student should submit a signed authorization

requesting that it be removed. This authorization form is available in Enrollment Services/Office of the Registrar (https://ltu.edu/academics/forms-to-print/).

SARA STUDENT COMPLAINT INFORMATION
Students enrolled in distance education programs through an institution that participates in the State Authorization Reciprocity Agreements (SARA) may file a complaint with the institution's SARA State Portal Entity if the complaint is **not resolved at the institutional level**. SARA complaints may include issues related to **online learning conditions**, **program integrity**, or **consumer protection**, but **do not** include complaints about **grades** or **student conduct**. These must be resolved internally through the institution's standard processes.

To learn more or to submit a complaint, view the SARA Student Complaint Process and refer to the SARA Policy Manual**.**

POLICIES, PROCESURES AND REGULATIONS

ACADEMIC HONOR CODE
Academic integrity and honesty are basic core values of Lawrence Technological University. In carrying out its academic mission, Lawrence Tech, like all universities, depends on the honesty and integrity of its faculty, staff, and students, and for this reason every member of the University community is charged with upholding the Academic Honor Code. Actions that breach the Code erode the trust of those who look to universities for honest evaluations of academic work arrived at through honest processes. Violations may also cause individual harm, in that reports of performance made to post-graduate schools, professional societies, and employers would inaccurately represent a student's progress.

Lawrence Technological University is committed to creating an academic community that values both individual and collaborative efforts that promote learning and discovery. Such a community expects honesty and integrity in the work of all its members. The Academic Honor Code speaks to the work of individual students within the community. It should not be construed as arguing against the important collaborations that also occur among students on campus. This document is intended to clarify the adjudication of issues regarding academic honesty and fair play for students.

NON-DISCRIMINATORY POLICY
Lawrence Technological University adheres and conforms to all federal, state, and local civil rights regulations, statutes, and ordinances. No person, student, faculty, or staff member will knowingly be discriminated against relative to the above statutes. Lawrence Technological University is an equal opportunity employer. Direct inquiries regarding non-discriminatory policies should be directed to the Office of Student Affairs, 248.204.4100.

SEXUAL HARASSMENT POLICY
It is the policy of Lawrence Technological University to maintain an environment free of sexual harassment for students, faculty, staff, or any other constituency. Sexual harassment is contrary to the standards of the University community. It diminishes individual dignity and impedes equal

employment, educational opportunities, and equal access to freedom of academic inquiry. It will not be tolerated at Lawrence Technological University.

WHAT IS SEXUAL HARASSMENT?

Harassment on the basis of sex is a violation of the Elliott-Larsen Civil Rights Act; Michigan Civil Service Commission Rules; the Office of Federal Contract Compliance regulations; and Title VII of the Civil Rights Act of 1964. According to guidelines issued by the Equal Employment Opportunity Commission in 1980,

> "Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature, even between people of the same sex constitutes sexual harassment when:
>
> 1. Submission to such conduct or communication is made either explicitly or implicitly a term or condition of an individual's employment, education, or participation in a University activity; or
> 2. Submission to, or rejection of, such conduct or communication by an individual is used as the basis for decisions affecting an individual's employment, education, or participation in a University activity; or
> 3. Such conduct or communication has the purpose or effect of unreasonably interfering with an individual's work or educational performance or of creating an intimidating, hostile, or offensive employment or education environment.
>
> "Sexual harassment can also exist when there has been no tangible job detriment (i.e., a significant change in employment status, such as hiring, firing, etc.). Courteous, respectful, pleasant, non-coercive mutual interactions between employees are not considered sexual harassment.
>
> "Personal (i.e., intimate) relationships that occur between persons who are in a supervisory-subordinate work relationship must be reported to the next level of management. In such situations, the department will take appropriate action." (According to the United States Supreme Court in Oncale v. Sundowner Offshore Services, Inc., No. 96-569, 1998.)

Although these guidelines, based on Title VII, apply specifically to sexual harassment in the workplace, they should be interpreted to apply to students as well under Title IX of the 1972 Education Amendments. As has been pointed out by the National Advisory Council on Women's Educational Programs (NACWEP), there is a serious problem "of harassment by gatekeepers – those who teach required courses or who have the authority to make critical decisions about a student's advancement. The extraordinary importance of such positions lends an exceptional degree of significance to every interaction with students, and makes sexual harassment of all types particularly harmful."

COMMON TYPES OF HARASSMENT

The NACWEP describes five classifications of harassment commonly reported by students and working women:

1. Generalized sexist remarks or behavior (e.g., “This is a man’s job,” “That’s women’s work,” “Women/men are incompetent at/are better suited to...”). Leering or staring, crude sexual remarks, off-color jokes, suggestive stories, and other related behaviors are also grouped in this category.
2. “This type of behavior is close to racial harassment in appearance; the sentiments or actions involved are often fiercely anti-male or anti-female and are not intended to lead to sexual activity. They are directed to the (individual) because of gender and can often affect whole classrooms; the offense may be ‘generalized’ both by its nature and its audience. There can be an inherent sexual content in or underlying such remarks that establishes a tone which in its awkwardness is more damaging than many overt acts.” (Frank J. Till, “Sexual Harassment: A Report on the Sexual Harassment of Students, the National Advisory Council on Women’s Educational Programs, August 1980.” Reprinted from *Sexual Harassment: Definition and Prevention,* State University of New York at Binghamton, 1988. Reprinted with permission.)
3. Inappropriate and offensive sexual advances (e.g., requests for social or sexual encounters, often accompanied by touching).
4. This type of harassment, while not necessarily threatening, usually makes the recipient uncomfortable. This discomfort may cause the recipient to avoid the perpetrator in the future, thus limiting his or her ability to function properly in the academic environment. Discomfort caused by harassment will almost certainly affect future professional and personal relationships.
5. Solicitation of sexual activity or other sex-related behavior by promise of rewards (e.g., grades, promotions, promises of greater opportunities, etc.).
6. “This category, in its extreme, literally amounts to an attempt to purchase sexual behavior. In its more blatant forms this type of behavior can be prosecuted as a criminal act ... even ‘banter’ along this vein may cause harm. Students may be mystified and confused by the interaction due to the power of the initiator. This is especially the case where the student propositioned is young or naive, and may fail to fully grasp the significance of the request.” (Till, “Sexual Harassment,” 16.)
7. Coercion of sexual activity by threat of punishment (e.g., refusal to comply with a sexual request or invitation results in a threat of failure, loss of job or promotion, or access to academic referrals).
8. “What is at stake is often more than one grade or a single recommendation – too frequently it is access to a discipline and so a career is jeopardized.” (Till, “Sexual Harassment,” 17.)
9. Sexual crimes and misdemeanors (e.g., criminal sexual assault [rape, indecent exposure, etc.]) across authority lines (faculty/student or employer/employee) or among colleagues and peers.
10. “This category refers to acts which, if reported to police authorities, would be considered crimes or misdemeanors.” (Till, “Sexual Harassment,” 22.)

PREVENTING SEXUAL HARASSMENT

Although the ultimate burden for prevention of harassment rests with those in supervisory positions, others should be aware that their actions may be construed as harassment. Following are some suggestions to supervisors, staff, faculty, and students for preventing sexual harassment, regardless of who is the perpetrator and who is the recipient.

- Avoid sexist remarks, off-color stories, or lewd jokes.
- Keep doors open when possible.
- Ask someone to accompany you if you suspect that you may be harassed.
- Make it plain that your intentions are not sexual in nature.
- Make clear, through your behavior, conversation, and actions, that you find sexual harassment offensive and inappropriate.

COMBATING SEXUAL HARASSMENT
Employees, students, or faculty who feel they are experiencing this form of discrimination should:

1. *Say No Clearly*. Inform the harasser that his or her attentions are unwanted. If the behavior persists, write a memo to the harasser asking him or her to stop; keep a copy.
2. *Document the Harassment.* Record the date, time, and place of each incident. Keep a copy of this record at home.
3. *Get Emotional Support.* Talk to your family and friends.
4. *Document Work Evaluations.* Keep copies of performance evaluations and memos that attest to the quality of your work.
5. *Identify Witnesses/Other Victims.* You are probably not the first person who has been mistreated by this individual. Ask around; you may find others who will support your charge. (Sexual Harassment: What Every Working Woman Needs to Know, cs.utk.edu/~bartley/other/pto5.html.)

The least effective way to deal with sexual harassment is to ignore it. Unless the recipient of unwanted sexual attention takes some kind of action (whether formal or informal), the harasser is very likely to continue or even escalate the harassing behavior.

The following suggestions for combating sexual harassment reflect a variety of options, ranging from informal methods to formal procedures.

COUNSELING
Students may obtain information about or assistance with sexual harassment issues from the Office of the Dean of Students. Staff, faculty, and administrators should seek help from the Office of Human Resources.

Lawrence Technological University provides Clinical Counseling to parties involved if they so choose. Counseling services can be reached at clinicalcounseling@ltu.edu or 248-240-4100.

Sexual harassment undermines the confidence of a student or employee and adversely affects his/her attitude and job or academic performance. All students and employees may talk, confidentially, to trained counselors in Student Affairs if they believe they have been sexually harassed.
Counselors can be an immediate source of help by:

- encouraging the victim to report the incident(s);
- acting as a liaison between the victim and management;
- helping the victim readjust to the work or school environment; and
- helping the victim regain confidence. (Reprinted from *Where Do You Draw the Line? Sexual Harassment in the Workplace*, American Counseling Association, 4. Reprinted with permission. No further reproduction authorized without written permission of American Counseling Association.)

Counselors can also help management develop a proactive approach to dealing with sexual harassment issues by incorporating discussions on the topic during workshops, seminars, and/or training sessions.

INFORMAL RESOLUTION PROCESS

At the complainant's option, a sexual harassment report or complaint will be taken from staff by the Office of Human Resources and from students by the Office of the Dean of Students or any dean, director, department head, the director of residence life, and/or their designees.

The person who receives a sexual harassment report of complaint will advise the person who makes the complaint about the informal and formal resolution alternatives available. At the complainant's option, the person receiving the complaint can:

- provide information about sexual harassment;
- help the complainant deal directly with the alleged offender;
- assist with or mediate a resolution of the problem within the complainant's unit; and/or
- help the complainant prepare a written complaint and pursue formal action.

Informal resolution measures should address the particular circumstances. No action will be taken against the alleged offender if the resolution is kept informal. Any discussion with the accused individual should, unless the provost or director of human resources specifically decides otherwise, include the supervisor of accused staff, faculty, or administrator. Any discussion with an accused student will include a member of the Office of Student Affairs and the student's department chair.

FORMAL RESOLUTION PROCESS

Either subsequent to or instead of following the informal process, a complainant may elect to make a formal charge of sexual harassment. The University will investigate all formal charges of sexual harassment and take appropriate actions pursuant to the results of the findings.

There are several mechanisms available to pursue a formal charge, and their availability depends on the status of the complainant:

1. A student should notify the Office of the Dean of Students. If this is not possible, then the student may contact the Offices of the President or Provost.
2. A member of the staff, faculty, or administration may notify his or her supervisor, a department head or dean, the Offices of the President or Provost, the Office of Human Resources, or the Office of the Dean of Students. A student-employee may also notify any of these.
3. Contract employees should follow the same procedure followed by staff, faculty, and administrators.

Call the Office of Civil Rights at 216.522.4970 to make a sexual harassment complaint. Report all incidents of criminal sexual assault to the University's Office of Campus Safety at 248.204.3945 or the Southfield Police Department at 248.354.4720.

COUNSELING CAN HELP

Sexual harassment undermines the confidence of a student or employee and adversely affects his/her attitude and job or academic performance. All students and employees may talk, confidentially, to trained counselors in Student Affairs if they believe they have been sexually harassed.

Counselors can be an immediate source of help by:

- encouraging the victim to report the incident(s);
- acting as a liaison between the victim and management;
- helping the victim readjust to the work or school environment; and
- helping the victim regain confidence. (Reprinted from *Where Do You Draw the Line? Sexual Harassment in the Workplace*, American Counseling Association, 4. Reprinted with permission. No further reproduction authorized without written permission of American Counseling Association.)

Counselors can also help management develop a proactive approach to dealing with sexual harassment issues by incorporating discussions on the topic during workshops, seminars, and/or training sessions.

PARTICIPATION IN THE U.S. DRUG PREVENTION PROGRAM

Lawrence Technological University is committed to promoting and maintaining a work and academic environment that is free from illegal use of alcohol and drugs, in accordance with all federal, state, and local laws as well as the Drug Free Schools and Campus Safety Act. Lawrence Tech is in compliance with all provisions of the U.S. Department of Education Drug Prevention Program, which is a condition of the University's eligibility to receive federal funds or any other form of federal financial assistance.

Applicable policies are provided in section 701 of the *Employee Handbook*, section 3.14 of the *Faculty Handbook*, and in the Policies, Procedures, and Regulations section of the *Student Handbook*. The University specifically prohibits the unlawful possession, use, or distribution of illicit drugs and alcohol by students and employees on its property or as a part of its activities (except at University functions at which alcohol use is approved). Use of alcoholic beverages at any University function requires the approval of the provost or designee.

Employees, students, and campus visitors age 21 years or older, who consume alcohol at University functions or while on University business where such use is approved, are expected to use alcohol responsibly and not engage in illegal, unprofessional, or disruptive behavior. Violators will be subject to penalties, which may include expulsion or separation from the University. Any employee or student found to be in violation of University policy regarding drugs or alcohol will be subject to disciplinary action up to and including dismissal or expulsion in accordance with applicable disciplinary procedures.

Possession, use, or distribution of illicit drugs, possession or consumption of alcoholic beverages by individuals under 21 years of age and distribution of alcohol without a license or permit issued by a competent legal authority are violations of local, state, and federal laws. It is the policy of the University to cooperate fully in any prosecution based on violation of these laws.

A variety of serious health risks are associated with the use of illicit drugs and the abuse of alcohol. These include permanent damage to the liver, brain, and other vital organs, heart damage or malfunction, including sudden death, and accidents caused by impaired judgment or abilities. Individuals who may have a drug dependency or alcohol abuse problem are advised to contact the Oakland County Drug and Substance Abuse Center, 248.858.5200.

LIABILITY DISCLAIMER
Lawrence Technological University shall not be liable for any injuries to, or property damage or loss suffered by, any student regardless of cause. This disclaimer of liability shall apply to, but not by way of limitation, the following:

- Any injury or damage incurred on property owned by or under the control of the University, or its subsidiaries, such as classrooms, apartments, or other housing, any other structures, all common areas and grounds, and vehicles;
- Any injury or damage incurred as a participant, spectator or otherwise, in any intramural or intercollegiate or other event or contest, athletic or otherwise, or while in transit thereto or therefrom;
- Any injury or damage suffered while engaged in or attending a classroom or related activity, whether required or elective, and regardless of cause;
- Any injury or damage suffered by reason of theft, fire, damage by the elements, or other casualty;
- Any injury or damage suffered by reason of any act or omission of any University trustee, officer, member of the faculty or staff, employee, contractor, or student.
- By applying for admission or readmission to the University, or by continuing their enrollment with the University for a subsequent semester, students accept the foregoing disclaimer and agree to be bound thereby. Emergency referrals are made to community agencies. Any expenses incurred are the responsibility of the student.

DEGREES AND GRADUATION

Lawrence Technological University offers curricula leading to the following professional or post-professional graduate degrees or certificates. (For information on undergraduate degrees, see the *Undergraduate Catalog*, https://ltu.edu/academics/registrar/).

COLLEGE OF ARCHITECTURE AND DESIGN
Master of Architecture (also online)
Architecture, Direct-Entry (combined bachelor's and master's programs)
Master of Architecture/Master of Business Administration Dual Degree

Master of Architecture/Bachelor of Interior Design Dual Degree
Master of Architecture/Bachelor of Science in Civil Engineering Dual Degree
Master of Architecture/Bachelor of Science in Construction Management Dual Degree
Graduate Certificate in Building Information Modeling (also online)

COLLEGE OF ARTS AND SCIENCES
Doctor of Philosophy in Computer Science
Master of Science in Artificial Intelligence
Master of Science in Computer Science
Master of Science in Computer Science – Cybersecurity
Master of Science in Computer Science – Data Science/Intelligent Systems

COLLEGE OF BUSINESS AND INFORMATION TECHNOLOGY
Doctor of Business Administration†
Master of Business Administration†
Master of Science in Business Data Analytics†
Master of Science in Information Technology
Master of Business Administration /Master of Science in Business Data Analytics Dual Degree
Master of Business Administration /Master of Science in Information Technology Dual Degree
Master of Business Administration /Master of Engineering Management Dual Degree
Master of Business Administration /Master of Architecture Dual Degree
Graduate Certificate in Cybersecurity
Graduate Certificate in Healthcare Administration
Graduate Certificate in Healthcare Data Analytics
Graduate Certificate in Healthcare Data Science
Graduate Certificate in Project Management

COLLEGE OF ENGINEERING
Doctor of Philosophy in Civil Engineering
Doctor of Philosophy in Mechanical Engineering
Master of Construction Engineering Management
Master of Engineering Management (also online)
Master of Science in Architectural Engineering
Master of Science in Artificial Intelligence
Master of Science in Automotive Engineering
Master of Science in Biomedical Engineering
Master of Science in Cardiovascular Perfusion
Master of Science in Civil Engineering (thesis, course-based, or project option)
Master of Science in Electrical and Computer Engineering
Master of Science in Engineering Quality
Master of Science in Industrial Engineering (also online)
Master of Science in Mechanical Engineering
Master of Science in Mechatronic and Robotics Engineering
Graduate Certificate in Aeronautical Engineering

Graduate Certificate in Energy Engineering
Graduate Certificate in Integrated Project Delivery
Graduate Certificate in Intraoperative Neuromonitoring
Graduate Certificate in Lean Six Sigma
Graduate Certificate in Telecommunications Engineering

COLLEGE OF HEALTH SCIENCES
Doctor of Health Sciences (available online) †
Master of Science in Healthcare Administration (available online) ††
Physician Assistant Program†††

Graduate Certificate in Healthcare Administration (available online)
Graduate Certificate in Healthcare Data Analytics (available online)
Graduate Certificate in Healthcare Data Science (available online)

† Accredited by the Higher Learning Commission (HLC), https://www.hlcommission.org
†† Accredited by the AACSB International (AACSB), https://www.aacsb.edu/
††† The ARC-PA has granted Accreditation-Provisional status to the LTU PA Program, https://www.arc-pa.org/accreditation-history-lawrence-technological-university/

REQUIREMENTS FOR GRADUATION
The University reserves the right to modify its graduation and other academic requirements as may seem necessary from time to time. It is obligated only during the academic year of the student's registration by requirements published in the *Graduate Catalog* for that year.

Degrees are awarded to candidates who have fulfilled the following requirements:

- Satisfactory completion of all requirements in one of the degree programs as set forth in the *Catalog*. Any student required to take Developmental Studies courses (course level zero) will receive credit hours and grade points for such courses, but the credit hours earned for these Developmental Studies courses will not be included in the total hours required for graduation;
- Minimum GPA of 3.0 in the major;
- Minimum GPA of 3.0 in all credit hours earned at Lawrence Tech;
- Completion at Lawrence Tech of a minimum number of credits overall:
    - For a certificate or minor, 50% of the stated requirement;
    - For an associate's degree, a minimum of 15 credit hours;
    - For a bachelor's degree, a minimum of 30 credit hours, including 24 credits in the student's major and 24 credits of coursework at the 3000-level or above;
    - For a master's degree, a minimum of 21 credit hours.
- In addition, completion at Lawrence Tech of the *last* 15 credit hours of coursework for any degree.
- Submission of an Application to Graduate approximately one year preceding the date of expected graduation. Contact Enrollment Services/Office of the Registrar for specific graduation application due dates. A new application must be submitted in the event

requirements for graduation are not completed within one academic year of the submission of the petition.
- Full payment of all financial obligations to the University;

Master's degrees offered through the Colleges of Arts and Sciences, Business and Information Technology, and Engineering are awarded upon completion of all required coursework within seven (7) years of matriculation. Maintenance of a minimum 3.0 cumulative GPA is required for ALL master's and graduate certificate programs.

The University reserves the right to modify its graduation and other academic requirements as deemed necessary. It will be obligated only by the requirements published in the *Graduate Catalog* and on the University's website during the academic year of the student's registration.

DEGREE/DIPLOMA HONORS

The Master of Architecture is awarded to graduates who maintain a minimum cumulative 3.0 grade point average (GPA) in all degree program classes. Students who maintain at least a 3.75 cumulative GPA in graduate courses will receive the diploma honor "With Distinction." No diploma honor is awarded to graduate degrees within the Colleges of Arts and Sciences, Business and Information Technology, and Engineering.

GRADUATION APPLICATION/COMMENCEMENT DEADLINES

Graduation Applications for each semester have specific due dates:

Expected date of graduation	Graduation Application due date
May	December 15
July	December 15 *(if attending Commencement)* or April 15 *(if NOT attending Commencement)*
December	July 15

It is the student's responsibility to be aware of these dates and adhere to them. Graduation Application forms can be downloaded at https://ltu.edu/academics/forms-to-print/. Students may submit their forms to the DTE Energy One-Stop Center in the A. Alfred Taubman Student Services Center or fax them to 248.204.2228.

Processing Graduation Applications after their due date, if approved by Enrollment Services/Office of the Registrar, requires that an additional processing fee be assessed to the student. Further, availability of caps, gowns, and diplomas in time for Commencement cannot be guaranteed.

Students must also pay a graduation fee, which is nonrefundable after one academic year. If students do not complete their graduation requirements as planned within one academic year, a new Application to Graduate and graduation fee must be submitted.

GRADUATE COURSEWORK TAKEN WHILE AN UNDERGRADUATE STUDENT

Per approval of the student's college, no more than 9 credits of coursework (4000 level or higher) taken as an undergraduate student will be transferred to a graduate level program.

For more information on how a course can be applied to both the undergraduate and the gradate record, please see the Double-Dipping policy in the catalog.

COURSE NUMBER AND LEVEL

Each course is identified by an alphanumeric course number. The alphabetic prefix represents the subject area.

COLLEGE OF ARCHITECTURE AND DESIGN

Architecture	ARC
Design	DES
Fine Arts	ART
Game Design	GAM
Graphic Design	GRA
Product Design	IDD
Interior Architecture	ARI
Interior Design	INX
Transportation Design	ATD
Urban Design	URB

COLLEGE OF ARTS AND SCIENCES

Biology	BIO
Chemistry	CHM
Communication	COM
Creative Writing	CRW
Economics	ECN
Geology	GLG
Humanities	HUM
Language and Literature	LLT
Mathematics and Computer Science	MCS
Media Communication	MCO
Physical Science	PSC
Physics	PHY
Psychology	PSY
Social Science	SSC
Study Abroad	SAP

COLLEGE OF BUSINESS AND INFORMATION TECHNOLOGY

Accounting	ACC
Dissertation	DIS
Economics	ECN
Finance	FIN
Human Resource Management	HRM
Information Technology	INT

Management	MGT
Marketing	MKT
Master of Business Administration	MBA
Military Sciences and Leadership	MSL
Research	RES

COLLEGE OF ENGINEERING

Architectural Engineering	EAE
Audio Engineering Technology	TAS
Biomedical Engineering	BME
Concrete Technology & Management	CTM
Cardiovascular Perfusion	CVP
Civil Engineering	ECE
Construction Engineering Technology	TCE
Doctoral	DIS
Electrical and Computer Engineering	EEE
Electrical Engineering Technology	TEE
Embedded Software Engineering	ESE
Engineering Co-Op	ECO
Engineering, General	EGE
Engineering Management	EEM
Engineering Tech Co-Op	TCO
Industrial Engineering	EIE
Industrial Engineering Technology	TIE
Intraoperative Neuromonitoring	IOM
Manufacturing Systems	EMS
Mechanical Engineering	EME
Mechanical Engineering Technology	TME
Mechatronics and Robotics Engineering	MRE
Tech Alternative Energy	TAE

COLLEGE OF HEALTH SCIENCES

Doctor of Health Sciences	DHS
Health and Human Sciences	HHS
Nursing	NUR
Physician Assistant Studies	PAS

The first number following the alphabetic prefix indicates the academic level of the course:
0 = Developmental Studies
1 = Freshman
2 = Sophomore
3 = Junior
4 = Senior
5 = Senior/Grad

6 and above = Graduate level

Developmental Studies courses (course level zero) do not provide degree credit. The last of the four numbers normally indicates the semester hours of credit assigned to the course. For example, ARC 4653 carries three hours credit.

CATALOG OF ENTRY – LIMITATIONS
Although graduation requirements of the University may change while a student is enrolled, students are normally expected to meet the graduation requirements outlined in the *Catalog* that is in effect at the time they matriculate, as long as the courses are still offered by the University. Substitutions may be made for required courses that may no longer be available. However, if the new graduation requirements may be adapted to a student's current course of study without increasing his or her credit hour requirements or existing prerequisites, the new requirements shall prevail.

Students interrupting their studies for three calendar years or more must reapply for admission (see Admission section of this *Catalog*, Interruption of Studies). If readmitted, the *Catalog* in effect at the time of readmission is used to determine graduation requirements.

In addition, within the College of Architecture and Design, the requirements outlined in the Addendum to the *Graduate Catalog* for the Master of Architecture degree for the year of entry into the respective program also apply

COLLEGE OF ARCHITECTURE AND DESIGN

Interim Dean
Lilian Crum
248.204.2869
lcrum@ltu.edu

GRADUATE DEGREE PROGRAMS IN ARCHITECTURE AND DESIGN
The College of Architecture and Design Lawrence Technological University was created in 1989, having evolved from the School of Architecture, which was established in 1962. The mission of the College is to provide aspiring professionals with a comprehensive education and preparation for careers in design. Lawrence Tech's design programs emphasize investigation and collaboration through courses that address relationships among disciplines, including design, technology, the sciences, and the humanities.

The college seeks to develop graduates committed to articulate and socially relevant design, creative inquiry in all disciplines, critical thinking as the basis for design insight, clear communication as a design objective, and professional leadership. Students are encouraged to maintain high standards of excellence: many win significant design competitions and are highly respected by employers. LTU alumni practice and teach throughout the world and hold positions of responsibility in their practices.

The college's degree programs are accredited, as appropriate, by the National Architectural Accrediting Board (NAAB), the National Association of Schools of Art and Design (NASAD), and the Council for Interior Design Accreditation (CIDA). The college is a member of the Association of Collegiate Schools of Architecture (ACSA).

College policies and procedures are addressed in *The Student Companion*, which may be found at https://ltu.edu/architecture-design/resources/ . Additional information about the College of Architecture and Design, its faculty, students, and staff, is available at https://ltu.edu/architecture-design/ .

The College of Architecture and Design offers the following programs, which are described in this Graduate Catalog.

SINGLE-SUBJECT DEGREE PROGRAMS

Master of Architecture
Master of Arts in Design and Technology
Graduate Certificate in Building Information Modeling (BIM)

DUAL DEGREE PROGRAMS

Master of Architecture/Master of Business Administration
Master of Architecture/Bachelor of Science in Civil Engineering
Master of Architecture/Bachelor of Science in Construction Management

GRADUATION REQUIREMENTS

To earn a graduate degree, students must complete all courses and satisfy all university requirements pertaining to the degree program in which they are enrolled. Students are required to fulfill all pre-requisite requirements so as to complete courses in the mandated sequence. A master plan for a student's studies may be formulated in consultation with the student's academic advisor or with the administrator of student services. All students must maintain a minimum 3.0 cumulative grade point average to earn a graduate degree. Students are expected to meet with and be advised by academic advisors or program directors periodically during their course of study and prior to graduation to ensure that all requirements are being met in a timely fashion
Transfer students are encouraged to enter any of the degree programs for which they have the interest and qualifications. Transfer students may be asked to enroll in additional courses to ensure correct placement within the program.

ACCREDITATION

MASTER OF ARCHITECTURE

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for architectural licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, accredits three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. Doctor of Architecture and Master of Architecture degree programs may consist of a pre-professional undergraduate degree and a professional

graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

NAAB may grant a program a term of accreditation lasting ten or fewer years, depending on the extent of its conformance with NAAB's educational standards. The most recent NAAB accreditation review at Lawrence Tech took place in March 2023, after which NAAB granted the school a full, eight-year term of accreditation and cited several points of distinction.

DESIGN DEGREES

MASTER OF ARTS IN DESIGN AND TECHNOLOGY

The National Association of Schools of Art and Design (NASAD) is the only organization recognized by the U.S. State Department to accredit and to establish national standards for degrees and other credentials in art and design. NASAD operates as a regional accreditor in that the organization accredits universities rather than individual programs. All programs meeting the art and design designation must meet the standards published by NASAD for the university to be accredited. Lawrence Technological University is an accredited institutional member of NASAD with the most recent review in AY 2015-16 which resulted in a full 10-year term of accreditation. The next accreditation review is AY 2025-26.

DECLARATION OF THE MAJOR AREA OF STUDY

Students must declare which program they will pursue at the time the graduate application is submitted. The catalog and addenda in effect at the time of acceptance into the particular program is the governing determinant of the degree requirements that apply.

GRADUATE PROGRAMS

MASTER OF ARCHITECTURE

Lawrence Technological University provides four tracks to complete the NAAB-accredited, professional Master of Architecture (MArch) degree. The four tracks are described below.

MArch DIRECT-ENTRY TRACK 1 (36 graduate credit hours)

The MArch Direct-Entry (DE) Master of Architecture track provides students the opportunity to work toward the accredited professional architecture degree beginning immediately from the freshman year of college at Lawrence Tech or by transferring one or two years of lower division college credits earned at other schools into the Lawrence Tech MArch DE program. This track is a 169 credit-hour degree program. A minimum of 133 undergraduate credits and a minimum of 36 graduate level credits must be earned to graduate with the MArch. Students enrolled in the direct-entry track must maintain specific academic standards to complete the program and the accredited architecture degree. If students cannot or choose not to enter the upper division (the last 36 credit hours), they can elect to receive the Bachelor of Science in Architecture upon successful completion of all lower-division credits (133). Please refer to the admission requirements, below.

MArch TRACK II (48-72 credit hours)

The March Track II is a minimum 48-72-credit-hour program intended for students who have earned at least a pre-professional degree, the Bachelor of Science in Architecture, or the professional

Bachelor of Architecture degree at Lawrence Tech or another institution. This program of academic coursework combines graduate studies in architectural design, theory, and practice. It completes the required professional coursework, incorporating the NAAB Program Criteria (PC) and Student Criteria (SC) not addressed in the lower division (Bachelor of Science) program. This course of study includes 6 credits of architecture electives and a non-architecture elective. Students who are employed while earning the MArch should plan to distribute coursework over two to four years. There is no limit to the number of semesters in which students may take to complete their coursework; students are encouraged to do good work and take the time they need to derive the best from the education they are offered at LTU.

Program credit total (48-72) is based on coursework in previous Bachelor of Science in Architecture program. Advanced standing (waiving of courses marked with "++" in below curriculum section) is available through our Advanced Standing process listed below.

Applicants to the MArch Track II program are required to demonstrate that they have earned a minimum 3.0 grade point average in the pre-professional (undergraduate) coursework, completed a minimum of 42 credit hours of general education courses, and successfully completed the NAAB Student Criteria (SC) and Program Criteria (PC) covered in LTU's undergraduate curriculum. The required SPC are listed below:

PC1	Career Paths
PC2	Design
PC3	Ecological Literacy and Responsibility
PC4	History and Theory
PC5	Research and Innovation
PC6	Leadership and Collaboration
PC7	Learning and Teaching Culture
PC8	Social Equity and Inclusion

SC1	Health, Safety and Welfare in the Built Environment
SC2	Professional Practice
SC3	Regulatory Context
SC4	Technical Knowledge
SC5	Design Synthesis
SC6	Building Integration

MArch TRACK III (90 credit hours)
The MArch Track III is intended for students who hold a baccalaureate degree in a field other than architecture or in a field related to architecture. A minimum total of 90 credit hours at LTU are required to complete the MArch Track III, which consists of two phases: (1) foundation coursework that develops the skills and abilities addressed in LTU's lower division courses and (2) advanced (upper division or graduate level) coursework. Graduate students on Track III are fully integrated into the MArch curriculum. Non-architecture courses previously completed by the student (as part of a previous baccalaureate degree), and required as part of the 169-credit accredited MArch

degree, are counted to satisfy the general education requirements of the degree. Please refer to Admission Requirements, below.

MArch TRACK IV (58 or 76 credit hours)
The MArch Track IV program is intended for students who hold a baccalaureate degree in one of the environmental design fields (interior design, landscape architecture, etc.). Track IV has two options: a minimum 76 -graduate-credit curriculum intended for students whose undergraduate environmental design degrees are from schools other than LTU, and a minimum 57-credit curriculum intended to serve students with a Bachelor of Interior Design degree from LTU.

Tracks II, III, and IV of the MArch program are almost entirely online. Design studios are taught in a synchronous, real-time, online environment with all studio members participating. Seminar courses are typically asynchronous, but some may require a limited number of synchronous sessions. The Design Build Studio is the only course in the program not available totally online.

Design Build Studio is offered in the summer semester and has a one week on-campus component. Please contact the Department of Architecture for schedules before each summer session. More information on this course is available at https://ltu.edu/architecture-design/design-build-studio/
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TRANSFER STUDENT PROCEDURE: MArch PROFESSIONAL DEGREE
Students who are currently enrolled in another accredited graduate program in architecture may be accepted into LTU's Master of Architecture professional degree program if they meet all admission requirements. Credit for courses completed in an accredited graduate program will be reviewed for their acceptability as substitutes and electives for required courses at LTU. A request for transfer credits must be made at the time of the application for admission. A student must complete a minimum of 30 LTU credit hours even if transfer credits from another institution are granted.

ADMISSION REQUIREMENTS
Students who are part of the undergraduate sequence of the MArch DE Track I program will be automatically accepted into the graduate sequence of the program if a cumulative GPA of 3.0 or higher has been earned. Undergraduate Track I students with a GPA below 3.0 must formally apply to MArch Track II for consideration.
The MArch Track II, III and IV degree programs are open to qualified graduates of college and university architecture programs who meet all admission requirements.

Application to the MArch degree program requires submittal of the following documents:

1. The Application for Graduate Admission, which can be found at https://ltu.edu/admissions/graduate-students/
2. Official transcripts of all completed college coursework and degrees earned; the transcript must document the award of an undergraduate degree with a minimum undergraduate grade point average of 3.0

3. An academic and professional resume, including school and work experience and extracurricular activities
4. (Track II only) A comprehensive portfolio of work demonstrating a range of visualization and design abilities and experience. The portfolio requirements are linked below
5. All application materials should be submitted to admissions@ltu.edu.

APPLICATION DEADLINES

Applications will be reviewed on a continuing basis, but the Department of Architecture can only guarantee application reviews and decisions if all documents are submitted by the following deadlines:

March 1 for admission in the summer semester
August 1 for admission in the fall semester
November 1 for admission in the spring semester

Admission to the MArch professional degree program will be determined solely by the College of Architecture and Design. Admission is subject to conditions, which, if applied, will be clearly stated at the time of notification of acceptance into the program. Conditions may include the achievement of minimum course grades for a period of time and coursework in addition to the MArch coursework, as needed to complete NAAB SPC deficiencies in undergraduate work. Graduate students must maintain a minimum grade point average of 3.0 to remain in the program and to earn the degree.

ADVANCED STANDING

Based on previous academic coursework students in Track II, III, and IV may be eligible to petition for advanced standing within the curriculum. After being admitted to the MArch program, students may submit an Advanced Standing Appeal Form in order to have some courses within the curriculums listed below waived. The appeal will be reviewed by the MArch Course Appeal committee and students will be notified as soon as possible after submitting the form. Students are strongly recommended to petition for advanced standing before they begin classes, however students have until the end of their first semester enrolled. After the end of the first semester, students will no longer be able to petition for advanced standing.

Master of Arts in Design and Technology

The Master of Arts in Design and Technology (MADT) is a 30-credit, one-year program aligned with current undergraduate academic programs offered in the College of Architecture and Design. It will support students developing more advanced knowledge in Interiors (workplace strategy, healthcare, experience design, inclusivity), Game (level design, game development), Graphic (digital product, branding, interface design, traditional media), Product (home goods, consumer electronics, furniture, mobility, packaging), and Architecture through a thesis project. The MA in Design and Technology is considered a non-terminal, non-professional , graduate degree.

The MADT is registered under the CIP code 11 11.0105 Human-Centered Technology Design, which stresses technology in relation to human experience. The STEM designation makes this program

eligible for STEM specific Scholarships, 24-month OPT extension for International Students, and expanded GI benefits for Student Veterans.

ADMISSION REQUIREMENTS

Application to the MADT degree program has the following requirements and submittal of the documents:

1. Have completed a Bachelor or higher degree in Architecture, Communication Design, Experience Design, Game Design, Graphic Design, Industrial Design, Interior Design, Interior Architecture, Product Design, or another closely related field from an NASAD, CIDA, or NAAB-accredited program or international equivalent.
2. Have excellent academic credentials with a minimum GPA of 3.0 on a 4.0 scale.
3. Have submitted a written statement outlining their thesis inquiry which will focus the research and studio components of the degree program..
4. Have submitted a completed application packet to Graduate Admissions by the appropriate deadline at https://ltu.edu/admissions/graduate-students/
5. Have met university requirements for demonstration of English proficiency (international students).

APPLICATION DEADLINES

Applications will be reviewed on a continuing basis, but the Department of Design can only guarantee application reviews and decisions if all documents are submitted by the following deadlines:

April 1 for admission in the summer semester
July 1 for admission in the fall semester
November 1 for admission in the spring semester

Admission to the MADT degree program will be determined solely by the College of Architecture and Design. Admission is subject to conditions, which, if applied, will be clearly stated at the time of notification of acceptance into the program.

MASTER OF ARCHITECTURE CURRICULUM – TRACK I (36 credits)

The MArch curriculum consists of the following coursework (in addition to the undergraduate coursework previously completed).

Core Courses (12 credits)

ARC 5013 Research Methods
ARC 5423 Ecological Issues
ARC 5643 Architectural Theory
ARC 5913 Professional Practice

Design Studio (or Thesis Courses) (12 credits)

ARC 5804	Design Build Studio
ARC 5800	Design Build Studio On-Campus
ARC 5814	Advanced Design Studio 1 **–or–** ARC 6514 Thesis 1
ARC 5824	Advanced Design Studio 2 **–or–** ARC 6524 Thesis 2

Electives (12 credits)

ARC/DES 5xx3/6xx3	CoAD Electives (9 credits)
XXX 5xx3/6xx3/7xx3	Graduate Elective (3 credits)

Note: Design Build Studio is a pre-requisite for the Advanced Design Studios and for Thesis coursework. Please refer to the Studio description below.

Students are required to qualify for Thesis candidacy. Students taking the Thesis option will take Thesis 1 and Thesis 2 as required classes. Students opting for the non-Thesis option take Advanced Design Studio 1 or 2 and another ARC elective 2. Please refer to the Thesis description in the MArch degree section, below .

The **Design Build Studio** is the only course in the program that requires an on-campus component. This summer course has a one week on campus session. Please contact the Department of Architecture for schedules before each summer session.

The **Thesis** is a two-semester sequence of courses that offers students an opportunity to formulate and investigate a hypothesis related to architecture, its practice, tectonics, history, ideas, and design. It demands an independent pursuit and generation of knowledge through the creative process with an emphasis on research. The thesis is not a capstone project, nor a "comprehensive design" studio; it is not an opportunity to design a particularly complex building type. It is a self-initiated and self-directed work of greater breadth and depth than work produced in the students' earlier academic coursework. Thus, it is a more demanding alternative to the graduate-level Advanced Design Studios and is intended as an opportunity for students who are capable of independent work, individual research, independent idea development, and the formulation of sharply focused, articulate conclusions.

Students whose primary interest is in design, a design studio experience is better served by the graduate Advanced Design Studios sequence. Students interested in preparing a thesis should contact the Department of Architecture for guidelines that specify the qualification procedure for a thesis candidacy.
Students are required to take a minimum of six credits of ARC elective courses and three credits of non-architecture elective coursework (typically one course). Additional graduate-level elective courses may be found in the online class registration schedules.

MASTER OF ARCHITECTURE CURRICULUM – TRACK II (48-72 credits)

The MArch curriculum consists of the following coursework (in addition to the undergraduate coursework previously completed).

Design Studio (or Thesis Courses) (22 credits)

ARC 5034 Architectural Foundation Studio 3
ARC 5126 Comprehensive Design
ARC 5804 Design Build Studio
ARC 5800 Design Build Studio On-Campus
ARC 5814 Advanced Design Studio 1 **–or–** ARC 6514 Thesis 1
ARC 5824 Advanced Design Studio 2 **–or–** ARC 6524 Thesis 2

History/Theory Courses (15 credits)

ARC 5613 History of Designed Environment 1 ++
ARC 5623 History of Designed Environment 2 ++
ARC 5063 Twentieth Century Architecture
ARC 5423 Ecological Issues
ARC 5643 Architectural Theory

Technical Courses (21 credits)

ARC 5113 Introduction to Building Technology y ++
ARC 5713 Structural Systems 1 * ++
ARC 5723 Structural Systems 2 *
ARC 5313 Construction Systems 1* ++
ARC 5323 Construction Systems 2* ++
ARC 5443 Acoustics, Electrical, and Illumination Systems* ++
ARC 5413 HVAC and Water Systems* ++

Professional Courses (8 credits)

DES 5112 Design Leadership
ARC 5013 Research Methods
ARC 5913 Professional Practice

Electives (6 credits)

ARC/DES 5xx3/6xx3 CoAD Electives (3 credits)
XXX 5xx3/6xx3/7xx3 Graduate Elective (3 credits)

* Courses require content of College Physics and Precalculus
++ Courses *may* be waived for advanced standing by previous BSArchitecture degree

MASTER OF ARCHITECTURE CURRICULUM – TRACK III (90 credits)

Studio Sequence (34 credits)

ARC 5014 Architecture Foundation Studio 1
ARC 5024 Architectural Foundation Studio 2
ARC 5034 Architectural Foundation Studio 3
ARC 5044 Architectural Foundation Studio 4

ARC 5126 Comprehensive Design Studio
ARC 5804 Design Build Studio
ARC 5800 Design Build Studio On-Campus
ARC 5814 Advanced Design Studio 1 **–or–** ARC 6514 Thesis 1
ARC 5824 Advanced Design Studio 2 **–or–** ARC 6524 Thesis 2

History/Theory Courses (15 credits)
ARC 5613 History of Designed Environment 1
ARC 5623 History of Designed Environment 2
ARC 5063 Twentieth Century Architecture
ARC 5643 Architectural Theory
ARC 5423 Ecological Issues

Technical Courses (21 credits)
ARC 5113 Introduction to Building Technology
ARC 5713 Structural Systems 1
ARC 5723 Structural Systems 2
ARC 5313 Construction Systems 1*
ARC 5323 Construction Systems 2*
ARC 5443 Acoustics, Electrical, and Illumination Systems*
ARC 5413 HVAC and Water Systems*

Professional Courses (14 credits)
DES 5112 Design Leadership
ARC 5813 Visual Communications
ARC 5823 Simulation and Prototyping
ARC 5013 Research Methods
ARC 5913 Professional Practice

Electives (6 credits)
ARC/DES 5xx3/6xx3 CoAD Electives (6 credits)

*Courses require content of College Physics and Precalculus

MASTER OF ARCHITECTURE CURRICULUM – TRACK IV (58 /76credits)

Studio Sequence (26 credits)
ARC 5014 Architecture Foundation Studio 1
ARC 5024 Architectural Foundation Studio 2
ARC 5034 Architectural Foundation Studio 3**
ARC 5126 Comprehensive Design Studio
ARC 5804 Design Build Studio
ARC 5800 Design Build Studio On-Campus
ARC 5814 Advanced Design Studio 1 **–or–** ARC 6514 Thesis 1

History/Theory Courses (15 credits)

ARC 5613	History of Designed Environment 1**
ARC 5623	History of Designed Environment 2**
ARC 5063	Twentieth Century Architecture
ARC 5643	Architectural Theory**
ARC 5423	Ecological Issues

Technical Courses (21 credits)

ARC 5113	Introduction to Building Technology
ARC 5713	Structural Systems 1
ARC 5723	Structural Systems 2 2
ARC 5313	Construction Systems 1*
ARC 5323	Construction Systems 2*
ARC 5443	Acoustics, Electrical, and Illumination Systems*
ARC 5413	HVAC and Water Systems*

Professional Courses (11 credits)

DES 5112	Design Leadership**
ARC 5823	Simulation and Prototyping
ARC 5013	Research Methods
ARC 5913	Professional Practice

Electives (3 credits)

ARC/DES 5xx3/6xx3	CoAD Electives (3 credits)**

*Courses require content of College Physics and Precalculus.
**Courses not required for Track IV students with Bachelor of Interior Design degree from LTU.

DUAL DEGREE GRADUATE PROGRAMS

Students who apply for a dual degree program must apply for and receive acceptance from both programs.

MASTER OF ARCHITECTURE AND MASTER OF BUSINESS ADMINISTRATION (MArch/MBA)

TOTAL SEMESTER CREDIT HOURS: 71

This dual degree program enables students to earn both the accredited Master of Architecture and the Master of Business Administration degrees. The program incorporates courses from both disciplines. Prerequisites to this program include a BS in Architecture or BArch degree as well as several prerequisite courses in business. This program can be completed entirely online except for the Design Build Studio, as described above. The total number of credit required for the completion of this program include 44 credits of MArch coursework and 27 hours of MBA coursework for a total of 71 hours as delineated below.

Applicants to the MArch/MBA program are expected to have a significant working knowledge of business functions, such as basic accounting, economics, law, and statistics. This knowledge and understanding can come from prior coursework and/or substantial work experience in a functional business area. Students who do not meet this expectation can satisfy their foundation business requirements by taking coursework online or on campus while taking their core program courses.

MArch/MBA CURRICULUM

Required MArch Courses

Students are required to take a minimum of eight MArch courses for 27 credit hours.

ARC 5804	Critical Practice Studio
ARC 5013	Research Methods
ARC 5643	Architectural Theory
ARC 5913	Professional Practice
ARC 5423	Ecological Issues
ARC 5814	Advanced Design Studio 1 – **or** – ARC 6514 Thesis 1
ARC 5824	Advanced Design Studio 2 – **or** – ARC 6524 Thesis 2
ARC xxx3	Architecture Elective

Required MBA Courses

Students are required to take a minimum of nine MBA courses for 27 credit hours.

ACC 6003	Managerial Accounting
MBA 6013	Human Resource Management
MBA 6023	Global Business Economics
MBA 6033	Financial Management
MBA 6043	Global Leadership
MBA 6053	Strategic Marketing Management
MBA 6063	Operations and Supply Chain Management
INT 6043	Enterprise Information Technology
MBA 6073	Global Strategic Management (Capstone class)

MBA Foundation Courses

Students may satisfy their foundation business course requirements by taking coursework online or on campus while taking their core program courses. The program offers a full schedule of foundation courses for 0 to 15 credit hours, as needed.

ACC 5003	Financial Accounting and Financial Statements
MBA 5013	Business Application of Statistical Analysis
MBA 5011T	Managerial Economics
MBA 5021T	Fundamentals of Macro Economics (1.5 credits)
MBA 5061T	Legal Environment of Business (1.5 credits)
MBA 5031T	Fundamentals of Marketing (1.5 credits)

MBA 5041T Fundamentals of Management (1.5 credits)
MBA 5051T Fundamentals of Finance (1.5 credits)

OTHER DUAL DEGREE PROGRAMS
More information on the dual degree programs listed below are accessible online at https://www.ltu.edu/architecture-and-design/

Master of Architecture and Bachelor of Science in Civil Engineering
Master of Architecture and Bachelor of Science in Construction Management

CERTIFICATE PROGRAMS
The college offers three professional certificate programs that may be of interest to practicing professionals and to students currently enrolled in graduate degree programs.

BUILDING INFORMATION MODELING (BIM) CERTIFICATE - GRADUATE
The Building Information Modeling (BIM) at LTU is available online, as both an undergraduate and graduate certificate. It covers building information modeling and computer visualization, both of which play an increasingly important role in architecture, specifically building design, construction, and operation with the help of cutting-edge computer software, building information modeling and computer visualization use 3D modeling techniques that integrate a building's components – properties, location, geometry, spatial relationships, etc. The ability to visualize the project with BIM software increases productivity in the overall building process and improves communication between architects, engineers, contractors, and other key team members, making the project more efficient and economical.

Graduate Certificate Required Courses (12 credits total)
ARC 5023 BIM Fundamentals
ARC 5033 BIM for Building Systems
ARC 5043 BIM for Energy and Ecology
ARC 5053 BIM Programming and Prototyping
(P 75-85)

MASTER OF ARTS IN DESIGN AND TECHNOLOGY CURRICULUM (30 credits)

A minimum of 30 credits is required for the Master of Arts in Design and Technology degree. Degree candidates are required to have a thesis topic identified and approved by the MA in Design and Technology Program Director prior to matriculation into the program. The course flow is streamlined for current LTU CoAD students enrolled in undergraduate professional design programs (Architecture, Game, Graphic, Interiors, Product), focusing on full time enrollment with the capacity to also work full time. For non-LTU applicants, the program can also be completed in one year (3 semester) but with a higher course load per semester.

The degree is focused around the student focused design studios, Thesis Studio X and Y, supported by advanced visual communication skill development, management of creative processes, and design

methodology. Individual students have the option to pursue several related projects based on their research outcomes or link the two studios together in order to develop one larger project.

DEGREE REQUIREMENTS

Visual communication - 6 credits

DES 5113 Emerging Visual Communication

DES 5123 Storytelling and Visual Narratives

Design inquiry, investigation, and production – 12 credits

DES 5013 Design Research to Insight

DES 5023 Research Practicum

DES 5313 Design Management

DES 5413 Design methods

Creative Work – 12 credits

DES 5516 Graduate Design Studio

DES 5526 Graduate Design Studio

COLLEGE OF ARTS AND SCIENCES

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Glen Bauer
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DEGREE PROGRAMS OFFERED

Lawrence Tech's College of Arts and Sciences offers these graduate programs:

Master of Science in Computer Science
Direct-Entry 4+1 MSCS
Post-Baccalaureate Certificate in Premedical Studies

MASTER OF SCIENCE IN COMPUTER SCIENCE (MSCS) The Master of Science in Computer Science differs from traditional master's programs in that it emphasizes applied concepts in Big Data, Data

Mining, Artificial Intelligence, Software and Network Security and Social Network Mining. It also emphasizes applied concepts in machine learning, autonomous mobile robotics, mixed reality, and software engineering in robotics. This program is technically demanding in breadth and depth. Concepts are reinforced with customized software development challenges that focus on application and real-world projects. Three core courses provide rigor in computer science foundations. This program is designed so that students can select three additional general cs electives and two advanced topics electives in computer science to strengthen their understanding and give them a unique competitive advantage with employers.

The program also offers two optional concentrations: (1) Cybersecurity and (2) Data Science / Intelligent Systems. Students are not required to select either concentration. If students do select a concentration, however, they will be expected to pick four of their five electives from a more focused course list particular to the selected concentration.

MSCS PROGRAM OBJECTIVES

The program is designed to develop highly skilled professionals who have a thorough understanding of the theoretical concepts and practical uses of computer science. This applied degree program is intended to draw students from four diverse populations:

- College graduates with undergraduate degrees in computer science who wish to gain advanced knowledge and skill in the area of applied computing;
- Degreed and non-degreed, employed or unemployed, and computer professionals and self-learners seeking to further their technical competencies who demonstrate a passion for computer science and a history of achievement in software development;
- College graduates with bachelor's degrees in non-computer areas seeking entry into the computer science field are highly encouraged to join this degree;
- Highly motivated freshmen to earn both BSCS (Bachelor of Science in Computer Science) and MSCS (Master of Science in Computer Science) degrees in five years. Program details are described in the "Direct-Entry 4+1 MSCS Program" section below.

The market for those with computer science expertise is booming now and most likely will thrive in the future, giving rise to increased demand for technically competent leaders in a field that is essential for economic growth. Hands-on, applied classes reinforce theoretical concepts, and extensive experience in modern computer science laboratories is emphasized throughout the program.

The exceptional nature of Lawrence Tech's computer science program is reflected in the fact that computer science students often publish in peer-reviewed journals, an achievement far less common at many other higher education institutions. LTU graduates command some of the highest salaries in Michigan, and LTU has been recognized as being among the nation's leading institutions for post-graduation professional opportunity.

MSCS ADMISSION REQUIREMENTS

1. Submission of the Application for Graduate Admission (ltu.edu/apply) with a resume and at least one letter of recommendation;

2. A baccalaureate degree that includes one year of mathematics and one year of science (minimum GPA of 3.0*);
3. Official transcripts of all completed college work;
4. Completion of the following pre-core sequence of undergraduate courses** or their equivalencies with a B- or better. Students may also demonstrate mastery of the topics covered in these pre-core courses through a graduate qualifying exam and will be exempt from any pre-core subject area in which a score of 70 percent or higher is achieved.

Subject	*Cr. Hrs.*
Computer Science 2 (with C++ Programming)	4
Data Structures	4
Operating Systems	3
Linear Algebra	3
Probability and Statistics	3

5. Accepted applicants who do not pass the qualifying examination will be enrolled in the graduate courses only after completing the pre-core sequence of courses.*

*U.S. students can apply with a GPA of 2.5 or higher.

****PRE-CORE COURES MAY REQUIRE ADDITIONAL PREREQUISITE COURSES (E.G. COMPUTER SCIENCE 1) AND (DISCRETE MATH OR ADVANCE MATHEMATICAL MATURITY).**

MSCS TRANSFER CREDIT POLICY

No more than six graduate semester credit hours transfer into the program from another graduate program.

MSCS GRADE POLICY

Grades awarded in graduate courses are limited to A, A–, B+, B, B–, C+, C, C- and F. At most, one passing grade below B– may be counted toward a graduate degree. No more than one required course may be repeated. Courses numbered 5000 and above require a minimum grade of B– in each prerequisite course."

MASTER OF SCIENCE IN COMPUTER SCIENCE (MSCS) CURRICULUM

TOTAL CREDIT HOURS: 30

Students must have a plan of study, arranged in consultation with an advisor and approved by the program director or department Chairperson.

1. **Core courses (9 credits, three courses)**
   - MCS 5243 Theory of Computation
   - MCS 5303 Advanced Database System
   - MCS 5803 Algorithm Design & Analysis

2. **General CS Electives (9 credits, three courses) including:**
   a. Any 5000- or 6000- level MCS course except MCS 5003 and MCS 5033

3. **Advanced/Current Topics in Computer Science (6 credits) including:**
    a. Any MCS 6000- level courses
    b. MCS 5993 / 7993 - Advanced Topics in Computer Science

4. **Research Project or Master's Thesis (6 credits, two courses – choose option a or b)**
    a. Research project option:
    MCS 7013 Collaborative Research Project 1
    MCS 7033 Collaborative Research Project 2
    b. Master's thesis option:
    MCS 7113 Master's Thesis 1
    MCS 7133 Master's Thesis 2

Appropriate graduate-level courses in related disciplines (e.g., Information Technology, Biomedical Engineering and/or Computer Engineering) may be substituted for general or advanced MCS topics with the approval of the program director.

MSCS – CYBERSECURITY CONCENTRATION

Students may optionally select to concentrate their studies in the field of computer security. The program is designed to fill the same requirements as the MSCS program (above), but requiring students to select most of their electives from a list of available computer security classes. The modified degree requirements are as follows:

TOTAL CREDIT HOURS: 30

1. **Core courses (9 credits, three courses)**
    MCS 5243 Theory of Computation
    MCS 5303 Advanced Database System
    MCS 5803 Algorithm Design & Analysis

2. **General CS Electives (3 credits, one course) including:**
    a. Any 5000- or 6000- level MCS course except MCS 5003 and MCS 5033

3. **Cybersecurity Electives (12 credits, 4 courses) including:**
    a. MCS 5813 – Intro to Computer Security
    b. MCS 6503 – Adv Computer Networks and Security
    c. MCS 6523 – Adv Cryptography
    d. MCS 6533 – Distributed Consensus and Blockchain
    e. MCS 6543 – Secure Web Development
    b. MCS 5993 / 7993 - Advanced Topics in Computer Science

4. **Research Project or Master's Thesis (6 credits, two courses – choose option a or b)**
    a. Research project option:
    MCS 7013 Collaborative Research Project 1

MCS 7033 Collaborative Research Project 2

b. Master's thesis option:
   MCS 7113 Master's Thesis 1
   MCS 7133 Master's Thesis 2

Appropriate graduate-level courses in related disciplines (e.g., Information Technology, Biomedical Engineering, Computer Engineering, or other MCS related disciplines) may be substituted for General CS or Cybersecurity electives with the approval of the program director.

MSCS – DATA SCIENCE/ INTELLIGENT SYSTEMS CONCENTRATION

Students may optionally select to concentrate their studies in the field of data science and intelligent systems. The program is designed to fill the same requirements as the MSCS program (above), but requiring students to select most of their electives from a list of available big data / classes. The modified degree requirements are as follows:

TOTAL CREDIT HOURS: 30

1. **Core courses (9 credits, three courses)**
   MCS 5243 Theory of Computation
   MCS 5303 Advanced Database System
   MCS 5803 Algorithm Design & Analysis

2. **Data Science / Intelligent Systems Electives (9 credits, 3 courses) including:**
   a. MCS 5343 – Big Data Analytics
   b. MCS 5403 – Intelligent Robotics with ROS
   c. MCS 5603 – Machine Learning / Pattern Recognition
   d. MCS 5713 – Deep Learning
   e. MCS 5753 – Computer Vision & Scene Understanding

3. **Advanced/Current Topics in Computer Science (6 credits, 2 courses) including:**
   a. Any MCS 6000- level courses
   b. MCS 5993 / 7993 - Advanced Topics in Computer Science

4. **Research Project or Master's Thesis (6 credits, two courses – choose option a or b)**
   a. Research project option:
      MCS 7013 Collaborative Research Project 1
      MCS 7033 Collaborative Research Project 2
   b. Master's thesis option:
      MCS 7113 Master's Thesis 1
      MCS 7133 Master's Thesis 2

Appropriate graduate-level courses in related disciplines (e.g., Information Technology, Biomedical Engineering, Computer Engineering, or other MCS related disciplines) may be substituted for General CS or Cybersecurity electives with the approval of the program director.

MASTER OF SCIENCE IN ARTFICAL INTELLIGENCE (MSAI)

The Masters of Science in Artificial Intelligence (MSAI) is a joint program between the Department of Electrical and Computer Engineering (ECE) and the Department of Mathematics and Computer Science (MCS). The MSAI program join the fundamental computer science concept of artificial intelligence with applications that mimic human intelligence such as describing and recognizing qualities, as well as understanding meanings in different contexts in robotics, connected vehicles, data science and cybersecurity.

The program consists of seven core courses reinforcing the fundamental theories of artificial intelligence technologies and three in-depth courses in one of the four areas of specialization robotics and sensors, connected vehicles, data science and cybersecurity. The combination of theory and practice is designed to provide the students with enhanced knowledge of specialized tools and technologies, formulate and solve advanced problems, design systems or processes, and evaluate complex systems and newly created knowledge in technical areas of artificial intelligence (AI).

The MSAI program consists of 30 credit hours. The core courses (21 credits) primarily provide the students with an in-depth knowledge. The core consists of six (6) lecture courses and one (1) graduate project. Students select a specialization from two options provided by both the College of Arts and Science (CoAS) and College of Engineering (CoE). Graduate students, with the support of the primary faculty, will conduct applied graduate projects.

MSAI ADMISSIONS REQUIREMENTS

Admission to the Master of Science in Artificial Intelligence program requires the following:

1. A bachelor's degree with an overall undergraduate GPA of at least 2.5 (US students can apply with a GPA of 2.0 or higher)
2. A complete Resume or CV
3. Completion of the following undergraduate LTU CS courses or their equivalent. Test out of the prerequisite classes is available. (Students with limited CS background as the undergraduate level can contact Dr. El-Bathy at melbathy@ltu.edu or Dr. Nelson at pnelson@ltu.edu to tailor a plan specific to you).

MCS 2514 COMPUTER SCIENCE 2 (Continued studies in computer science: advanced file input/output (random access), dynamic memory allocation, exceptions, classes, inheritance, polymorphism, and OOP design, dynamic implementation of stacks, linked lists (ordered and unordered), queues (regular and priority), and circular queues, templates and selected STL classes, searching and sorting algorithms, recursive algorithms, and an introduction to GUI programming.)

MCS 2534 DATA STRUCTURES

Students who have completed these courses or equivalent at another nationally accredited U.S. college or university may request for a waiver. We also offer in the summer tutorials that students may sign up for on these subjects. After the on-line tutorial is complete, the student can request to

take the Pretest to test out of the class. This is highly recommended, especially for International applications.

Students are provisionally accepted into the program until this requirement is met. If the requirement is not met, then the students will be required to take the equivalent undergraduate courses at LTU during their first semester. After completing with a grade of B or better, the provisional acceptance will be removed.

Students with a Bachelor of Science degree in a field other than electrical or computer engineering or mathematics and computer science who have a GPA of at least 3.0 may be admitted on a provisional basis. These students must satisfy all prerequisite requirements before they can be granted official graduate status. The program director and the Graduate Admissions Committee decide what the prerequisite requirements are on a case-by-case basis.

REQUIREMENTS FOR CONTINUING MATRICULATION

In order to continue in the MSAI program, students must have a cumulative graduate GPA of at least 3.0 out of 4.0. A student whose cumulative GPA falls below 3.0 at any time during their tenure will be placed on academic probation and must consult with the program director regarding continuation in the program.

After admission to the MSAI program, students must meet with their academic advisor prior to class registration, each semester, to discuss and select plan of study. The final plan of study and selection of specialization must be submitted no later than by the time of completion of the lecture courses in the core curriculum.

REQUIREMENTS FOR COMPLETION OF DEGREE

Candidates for the MSAI degree must complete 30 semester hours within the MSAI curriculum. In the semester prior to their anticipated graduation, candidates for the MSAI degree will complete the form Petition to Graduate. The program director will then review the petition and articulate remaining degree requirements.

Artificial Intelligence Advisor/Director All students should have an advisor/director-approved Plan of Work. Contact Dr. Destiny Anyaiwe, (oanyaiwe@ltu.edu), to set up an appointment. Students are required to maintain an overall and program GPA of 3.0.

M.S. IN ARTIFICAL INTELIGNECE PROGRAM OUTCOMES

Students will:

- Apply specialized tools or advanced technologies to make measurements on and interpret data, assessing intellectual curiosity.
- Perform exhaustive literature search on research topics; analyze, organize, and summarize gathered information based on research applicability.
- Analyze and create communication documents and presentations.
- Design a system with process or create new knowledge or technologies in a technical area of Artificial Intelligence.

MSAI CURRICULUM

TOTAL CREDIT HOURS: 30

Core Courses (21 credit hours)

Complete six (6) lecture courses and one (1) graduate project

Course Number	*Subject*	*Cr. Hrs.*
EEE 5513	Software Development for AI	3
MCS 5623	Machine Learning and Pattern Recognition	3
EEE 5653	Digital Signal Processing	3
MCS 5243	Theory of Computation	3
MCS 5323	Artificial Intelligence	3
EEE 5523	Deep Learning for Engineers	3
MCS 5803	Algorithm Design and Analysis	3
MCS/EEE/MRE/EME 6xx3	Graduate Project	3

Specialization I. Choose three (3) of the following Robotics and Sensors courses:

EME 5983	Bioinspired Robotics	3
EEE 5563	Interface and Control of Robotics	3
EEE 5553	Application of Artificial Intelligence	3
MCS 5403	Intelligent Robotics with ROS	3
MRE 5183	Mechatronics Systems I	3
MRE 5323	Modern Controls Systems	3

Specialization II. Take the three (3) following Connected Vehicles courses:

EEE 5533	Connected Vehicle Technologies	3
EEE 5353	Computer Vision	3
EEE 6523	Adv. Deep Learning for Engineers	3

Specialization III. Choose three (3) of the following Data Science courses:

MCS 5713	Deep Learning and Neural Networks 3	
MCS 5723	Social Network Mining	3
MCS 5993	Text Mining and Analytics	3
MRE 5xx3	Applied Machine Learning	3

Specialization IV. Take the three (3) following Cybersecurity courses:

EEE 5443	Computer Network Cyber Security	3
EEE 5453	Embedded Networking	3
EEE 5463	Computer Networking	3
INT 6043	Mgt. Info. Systems	3
INT 7223	Cybersecurity	3

MSAI TRANSFER POLICY

A maximum of six graduate semester credit hours may be transferred, and these must be from an accredited Master of Science program in artificial intelligence. Credit for courses taken in a graduate

program other than those listed above will be reviewed by the program director and the Graduate Admissions Committee for acceptability as a substitute within Lawrence Tech's program. Courses transferred must have a grade of B (3.0) or higher must have been achieved. All petitions for course transfer consideration must be made in writing at the time of application. Credit may be earned at another university after matriculation by guest credit. Guest credit forms must be completed at both Lawrence Tech and the university where the courses are to be taken. No guest credit will be granted for courses that are being offered at Lawrence Tech during the same semester during which the student is applying for guest credit. Since fewer MSAI graduate courses are offered during the summer semester, some students apply for guest credit during the summer. All requests for transfer or guest credit must be accompanied by an official transcript.

DIRECT-ENTRY 4+1 MSCS PROGRAM

4+1 MSCS program is an accelerated program for highly motivated freshmen to earn MSCS as well as BSCS in five years. Nine graduate credits are double counted toward the BSCS and MSCS degrees. Freshman LTU Scholarship will continue for the fifth year. The total number of credits for this combined program is 113 (undergraduate) + 9 (graduate double counted) + 21 (graduate) = 143.

Admission requirements of the 4+1 MSCS are the same as the requirements for the first-year freshmen for Bachelor's degree, which can be found in the *Undergraduate Catalog*, except the following:

1. Recalculated high school GPA must be 3.0 or higher
2. ACT composite score must be 28 or higher or SAT score must be 1350 or higher
3. Must be ready to take Calculus 1

Program Policies and Procedures of the 4+1 MSCS:

1. This program is mainly for domestic first time in any college (FTIAC) freshmen or sophomore transfer students seeking admission into LTU's CS program.
2. Current undergraduate CS students with fewer than 60 credit hours completed may apply for this program. The current LTU GPA must be 3.0 or higher and the same higher admission requirements will be checked.
3. Current undergraduate CS students with fewer than 60 credit hours completed may apply for this program. The current LTU GPA must be 3.0 or higher and the same higher admission requirements will be checked.
4. By default, the undergraduate concentration for the 4+1 program is Scientific Software Development. If any change is needed, it must be approved by the program director. Two new concentrations are available in the 4+1: Artificial Intelligence and Cybersecurity.
5. Up to nine graduate credits may be double counted toward both BSCS and MSCS degree programs.
6. Freshman LTU Scholarships will be continued through the fifth year.
7. Students are required to pay graduate tuition rates for all graduate-level courses taken.
8. In the senior year, after earning at least 91 credits, 4+1 MSCS students are required to meet with the program director to file a plan of work and petition to officially begin the graduate portion of the program. One of the most important factors for the approval is the GPA, which must be a minimum 3.0. If the petition is approved, they remain in the 4+1 MSCS

program. If the petition is not approved, they may exit the 4+1 program and pursue just the BSCS degree with a concentration in Scientific Software Development (122 credits required).

9. To receive the BSCS degree with concentration in Scientific Software Development, Artificial Intelligence or Cybersecurity once all requirements have been fulfilled, the student must submit an undergraduate petition to graduate when 122 credits are expected to be completed.
10. There is no obligation to enter the 5th year MSCS degree program.
11. Students may choose to delay completion of the MSCS degree beyond the 5th year. However, scholarship funds will end after five years.

4+1 WITH BSCS – ARTIFICIAL INTELLIGENCE CONCENTRATION

TOTAL CREDIT HOURS: 122 (113 undergraduate credits, 9 graduates credits) + and additional 21 graduate credits = 143 total credits

Artificial Intelligence (AI) is at the core of the ongoing tech revolution and its impact on society and industry will be profound. Students majoring in AI at LTU will not only learn the key components of these exciting field but will develop skills and expertise that will allow them to excel in this area. If robots become common in everyday business, someone at the company will need to program and manage the robots.

Freshman Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
COM 1103	College Composition	3
MCS 1243	Foundations of CS	3
MCS 1414	Calculus 1	4
HUM 1213	Engaging Ancient Texts	3
	TOTAL	13

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
HUM 1223	Engaging Modern Texts	3
MCS 1424	Calculus 2	4
MCS 1514	Computer Science 1	4
SSC 2xx3	SSC Elective	3
MCS 1111	Coding Club (1st of 2)	1
	TOTAL	15

Sophomore Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
LLT 2xx3	LLT Elective	3
MCS 2414	Calculus 3	4
MCS 2514	Computer Science 2	4
MCS 2523	Discrete Math	3
MCS 1111	Coding Club (2nd of 2)	1
	TOTAL	15

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
COM 2103	Technical and Prof. Communication	3
MCS 2534	Data Structures	4
MCS 3643	Software Engineering 1	3
MCS 3633	Intro to Functional Programming	3
MCS 3863	Linear Algebra	3
MCS 2111	MCS Seminar	1
	TOTAL	17

Junior Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
MCS 2543	Intro. to Database Systems	3
MCS 3663	Computer Architecture and Assembly	3
MCS 2/3xxx3*	Math Elective*	3
GEN xxx3	General Elective	3
PHY 2413	University Physics 1	3
PHY 2421	University Physics 1 Lab	1
	TOTAL	16

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
MCS 4663	Operating Systems	3
BIO/PHY/CHM/ GLG/PSC xxx3	Natural Sciences Elective	3
MCS 2/3/4xxx3	MCS Elective	3
MCS 2403	Intro to Data Science	3
MCS 4633	Artificial Intelligence	3
MCS 4001	Career Pathways Lab	1
	TOTAL	16

Senior Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
LLT/PSY 3/4xx3	LLT/PSY Junior/Senior Elective	3
MCS 5623	Machine Learning & Pattern Recognition	3
MCS 4613	Computer Networks	3
MCS 4833	Senior Project	3
MCS 5243	Theory of Computation	3
	TOTAL	15

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
SSC 3743	Ethics of Computation	3
MCS 4643	Comparative Prog. Languages	3
MCS 4993/5993	Topics in Computer Science	3
MCS 4843	Senior Project 2	3

MCS 5713	Deep Learning and Neural Networks	3
	TOTAL	15

FIFTH YEAR

Fall Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5803	Algorithm Design and Analysis	3
MCS 5/6xx3**	Computer Science Graduate Elective	3
MCS 5993 or		
MCS 6xx3	Adv Topics in Computer Science	3
MCS 7013 or MCS 7113***	Collab Research Project 1 or MS Thesis 1	3
	TOTAL	12

Spring Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5/6xx3**	Computer Science Graduate Elective	3
MCS 5993 or		
MCS 6xx3	Adv Topics in Computer Science	3
MCS 7033 or MCS 7133***	Collab Research Project 2 or MS Thesis 2	3
	TOTAL	9

**Select from MCS 3403 Probability & Statistics (recommended) or MCS 2423 Differential Equations*
***Neither MCS 5003 nor MCS 5033 may be used to fulfill a CS Graduate Elective*
*** *Students* will choose either option A. or option B.

A. Research or Project Option:

Course Number	*Subject*	*Cr. Hrs.*
MCS 7013	Collaborative Research Project 1	3
MCS 7033	Collaborative Research Project 2	3

B. Master's Thesis Option:

MCS 7113	Master's Thesis 1	3
MCS 7133	Master's Thesis 2	3

4+1 WITH BSCS – CYBERSECURITY CONCENTRATION

TOTAL CREDIT HOURS: 122 (113 undergraduate credits, 9 graduate credits) + an additional 21 graduate credits = 143 total credits

Cybersecurity graduates are in high demand and LTU's program will provide students with the flexibility and expertise that companies are looking for. Jobs are abundant in areas of financial services, health care, government, manufacturing and retail. Data is everyone and people and companies need to protect this invaluable resource. At LTU you will not only learn the skills to work in this exciting field, you will also have the opportunity to explore applications such as information technology, software and hardware security and business.

Freshman Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
COM 1103	College Composition	3
MCS 1243	Foundations of CS	3
MCS 1414	Calculus 1	4
HUM 1213	Engaging Ancient Texts	3
	TOTAL	13

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs*
HUM 1223	Engaging Modern Texts	3
MCS 1424	Calculus 2	4
MCS 1514	Computer Science 1	4
MCS 1111	Coding Club (1st of 2)	1
SSC 2xx3	SSC Elective	3
	TOTAL	15

Sophomore Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
LLT 2xx3	LLT Elective	3
MCS 2414	Calculus 3	4
MCS 2514	Computer Science 2	4
MCS 2523	Discrete Math	3
MCS 1111	Coding Club (2nd of 2)	1
	TOTAL	15

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
COM 2103	Technical and Prof. Communication	3
MCS 2534	Data Structures	4
MCS 3643	Software Engineering 1	3
MCS 3633	Intro to Functional Programming	3
MCS 3863	Linear Algebra	3
MCS 2111	MCS Seminar	1
	TOTAL	17

Junior Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
MCS 2543	Intro to Database Systems	3
MCS 3663	Computer Architecture and Assembly	3
MCS 2/3xxx3*	Math Elective*	3
GEN xxx3	General Elective	3
PHY 2413	University Physics 1	3
PHY 2421	University Physics 1 Lab	1
	TOTAL	16

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*

MCS 4663	Operating Systems	3
MCS 4993	Topics in Computer Science	3
BIO/PHY/CHM/ GLG/PSC xxx3	Natural Sciences Elective	3
MCS 2403	Intro to Data Science	3
SSC 3743	Ethics of Computation	3
	TOTAL	15

Senior Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
MCS 4613	Computer Networks	3
MCS 4833	Senior Project	3
MCS 4993	Topics in Computer Science	3
MCS 5813	Intro to Computer Security	3
MCS 5243	Theory of Computation	3
MCS 4001	Career Pathways Lab	1
	TOTAL	16

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
LLT/PSY 3/4xx3	LLT/PSY Junior/Senior Elective	3
MCS 4643	Comparative Programming Languages	3
MCS 4843	Senior Project 2	3
MCS 3/4xxx3	Junior/Senior MCS Elective	3
MCS 5993	Topics in Computer Science : Security	3
	TOTAL	15

FIFTH YEAR

Fall Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5803	Algorithm Design and Analysis	3
MCS 5/6xx3**	Computer Science Graduate Elective	3
MCS 5993 or MCS 6xx3	Adv Topics in Computer Science	3
MCS 7013 or MCS 7113***	Collab Research Project 1 or MS Thesis 1	3
	TOTAL	12

Spring Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5/6xx3**	Computer Science Graduate Elective	3
MCS 5993 or MCS 6xx3	Adv Topics in Computer Science	3
MCS 7033 or MCS 7133***	Collab Research Project 2 or MS Thesis 2	3
	TOTAL	9

**Select from MCS 3403 Probability & Statistics (recommended) or MCS 2423 Differential Equations*

***Neither MCS 5003 nor MCS 5033 may be used to fulfill a CS Graduate Elective*
*** *Students* will choose either option A. or option B.

A. Research or Project Option:

Course Number	*Subject*	*Cr. Hrs.*
MCS 7013	Collaborative Research Project 1	3
MCS 7033	Collaborative Research Project 2	3

B. Master's Thesis Option:

MCS 7113	Master's Thesis 1	3
MCS 7133	Master's Thesis 2	3

4+1 WITH BSCS – SCIENTIFIC SOFTWARE DEVELOPMENT CONCENTRATION

TOTAL CREDIT HOURS: 123 (114 undergraduate credits, 9 graduate credits) + an additional 21 graduate credits = 144 total credits

The Scientific Software Development concentration for the Bachelor of Science in Computer Science is designed to prepare students to support the increasing computational needs of the natural sciences. Allowing for either a deep or broad exploration of natural science topics, a student graduating with this degree is prepared for either research or professional software development in any application area, but especially that related to scientific exploration.

Freshman Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
COM 1103	College Composition	3
MCS 1243	Foundations of CS	3
MCS 1414	Calculus 1	4
HUM 1213	Engaging Ancient Texts	3
	TOTAL	13

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs*
HUM 1223	Engaging Modern Texts	3
MCS 1424	Calculus 2	4
MCS 1514	Computer Science 1	4
MCS 1111	Coding Club (1st of 2)	1
SSC 2xx3	SSC Elective	3
	TOTAL	15

Sophomore Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
COM 2103	Technical and Prof. Communication	3
LLT 2xx3	LLT Elective	3
MCS 2414	Calculus 3	4
MCS 2514	Computer Science 2	4
MCS 2523	Discrete Math	3

		TOTAL 17

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
MCS 2111	MCS Seminar	1
MCS 2534	Data Structures	4
MCS 3633	Intro to Functional Programming	3
MCS 2403	Intro to Data Science	3
PHY 2413	University Physics 1	3
PHY 2421	University Physics 1 Lab	1
	TOTAL	15

Junior Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
MCS 1111	Coding Club (2nd of 2)	1
MCS 3643	Software Engineering 1	3
MCS 3663	Computer Architecture and Assembly	3
MCS 2543	Intro to Database Systems	3
PHY 2423	University Physics 2	3
PHY 2431	University Physics 2 Lab	1
MCS 3863	Linear Algebra	3
	TOTAL	17

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
MCS 4663	Operating Systems	3
MCS 4993	Topics in MCS	3
BIO/PHY/CHM/ GLG/PSC xxx3	Natural Sciences Elective	3
PHY 3513	Computational Physics	3
MCS 4001	Career Pathways Lab	1
GEN xxx3	General Elective	3
	TOTAL	16

Senior Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
MCS 4613	Computer Networks	3
MCS 4833	Senior Project	3
LLT/PSY 3/4xx3	LLT/PSY Junior/Senior Elective	3
MCS 5243	Theory of Computation	3
MCS 5623	Machine Learning and Pattern Recognition	3
	TOTAL	15

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
SSC 3743	Ethics of Computation	3
MCS 4643	Comparative Prog. Languages	3

MCS 4843	Senior Project 2	3
MCS 5713	Deep Learning and Neural Networks	3
BIO/PHY/CHM/ GLG/PSC 3/4xx3	Junior/Senior Natural Sciences Elective	3
	TOTAL	15

FIFTH YEAR
Fall Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5803	Algorithm Design and Analysis	3
MCS 5/6xx3**	Computer Science Graduate Elective	3
MCS 5993 or MCS 6xx3	Adv Topics in Computer Science	3
MCS 7013 or MCS 7113***	Collab Research Project 1 or MS Thesis 1	3
	TOTAL	12

Spring Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5/6xx3**	Computer Science Graduate Elective	3
MCS 5993 or MCS 6xx3	Adv Topics in Computer Science	3
MCS 7033 or MCS 7133***	Collab Research Project 2 or MS Thesis 2	3
	TOTAL	9

*** Neither MCS 5003 nor MCS 5033 may be used to fulfill a CS Graduate Elective*
*** *Students* will choose either option A. or option B.

A. Research or Project Option:

Course Number	*Subject*	*Cr. Hrs.*
MCS 7013	Collaborative Research Project 1	3
MCS 7033	Collaborative Research Project 2	3

B. Master's Thesis Option:

MCS 7113	Master's Thesis 1	3
MCS 7133	Master's Thesis 2	3

DOCTOR OF PHILOSOPHY IN COMPUTER SCIENCE
TOTAL CREDIT HOURS: 60

Computer Science is about empowering the future with computers. Beyond straightforward programming, earning a Doctor of Philosophy in Computer Science will help students make a difference in any field involving computers, opening up new leadership opportunities in both academic and industrial research. Throughout the PhD program, students can participate in and even lead pioneering applied-research projects in Computer Science, working with private foundations and public entities alike that fund research at Lawrence Tech - institutions such as the

National Science Foundation, the National Institute of Health, and more. The goal is to enable students to grow into successful research careers that will sculpt the future of how everyone interacts and uses technology.

DOCTOR OF PHILOSOPHY IN COMPUTER SCIENCE ADMISSION REQUIREMENTS

Students applying for admission to the PhD in Computer Science program are required to meet the following criteria:

- Have a computer science background at the undergraduate or graduate level. Students with non-computer science backgrounds will be considered case-by-case under exceptional circumstances.
- Hold a Master of Science in Computer Science or equivalent degree. Exceptional students with an earned Bachelor of Science in Computer Science may be considered for direct admission into the doctoral program.
- Have earned an overall GPA of at least 3.3 on a 4.0 scale for the master's degree. Students with lower GPAs may be accepted on a provisional basis, as described below.
- Provide official transcripts of all completed college work.
- Submit an application for Doctoral Admission (ltu.edu/apply) a minimum of two months before the beginning of the term in which the applicant expects to enroll.
- Submit three letters of recommendation from academic professors who have directly evaluated the student's academic performance during previous degrees.
- Submit a research statement describing subject(s) of interest. This statement MUST INCLUDE the intended area of specialization within computer science
- Submit an up-to-date professional resume
- Non-native English speakers must document English proficiency upon entry to the program.
- (TOEFL minimum 570 for the PBT and an 84 for the IBT or IELTS minimum 6.5)

Students with a graduate GPA lower than 3.3 may be admitted provisionally. They are evaluated for continuation upon completing six credits of graduate coursework at Lawrence Tech. This evaluation is conducted by the Department of Computer Science Chair and/or the Dean of Graduate Studies. The department chair will notify the student in writing of the outcome. If a student is not permitted to continue work toward the PhD, then he or she is expected to terminate his or her studies within the department. The student may petition the decision to the Doctoral Governance Committee of the College of Engineering within one week of receiving written notification. The decision of the Doctoral Governance Committee is final.

Students with a master's degree in a field other than computer science or who only have a bachelor's degree and have a GPA of at least 3.3 on a 4.0 scale may also be admitted on a provisional basis. The program director and program adviser(s) will define the prerequisite requirements.

DOCTOR OF PHILOSOPHY IN COMPUTER SCIENCE REQUIREMENTS FOR DEGREE COMPLETION

Students admitted to the PhD in Computer Science program must earn a minimum of 6 graduate level (5000+) course credits beyond the master's degree and 42 dissertation credits to satisfy degree requirements. Additionally, students must pass: (a) a PhD Qualifying Examination, (b) a Proposal Examination, and (c) a Dissertation Defense. Students admitted to the program are defined as PhD applicants until they pass the Proposal Examination, at which time they are considered PhD Candidates. PhD candidates must complete a one-year residency as part of the degree requirements, i.e., as a PhD candidate, the student must complete a minimum of one year (or equivalent) of research in the Lawrence Tech campus environment.

Students entering without a master's degree do not have to complete the course requirements for a master's degree. However, they will need to be able to pass the PhD Qualifying exam - demonstrating a graduate level understanding of their selected topics. A student entering the program without a master's will be expected to work with their PhD advisor to identify appropriate additional classes to complete in preparation for the exam.

Descriptions of all graduate courses offered by the Department of Math and Computer Science are provided on BannerWeb. Students are required to consult their advisor and/or the Chair of the Department of Math and Computer Science before selecting courses outside of Math and Computer Science. Students are not allowed to register for any dissertation credits until they have passed the PhD Qualifying Examination.

CREDIT TRANSFER POLICY

Lawrence Tech allows the transfer of a maximum of six credits of qualified graduate level coursework from other institutions. Transfer courses must have been taken within the past five years, have not been applied to a previous degree, and passed with a B grade or better. An applicant transferring from another institution with special circumstances will be evaluated on a case-by-case basis.

RESEARCH SPECIALIZATION

Students admitted to the PhD in Computer Science program may select from one of the following computer science specializations:

- Artificial Intelligence
- Computational Biology
- Cognitive Psychology
- Cybersecurity
- Data Science
- Robotics / Perception
- Software Engineering

The selection decision will also depend on the student's coursework during the MS in Computer Science program. Students who have not been adequately exposed to the selected specialization

are required to enroll in additional courses to bridge the gap. Depending on the specialization selected, students are assigned to an advisor who will guide them throughout the process.

PhD QUALIFYING EXAMINATION

To become eligible to take the PhD Qualifying Examination, PhD applicants must have completed at least six credit hours of graduate level courses at Lawrence Tech with a GPA of 3.3 or better. It is the PhD applicant's responsibility to initiate the process by making a written request to join the PhD Qualifying Exam in a given semester. After reviewing the student's academic performance, eligibility for the Qualifying Exam is determined jointly by the student's advisor and the Department of Math and Computer Science Chair.

The examination will ordinarily be given as soon as the student is eligible and should be taken about 12 months after admission as a PhD applicant. If the student does not meet this requirement, the student must petition the Department of Math and Computer Science Chair for permission to continue in the program. The petition must include an updated plan of work supported by the student's advisor.

The PhD Qualifying Examination is administered by a CS Qualifying Examination Committee selected by the student's advisor. The committee, comprised of at least three faculty members from the Department of Math and Computer Science with their PhD's, will prepare the qualifying exam. PhD Qualifying Examinations are given separately to each student. The student is allowed a specified amount of time to respond to a set of written examination questions selected to test the student's knowledge in his or her chosen and closely related fields. The student then makes an oral presentation to the Qualifying Examination Committee that expands on the theories and solutions covered in the examination questions. The student is expected to defend the solutions and answer questions from the Qualifying Examination Committee on related topics in the field of study. In some cases, a more extensive and comprehensive Qualifying Examination may be required. After reviewing the written answers and oral presentation, the Qualifying Examination Committee submits its recommendation to the Department of Math and Computer Science, who officially informs the student in writing of the outcome. The three possible outcomes are: 1) pass, 2) deferment for re-examination after remedial steps are taken to address deficiencies, or 3) denial. The student is only permitted to appear for the Qualifying Examination twice. The student denied acceptance is not allowed to continue work toward the PhD and is to terminate studies within the Department of Math and Computer Science by the end of the academic semester. The student may petition the decision to the LTU Graduate committee and the Dean of Graduate Studies within one week of issuing the decision letter. Their decision is final.

SELECTION OF DISSERTATION TOPIC

As soon as possible after passing the Qualifying Examination, the student should choose a dissertation topic in consultation with his or her advisor. Typically, the advisor becomes the chair of the student's Dissertation Committee. Any full-time math or computer science faculty member can

be co-chair if necessary. The student's dissertation research must significantly contribute to the knowledge in his or her chosen area of specialization. However, the scope and complexity of the research should not make completion impossible within a reasonable period of time

DISSERTATION COMMITTEE

The Dissertation Committee must include at least four members of qualified faculty, including at least two from the Department of Math and Computer Science and at least one from a cognate field outside the Department of Math and Computer Science. Other qualified individuals not affiliated with Lawrence Technological University may also be appointed. To have any person not a faculty member approved to serve as a committee member, permission from the program director by providing a Curriculum vitae (or resume) describing that person's qualifications is necessary. After the prospective Dissertation Committee members agree to serve, the designated Dissertation Committee chair requests the Department of Math and Computer Science to formally recommend the appointment of the Dissertation Committee to the Dean of Graduate Studies.

PROPOSAL EXAMINATION

The student must submit a written proposal describing the scope and approach to the dissertation research for approval by the Dissertation Committee during a Proposal Examination. The Proposal Examination must be conducted when the PhD applicant has earned at least 24 credits toward the degree. In addition, this must occur within three years of passing the PhD Qualifying Exam. The Department of Math and Computer Science requires the student to have completed or enrolled in at least six PhD dissertation credits at the time of the Proposal Examination. To become eligible for the Proposal Examination, the PhD applicant must have maintained a minimum 3.3 GPA on a 4.0 scale. In consultation with the advisor, the PhD applicant has the responsibility for arranging the date, time, and venue of the Proposal Examination.

The Proposal Examination consists of a presentation followed by an oral examination during which the PhD applicant defends his or her Dissertation Proposal to the Dissertation Committee. Only the presentation portion of the examination is open to the public.

The Dissertation Committee submits its recommendation to the Department of Math and Computer Science chair, who officially informs the student in writing of the outcome. The three possible outcomes are: 1) acceptance of the proposal and advancement to the status of PhD Candidate, 2) deferment for re-examination after remedial steps are taken to address deficiencies, or 3) denial. The student is only permitted to appear for the Proposal Examination twice. The student denied acceptance is not allowed to continue work toward the PhD and is to terminate studies within the Department of Math and Computer Science by the end of the academic semester. The student may petition the decision to the LTU Graduate Committee and the Dean of Graduate Studies within one week of issuing the decision letter. Their decision is final.

PREPARATION OF THE DISSERTATION

The department specifies the steps in the completion, submission, and approval of the dissertation. A student should seek out the program director for further assistance on these requirements, which are the same as for a master's thesis. The dissertation must be prepared according to the department document for all graduate projects, master's theses, and dissertations. A final draft of the dissertation must be submitted to each member of the Dissertation Committee for review and evaluation fourteen (14) days before the Final Examination.

DISSERTATION EXAMINATION

Before scheduling the dissertation examination, the student must have completed a minimum of 36 dissertation research credits to fulfill degree requirements. The student may enroll in any remaining credits during the semester of the Dissertation Examination. PhD candidates are responsible for contacting the committee members and updating them on their progress.

The Dissertation Committee conducts the Dissertation Examination. During the examination, the PhD candidate gives an oral presentation of his or her research and then defends the dissertation. The department advertises the dissertation examination, and only the oral presentation portion is open to the public. In consultation with the advisor, the PhD candidate should arrange the Dissertation Examination's date, time, and venue.

The Dissertation Committee informs the student of the outcome at the end of the Dissertation Examination. The three possible outcomes of the Dissertation Examination are: 1) acceptance of the dissertation as submitted, 2) acceptance of the dissertation with corrections, or 3) deferment for re-examination at a later date after steps have been taken to remedy deficiencies. The Dissertation Committee then informs the Department of Math and Computer Science chair and the LTU graduate committee of its decision. The PhD in Computer Science is awarded to the PhD candidate by the Dean of Graduate Studies and research upon the recommendation of the LTU Graduate Committee.

An unbound final copy of the dissertation, incorporating all corrections required by the Dissertation Committee, is required by the graduate studies and research associate dean. The final version of the dissertation is submitted electronically and in hard copy.

TIME LIMIT

Students must complete all doctoral work within seven consecutive years of their initial enrollment in the doctoral program. Students exceeding this time limit must petition the Dean of Graduate Studies and research through the department for an extension and may be required to take additional examinations and/or coursework.

For more information or to speak with an advisor, contact the Department of Mathematics and Computer Science at 248.204.3560, email mcschair@ltu.edu, or visit room S120 in the Science Building.

POST-BACCALAUREATE CERTIFICATE IN PREMEDICAL STUDIES

The Post-Baccalaureate Certificate in Premedical Studies is designed for college graduates who are interested in pursuing a career in medicine, but have taken few or none of the required courses for admission into medical school or for students who need to improve their GPA.

- The rigorous 44-credit-hour program provides the academic foundation in biology, chemistry, physics, mathematics, and English that medical schools require.
- Students are pre-approved for Lawrence Tech's Quest Program. Quest is a project-based experiential learning program that gives premedical students real-world experiences in health-related fields.
- Students receive extensive academic and professional advising, and help preparing for the MCAT and medical school application procedures.

POST-BACCALAUREATE CERTIFICATE IN PREMEDICAL STUDIES – ADMISSION REQUIREMENTS

In addition to the policies and procedures described in the Academic Regulations section of this *Catalog*, admission to the Post-Baccalaureate Certificate in Premedical Studies Program requires:

- Submission of the Application for Transfer Applicants (ltu.edu/apply);
- A baccalaureate degree from an accredited college or university (minimum GPA of 3.2);
- Official transcripts of all completed college work;
- A resume, including academic and professional experience.

Applicants with a GPA of 2.9 or above may be given provisional acceptance and will be evaluated for official graduate student status upon completion of 10 credits in the program **with no course grade below a B+**. In order to be given provisional acceptance, there must be strong evidence that the candidate can perform at a significantly higher level than the undergraduate transcript indicates.

POST-BACCALAUREATE CERTIFICATE IN PREMEDICAL STUDIES – TRANSFER CREDIT POLICY

As many as 17 credits will be accepted for transfer from an accredited undergraduate college or university. A minimum grade of 3.0 must have been achieved in the transfer courses.

POST-BACCALAUREATE CERTIFICATE IN PREMEDICAL STUDIES – REQUIREMENTS FOR CONTINUING MATRICULATION

A student who fails to achieve a GPA of 3.0 in any single term will be placed on probation. Any student who fails to achieve a GPA of 3.0 in two successive terms or in any three terms will be expelled from the program.

POST-BACCALAUREATE CERTIFICATE IN PREMEDICAL STUDIES CURRICULUM

TOTAL CREDIT HOURS: 44

Candidates for the Post-Baccalaureate Certificate in Premedical Studies must complete the equivalent of 44 semester hours. Students must have a GPA of 3.0 in all courses applied toward the certificate.

English (6 credits)

Course Number	*Subject*	*Cr. Hrs.*
COM 1103	College Composition or	3
LLT xxx3	Literature course(s)	3

Mathematics (6 credits minimum)

Course Number	*Subject*	*Cr. Hrs.*
MCS xxx3	College Mathematics (Calculus suggested)	3
MCS xxx3	Math Elective (Statistics suggested)	3

Biology (8 credits)

Course Number	*Subject*	*Cr. Hrs.*
BIO 1213	Biology 1	3
BIO 1221	Biology 1 Laboratory	1
BIO 1223	Biology 2	3
BIO 1231	Biology 2 Laboratory	1

Chemistry (16 credits)

Course Number	*Subject*	*Cr. Hrs.*
CHM 1213	University Chemistry 1	3
CHM 1221	University Chemistry 1 Laboratory	1
CHM 1223	University Chemistry 2	3
CHM 1231	University Chemistry 2 Laboratory	1
CHM 2313	Organic Chemistry 1	3
CHM 2311	Organic Chemistry 1 Laboratory	1
CHM 2323	Organic Chemistry 2	3
CHM 2321	Organic Chemistry 2 Laboratory	1

Physics (8 credits)

Course Number	*Subject*	*Cr. Hrs.*
PHY 2213	College Physics 1	3
PHY 2221	College Physics 1 Laboratory	1
PHY 2223	College Physics 2	3
PHY 2231	College Physics 2 Laboratory	1

COLLEGE OF BUSINESS AND INFORMATION TECHNOLOGY

Dean
Matthew Cole
M331, 248.204.3096

Director of Business Programs
Minakhi (Mina) Jena
M331, 248.204.3071

ABOUT THE COLLEGE OF BUSINESS AND INFORMATION TECHNOLOGY

The College of Business and Information Technology (CoBIT) at Lawrence Technological University was established in 1952 as the institution's second college. CoBIT emerged from LTU's degree programs in industrial engineering, which, in the 1930's, integrated technology, business, law, economics, and management. This integration was designed to benefit managers and administrators across various industries and companies in metropolitan Detroit.

Today, CoBIT's purpose is encapsulated in the motto "Connect. Empower. Succeed." The College offers programs that address the evolving needs of learners and the professions they enter, equipping them with the skills necessary to harness the potential of Industry 4.0—the fusion of technology and human interaction. This is achieved by connecting STEM and design principles with business. Consequently, CoBIT learners are empowered with the technological acumen essential for success.

CoBIT's mission is to "Create innovative business professionals equipped with technological skills using an interdisciplinary approach emphasizing theory and practice". To this end, the College integrates knowledge and skills from various fields and disciplines, providing a holistic education. This ensures learners are well-versed in the digital tools, platforms, and technologies essential for the modern business environment.

To fulfill CoBIT's vision of "driving innovation and positive change in business", learners are immersed in a rich, interdisciplinary environment that nurtures innovation and collaboration. This prepares them for the multifaceted business landscape through interdisciplinary research, cross-departmental programs, and stackable certificates, enabling students to explore a wide range of options. We are dedicated to mentoring our learners, guiding them to become the best versions of themselves, and shaping individuals who will positively impact communities as business professionals.

PROGRAM ACCREDITATION

CoBIT is fully accredited by AACSB International – the Association to Advance Collegiate Schools of Business. AACSB accreditation represents the highest standard of achievement for business schools worldwide.

GRADUATE DEGREE PROGRAMS OFFERED

The College of Business and Information Technology offers the following graduate programs:

Doctor of Business Administration (available online)†
Master of Business Administration (available on-campus and online)†
Master of Science in Business Data Analytics (available on campus and online)†
Master of Science in Information Technology (available on-campus and online)
Direct-Entry 4+1 Bachelor/Master of Business Administration Program
Direct-Entry 4+1 Bachelor/Master of Science in Business Data Analytics Program
Direct-Entry 4+1 Bachelor/Master of Science in Information Technology Program
MBA/Master of Science in Business Data Analytics Dual Degree
MBA/Master of Science in Information Technology Dual Degree

MBA/Master of Engineering Management Dual Degree
MBA/Master of Architecture Dual Degree (available online)
Graduate Certificate in Cybersecurity (available online)
Graduate Certificate in Healthcare Administration (available online)
Graduate Certificate in Healthcare Data Analytics (available online)
Graduate Certificate in Healthcare Data Science (available online)
Graduate Certificate in Project Management (available online)

GRADUATE ADMISSION REQUIREMENTS

Unless indicated elsewhere, applicants to the College of Business and Information Technology graduate degree programs are expected to be either working or have work experience. Applicants must meet the following criteria:

- Hold a bachelor's degree from a regionally accredited institution.
- Have earned a GPA of 3.0 or higher for undergraduate coursework.
- Complete an Online Application for Graduate Admission and application fee.
- Provide official transcripts from every college or university attended.
- Submit a professional resume.
- Take an English proficiency exam if English is not the applicant's native language. The minimum acceptable performance is a 79 on the Internet-based exam. The minimum acceptable IELTS score is 6.0. The minimum acceptable score on the Duolingo English Test is 105.The English proficiency requirement is waived for those international students who have completed their degrees at a recognized U.S. or North American university. The GMAT is not required for applicants who hold a bachelor's degree or equivalent who have obtained a minimum GPA of 3.0 for undergraduate coursework. For applicants with a GPA of less than 3.0, a GMAT or other assessment tool may be required.
- Applicants who have exceptional merit but do not meet all admission criteria may be admitted under special circumstances determined by the Graduate Admissions Committee.

The Graduate Admission Committee and the director of business programs may allow provisional admission to applicants who have exceptional merit but do not meet all admission criteria for regular admission. A provisional student is typically granted regular status after receiving a minimum grade of B or higher in each of the first nine credit hours. Students with provisional admission status may be required to take foundation courses to meet the admission requirements. Applicants who meet the admission requirements, but whose supporting documentation (e.g., academic transcripts) is still pending may be admitted conditionally. Additional documents, such as WES course-by-course evaluation, letters of recommendation, GMAT, etc., may be required.

Note: Letters of recommendation, transcripts and independent test scores must be submitted directly from the issuing institution to the Office of Graduate Admissions, Lawrence Technological University, 21000 West Ten Mile Road, Southfield, MI 48075-1058. Candidates are notified by email of the outcome of their applications.

DOCTORAL ADMISSION REQUIREMENTS

Admission to the Doctor of Business Administration (DBA) program is highly competitive. Meeting the minimum qualifications does not guarantee admission. Offers are extended to candidates deemed most likely to complete the program successfully and benefit from its practitioner-scholar focus. Admission decisions are based on a comprehensive review of the applicant's academic background, professional experience, leadership potential, and commitment to doctoral-level research.

Applicants to the DBA program must:

- **Hold an MBA or equivalent business-related master's degree** from an accredited institution with a minimum GPA of 3.3.
    - Applicants with a non-business master's degree may be required to complete up to **6 credits of foundational graduate-level coursework** prior to beginning the DBA program. These courses include:
        - *Fundamentals of Financial Accounting*
        - *Fundamentals of Economics*
        - *Fundamentals of Finance*
        - *Legal Environment of Business*
- **Submit official transcripts** from all colleges and universities attended. Transcripts must be sent directly from the issuing institution in sealed envelopes.
- **Meet the standardized test requirement**:
    - Submit a **GMAT** score. While there is no fixed cutoff, scores are evaluated within the context of the applicant's full profile.
    - Alternatively, submit a **GRE General Test** score in place of the GMAT.
    - The standardized test requirement **may be waived** for applicants with substantial work experience, demonstrated leadership, academic publications, or other evidence of advanced professional capability.
- **Demonstrate professional experience**:
    - A minimum of **five years of professional experience** is expected, preferably in a managerial or leadership role within corporate, government, or nonprofit settings.
    - For applicants pursuing careers in academia, relevant instructional or academic leadership experience may also meet this requirement.
- **Demonstrate English language proficiency**, if English is not the applicant's native language:
    - TOEFL minimum scores: 600 (paper), 250 (computer), or 100 (Internet-based)
    - IELTS minimum overall score: 7.0
    - This requirement may be waived for applicants who have completed a degree at an accredited U.S. institution.
- **Submit a professional résumé or curriculum vitae (CV)**.
- **Provide three professional letters of recommendation**.
- **Submit a personal statement** (approximately 1,000 words) outlining:
    - Career objectives and reasons for pursuing a doctoral degree
    - Primary academic and research interests
    - Qualifications and readiness for doctoral study

  - Reasons for choosing Lawrence Technological University
- **Complete the Doctoral Application** and participate in a **personal interview** with the DBA Program Director and faculty committee.

TRANSFER POLICY (NON-SPECIALTY PROGRAMS)
Students should initiate a petition for transfer of credits prior to the completion of their first semester of the graduate program by completing the Graduate Transfer Credit Request form. Up to 12 credit hours may be accepted by the College of Business and Information Technology for the Master of Business Administration program and up to 9 credit hours may be accepted for the Master of Science in Business Analytics and the Master of Science in Information Technology programs. These courses must be graduate-level courses taken at an accredited university. Each course generally must have been taken within seven years of application for admission. Transfer students should apply for admission through the Office of Admissions. Transferred courses must have a grade of 3.0 or higher; grades of "passed/not passed," "pass/fail," or "pass/no entry" are not acceptable.

Students may be required to submit additional evidence (e.g., course syllabi, catalog descriptions, and tests/examinations) in order to justify the transfer of credits. The Graduate Admissions Committee may require the applicant to demonstrate proficiency in a subject through either an interview or written examination prepared by faculty members who have expertise in the subject/discipline.

CURRICULUM DELIVERY
Consistent with its mission and values, the College of Business and Information Technology is committed to providing appropriate instructional methods to fit the needs of its students while maximizing student learning. As a result, the college has developed three course-delivery formats:

- **Traditional courses** are taught exclusively in the classroom. The semester includes 15 weeks of classroom instruction plus a one-week final exam period. Traditional courses are offered on the Southfield campus or at some of Lawrence Tech's education centers, and are usually held on weekday evenings or Saturdays.
- **Hybrid courses** consist of approximately 50 percent classroom time and 50 percent online learning activities. The goal of hybrid courses is to merge the best features of in-class teaching and web-based educational technologies to promote active independent learning and allow for both an asynchronous and synchronous communication with the class. Hybrid courses are offered at both the Southfield and education center campuses.
- **Online courses** are delivered entirely online, substituting in-person classroom sessions with digital instruction. They are designed to capitalize on the most effective online teaching methodologies, ensuring both robust course content and active faculty engagement through videos and discussion boards. Additionally, courses are offered in both synchronous and asynchronous formats to suit different learning preferences and time zones, providing a comprehensive and adaptable educational experience.

Regardless of the delivery format, curriculum, faculty or course content, learning goals are the same for all courses.

Please note that the College of Business and Information Technology reserves the right to update curricula throughout the academic year. Please see an advisor or visit the website for the most current curricula.

DOCTOR OF BUSINESS ADMINISTRATION (DBA)

The Doctor of Business Administration (DBA) degree at Lawrence Tech is a rigorous, practitioner-scholar program designed to develop strategic, research-driven leaders prepared to navigate the complexities of today's global business landscape. This 54-credit, three-year cohort-based program combines theory and applied research to address real-world organizational challenges. Students complete 30 credits of coursework and 24 credits of dissertation research.

The program is delivered online through both asynchronous and synchronous formats. Students also participate in occasional on-campus residencies for cohort networking and professional engagement.

Graduates are equipped with the knowledge and research skills needed for executive leadership roles, applied research, consulting, or university-level teaching.

PROGRAM STRUCTURE

The DBA includes three major components:

- **Coursework** (21 credits of Core Courses + 9 credits of Research Methodologies Courses)
- **Qualifying Examination**
- **Doctoral Dissertation** (24 credits)

Each phase builds on the last, progressing from foundational knowledge to independent applied research. Completion of coursework is required to attempt the Qualifying Examination, which must be passed before beginning dissertation research.

Students admitted without prior coursework or demonstrated proficiency in key business areas may be required to complete up to 6 credits of foundation coursework prior to beginning the core curriculum. These courses are determined during the admissions review process.

QUALIFYING EXAMINATION

Students must demonstrate competence in the core research fields by completing a **Qualifying Paper (QP)**. The QP assesses the student's ability to integrate, synthesize, and apply theory and research methods to a complex business issue.

To be eligible to submit the QP, a student must have:

- Completed all **core courses** with a cumulative GPA of 3.0 or higher
- Completed all **research methodology coursework**

The QP must be approved before a student may form a Dissertation Committee or begin dissertation research.

DOCTORAL DISSERTATION
After passing the Qualifying Examination, students form a Dissertation Committee with a minimum of three approved members:

- The **Chair**, a full-time CoBIT faculty member with a relevant doctorate
- A **second member**, who may be LTU faculty or an external academic with subject matter expertise
- A **third member**, typically a practitioner with field-based expertise and a relevant master's or doctoral degree

A fourth member may be added with approval. All committee members must be approved by the DBA Program Director.

DISSERTATION PROPOSAL AND RESEARCH
Students enroll in an initial 3-credit dissertation course to develop and defend a formal research proposal. Upon approval, students complete an additional 21 credits of dissertation research across multiple terms, guided by their Committee Chair.

Dissertations must address real-world organizational issues and demonstrate scholarly rigor and practical relevance.

DISSERTATION DEFENSE
Students must successfully defend their dissertation in a final oral examination (viva voce). The final document must be approved by all committee members and the DBA Program Director and submitted in bound format to the LTU library.

COMPLETION TIMELINE
Students are expected to complete all degree requirements—including the dissertation defense—within three years. All requirements must be completed within seven years of initial enrollment. A $5,000 continuation fee per semester applies beyond the third year.

DOCTOR OF BUSINESS ADMINISTRATION

TOTAL CREDIT HOURS: 54

Foundation Courses (If Required—up to 6 credits)

Course Number	*Subject*	*Cr. Hrs.*
ACC 5001T	Fundamentals of Financial Accounting	1.5
ECN 5011T	Fundamental of Economics	1.5
MBA 5051T	Fundamentals of Finance	1.5
MBA 5061T	Legal Environment of Business	1.5

DBA Core Courses (21 credits)

Course Number	*Subject*	*Cr. Hrs.*

MGT 8013	Topics in Leadership	3
MGT 8033	Global Institutions: Strategies, Structures and Systems	3
MKT 8043	Marketing Strategy, Structures and Systems	3
FIN 8053	Financial Valuations and Strategies	3
INT 8063	Advanced Business Analytics and Intelligence	3
MGT 8073	Positive Organization Development and Change	3
MGT 8083	Advanced Topics in Business Administration	3

DBA Research Methodologies Courses (9 credits)

Course Number	*Subject*	*Cr. Hrs.*
RES 7013	Overview of Doctoral Research Methodology	3
RES 7023	Research Design – Qualitative Methods	3
RES 7033	Research Design – Quantitative Methods	3

DBA Qualifying Examination (0 credits)

Course Number	*Subject*	*Cr. Hrs.*
DIS 8000	Doctoral Qualifying Exam	0

DBA Dissertation (24 credits)

Course Number	*Subject*	*Cr. Hrs.*
DIS 8113	DBA Dissertation 1 Proposal	3
DIS 8123	DBA Dissertation 2	3
DIS 8133	DBA Dissertation 3	3
DIS 8143	DBA Dissertation 4	3
DIS 8153	DBA Dissertation 5	3
DIS 8163	DBA Dissertation 6	3
DIS 8173	DBA Dissertation 7	3
DIS 8183	DBA Dissertation 8	3

MASTER OF BUSINESS ADMINISTRATION (MBA)

The Master of Business Administration credential has become indispensable for professionals seeking to sharpen their business and technological acumen in the competitive global economy. At Lawrence Tech, the MBA program is designed to be performance-driven, connecting academic theories directly to organizational practices. Our program enhances graduates' managerial effectiveness and technological skills.

MBA PROGRAM DESIGN

The Lawrence Tech MBA is a 36-credit-hour program composed of 9 core courses (27 credits) and 3 concentration electives (9 credits). Students may tailor their learning to their career aspirations by choosing from multiple concentrations: Business Data Analytics, Cybersecurity, Finance, Healthcare Administration, Information Technology, Marketing, and Project Management. Core courses are intentionally designed to offer students a rich experience in operational analysis and implementation. They set the stage for concentration electives that further individual professional development. The program culminates in the capstone course, Global Strategic Management. The

MBA is structured to be flexible, with the potential for completion in two years or less through evening and/or online classes.

For those without an academic background in business, up to six credits of foundational courses may be required to ensure a solid grasp of key business principles. Subject areas such as accounting, finance, the legal environment, and economics provide the necessary groundwork. These courses are generally waived for students with relevant undergraduate coursework and can be taken alongside core MBA classes without prerequisites.

MBA DEGREE REQUIREMENTS
Successful completion of the 36-credit-hour MBA program requires:

- Completion (or waiver) of up to 6 credits of foundation courses.
- Completion of 9 core courses (27 credits) and 3 concentration electives (9 credits), with at least 24 of the credit hours taken at Lawrence Tech.
- Overall GPA of at least 3.0 in core and elective program areas.
- Completion of the above requirements within seven years of program entry.

MASTER OF BUSINESS ADMINISTRATION
TOTAL CREDIT HOURS: 36

Foundation Courses (If Required—up to 6 credits)

Course Number	*Subject*	*Cr. Hrs.*
ACC 5001T	Fundamentals of Financial Accounting	1.5
ECN 5011T	Fundamental of Economics	1.5
MBA 5051T	Fundamentals of Finance	1.5
MBA 5061T	Legal Environment of Business	1.5

MBA Core Courses (27 credits)

Course Number	*Subject*	*Cr. Hrs.*
ACC 6003	Managerial Accounting	3
ECN 6023	Global Business Economics	3
MBA 6003	Financial Management	3
MBA 6103	Statistics for Data Analytics and Visualization	3
MBA 6043	Reflective Leadership	3
MBA 6053	Strategic Marketing Management	3
MBA 6063	Operations and Supply Chain Management	3
INT 6043	Management Information Systems	3
MBA 6073**	Global Strategic Management	3

MBA CONCENTRATION ELECTIVES (Pick One Concentration—9 credits)

BUSINESS DATA ANALYTICS

Course Number	*Subject*	*Cr. Hrs.*

INT 6103	Python for Data Analysis and Visualization	3
Pick *two* of the following classes:		
INT 7213	Business Analytics & Intelligence	3
INT 7253	Visual Analytics	3
INT 7513	Data Mining Algorithms	3
INT 7623	Data Science for Business	3

CYBERSECURITY

INT 6143	Advanced Computer Networking	3
Pick *two* of the following classes:		
INT 7223	Cybersecurity	3
INT 7233	Cyber Law, Policy and Ethics	3
INT 7243	Disaster Recovery & Business Continuity	3
INT 7263	Vulnerability Assessment and Penetration Testing	3

FINANCE

MBA 6003	Corporate Finance	3
MBA 7003	Investment Management	3
MBA 7013	Financial Markets and Institutions	3
MBA 7023	International Finance	3

HEALTHCARE ADMINISTRATION

HHS 6013	Healthcare Administration	3
HHS 6023	Healthcare Policy	3
HHS 6033	Managerial Epidemiology	3
HHS 6043	Health Informatics and Data Privacy Protection	3

INFORMATION TECHNOLOGY

MBA 7063	Project Management	3
Pick *two* other approved IT electives		6

MARKETING

MBA 7073	Digital Marketing	3
MBA 7083	Marketing Research and Consumer Behavior	3
Pick *one* other approved graduate-level elective		3

PROJECT MANAGEMENT

MBA 7063	Project Management	3
Pick *two* of the following classes:		
INT 6253	Managing Outsourced Projects	3
INT 7563	Agile Project Management	3
MBA 7033	Organization Development and Change Management	3
MBA 7053	Managing a Global Workforce	3
MBA 7103	Entrepreneurship and New Venture Management	3

MBA 7173	Project Risk and Quality Management	3

OTHER ELECTIVES

MBA 7123	Directed/Independent Study	3
MBA 7133	International Experience Abroad	3
MBA 7143	Master's Thesis 1	3
MBA 7153	Master's Thesis 2	3

****ETS MAJOR FIELD TEST FOR MBA**

All students in the MBA program are required to take the ETS Major Field Test in the course MBA 6073 Global Strategic Management. The Major Field Test for MBA consists of 124 multiple-choice questions, half of which are based on short case-study scenarios. Most of the questions require knowledge of specific information drawn from marketing, management, finance and managerial accounting, or a combination of these. A calculator is not required. For more information, visit ets.org or ask your faculty advisor.

MASTER OF BUSINESS ADMINISTRATION IN DATA ANALYTICS (MBA in Data Analytics)

In today's data-driven economy, organizations increasingly seek leaders who can bridge the gap between business strategy and technical insight. Lawrence Tech's MBA in Data Analytics is designed for professionals who want to enhance their business acumen while developing advanced analytical and technological capabilities. This STEM-designated program combines foundational business knowledge with data analytics tools and techniques, preparing graduates for leadership roles in data-intensive industries.

MBA IN DATA ANALYTICS PROGRAM DESIGN

The MBA in Data Analytics is a 36-credit-hour program composed of three integrated components: 18 credits of business core courses, 9 credits of data analytics core courses, and 9 credits of data analytics electives. The business core includes coursework in accounting, economics, finance, marketing, operations, supply chain management, and strategic management, providing a solid foundation in essential business functions. The data analytics core focuses on management information systems, Python programming, and statistics for data analytics and visualization, equipping students with essential technical and analytical competencies. The elective component allows students to tailor their studies to career interests through advanced coursework in areas such as predictive modeling, data mining, visualization, and machine learning. The program blends theory and practice through a performance-driven, interdisciplinary approach. Courses are offered in evening and online formats to accommodate both working professionals and full-time students, with the potential to complete the degree in as little as two years.

For those without an academic background in business, up to six credits of foundational courses may be required to ensure a solid grasp of key business principles. Subject areas such as accounting, finance, the legal environment, and economics provide the necessary groundwork. These courses are generally waived for students with relevant undergraduate coursework and can be taken alongside core MBA classes without prerequisites.

MBA IN DATA ANALYTICS DEGREE REQUIREMENTS

Successful completion of the 36-credit-hour MBA program requires:

- Completion (or waiver) of up to 6 credits of foundation courses.
- Completion of 6 MBA core courses (18 credits).
- Completion of 3 Data Analytics core courses (9 credits).
- Completion of 3 Data Analytics elective courses (9 credits).
- At least 24 of the 36 credits must be completed at Lawrence Tech.
- Overall GPA of at least 3.0 in core and elective program areas.
- Completion of the above requirements within seven years of program entry.

MASTER OF BUSINESS ADMINISTRATION IN DATA ANALYTICS

TOTAL CREDIT HOURS: 36

Foundation Courses (If Required—up to 6 credits)

Course Number	*Subject*	*Cr. Hrs.*
ACC 5001T	Fundamentals of Financial Accounting	1.5
ECN 5011T	Fundamental of Economics	1.5
MBA 5051T	Fundamentals of Finance	1.5
MBA 5061T	Legal Environment of Business	1.5

MBA Core Courses (18 credits)

Course Number	*Subject*	*Cr. Hrs.*
ACC 6003	Managerial Accounting	3
ECN 6023	Global Business Economics	3
MBA 6003	Financial Management	3
MBA 6053	Strategic Marketing Management	3
MBA 6063	Operations and Supply Chain Management	3
MBA 6073**	Global Strategic Management	3

Data Analytics Core Courses (9 credits)

Course Number	*Subject*	*Cr. Hrs.*
INT 6043	Management Information Systems	3
INT 6103	Python for Data Analysis and Visualization	3
MBA 6103	Statistics for Data Analytics and Visualization	3

Data Analytics Elective Courses (9 credits)

Course Number	*Subject*	*Cr. Hrs.*
INT 6113	Database Management Systems	3
INT 6203	Introduction to Machine Learning	3
INT 6303	Introduction to Social Media Data Analytics	3
INT 7213	Business Analytics & Intelligence	3
INT 7253	Visual Analytics	3

INT 7513	Data Mining Algorithms	3
INT 7623	Data Science for Business	3
MBA 7073	Digital Marketing	3

****ETS MAJOR FIELD TEST FOR MBA**

All students in the MBA program are required to take the ETS Major Field Test in the course MBA 6073 Global Strategic Management. The Major Field Test for MBA consists of 124 multiple-choice questions, half of which are based on short case-study scenarios. Most of the questions require knowledge of specific information drawn from marketing, management, finance and managerial accounting, or a combination of these. A calculator is not required. For more information, visit ets.org or ask your faculty advisor.

MASTER OF SCIENCE IN BUSINESS DATA ANALYTICS (MSBDA)

In today's rapidly evolving digital landscape, the ability to harness data and extract actionable insights is not just valuable—it's essential. The Lawrence Tech MSBDA program is designed to equip professionals with the advanced skills needed to transform data into strategic business decisions. With a curriculum rooted in the latest technological advancements, our program offers a bridge between theoretical knowledge and real-world application, preparing you for a leading role in the data-driven economy.

MSBDA PROGRAM DESIGN

The MSBDA curriculum covers 30 credit hours of interdisciplinary courses, combining the rigors of data science with the strategic insight of business analytics. You'll gain not only the technical skills in statistics, Python, and machine learning but also a deep understanding of how these tools can drive business strategy and innovation. The MSBDA is structured to be flexible, with the potential for completion in two years or less through evening and/or online classes.

MSBDA DEGREE REQUIREMENTS

Successful completion of the 30-credit-hour MSBDA program requires:

- Completion of the 10 core courses (30 credits), with at least 21 of the credit hours taken at Lawrence Tech.
- Overall GPA of at least 3.0 in core program areas.
- Completion of the above requirements within seven years of program entry.

MASTER OF SCIENCE IN BUSINESS DATA ANALYTICS

TOTAL CREDIT HOURS: 30

Core Courses (30 credits)

Course Number	*Subject*	*Cr. Hrs.*
MBA 6103	Statistics for Data Analytics and Visualization	3
INT 6043	Management Information Systems	3
INT 6103	Python for Data Analysis and Visualization	3

INT 6113	Database Management Systems	3
INT 6203	Introduction to Machine Learning	3
INT 7213	Business Analytics and Intelligence	3
INT 6303	Introduction to Social Media Data Analytics	3
INT 7253	Visual Analytics	3
INT 7623	Data Science for Business	3
MBA 7073	Digital Marketing	3

MASTER OF SCIENCE IN INFORMATION TECHNOLOGY (MSIT)

The Master of Science in Information Technology degree at Lawrence Tech aims to provide students with skills and knowledge in the management of enterprise information systems. The program explores the context in which information systems operate while examining how information systems are designed and how they can successfully be implemented and operated to deliver business value. It is unique in its three-part focus on the development of managerial skills, technical expertise, and an understanding of standards and practices.

MSIT PROGRAM DESIGN

The MSIT program gives students the chance to customize their degree to meet their individual professional and academic goals. The MSIT consists of 30 credit hours of coursework, including 7 core courses (21 credit hours) and 3 concentration elective courses (9 credit hours). Each course is delivered by way of workshops, seminars, exercises, case analyses, and other forms of interactive learning. Concentration elections will help learners expand their experiences and meet future goals in areas such as Business Analytics, Cybersecurity, and Project Management. The MSIT is structured to be flexible, with the potential for completion in two years or less through evening and/or online classes.

For those without an academic background in IT, up to 6 credits of foundational courses may be required to ensure a solid grasp of key principles in statistical methods, programming, and management information systems.

MSIT DEGREE REQUIREMENTS

Successful completion of the MSIT program requires:

- Completion (or waiver) of up to 6 credits of foundation courses.
- Completion of 21 credit hours of core courses and 9 credit hours of concentration electives.
- Overall GPA of at least 3.0 in core and elective program areas.
- Completion of the above requirements within seven years of program entry.

MASTER OF SCIENCE IN INFORMATION TECHNOLOGY CURRICULUM

TOTAL CREDIT HOURS: 30

Foundation Courses (If Required—up to 6 credits)

Course Number	*Subject*	*Cr. Hrs.*
MBA 6103	Statistics for Data Analytics and Visualization	3

INT 6043	Management Information Systems	3

Core Courses (21 credits)

Course Number	*Subject*	*Cr. Hrs.*
INT 6103	Python for Data Analysis and Visualization	3
MBA 7063	Project Management	3
INT 6113	Database Management Systems	3
INT 6123	Systems Analysis and Design	3
INT 6143	Advanced Computer Networking	3
INT 7223	Cybersecurity	3
INT 7623	Data Science for Business	3

Concentration Electives (Pick One Concentration—9 credits)

Business Data Analytics

Course Number	*Subject*	*Cr. Hrs.*
INT 7213	Business Analytics and Intelligence	3
INT 7253	Visual Analytics	3
INT 7513	Data Mining Algorithms	3

Cybersecurity

Course Number	*Subject*	*Cr. Hrs.*
INT 7233	Cyber Law, Policy, and Ethics	3
INT 7243	Disaster Recovery & Business Continuity	3
INT 7263	Vulnerability Assessment and Penetration Testing	3

Project Management

Three of the following classes:

Course Number	*Subject*	*Cr. Hrs.*
MBA 6043	Reflective Leadership	3
MBA 7033	Organization Development and Change Management	3
MBA 7053	Managing a Global Workforce	3
MBA 7103	Entrepreneurship and New Venture Management	3
MBA 7173	Project Risk and Quality Management	3
INT 6253	Managing Outsourced Projects	3
INT 7563	Agile Project Management	3

OPEN ELECTIVES

Students may create a personalized concentration with an advisor's permission.

DIRECT-ENTRY 4+1 BSBA/MBA, 4+1 BSBDA/MSBDA, AND 4+1 BSIT/MSIT PROGRAMS

The 4+1 integrated Bachelor of Science/Master of Science provide a cost-efficient option for the ambitious and motivated student to earn both the undergraduate and graduate degrees in as little as five years. Students in the 4+1 program start graduate course work prior to the completion of

their undergraduate degree, typically during their junior and senior years. Depending on the program, students are allowed to double count from 12 to 15 credit hours of graduate coursework toward both their undergraduate and graduate degrees. Freshman LTU Academic Scholarship will be continued through the fifth year.

The total number of credits for the integrated 4+1 programs in COBIT are as follows:

- 4+1 BSBA/MBA program = 142 credits (121 undergraduate credits + 36 graduate credits – 15 graduate double counted credits).
- 4+1 BSBDA/MSBDA program = 140 credits (122 undergraduate credits + 30 graduate credits – 12 graduate double counted credits).
- 4+1 BSIT/MSIT program = 138 credits (120 undergraduate credits + 30 graduate credits – 12 graduate double counted credits).

Admission requirements of the integrated 4+1 programs are the same as requirements for the first-year freshmen for Bachelor's degree, which can be found in the *Undergraduate Catalog*, except the following:

- Applicants should have a recalculated high school GPA of 3.0 or higher
- Once admitted, students must maintain cumulative GPA of 3.0 or higher with no grade below a "C" in the undergraduate core classes

PROGRAM POLICIES AND PROCEDURES

- Current students who are interested in an accelerated degree must have a 3.3 GPA to apply to the program.
- Applications are due by the second semester of sophomore year or shortly after completing 60 semester credit hours.
- Once accepted to the program, students must achieve a minimum of a "B" letter grade or higher in each of the graduate level courses.
- Once admitted, students must maintain cumulative GPA of 3.0 or higher with no grade below a "C" in the undergraduate core classes.
- Students are required to pay graduate tuition rates for all graduate-level courses taken.
- There is no obligation to enter the fifth year graduate degree program.
- Students may choose to delay completion of their graduate degree beyond the fifth year; However, scholarship funds will end after five years.

DUAL DEGREE PROGRAM

Today, more than ever before, employers continue to look for creative, innovative individuals who demonstrate an ability to combine superb technical skills with the interpersonal skills needed to lead, manage, and inspire a 21st-century workforce. To address this growing need, Lawrence Tech has developed several unique dual degree programs that combine the technical skill development of a specialty master's degree with the leadership competence gained through the MBA degree. The dual degree program remains true to Lawrence Tech's mission of blending theory and practice to provide students with real-world experience. Students enrolled in the dual degree program will

receive two master's degrees with one set of curricular requirements: a Master of Business Administration degree and a second Master's degree in their field of expertise or specialty.

Current students and Lawrence Tech alumni desirous of obtaining a second degree from the College of Business and Information Technology can have their required coursework individually tailored and aligned with their existing degree.

DUAL DEGREE PROGRAM DESIGN

Lawrence Tech's dual degree program is distinctively designed to enhance opportunities for the personal and professional growth of tomorrow's leaders and provides qualified students with tailored coursework most suited to their career paths. Students in the dual degree program will take coursework in the University's MBA program and in business data analytics, information systems, engineering management, or architecture. Upon completion of the coursework in both programs, a student will be awarded an MBA degree from the College of Business and Information Technology, and a second master's degree from the College of Business and Information Technology, the College of Engineering, or the College of Architecture and Design.

The dual degree program consists of a minimum of 51 credits (excluding 6 credits of MBA foundation courses which may be required for students without undergraduate coursework in business), 27 of which are MBA credits. Many students are able to complete the dual degree program, exclusive of any required foundation coursework, in three years or less.

MASTER OF BUSINESS ADMINISTRATION/MASTER OF SCIENCE IN BUSINESS DATA ANALYTICS (MBA/MSBDA)

TOTAL CREDIT HOURS: 51

MBA Foundation Courses (If Required—up to 6 credits)

Course Number	*Subject*	*Cr. Hrs.*
ACC 5001T	Fundamentals of Financial Accounting	1.5
ECN 5011T	Fundamental of Economics	1.5
MBA 5051T	Fundamentals of Finance	1.5
MBA 5061T	Legal Environment of Business	1.5

MBA Courses (27 credit hours)

Course Number	*Subject*	*Cr. Hrs.*
ACC 6003	Managerial Accounting	3
ECN 6023	Global Business Economics	3
MBA 6003	Financial Management	3
MBA 6103	Statistics for Data Analytics and Visualization	3
MBA 6043	Reflective Leadership	3
MBA 6053	Strategic Marketing Management	3
MBA 6063	Operations and Supply Chain Management	3
INT 6043	Management Information Systems	3
MBA 6073	Global Strategic Management	3

MSBDA Courses (24 credit hours)

Course Number	*Subject*	*Cr. Hrs.*
INT 6103	Python for Data Analysis and Visualization	3
INT 6113	Database Management Systems	3
INT 6203	Introduction to Machine Learning	3
INT 7213	Business Analytics and Intelligence	3
INT 6303	Introduction to Social Media Data Analytics	3
INT 7253	Visual Analytics	3
INT 7623	Data Science for Business	3
MBA 7073	Digital Marketing	

MASTER OF BUSINESS ADMINISTRATION/MASTER OF SCIENCE IN INFORMATION TECHNOLOGY (MBA/MSIT)

TOTAL CREDIT HOURS: 51

MBA Foundation Courses (If Required—up to 6 credits)

Course Number	*Subject*	*Cr. Hrs.*
ACC 5001T	Fundamentals of Financial Accounting	1.5
ECN 5011T	Fundamental of Economics	1.5
MBA 5051T	Fundamentals of Finance	1.5
MBA 5061T	Legal Environment of Business	1.5

MBA Courses (27 credit hours)

Course Number	*Subject*	*Cr. Hrs.*
ACC 6003	Managerial Accounting	3
ECN 6023	Global Business Economics	3
MBA 6003	Financial Management	3
MBA 6103	Statistics for Data Analytics and Visualization	3
MBA 6043	Reflective Leadership	3
MBA 6053	Strategic Marketing Management	3
MBA 6063	Operations and Supply Chain Management	3
INT 6043	Management Information Systems*	3
MBA 6073	Global Strategic Management	3

MSIT Courses (21 credit hours)

Course Number	*Subject*	*Cr. Hrs.*
INT 6103	Python for Data Analysis and Visualization	3
MBA 7063	Project Management	3
INT 6113	Database Management Systems	3
INT 6123	Systems Analysis and Design	3
INT 6143	Advanced Computer Networking	3
INT 7223	Cybersecurity	3

INT 7623	Data Science for Business	3

Electives (3 credit hours)

**If INT 6043 Management Information Systems (foundation course for MSIT degree and core course for MBA degree) is excused, student needs eight MBA core courses (24 credit hours), seven MSIT core courses (21 credit hours), and two graduate-level electives (6 credit hours).*

MASTER OF BUSINESS ADMINISTRATION/MASTER OF ENGINEERING MANAGEMENT (MBA/MEM) CURRICULUM

TOTAL CREDIT HOURS: 51

MBA Foundation Courses (If Required—up to 6 credits)

Course Number	*Subject*	*Cr. Hrs.*
ACC 5001T	Fundamentals of Financial Accounting	1.5
ECN 5011T	Fundamental of Economics	1.5
MBA 5051T	Fundamentals of Finance	1.5
MBA 5061T	Legal Environment of Business	1.5

MBA Courses (27 credit hours)

Course Number	*Subject*	*Cr. Hrs.*
ACC 6003	Managerial Accounting	3
ECN 6023	Global Business Economics	3
MBA 6003	Financial Management	3
MBA 6033	Corporate Finance	3
MBA 6043	Reflective Leadership	3
MBA 6053	Strategic Marketing Management	3
MBA 6063	Operations and Supply Chain Management	3
INT 6043	Management Information Systems	3
MBA 6073	Global Strategic Management	3

MEM Core Courses (21 credit hours)

Course Number	*Subject*	*Cr. Hrs.*
EME 6583	Enterprise Productivity	3
EIE 6673	Six Sigma Process	3
EMS 6713	Production Planning and Control	3
EEM 6753	Engineering Supply Chain Management	3
EEM 6763	Quality Engineering Systems	3
EEM 6803	Engineering Management	3
EEM 7613	Technology Management	3

MEM Elective Courses (3 credit hours)

Course Number	*Subject*	*Cr. Hrs.*
EMS 5513	Lean Manufacturing Systems	3
EEM 5623	Product Development and Sustainability	3

EEM 6143	Hazardous Materials Management	3
EMS 6203*	Advanced Manufacturing Process	3
EME 6343	Automotive Manufacturing	3
EMS 6403*	Quality Control	3
EMS 6603	Engineering Economics	3
EIE 6653	Advanced Optimization Techniques	3
EIE 6663*	Applied Stochastic Processes	3
EMS 6703	Manufacturing Systems	3
EEM 6723	Special Topics in Engineering Management	3
EEM 6743	Value Engineering Management	3
EMS 6823	Product Innovation and Design	3
EME 6993	Graduate Directed Study	3
MBA 7063	Project Management	3

Courses marked with an asterisk (*) are open only to engineering majors.

MASTER OF BUSINESS ADMINISTRATION/MASTER OF ARCHITECTURE (MBA/March) CURRICULUM
TOTAL CREDIT HOURS: 54

MBA Foundation Courses (If Required—up to 6 credits)

Course Number	*Subject*	*Cr. Hrs.*
ACC 5001T	Fundamentals of Financial Accounting	1.5
ECN 5011T	Fundamental of Economics	1.5
MBA 5051T	Fundamentals of Finance	1.5
MBA 5061T	Legal Environment of Business	1.5

MBA Core Courses (27 credit hours)

Course Number	*Subject*	*Cr. Hrs.*
ACC 6003	Managerial Accounting	3
ECN 6023	Global Business Economics	3
MBA 6003	Financial Management	3
MBA 6033	Corporate Finance	3
MBA 6043	Reflective Leadership	3
MBA 6053	Strategic Marketing Management	3
MBA 6063	Operations and Supply Chain Management	3
INT 6043	Management Information Systems	3
MBA 6073	Global Strategic Management	3

MArch Core Courses (30-44 credit hours)
Students are required to take the following courses for 44 credit hours. Student holding the Bachelor of Science in Architecture from LTU are only required to take courses totaling 30 credit hours.

Course Number	*Subject*	*Cr. Hrs.*
DES 5112	Design Leadership#	2

ARC 5063	20th Century Architecture*	3
ARC 5543	Advanced Structures#	3
ARC 5034	Architectural Foundation Studio 3*	4
ARC 5126	Comprehensive Design Studio#	6
ARC 5804	Critical Practice Studio	4
ARC 5013	Research Methods	3
ARC 5643	Design Theory	3
ARC 5913	Professional Practice	3
ARC 5423	Ecological Issues	3
ARC 5814	Advanced Design Studio 1 or ARC 6514 Thesis 1	4
ARC 5824	Advanced Design Studio 2 or ARC 6524 Thesis 2 **	4
Six credits of CoAD electives (5xx2, 5xx3, 6xx2, 6xx3)		6

**Course not required for students who have completed the Bachelor of Science in Architecture at LTU.*
***Course required only for students who have completed to Bachelor of Science in Architecture at LTU. The Thesis is a two-semester sequence of courses that offers students an opportunity to formulate and investigate a hypothesis related to architecture, its practice, tectonics, history, ideas, and design. It demands an independent pursuit and generation of knowledge through the creative process with an emphasis on research. Students interested in preparing a thesis should contact the Department of Architecture for guidelines that outline the qualification procedure for thesis candidacy. Non-LTU undergraduates who take Thesis 1 must take Thesis 2 in lieu of four credits of graduate-level CoAD electives.*

GRADUATE CERTIFICATE IN CYBERSECURITY
TOTAL CREDIT HOURS: 15

This 15-credit-hour certificate is designed to provide students comprehensive knowledge of cybersecurity. The Graduate Certificate in Cybersecurity can be earned as a standalone credential or concurrently with the College's Master of Business Administration, Master of Science in Business Data Analytics, or Master of Science in Information Technology. Students interested in combining programs must apply to each program simultaneously.

To successfully complete the certificate, students are required to complete 15 credit hours of the courses listed below—excluding the foundation course INT 6043 (may be waived based on industry experience or prior academic coursework)—and maintain a GPA of 3.0 or higher.

Cybersecurity Certificate Foundation Course (up to 3 credits)

Course Number	*Subject*	*Cr. Hrs.*
INT 6043	Management Information Systems	3

Cybersecurity Certificate Core Courses (15 credit hours)

Course Number	*Subject*	*Cr. Hrs.*
INT 6143	Advanced Computer Networking	3

INT 7223	Cybersecurity	3
INT 7233	Cyber Law, Policy, and Ethics	3
INT 7243	Disaster Recovery and Business Continuity	3
INT 7263	Vulnerability Assessment and Penetration Testing	3

Please note: Eligibility of any Financial Aid depends on which degree/certificates you are applying for. Not all certificate programs are eligible for financial aid. For more information, please contact enrollmentservices@ltu.edu.

GRADUATE CERTIFICATES IN HEALTHCARE ADMINISTRATION, HEALTHCARE DATA ANALYTICS, AND HEALTHCARE DATA SCIENCE
TOTAL CREDIT HOURS: 15 Each

The College of Health Sciences, in collaboration with the College of Business and Information Technology, and the College of Arts and Sciences, offer three graduate certificates that are stackable towards the interdisciplinary online Master of Science in Healthcare Administration (MSHA) degree.

The foundation of the MSHA degree is the 15-credit Graduate Certificate in Healthcare Administration. This certificate covers a comprehensive range of topics including Human Resource Management, Fundamentals of Healthcare Finance, Healthcare Administration, Healthcare Policy, and Managerial Epidemiology, ensuring a robust base in healthcare management principles.

Complementing this foundation, students must choose between two specialized 15-credit tracks that integrate course-embedded project-based learning, allowing students to sharpen their technological skills with real-world problems and practical scenarios in the growing field of healthcare data.

The Graduate Certificate in Healthcare Data Analytics provides essential skills in Management Information Systems, Python for Data Analysis and Visualization, Statistics for Data Analytics and Visualization, Health Informatics and Data Privacy Protection, and Data Science for Business. This track is ideal for those looking to apply data analysis to decision-making and operational efficiency in healthcare settings.

Alternatively, the Healthcare Data Science Graduate Certificate offers a deep dive into the technical aspects with courses in Programming Concepts for Computer Science, Advanced Data Science, Statistics for Data Analytics, Health Informatics and Data Privacy Protection, and Machine Learning and Text. This track is suited for future specialists who are intent on pushing the boundaries of healthcare innovation through advanced data science techniques.

The job market for MSHA graduates has opportunities in various sectors such as hospital systems, community-based public health systems, long-term care facilities, consulting firms, health insurance organizations, and governmental agencies. The program's cutting-edge curriculum is designed to meet the sector's urgent need for professionals who can interpret complex data, craft strategic policy, and drive forward healthcare services and systems. As a graduate of this program, you will be

poised to take on significant challenges and lead with confidence in the local, national, and global healthcare arenas.

MSHA DEGREE REQUIREMENTS
Successful completion of the 30-credit online MSHA program requires:

- Completion of the 15-credit Graduate Certificate in Healthcare Administration (required for the MSHA degree)
  and
- Completion of the 15-credit Graduate Certificate in Healthcare Data Analytics
  or
- Completion of the 15-credit Graduate Certificate in Healthcare Data Science
- Students must maintain a minimum 3.0 cumulative grade point average to earn a graduate degree. Students are expected to meet with and be advised by academic advisors or program directors during their course of study and prior to graduation to ensure that all requirements are being met in a timely fashion.

ADMISSION REQUIREMENTS
1. Submission of the Application for Graduate Admission (ltu.edu/apply) with a resume and at least one letter of recommendation;
2. A baccalaureate degree that includes one year of mathematics and one year of science (minimum GPA of 3.0*);
3. Official transcripts of all completed college work;

*U.S. students can apply with a GPA of 2.5 or higher.

GRADE POLICY
Grades awarded in graduate courses are limited to A, A–, B+, B, B–, C+, C, C- and F. At most, one passing grade below B– may be counted toward a graduate degree. No more than one required course may be repeated.

MASTER OF SCIENCE IN HEALTHCARE ADMINISTRATION CURRICULUM
TOTAL CREDIT HOURS: 30
Students must complete the 15-credit Graduate Certificate in Healthcare Administration (required certificate for the MSHA degree) and completion of the 15-credit Graduate Certificate in Healthcare Data Analytics or completion of the 15-credit Graduate Certificate in Healthcare Data Science.

1. Required Graduate Certificate in Healthcare Administration (15 Credit Hours)

Course Number	*Subject*	*Cr. Hrs.*
MBA 6013	Human Resource Management	3
HHS 6053	Fundamentals of Healthcare Finance	3
HHS 6013	Healthcare Administration	3
HHS 6023	Healthcare Policy	3
HHS 6033	Managerial Epidemiology	3

2. Select one of the following Graduate Certificates

a. Graduate Certificate in Healthcare Data Analytics (15 Credit Hours)

Course Number	*Subject*	*Cr. Hrs.*
INT 6043	Management Information Systems	3
INT 6103	Python for Data Analysis and Visualization	3
MBA 6103	Statistics for Data Analytics and Visualization	3
HHS 6043	Health Informatics and Data Privacy Protection	3
INT 7623	Data Science for Business	3

b. Graduate Certificate in Healthcare Data Science (15 Credit Hours)

Course Number	*Subject*	*Cr. Hrs.*
MCS 5003	Programming Concepts for Computer Science	3
MCS 5733	Advanced Data Science	3
MBA 6103	Statistics for Data Analytics and Visualization	3
HHS 6043	Health Informatics and Data Privacy Protection	3
MCS 5223	Machine Learning and Text	3

c. Graduate Certificate in Healthcare Leadership (15 Credit Hours)

Course Number	*Subject*	*Cr. Hrs.*
HHS 6043	Health Informatics and Data Privacy Protection	3
HHS 6103	Advocacy and Care for Vulnerable Populations	3
HHS 6113	Evidence-Based Communication and Data Storytelling	3
HHS 6123	Leading High-Performing Healthcare Teams	3
HHS 7143	Strategic Project Management for Healthcare Leaders	3

GRADUATE CERTIFICATE IN PROJECT MANAGEMENT

TOTAL CREDIT HOURS: 12

This 12-credit-hour certificate is designed to provide students comprehensive knowledge of project management skills in either a managerial or technical environment.

Students may work toward the Graduate Certificate in Project Management independently or pursue it as part of any of the college's master's degree programs (Master of Business Administration or Master of Science in Information Technology) by applying to both programs simultaneously. To successfully complete this program, students must take 12 credit hours of the courses listed below and achieve a GPA of 3.0 or higher.

Project Management Certificate Core Courses (12 credit hours)

Course Number	*Subject*	*Cr. Hrs.*
Required:		
MBA 7063	Project Management	3
And *three* of the following classes:		
MBA 6043	Reflective Leadership	3
MBA 7053	Managing a Global Workforce	3

MBA 7103	Entrepreneurship and New Venture Management	3
MBA 7173	Project Risk and Quality Management	3
INT 6253	Managing Outsourced Projects	3
INT 7563	Agile Project Management	3
MBA 7033	Organization Development and Change Management	3

If you are pursuing an MBA or MSIT degree along with the Graduate Certificate in Project Management, please consult with an academic advisor on your curriculum.

Please note: Eligibility of any Financial Aid depends on the degree/certificates you for which you are applying. Not all certificate programs are eligible for financial aid. For more information, please contact enrollmentservices@ltu.edu.

COLLEGE OF ENGINEERING

Interim Dean
Maj Dean Mirmirani
E98, 248.204.2500

Associate Dean for Undergraduate Programs
Selin Arslan
E98, 248.204.2500

Associate Dean of Graduate Studies and Research
Liping Liu
E98, 248.204.2500

GRADUATE PROGRAMS OFFERED
Lawrence Tech's College of Engineering offers these graduate programs:

Doctor of Philosophy in Civil Engineering
Doctor of Philosophy in Electrical and Computer Engineering
Doctor of Philosophy in Mechanical Engineering
Master of Construction Engineering Management
Master of Engineering Management (also online)
Master of Science in Architectural Engineering
Master of Science in Artificial Intelligence
Master of Science in Automotive Engineering
Master of Science in Biomedical Engineering
Master of Science in Cardiovascular Perfusion
Master of Science in Civil Engineering (thesis, course-based, or project option)
Master of Science in Electrical and Computer Engineering
Master of Science in Engineering Quality
Master of Science in Industrial Engineering
Master of Science in Mechanical Engineering

Master of Science in Mechatronics and Robotics Engineering
Graduate Certificate in Aeronautical Engineering
Graduate Certificate in Energy Engineering
Graduate Certificate in Integrated Project Delivery
Graduate Certificate in Lean Six Sigma
Graduate Certificate in Structural Engineering
Graduate Certificate in Telecommunications Engineering
Graduate Certificate in Transportation Engineering

DOCTOR OF PHILOSOPHY IN ELECTRICAL AND COMPUTER ENGINEERING

TOTAL CREDIT HOURS: 60

The Ph.D. program in ECE provides two paths: one for those with a master's degree seeking a Ph.D. and another for those with a Bachelor's degree aiming for a Ph.D. The program is a center of innovation, collaboration, and academic prowess. It prepares students not only to face the challenges of today but also to pioneer new horizons of tomorrow in the dynamic field of Electrical and Computer Engineering.

The Ph.D. in ECE program offers a broad spectrum of research areas, spanning Electrical Engineering (e.g., Controls, Electromagnetics, Electronics), Computer Engineering (e.g., Embedded Systems), Wireless Communications, Artificial Intelligence, Robotics, Intelligent Systems, Energy, and Signal Processing. This diversity enables students to specialize in areas aligned with their interests and career goals.

The students will be guided by a team of accomplished faculty members who are experts in their respective fields. Their mentorship ensures a supportive and intellectually stimulating learning experience, fostering academic excellence and professional growth.

DOCTOR OF PHILOSOPHY IN Electrical and Computer ENGINEERING ADMISSION REQUIREMENTS

Students applying for admission to the PhD in Civil Engineering program are required to meet the following criteria:

- Have an electrical or computer engineering background at the undergraduate level. Students with non-electrical or non-computer engineering backgrounds may only be considered on a case-by-case basis under very exceptional circumstances
- Hold a Master of Science in Electrical or Computer Engineering or an equivalent degree from an accredited college or university. Exceptional students with an earned Bachelor of Science in Electrical or Computer Engineering may be considered for direct admission into the doctoral program
- Have earned an overall GPA of at least 3.2 on a 4.0 scale in the master's degree. Students with lower GPAs may be accepted on a provisional basis as described below. Applicants with an earned bachelor's degree or foreign equivalent in ECE may be admitted into a sequenced master-Ph.D. program with evidence of a GPA of 3.3 or higher. Exceptions to the minimum GPA may be considered on a case-by-case basis as described below
- Provide official transcripts of all completed college work
- Submit an application for Doctoral Admission (ltu.edu/apply) a minimum of two months before the beginning of the term in which the applicant expects to enroll

- Submit a minimum of one recommendation letter from academic professor who has directly evaluated the student's academic performance during previous degrees. More than one letter is encouraged.
- Submit a research statement describing subject(s) of interest. This statement MUST INCLUDE the intended area of specialization within Electrical and Computer Engineering.
- Non-native speakers of English must document English proficiency upon entry to the program (TOEFL minimum 570 for the PBT and an 84 for the IBT or IELTS minimum 6.5).

Students with a graduate GPA lower than 3.2 (3.3 for bachelor's degree) may be admitted on a provisional basis. They are evaluated for continuation upon completion of nine credits of graduate coursework at Lawrence Tech. This evaluation is conducted by the director of electrical and computer engineering graduate programs, the chair of the Department of Electrical and Computer Engineering, and the Associate Dean of Graduate Studies and Research. The department chair will notify the student in writing of the outcome. If a student is not permitted to continue work toward the PhD, then he or she is expected to terminate his or her studies within the department. The student may petition the decision to the Doctoral Governance Committee of the College of Engineering within one week of receiving written notification. The decision of the Doctoral Governance Committee is final.

Students with an engineering master's degree in a field other than electrical or computer engineering who have a GPA of at least 3.2 on a 4.0 scale may be admitted on a provisional basis. The graduate program director and program adviser(s) will define the prerequisite requirements.

DOCTOR OF PHILOSOPHY IN ELECTRICAL AND COMPUTER ENGINEERING REQUIREMENTS FOR DEGREE COMPLETION

To fulfill the requirements for a Ph.D. degree, students with an M.S. degree must successfully earn a minimum of 60 credit hours, with a maximum of 18 course credits and a minimum of 42 dissertation hours. The anticipated completion time for the program is four to five years. In addition, students must pass three examinations: a) Qualifying Examination, b) Preliminary Dissertation Examination, and c) Dissertation Oral Examination, as described in the LTU Ph.D. Policies and Procedures. Students admitted to the program are defined as "Ph.D. Students" until they pass the Qualifying Examination, at which time they are considered "Ph.D. Candidates."

Students with a B.S. degree must successfully earn a minimum of 69 credit hours, with a maximum of 27 course credits and a minimum of 42 dissertation hours. The anticipated completion time for the program is four to five years. In addition, students must pass three examinations: a) Qualifying Examination, b) Preliminary Dissertation Examination, and c) Dissertation Oral Examination, as described in the LTU Ph.D. Policies and Procedures. Students admitted to the program are defined as "Ph.D. Students" until they pass the Qualifying Examination, at which time they are considered "Ph.D. Candidates."

Course credits are subjected to the following limitations:

- A maximum of 6 credits from the 5000-level electrical and computer engineering courses

- Minimum of 9 credits of 6000- or higher-level ECE courses for both the M.S.- and B.S-Ph.D. paths (plus 9 more credits of 5000- or higher-level ECE courses for the B.S.-Ph.D. path).
- 3 credits of 4000- and higher-level courses in mathematics, probability, statistics, or programming (both M.S.- and B.S-Ph.D. paths).
- Maximum of 6 credits from 6000- and higher-level courses from other programs/departments (both M.S.- and B.S-Ph.D. paths).
- English as a Second Language (ESL) course credits and any required prerequisite course credits are not counted toward the degree (both M.S.- and B.S-Ph.D. paths).

Descriptions of all graduate courses offered by the Department of Electrical and Computer Engineering are provided on BannerWeb. Students are required to consult the director of electrical and computer engineering graduate programs in selecting courses not offered by the Department of Electrical and Computer Engineering. Students are not allowed to register for any dissertation credits until they have passed the PhD Qualifying Examination.

Ph.D. in ECE Director
Nabih Jaber, Director of Ph.D. in ECE, 248.204.2543 or njaber@ltu.edu.

CREDIT TRANSFER POLICY
Lawrence Tech allows a maximum transfer of six credits of qualified graduate-level coursework (beyond the M.S. degree) from other institutions. Transferred courses must have been completed within the past five years and received a grade of B or higher. Applicants transferring from other institutions with special circumstances will be evaluated on a case-by-case basis.

RESEARCH SPECIALIZATION
The Doctor of Philosophy in Electrical and Computer Engineering degree will prepare its students in the following primary doctoral research areas:

- Intelligent Transportation Systems
- Smart Grid Power Line Communications
- Artificial Intelligence
- Intelligent Systems
- Medical Robotics
- Wireless Communication, Vehicle Communication Network, Sensor Networks
- Speech Enhancement Techniques
- Internet of Things
- Digital Signal Processing
- Embedded System and Software
- Non-Destructive Optical Detection, Ultrasound Generation and imaging, Photoacoustic Imaging and Sensing
- Augmented reality

The selection decision will also depend on the student's coursework during his or her MS in Electrical and Computer Engineering program. Those who have not been adequately exposed to the selected specialization are required to enroll in additional courses to bridge the gap. Depending on the specialization selected, students are assigned to an advisor who will guide them throughout the process.

CHOOSING THE Ph.D. ADVISOR

All Ph.D. students are required to have research advisors. The research advisor is expected to provide guidance, mentorship, and support throughout the student's Ph.D. journey. This includes assisting the student in defining their research objectives, developing research methodologies, reviewing progress, and providing constructive feedback. The advisor should facilitate opportunities for the student to participate in relevant research activities, collaborate with other researchers, and present their work at conferences or seminars. It is required that students identify their Ph.D. advisor within 12 months from the start of their studies.

PhD QUALIFYING EXAMINATION

To become eligible to take the PhD Qualifying Examination, PhD applicants must have completed a minimum of 9 credit hours beyond the master's degree and have a GPA of 3.2 or better in graduate coursework at Lawrence Tech.

The student must pass a written qualifying examination in the ECE field of study. Prior coursework is designed to prepare the student to carry out research leading to the dissertation. If the performance on the examination is unsatisfactory, the student has only one more chance to pass this examination.

Students admitted to the program are defined as "Ph.D. Students" until they pass the Qualifying Examination, at which time they are considered "Ph.D. Candidates."

It is the PhD applicant's responsibility to initiate the process by making a written request to appear for the PhD Qualifying Exam. Eligibility for the Qualifying Exam is determined by the director of electrical and computer engineering graduate programs and the Doctoral Governance Committee after reviewing the student's academic performance.

The examination will ordinarily be given as soon as the student is eligible and should be taken no later than 12 months after admission as a PhD applicant. If the student does not meet this requirement, the student must petition the director of the electrical and computer engineering graduate program for permission to continue in the program. The petition must include an updated plan of work supported by the student's advisor.

The PhD Qualifying Examination is administered by a Qualifying Examination Committee selected by the student's advisor and appointed by the director of electrical and computer engineering graduate programs. The committee, comprised of at least three graduate faculty members, two of whom must be from the electrical and computer engineering faculty, will prepare the qualifying exam.

PhD Qualifying Examinations are given separately to each student. The student is allowed a specified amount of time to respond to a set of written examination questions selected to test the student's knowledge in his or her chosen and closely related fields. The student then makes an oral presentation to the Qualifying Examination Committee that expands on the theories and solutions

covered in the examination questions. The student is expected to defend the solutions and answer questions from the Qualifying Examination Committee on related topics in the field of study. In some cases, a more extensive and comprehensive Qualifying Examination may be required.

After reviewing the written answers and oral presentation, the Qualifying Examination Committee submits its recommendation to the College of Engineering's Doctoral Governance Committee and the chair of the Department of Electrical and Computer Engineering, who officially informs the student in writing of the outcome. The three possible outcomes are: 1) pass, 2) deferment for re-examination at a later date after remedial steps are taken to address deficiencies, or 3) denial. The student is only permitted to appear for the Qualifying Examination twice. The student denied acceptance is not permitted to continue work toward the PhD and is to terminate studies within the Department of Electrical and Computer Engineering by the end of the academic semester. The student may petition the decision to the College of Engineering's Doctoral Governance Committee within one week of the issuance of the decision letter. The decision of the Doctoral Governance Committee is final.

RESEARCH REQUIREMENTS LEADING TO THE DISSERTATION

This section will detail the following topics:

- Selection of a Dissertation Topic and Dissertation Advisory Committee
- Preliminary Dissertation Examination
- Dissertation
- Dissertation Oral Examination

SELECTION OF A DISSERTATION TOPIC AND DISSERTATION ADVISORY COMMITTEE

The student should select a dissertation topic in consultation with their advisor shortly after passing the Qualifying Examination. The student's dissertation research must make a significant contribution to the knowledge in his or her chosen area of specialization. However, the scope and complexity of the research should not make completion impossible within a reasonable period of time.

Each student will have a Dissertation Advisory Committee (DAC) to assist in advising and guiding the student through the dissertation in all of its phases. This DAC will be formed either upon candidacy (or as soon thereafter as appropriate) or when the dissertation proposal is accepted, depending upon the Ph.D. program guidelines. The DAC must comprise a minimum of four faculty members, with at least two from the ECE department and one from a related field outside the ECE department. It's also possible to appoint other qualified individuals from outside LTU. To have any person who is not a faculty member approved to serve as a committee member, it is necessary to obtain permission from the director of the program by providing a Curriculum vitae (or resume) describing that person's qualifications. Normally, the advisor assumes the role of the DAC Chair. After the prospective committee members agree to serve, the chair of the DAC submits a list of committee members to the program director. External (to the department) members may be included on the DAC at the discretion of the program director either as voting or non-voting members. The DAC, and particularly the chair, will maintain regular and constructive communication with the student, and all sessions will be documented.

After the prospective Dissertation Committee members agree to serve, the designated Dissertation Committee chair requests the Doctoral Governance Committee and the Department of Electrical and Computer Engineering to formally recommend the appointment of the Dissertation Committee to the associate dean of graduate studies and research.

PRELIMINARY DISSERTATION EXAMINATION

Within one year after passing the Qualifying Examination, each student is required to pass a Preliminary Dissertation Examination. To become eligible to take the Proposal Examination, the PhD applicant must have maintained a minimum 3.2 GPA on a 4.0 scale. In consultation with the advisor, the PhD applicant has the responsibility for arranging the date, time, and venue of the Proposal Examination. The student will prepare a written research proposal outlining the proposed topic of dissertation research, a review of literature, an outline of the proposed approach, an estimate of resources required, and a schedule of milestones and events. The student will then orally defend this proposal before the Dissertation Advisory Committee. The proposal will be written in English.

If the dissertation advisory committee accepts and approves the proposal and the preliminary examination is passed, the student then proceeds to carry out the proposed course of research to culminate in the dissertation. The Dissertation Committee submits its recommendation to the chair of the Department of Electrical and Computer Engineering, who officially informs the student in writing of the outcome. The three possible outcomes are: 1) acceptance of the proposal and advancement to the status of PhD Candidate, 2) deferment for re-examination at a later date after remedial steps are taken to address deficiencies, or 3) denial. The student is only permitted to appear for the Proposal Examination twice. The student denied acceptance is not permitted to continue work toward the PhD and is to terminate studies within the Department of Electrical and Computer Engineering by the end of the academic semester. The student may petition the decision to the Doctoral Governance Committee of the College of Engineering within one week of the issuance of the decision letter. The decision of the Doctoral Governance Committee is final.

DISSERTATION

The dissertation is required of every candidate for the Ph.D. degree. The dissertation is an original, critical treatment of a topic chosen by the candidate and approved by the Dissertation Advisory Committee. The dissertation is written in English.

If the Ph.D. candidate has collaborated with others in carrying out the research upon which the dissertation is based, the candidate’s own contribution to the research must be specified and clearly stated in a separate section immediately preceding the text.

The dissertation, when completed, must be of publishable quality and able to be published, although publication is not required. It must not be restricted by any entity outside the University from being published, unless a publication delay has been mutually agreed upon between LTU and the agency or company sponsoring the research project. It is expected to make a significant contribution to the body of knowledge of the discipline. If all, or part of, the dissertation is published, a statement that the publication is based upon the dissertation must be included in the publication. Other criteria may be imposed by the ECE department.

The steps in the process of completion, submission and approval of the dissertation are specified by the department. A student should seek out the program director for further assistance on these requirements, which are the same as for a master's thesis. The dissertation must be prepared according to the department document prepared for all graduate projects, master's thesis and dissertations. A final draft of the dissertation must be submitted to each member of the Dissertation Committee for review and evaluation fourteen (14) days before the Final Examination.

DISSERTATION ORAL EXAMINATION

The purpose of the Dissertation Oral Examination is to determine whether the candidate has satisfactorily presented a significant, original dissertation and whether the candidate has adequately defended the dissertation.

The presentation and defense of a significant, original dissertation is the culmination of the work for the Ph.D. degree. Everything else is considered preliminary for this presentation. Prior coursework prepares the student for research work on the dissertation and the Qualifying Examination is used to determine whether that preparation is adequate. In effect, the Oral Examination provides an explicit final judgment of the quality of the work of scholarship but, also, implicitly judges the quality of the entire graduate education of the candidate leading up to and culminating with the presentation and the defense of the dissertation.

The student must complete a minimum of 42 dissertation research credits to fulfill the degree requirements. The student may be enrolled in any remaining credits during the semester of the Dissertation Examination. PhD candidates are responsible for remaining in contact with the committee members and updating them on their progress.

The Dissertation Examination is conducted by the Dissertation Committee. During the examination, the PhD candidate first gives an oral presentation of his or her research and then defends the dissertation. The Dissertation Examination is advertised by the department and only the oral presentation portion is open to public. In consultation with the advisor, the PhD candidate should assume the responsibility for arranging the date, time, and venue of the Dissertation Examination.

At the end of the Dissertation Examination, the Dissertation Committee informs the student of the outcome. The three possible outcomes of the Dissertation Examination are: 1) acceptance of the dissertation as submitted, 2) acceptance of the dissertation with corrections, or 3) deferment for re-examination at a later date after steps have been taken to remedy deficiencies. The Dissertation Committee then informs the chair of the Department of Electrical and Computer Engineering and the College of Engineering's Doctoral Governance Committee of its decision. The PhD in Electrical and Computer Engineering is awarded to the PhD candidate by the associate dean of graduate studies and research upon the recommendation of the Doctoral Governance Committee.

An unbound final copy of the dissertation, incorporating all corrections required by the Dissertation Committee, is required by the associate dean of graduate studies and research. The final version of the dissertation is submitted in electronic and hard copy.

TIME LIMIT
Students must complete all doctoral work within seven consecutive years of their initial enrollment in the doctoral program. Students exceeding this time limit must petition the associate dean of graduate studies and research through the department for an extension of time and may be required to take additional examinations and/or coursework.

DOCTOR OF PHILOSOPHY IN MECHANICAL ENGINEERING (PhD)
TOTAL CREDIT HOURS: 60

PhD IN MECHANICAL ENGINEERING ADMISSION REQUIREMENTS

To be eligible for admission to the Ph.D. in Mechanical Engineering program at Lawrence Technological University, applicants must satisfy the following requirements:

- Hold a Bachelor of Science in Mechanical Engineering or a related field. Applicants without a mechanical engineering background may be considered on a case-by-case basis under exceptional circumstances.
- Possess a Master of Science in Mechanical Engineering or an equivalent degree from an accredited institution. Exceptional students with a Bachelor of Science in Mechanical Engineering may be considered for direct admission into the doctoral program.
- Have earned a minimum overall GPA of 3.3 on a 4.0 scale in their master's degree. Applicants with a lower GPA may be admitted on a provisional basis, as described below.
- Submit official transcripts of all completed college coursework.
- Provide three letters of recommendation from academic professors who have directly evaluated the student's academic performance during previous degrees.
- Submit a research statement describing their subject(s) of interest, including their intended area of specialization within mechanical engineering.
- Submit an up-to-date professional resume.
- Non-native English speakers must document their English proficiency upon entry to the program (TOEFL minimum 550 for the PBT or 79 for the IBT or IELTS minimum 6.0).

Students with a graduate GPA lower than 3.3 may be admitted on a provisional basis. These students will be evaluated for continuation upon completion of nine credits of graduate coursework at Lawrence Technological University, with a minimum GPA of 3.3 for the first nine credits. The program director will notify the student in writing of the outcome. If a student is not permitted to continue work toward the Ph.D., then he or she is expected to terminate his or her studies within the department. The student may petition the decision to the Chair of the A. Leon Linton Department of Mechanical, Robotics, and Industrial Engineering within one week of receiving written notification. The decision of the Department Chair is final.

Students with an engineering master's degree in a field other than mechanical engineering who have a GPA of at least 3.3 on a 4.0 scale may be admitted on a provisional basis. The program director and research adviser(s) will define the prerequisite requirements.

PhD IN MECHANICAL ENGINEERING REQUIREMENTS

Students admitted to the program have to complete a minimum of 24 course credits (beyond the MS degree) and a minimum of 36 dissertation credit hours to satisfy the doctoral degree requirements. This is in addition to passing (a) Qualifying Examination, (b) Preliminary Dissertation Examination, and (c) Dissertation Oral Examination.

It should be noted that those who are admitted to the program are defined as "PhD applicant" until they pass the Qualifying Examination. After passing the Qualifying Examination they become "PhD candidates."

Course credits are subjected to the following requirements:

- Minimum of 18 credits from 6000 level or higher mechanical engineering courses
- Three credits of mathematics (EME 6283 Engineering Analysis II)
- Maximum of 9 credits from 6000 level or higher from other programs/departments
- English language course credits are not counted toward the degree

Descriptions of all graduate courses offered by the A. Leon Linton Department of Mechanical, Robotics, and Industrial Engineering are provided on BannerWeb. Students are required to consult the director of the PhD in Mechanical Engineering program in selecting courses not offered by the department.

PhD IN MECHANICAL ENGINEERING RESEARCH SPECIALIZATION

Students admitted to the PhD in Mechanical Engineering program can specialize in one of the following areas:

- Thermal-Fluids
- Solid Mechanics, Dynamics, Vibrations
- Manufacturing
- Automotive
- Mechatronics and Robotics

This decision will be impacted by the students background. Those who have not been adequately exposed to the selected specialization will be asked to take more courses to bridge the gap. Depending on the specialization, students will be assigned to an advisor who will guide them throughout the process.

DOCTOR OF PHILOSOPHY IN MECHANICAL ENGINEERING REQUIREMENTS FOR DEGREE COMPLETION

QUALIFYING EXAMINATION

Ph.D. applicants must meet specific requirements to be eligible to take the Qualifying Examination. These requirements include maintaining a GPA of 3.2 or higher in graduate coursework. It is expected that students take the Qualifying Examination before completing 12 credit hours of coursework at Lawrence Technological University. Any time extension requested

shall be approved by the Department Chair. To initiate the process, the Ph.D. applicant must make a written request to appear for the Qualifying Examination. Eligibility for the exam is determined by the program director after reviewing the student's academic performance.

The Qualifying Examination is administered by a committee selected by the program director. The committee, consisting of at least three graduate faculty members, with a minimum of two from the mechanical engineering faculty, will prepare and grade the exam.

The Qualifying Examination typically involves a written exam, in which the student responds to a set of written examination questions selected to test their knowledge in their chosen and closely related fields. After reviewing the student's performance, the Qualifying Examination Committee will submit its recommendation to the program director, who will officially inform the student of the outcome.

There are three possible outcomes: pass, deferment for re-examination later after remedial steps are taken to address deficiencies, or denial. The student is only permitted to appear for the Qualifying Examination twice, and if denied acceptance, they are not permitted to continue work toward the Ph.D. and must terminate their studies within the A. Leon Linton Department of Mechanical, Robotics, and Industrial Engineering by the end of the current academic semester. The student may petition the decision to the Chair of the A. Leon Linton Department of Mechanical, Robotics, and Industrial Engineering within one week of the issuance of the decision letter. The decision of the Department Chair is final.

It is important to note that passing the Qualifying Examination entitles the candidate to register for Dissertation Research Credits.

SELECTION OF PhD ADVISOR

All Ph.D. students are required to have Ph.D. advisors. The Ph.D. advisor is expected to provide guidance, mentorship, and support throughout the student's Ph.D. journey. This includes assisting the student in defining their research objectives, developing research methodologies, reviewing progress, and providing constructive feedback. The Ph.D. advisor should facilitate opportunities for the student to participate in relevant research activities, collaborate with other researchers, and disseminate their work in appropriate venues. It is required that students identify their Ph.D. advisor within 12 months from the start of their studies.

DISSERTATION ADVISORY COMMITTEE

In order to form a Dissertation Advisory Committee to review and approve a student's dissertation proposal, the student must submit a request to the program director. In addition to the chair person (typically the student’s research advisor), the committee must consist of at least three qualified faculty members, including at least two from the A. Leon Linton Department of Mechanical, Robotics, and Industrial Engineering and at least one from a related field outside the department. The committee may also include other qualified individuals who are not affiliated with Lawrence Technological University, but permission must be obtained from the program director and a Curriculum Vitae or resume describing the individual's qualifications must be provided.

After the prospective committee members agree to serve, the chair of the Dissertation Advisory Committee submits a list of committee members to the program director. External (to the department) members may be included on the Dissertation Advisory Committee at the discretion of the program director either as voting or non-voting members. The Dissertation Advisory Committee, and particularly the chair, will maintain regular and constructive communication with the student, and all sessions will be documented.

PRELIMINARY DISSERTATION EXAMINATION

Within one year after passing the Qualifying Examination, each student is required to pass a Preliminary Dissertation Examination. The student will prepare a written research proposal outlining the proposed topic of dissertation research, a review of literature, an outline of the proposed approach, an estimate of resources required, and a schedule of milestones and events. The student will then orally defend this proposal before the Dissertation Advisory Committee. The proposal will be written in English.

If the Dissertation Advisory Committee accepts and approves the proposal, the student passes the Preliminary Examination. The student then proceeds to carry out the proposed course of research to culminate in the dissertation. If the presentation and/or the proposal fail to meet the Dissertation Advisory Committee's expectations, the student will be given one more chance to revise the proposal and retake the preliminary examination. Students who fail, again, to successfully complete the preliminary examination will be dismissed from the Ph.D. program at the end of the semester containing the second failed attempt.

1- To become eligible to take the Preliminary Dissertation Examination, the Ph.D. applicant must have maintained a minimum 3.2 GPA on a 4.0 scale.
2- In consultation with the Ph.D. advisor, the student is responsible for arranging the date, time, and venue of the Preliminary Dissertation Examination.
3- Two weeks prior to the exam, the student must submit a written dissertation proposal to the Dissertation Advisory Committee.
4- During the exam, the student will present their research plan to the committee members and answer questions from the committee members. Only the presentation portion is open to the public.
5- There are four possible outcomes of the exam: pass as submitted, pass with modifications, fail and need to retake, or fail a second time and terminate their study.
6- If the outcome is "pass with modifications," the committee chair will collect all feedback from the committee members, document it on the Preliminary Dissertation Exam Form, and communicate with the student. The student is required to submit a modified proposal to the committee members by the designated deadline. The committee members will review the revised proposal.
7- After all the committee members have signed the Preliminary Dissertation Examination Form, the committee chair will submit the form and final proposal to the program director. The program director officially informs the student in writing of the outcome.

8- Each student is only allowed two chances for the Preliminary Dissertation Examination. If a student fails the exam twice, they will not be allowed to continue working toward the Ph.D. and must terminate their studies within the A. Leon Linton Department of Mechanical, Robotics, and Industrial Engineering by the end of the current academic semester. The student may petition the decision to the Department Chair within one week of receiving the decision letter. The decision made by the Department Chair is final.

PREPARATION OF THE DISSERTATION

The dissertation is required of every candidate for the Ph.D. degree. The dissertation is an original, critical treatment of a topic chosen by the candidate and approved by the Dissertation Advisory Committee. The dissertation is written in English. When preparing the dissertation document, the Ph.D. candidate will follow the procedures detailed in the University's guidelines for preparation of dissertations and theses, which are available through the office of the Provost/CAO and the Ph.D. department offices.

1. After passing the Preliminary Dissertation Exam, the student may begin working on their dissertation. The dissertation must be written in English and must follow the dissertation template provided by the A. Leon Linton Department of Mechanical, Robotics, and Industrial Engineering.
2. The dissertation must make a significant contribution to the knowledge in the student's chosen area of specialization. However, the scope and complexity of the research should not make completion impossible within a reasonable period of time.
3. The dissertation should be free of grammar mistakes. It is the responsibility of the student to ensure that the dissertation is proofread and edited before submission.
4. The student should work closely with their Dissertation Advisory Committee throughout the dissertation process. The committee will provide guidance and feedback on the research and writing of the dissertation.
5. The dissertation should be a well-organized and clear presentation of the research findings. It should include an introduction, literature review, methodology, results, discussion, and conclusion sections.
4. The dissertation must be defended in an oral examination before the Dissertation Oral Committee. The student will present their research findings and answer questions from the committee members.
5. Following the successful oral examination and any additional revisions required by the examination committee, one complete, unbound copy of the dissertation is to be submitted for permanent deposit in the University Library system. The candidate is required to supply a digital version of the dissertation, which will be published through the University's subscription to UMI's ProQuest online dissertation services.

DISSERTATION ORAL EXAMINATION

In consultation with the advisor, the Ph.D. candidate should assume the responsibility for arranging the date, time, and venue of the Dissertation Oral Examination. Any location proposed for the oral examination, other than the University campus, must be approved in advance by the

program director and Department Chair. The student must submit the dissertation to the Dissertation Oral Committee at least three weeks prior to the defense date.

The Dissertation Oral Examination is conducted by the Dissertation Oral Committee. During the examination, the Ph.D. candidate must give an oral presentation of their research and defend their dissertation. Only the oral presentation portion is open to the public.

At the end of the Dissertation Oral Examination, the Dissertation Oral Committee informs the student of the outcome. The three possible outcomes of the Dissertation Oral Examination are: 1) acceptance of the dissertation as submitted, 2) acceptance of the dissertation with corrections, or 3) deferment for re-examination later after steps have been taken to remedy deficiencies. The Dissertation Oral Committee then informs the Program Director and Department Chair of its decision.

In case the outcome of the Dissertation Oral Examination is "acceptance of the dissertation with corrections", the Dissertation Oral Committee Chair will collect feedback from all committee members and inform the student of the necessary revisions and the deadline to complete them. The student is responsible for making the revisions as instructed by the committee and submitting the revised dissertation to the committee for final approval.

RESIDENCY REQUIREMENTS FOR PhD

Ph.D. Candidates must complete a one-year residency as part of the degree requirements, i.e., as a Ph.D. Candidate, the student must complete a minimum of one year (or equivalent) of research in the University campus environment.

DOCTOR OF PHILOSOPHY IN CIVIL ENGINEERING

TOTAL CREDIT HOURS: 60

From the roads and bridges that connect us, to the buildings that shape our horizons, the future of civil engineering will require not only finding new and innovative solutions to age-old problems but also a commitment to creating a more sustainable world. Earning a Doctor of Philosophy in Civil Engineering at Lawrence Tech can make a difference by opening up new leadership opportunities in academia and research and helping students prepare to make their mark in the field.

Throughout the program, students have the opportunity to participate in and lead pioneering applied-research projects that offer them exceptional hands-on experience. Most projects are funded by research grants from private foundations and public entities, such as the National Science Foundation and numerous state transportation departments.

Innovation, creativity, research, and action are the guiding principles of Lawrence Tech's College of Engineering. The Department of Civil Engineering has lived up to those principles and experienced tremendous growth over the past decade, including the 2006 launch of the Nabil Grace Center for Innovative Materials Research (CIMR), a national resource for the research, development, and testing of carbon fiber composite materials for defense and infrastructure applications.

DOCTOR OF PHILOSOPHY IN CIVIL ENGINEERING ADMISSION REQUIREMENTS

Students applying for admission to the PhD in Civil Engineering program are required to meet the following criteria:

- Hold a Bachelor of Science in Civil Engineering or a related field. Applicants without a civil engineering background may be considered on a case-by-case basis under exceptional circumstances.
- Possess a Master of Science in Civil Engineering or an equivalent degree from an accredited institution. Exceptional students with a Bachelor of Science in Civil Engineering may be considered for direct admission into the doctoral program.
- Have earned a minimum overall GPA of 3.3 on a 4.0 scale in their master's degree. Applicants with a lower GPA may be admitted on a provisional basis, as described below.
- Submit official transcripts of all completed college coursework.
- Provide three letters of recommendation from academic professors who have directly evaluated the student's academic performance during previous degrees.
- Submit a research statement describing their subject(s) of interest, including their intended area of specialization within civil engineering.
- Submit an up-to-date professional resume.
- Non-native English speakers must document their English proficiency upon entry to the program (TOEFL minimum 550 for the PBT or 79 for the IBT or IELTS minimum 6.0).

Students with a graduate GPA lower than 3.3 may be admitted on a provisional basis. These students They will be evaluated for continuation upon completion of nine credits of graduate coursework at Lawrence Technological University, with a minimum GPA of3.3 for the first nine credits. The program director will notify the student in writing of the outcome. If a student is not permitted to continue work toward the Ph.D., then he or she is expected to terminate his or her studies within the department.

Students with an engineering master's degree in a field other than civil engineering who have a GPA of at least 3.3 on a 4.0 scale may be admitted on a provisional basis. The program director and research adviser(s) will define the prerequisite requirements.

DOCTOR OF PHILOSOPHY IN CIVIL ENGINEERING REQUIREMENTS FOR DEGREE COMPLETION

Students admitted to a PhD in Civil Engineering program must earn a maximum of 18 course credits (beyond the master's degree) and a minimum of 12 course credits. The total credit count is a minimum of 60 credits beyond a master's degree. Additionally, students must pass: (a) a PhD Qualifying Examination, (b) a Preliminary Dissertation Examination, and (c) a Dissertation Oral Examination.

- Students that complete the minimum of 12 course credits must complete a minimum of 48 dissertation credits with a minimum of 30 dissertation credits after completing the Preliminary Dissertation Examination.
- Students that complete 18 course credits must complete a minimum of 42 dissertation credits with a minimum of 30 dissertation credits after completing the Preliminary Dissertation

Examination (in rare case a student completes 15 course credits, student must complete minimum of 45 dissertation credits).
- Students that complete more than 18 course credits must still complete a minimum of 42 dissertation credits.

The decision to complete 12-18 course credits depends on either the student, program director and/or research advisor. If required by the program director or the research advisor, student must adhere. A Qualifying Examination as described herein is administered based on coursework taken at the university and courses that have been completed or are near completion. Faculty teaching a minimum of 4 courses (12 credits) must agree to serve on student's Qualifying Exam committee, else, either more courses must be taken or student should select different courses. The program director must approve the courses that will serve as part of the Qualifying Examination. Reasons to take more than 12 course credits are summarize as follows:

- Student wishes to wait until 18 course credits are complete or near completion prior to taking Qualifying Examination. Student only has this choice independently if not receiving any form of funding from the university. Else, student's research advisor must provide permission to exercise this option.
- The program director concludes that courses that are part of the first 12 credits are not adequate for the development of a Qualifying Examination for the student.
- With permission of research advisor, student wishes to gain additional knowledge in a subject related to student's specialization or research interests that becomes available after the first 12 credits are completed.
- Research advisor requires student to take additional courses to support the research such as a course in research methods, mathematics or other courses that will assist the student's research objectives.

Notes: if students do not pass Qualifying Examination in their first attempt, an additional six course credits may be required to bridge to the following semester when the exam will be retaken. These additional course credits are considered extra credits and do not influence the original planned credit count for the student; meaning if the qualifying examination was originally developed assuming the student were to complete 12 course credits, the student must now complete 18 course credits and 48 dissertation credits.

Students admitted to the program are defined as PhD Applicants until they pass the PhD Qualifying Exam, at which time they are considered PhD Candidates. PhD Candidates must complete a one-year residency as part of the degree requirements, i.e., as a PhD candidate, the student must complete a minimum of one year (or equivalent) of research in the Lawrence Tech campus environment.

Course credits are subjected to the following limitations:
- A maximum of 9 credits from the 5000-level civil engineering courses
- A minimum of 6 credits from 6000-and higher-level courses
- A maximum of 6 credits from 6000-and higher-level courses from other departments

- A maximum of 6 credits from two Civil Engineering Independent Research courses (i.e., ECE 7993)
- A maximum of 3 credits of 5000- and higher-level courses in mathematics, probability, statistics or programming (students may only use this if completing more than 12 credits of coursework).

Descriptions of all graduate courses offered by the Department of Civil and Architectural Engineering are provided on BannerWeb. Students are required to consult the program director and/or research advisor in selecting courses not offered by the Department of Civil and Architectural Engineering. Students are not allowed to register for any dissertation credits until they have passed the PhD Qualifying Examination.

CREDIT TRANSFER POLICY

Lawrence Tech allows the transfer of a maximum of six credits of qualified graduate level coursework from other institutions. Transfer courses must have been taken within the past five years and passed with a B grade or better. An applicant transferring from another institution with special circumstances will be evaluated on a case-by-case basis.

RESEARCH SPECIALIZATION

Students admitted to the PhD in Civil Engineering program may select from one of the following civil engineering specializations:

- Construction Engineering and Management
- Environmental and Water Resources Engineering
- Geotechnical and Geoenvironmental Engineering
- Structural Engineering and Materials
- Transportation Engineering

The selection decision will also depend on the student's coursework during his or her MS in Civil Engineering program. Those who have not been adequately exposed to the selected specialization are required to enroll in additional courses to bridge the gap. Depending on the specialization selected, students are assigned to an advisor who will guide them throughout the process.

PhD QUALIFYING EXAMINATION

Ph.D. applicants must meet specific requirements to be eligible to take the Ph.D. Qualifying Examination. These requirements include completing a minimum (or near completion) of 12 credit hours beyond the master's degree with a GPA of 3.3 or better in graduate coursework at Lawrence Tech. To initiate the process, the Ph.D. applicant must make a written request to appear for the Ph.D. Qualifying Examination. Eligibility for the exam is determined by the program director after reviewing the student's academic performance. The Qualifying Examination must be administered either near the end of the semester in which all coursework that encompasses the exam is completed or directly after. For instance, if a student completes all coursework that encompasses the exam in a fall semester, the exam must be fully completed from December to mid-January. If a student completes all coursework that encompasses the exam in a spring semester, the exam must be completed in

either late April or May. In the rare case that a student completes the coursework in the summer semester, the exam must be completed in late July or August.

The Qualifying Examination is administered by a committee selected by the program director. The committee, consisting of at least three graduate faculty members, with a minimum of two from the civil engineering faculty, will prepare and grade the exam.

The Qualifying Examination consists of written and oral portions, where the student will respond to written examination questions and make an oral presentation to the Qualifying Examination Committee. After reviewing the student's performance, the Qualifying Examination Committee will submit its recommendation to the program director, who will officially inform the student of the outcome.

There are three possible outcomes: pass, deferment for re-examination later after remedial steps are taken to address deficiencies, or denial. The student is only permitted to appear for the Qualifying Examination twice, and if denied acceptance, they are not permitted to continue work toward the Ph.D. and must terminate their studies within the Department of Civil and Architectural Engineering by the end of the current academic semester. The student may petition the decision to the Department Chair of Civil and Architectural Engineering within one week of the issuance of the decision letter. The decision of the Department Chair is final.

It is important to note that passing the Qualifying Examination entitles the candidate to register for Dissertation Research Credits.

SELECTION OF DISSERATION TOPIC

As soon as possible after passing the Qualifying Examination, the student should choose a dissertation topic in consultation with his or her advisor. Typically, the advisor becomes the chair of the student’s Dissertation Advisory Committee. If necessary, any full-time engineering faculty member can serve as co-chair.

The student’s dissertation research must make a significant contribution to the knowledge in his or her chosen area of specialization. However, the scope and complexity of the research should not make completion impossible within a reasonable period of time.

DISSERTATION ADVISORY COMMITTEE

In order to form a Dissertation Advisory Committee to review and approve a student's dissertation proposal, the student must submit a request to the program director. In addition to the chair person (typically the student’s research advisor), the committee must consist of at least three qualified faculty members, including at least two from the Department of Civil and Architectural Engineering and at least one from a related field outside the department. The committee may also include other qualified individuals who are not affiliated with Lawrence Technological University, but permission must be obtained from the program director and a Curriculum Vitae or resume describing the individual's qualifications must be provided.

After the prospective committee members agree to serve, the chair of the Dissertation Advisory Committee submits a list of committee members to the program director. External (to the department) members may be included on the Dissertation Advisory Committee at the discretion of the program director either as voting or non-voting members. The Dissertation Advisory Committee, and particularly the chair, will maintain regular and constructive communication with the student, and all sessions will be documented.

PRELIMINARY DISSERTATION EXAMINATION

4. To become eligible to take the Preliminary Examination, the Ph.D. applicant must have maintained a minimum 3.3 GPA on a 4.0 scale.
5. The student must pass the Preliminary Dissertation Examination before registering for more than 12 credits for Doctoral Dissertation Research.
6. In consultation with the research advisor, the student is responsible for arranging the date, time, and venue of the Preliminary Dissertation Exam.
7. Two weeks prior to the exam, the student must submit a written dissertation proposal describing the scope and approach to the Dissertation Advisory Committee.
8. During the exam, the student will present their research plan to the committee members and answer questions from the committee members. Only the presentation portion is open to the public.
9. There are four possible outcomes of the exam: pass as submitted, pass with modifications, fail and need to retake, or fail a second time and terminate their study.
10. If the outcome is "pass with modifications," the committee chair will collect all feedback from the committee members, document it on the Preliminary Dissertation Exam Form, and communicate with the student. The student is required to submit a modified proposal to the committee members by the designated deadline. The committee members will review the revised proposal.
11. After all the committee members have signed the Preliminary Dissertation Examination Form, the committee chair will submit the form and final proposal to the program director. The program director officially informs the student in writing of the outcome.
12. Each student is only allowed two chances for the Preliminary Dissertation Examination. If a student fails the exam twice, they will not be allowed to continue working toward the Ph.D. and must terminate their studies within the Department of Civil and Architectural Engineering by the end of the current academic semester. The student may petition the decision to the Department Chair of Civil and Architectural Engineering within one week of receiving the decision letter. The decision made by the Department Chair is final.

PREPARATION OF THE DISSERTATION

1. After passing the Preliminary Dissertation Exam, the student may begin working on their dissertation. The dissertation must be written in English and must follow the dissertation template provided by the College of Engineering.
2. The dissertation must make a significant contribution to the knowledge in the student's chosen area of specialization. However, the scope and complexity of the research should not make completion impossible within a reasonable period of time.

3. The dissertation should be free of grammar mistakes. It is the responsibility of the student to ensure that the dissertation is proofread and edited before submission.
4. The student should work closely with their Dissertation Advisory Committee throughout the dissertation process. The committee will provide guidance and feedback on the research and writing of the dissertation.
5. The dissertation should be a well-organized and provide a clear presentation of the research findings. It should include an introduction, literature review, methodology, results, discussion, and conclusion sections.
6. The dissertation must be defended in an oral examination before the Dissertation Oral Committee. The student will present their research findings and answer questions from the committee members.
7. Following the successful oral examination and any additional revisions required by the examination committee, one complete, unbound copy of the dissertation is to be submitted for permanent deposit in the University Library system. The candidate is required to supply a digital version of the dissertation, which will be published through the University's subscription to UMI's ProQuest online dissertation services.

DISSERTATION ORAL EXAMINATION

In consultation with the advisor, the Ph.D. candidate should assume the responsibility for arranging the date, time, and venue of the Dissertation Oral Examination. Any location proposed for the oral examination, other than the University campus, must be approved in advance by the program director and department chair. The student must submit the dissertation to the Dissertation Advisory Committee at least three weeks prior to the defense date.

The Dissertation Oral Examination is conducted by the Dissertation Oral Committee. During the examination, the Ph.D. candidate must give an oral presentation of their research and defend their dissertation. Only the oral presentation portion is open to the public.

At the end of the Dissertation Oral Examination, the Dissertation Oral Committee informs the student of the outcome. The three possible outcomes of the Dissertation Oral Examination are: 1) acceptance of the dissertation as submitted, 2) acceptance of the dissertation with corrections, or 3) deferment for re-examination later after steps have been taken to remedy deficiencies. The Dissertation Oral Committee then informs the program director and department chair of its decision.

In case the outcome of the Dissertation Oral Examination is "acceptance of the dissertation with corrections", the Dissertation Oral Committee Chair will collect feedback from all committee members and inform the student of the necessary revisions and the deadline to complete them. The student is responsible for making the revisions as instructed by the committee and submitting the revised dissertation to the committee for final approval.

TIME LIMIT

Students must complete all doctoral work within seven consecutive years of their initial enrollment in the doctoral program. Students exceeding this time limit must petition the associate dean of

graduate studies and research through the department for an extension of time and may be required to take additional examinations and/or coursework.

PEER-REVIEWED PUBLICATIONS

PhD candidates are expected to contribute to applicable literature in the subject manner that they are studying. Students are expected to publish scholarly work in a minimum of two peer-reviewed publications. This includes a minimum of one publication in a journal applicable to the subject manner. Exceptions to this requirement can only be granted by the PhD committee.

MASTER OF CONSTRUCTION ENGINEERING MANAGEMENT (MCEM)

The Master of Construction Engineering Management (MCEM), offered by Lawrence Tech's Department Civil and Architectural Engineering, provides a specialized education addressing the needs of students interested in the concepts of construction engineering and the principles of management. The synthesis of these two fields represents a highly marketable combination of skills valuable in today's environment of integrated project delivery.

The MCEM degree comprises 12 core credits (4 courses) and 18 elective credits (six courses).

MCEM ADMISSION REQUIREMENTS

Admission to the MCEM program as a regular graduate student requires the demonstration of high potential for success based on the following:

1. An earned BS degree in civil engineering, or bachelor of architecture, or related fields, from an accredited undergraduate program;
2. Minimum undergraduate GPA of 3.00;
3. Application for graduate admission;
4. One letter of recommendation (employer and professor are preferred);
5. Official transcripts of all college work
6. Professional resume.

Although not required, additional documents recommended include; additional recommendation letters and a statement of purpose discussing what the applicant plans to do with the degree and why the university was chosen. The program director may allow provisional admission to applicants who do not meet all conditions for regular admission. A provisional student is typically granted regular status after completing the provisional requirements.

MCEM CURRICULUM

TOTAL CREDIT HOURS: 30

Core Courses (12 credit hours)

Course Number	*Subject*	*Cr. Hrs.*
ECE 5113	Sustainable Construction Practices	3
ECE 5223	Techniques of Project Planning and Control	3
ECE 5263	Construction Safety Management	3
ECE 5283	Conceptual Estimating	3

Elective Courses (18 credit hours)

Students may select any **six** courses from the following list:

Course Number	*Subject*	*Cr. Hrs.*
ECE 5103	Applied Geographic Information Systems	3
ECE 5203	Construction Quality Management	3
ECE 5213	Principles of Design-Build Project Delivery	3
ECE 5233	Adv. Construction Techniques and Methods	3
ECE 5243	Fundamentals of Construction Accounting and Finance	3
ECE 5253	Infrastructure Asset Management	3
ECE 5273	Construction Law	3
ECE 5293	Special Topics in Construction Engineering	3
ECE 5353	Environmental Management	3
ECE 5823	Pavement Management Systems	3
ECE 5913	Graduate Directed Study	3
ECE 5923	Special Topics in Civil Engineering	3
ECE 6113	Concrete Engineering	3
ECE 6213	Issues in Integrated Engineering Management	3
ECE 6223	Risk Management in Construction Engineering	3
MBA 6043	Reflective Leadership	3

In addition to the above electives, a maximum of two electives may be chosen from other graduate programs in civil engineering or related fields within the College of Engineering, with prior approval from the program director.

MCEM COURSE TRANSFER POLICY

Students may transfer a maximum of six semester hours for graduate engineering courses taken at other accredited engineering colleges, provided they are deemed relevant. Students must have taken the courses within the past five years and achieved a grade of B (3.0) or better. To transfer courses, the student must submit a petition in writing prior to completion of the first semester of graduate work toward the MCEM degree. The student must submit transcripts and evidence consisting of syllabi and examinations. The program director may require the applicant to demonstrate proficiency in the subject through interviews with faculty members who have expertise in the subject.

Students may apply up to nine credits of 4000-level civil engineering courses (senior-level electives) with the approval of the program director.

MASTER OF ENGINEERING MANAGEMENT (MEM)

Lawrence Tech's Master of Engineering Management program provides opportunities for students with diverse technical backgrounds to pursue a higher education. The program, which totals 36 credit hours, is designed for full-time students and working professionals who have degrees in technical fields, such as engineering, engineering technology, physics, chemistry, mathematics, and computer science.

The MEM's educational objectives are to provide students:

- The technical knowledge and skills required to manage technical and engineering functions
- Greater exposure and opportunities to interact with other professionals from different disciplines in the industry
- Needed skill sets to enhance their professional careers

All coursework can be taken in the evening, allowing working students to complete their studies in approximately two years. All courses meet once a week for two hours and forty minutes.

MEM ADMISSION REQUIREMENTS

Admission to the MEM program as a regular graduate student requires the demonstration of high potential for success based on the following:

1. Submission of the Online Application for Graduate Admission
2. Official transcripts of all college work *, **
3. Resume
4. A minimum of one Letter of Recommendation (employers and professors are preferred);
5. Statement of Purpose (Optional, 1 page)

** Applicants must have earned a baccalaureate degree from an accredited U.S. institution **–or–** a non-U.S. degree equivalent to a four-year U.S. baccalaureate degree from a college or university of government recognized standing*

*** A Bachelor of Science degree in engineering, technology, science, computer science mathematics (or technical related field) (minimum GPA of 3.0)*

Applicants who do not meet all conditions for regular admissions may be admitted on a provisional basis as determined by the Graduate Admissions Committee of the College of Engineering. The applicant will be evaluated for official graduate student status upon completion of six semester hours of graduate course work, achieving a minimum grade of 3.0 in each course, at the University.

Students with provisional admission status may be required to take additional pre-courses to meet the program admission requirements.

MEM COURSE TRANSFER POLICY

For applicants transferring from other graduate programs to the Master of Engineering Management, no more than nine graduate semester credit hours may be transferred from an accredited MEM program. Any exceptions to this policy must be approved by the Graduate Admissions Committee. A minimum grade of 3.0 must have been achieved in all transfer courses. Credit for courses taken in a graduate program will be reviewed to determine whether they may be substituted within the Master of Engineering Management program at Lawrence Tech. A request for transfer courses to be considered must be made in writing at the time of application and must be accompanied by transcripts, course descriptions, and syllabi for each proposed transfer course.

MEM CURRICULUM

TOTAL CREDIT HOURS: 36

Core Courses (7 courses, 21 credit hours)

Course Number	*Subject*	*Cr. Hrs.*
EEM 6583	Enterprise Productivity	3
EIE 6673	Six Sigma Processes	3
EMS 6713	Production Planning and Control	3
EEM 6753	Engineering Supply Chain Management	3
EEM 6763	Quality Engineering Systems	3
EEM 6803	Engineering Management	3
EMS 7613	Technology Management	3

Elective Courses (5 courses, 15 credit hours)

Students may select any **five** courses from the following list:

Course Number	*Subject*	*Cr. Hrs.*
EME 5513	Lean Manufacturing Systems	3
EME 5623	Product Development and Sustainability	3
EEM 6143	Hazardous Materials Management	3
EMS 6203*	Advanced Manufacturing Processes	3
EMS 6343	Automotive Manufacturing	3
EMS 6403*	Quality Control	3
EMS 6603	Engineering Economics	3
EIE 6653	Advanced Optimization Techniques	3
EIE 6663*	Applied Stochastic Processes	3
EMS 6703	Manufacturing Systems	3
EME 6723	Special Topics in Engineering Management	3
EEM 6743	Value Engineering Management	3
EMS 6823	Product Innovation and Design	3
EME 6993	Graduate Directed Study	3
MBA 7063	Project Management	3
MBA 6043	Reflective Leadership	3
INT 6043	Management Info Systems	3

**Open only to engineering majors*.

Other electives: Students may take *one* elective course (6xxx) in management, electrical engineering, computer engineering, civil engineering, applied science, or other disciplines ONLY with the approval of the MEM director.

MASTER OF SCIENCE IN ARCHITECTURAL ENGINEERING (MSArE)
(INTEGRATED BACHELOR'S AND MASTER'S PROGRAM)

Lawrence Technological University's architectural engineering program is a five-year, direct-entry, integrated bachelor's-master's degree with breadth and depth coursework in math, science, engineering and building design. Students progress through a rigorous undergraduate engineering

core, culminating in advanced engineering and design analysis courses in the graduate fifth year. Students develop excellent integrated building design and engineering skills, complemented with communication, leadership, and ethics education, to become highly sought-after graduates for the thriving-built environment.

The Master of Science in Architectural Engineering requires a total of 162 credit hours (132 undergraduate credits and 30 graduate credits), which includes courses in the four primary discipline areas, including building mechanical systems, building electrical systems, structural engineering, and construction management.

Students are required to maintain a 3.0 GPA at the undergraduate level and at the graduate level in order to obtain the terminal master's degree. Graduates have consistently enjoyed 100 percent placement before graduation and engage in meaningful internship experiences in line with the University's motto of Theory and Practice. The architectural engineering program's educational objectives and outcomes are formulated by the faculty in consultation with the Architectural Engineering Industrial Advisory Board as the primary constituents.

MSArE EDUCATIONAL OBJECTIVES

The MSArE is designed to help students develop advanced knowledge, skills, and experience in the growing fields of sustainable building design and systems engineering and integration. According to ABET, "program educational objectives are broad statements which describe the career and professional accomplishments that the program is preparing graduates to achieve."

The Master of Science in Architectural Engineering Program is accredited by the Engineering Accreditation Commission(s) of ABET, https://www.abet.org, under the General Criteria and the Architectural Engineering Program Criteria.

LTU's Department of Civil and Architectural Engineering offers the architectural engineering program in which students acquire the education and skill set so that, upon graduation, they are prepared to achieve the following educational objectives:

1. Acquire knowledge to integrate building design and aesthetics including mechanical, electrical and structural systems for the built environment and to articulate solutions using written, visual and oral communications skills
2. Incorporate sustainable practices, problem solving skills, leadership, and knowledge of constructability to effectively aid the design of a functional built environment and fulfill the worldwide need for skilled building system engineers and designers
3. Lead design and construction teams in developing conceptual designs, design drawings, construction drawings, specifications, and construction administration for functional, sustainable, and resilient buildings in a global market
4. Create built environments to promote health, comfort, and productivity of building occupants and to optimize cost-effective solutions meeting business case objectives

MSArE STUDENT OUTCOMES

The student outcomes for the Master of Science in Architectural Engineering program at Lawrence Technological University are:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. an ability to communicate effectively with a range of audiences.
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.
8. an ability to integrate multiple subdisciplines of architectural engineering in design of building elements that work with architectural layout.
9. an ability to assess advanced concepts and principles in the solutions of complex problems to develop a mastery in a specialty area of architectural engineering.

All students should have an advisor/director-approved Plan of Work. Contact Dr. Keith Kowalkowski, Assistant Chair and Director of the Master of Science in Architectural Engineering, at 248.204.2583 or kkowalkow@ltu.edu, to set up an appointment. Students are required to maintain an overall and program GPA of 3.0. Students meeting this GPA requirement will be automatically admitted into the graduate portion of the program upon completion of 131 credit hours.

MASTER OF SCIENCE IN ARCHITECTURAL ENGINEERING CURRICULUM

TOTAL CREDIT HOURS: 162

Freshman Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
COM 1103	College Composition	3
CHM 1213	University Chemistry 1	3
CHM 1221	University Chemistry 1 Lab	1
MCS 1414	Calculus 1	4
EGE 1102	Engineering Computer Applications Lab	2
EAE 1081	Intro. to Architectural Engineering	1
ARC 1213	Introduction to Visual Communication	3
	TOTAL	17

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*

HUM 1213	Engaging Ancient Texts	3
EGE 1001	Fundamentals of Engineering Design Projects	1
PHY 2413	University Physics 1	3
PHY 2421	University Physics 1 Lab	1
MCS 1424	Calculus 2	4
EAE 1093	Architectural Engineering History	3
ARC 1223	Visual Communication	3
	TOTAL	18

Sophomore Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
HUM 1223	Engaging Modern Texts	3
COM 2103	Technical and Prof. Communication	3
PHY 2423	University Physics 2	3
PHY 2431	University Physics 2 Lab	1
MCS 2414	Calculus 3	4
LLT 2XX3	LLT Elective	3
	TOTAL	17

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
EAE 2013	Building Information Modeling for AE	3
EGE 3022	Leadership and Prof. Development for Eng.	2
EGE 2013	Statics	3
EEE 2123	Circuits and Electronics	3
MCS 2423	Differential Equations	3
MCS 3403	Probability and Statistics	3
	TOTAL	17

Junior Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
SSC 2XX3	SSC Elective	3
ECE 3013	Mechanics of Materials for CE	3
ECE 3011	Mechanics of Materials for CE Laboratory	1
EAE 3113	Electrical Systems I	3
ECE 3523	Hydromechanics	3
EAE 3014	AE Integrated Design Studio 1	4
	TOTAL	17

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
ECE 3723	Theory of Structures	3
ECE 3213	Construction Engineering	3
EAE 3613	Mechanical Systems I	3
EGE 3003	Thermodynamics	3
EAE 3024	Arch. Eng. Integrated Des. Studio 2	4

		TOTAL 16

Senior Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
LLT/SSC/PSY	Jr./Sr. Elective	3
ECE 4753	Steel Design	3
EAE 3033	Engineering Numerical Methods	3
EAE 4113	Electrical Systems II	3
EAE 4613	Mechanical Systems II	3
EAE 4022	Arch. Eng. Capstone 1	2
		TOTAL 17

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
EAE 4633	Fundamentals of Building Physics	3
EAE 4032	Arch. Eng. Capstone 2	2
ECE 4051	Ethics	1
Structural Engineering Specialization:		
ECE 3424	Soil Mechanics	4
ECE 4743	Concrete Design	3
Mechanical Systems Specialization:		
ECE 3211	Construction Engineering Laboratory	1
EAE 4623	Architectural Acoustics	3
ECE 4243	Construction Project Management	3
or		
ECE 4743	Concrete Design	
Electrical Systems Specialization:		
ECE 3211	Construction Engineering Laboratory	1
Choose 2 of 3:		6
EAE 4623	Architectural Acoustics	
ECE 4243	Construction Project Management	
ECE 4743	Concrete Design	
Construction Management Specialization:		
ECE 3211	Construction Engineering Laboratory	1
ECE 4243	Construction Project Management	3
EAE 4623	Architectural Acoustics	3
or		
ECE 4743	Concrete Design	
		TOTAL 13

Fifth Year (Graduate Coursework)

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
EAE 5633	Advanced Building Physics	3
EAE 5623	Building Controls and Instrumentation	3
EAE 5113	Advanced Daylighting/Lighting Systems	3

EAE 6000	AE Graduate Seminar	0
EAE/ECE 5/6xx3	Technical Elective	3
EAE/ECE 5/6xx3	Technical Elective	3
	TOTAL	15

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
EAE 5613	Building Integrated Renewable Energy Sys.	3
EAE 5123	Advanced Electrical Systems	3
EAE 6013	AE Graduate Project	3
EAE/ECE 5/6xx3	Technical Elective	3
EAE/ECE 5/6xx3	Technical Elective	3
	TOTAL	15

Acceptable Technical Electives (EAE/ECE 5/6xx3) are dependent on the students selected specialization of either structural engineering, electrical systems, mechanical systems, or construction engineering/management.

MASTER OF SCIENCE IN ARTIFICIAL INTELLIGENCE (MSAI)

The Masters of Science in Artificial Intelligence (MSAI) is a joint program between the Department of Electrical and Computer Engineering (ECE) and the Department of Mathematics and Computer Science (MCS). The MSAI program joins the fundamental computer science concept of artificial intelligence with applications that mimic human intelligence such as describing and recognizing qualities, as well as understanding meanings in different contexts in robotics, connected vehicles, data science and cybersecurity.

The program consists of seven core courses reinforcing the fundamental theories of artificial intelligence technologies and three in-depth courses in one of the four areas of specialization robotics and sensors, connected vehicles, data science and cybersecurity. The combination of theory and practice is designed to provide the students with enhanced knowledge of specialized tools and technologies, formulate and solve advanced problems, design systems or processes, and evaluate complex systems and newly created knowledge in technical areas of artificial intelligence (AI).
The MSAI program consists of 30 credit hours.

OPTION 1: COURSEWORK ONLY (30 credits)

The core courses (21 credits) primarily provide the students with an in-depth knowledge. The core consists of six (6) lecture courses and one (1) graduate project. Students select a specialization from two options provided by both the College of Arts and Science (CoAS) and College of Engineering (CoE). The student needs to contact the director of the MSAI program to plan the courses and the graduate project.

OPTION 2: COURSEWORK AND THESIS (30 credits)

The core courses (21 credits) primarily provide the students with an in-depth knowledge plus a nine (9)-credit-hour thesis for a total of thirty (30) credit hours. The student, in

consultation with his or her thesis advisor, proposes a thesis topic by submitting the "Petition for a Master's Thesis" form that describes the research topic in detail and presents the research plan. The thesis proposal must be successfully presented to the student's thesis committee. Once the thesis is accepted by the advisor, the student can take any combination of EEE 6911, EEE 6912, and EEE 6913, to add up to the nine thesis credits. Once the thesis is completed, the student must successfully defend it before his or her thesis committee. The student needs to consult with his or her thesis advisor regarding the publication of a journal article that would support the thesis defense.

Graduate students, with the support of the primary faculty, will conduct applied graduate projects.

MSAI ADMISSION REQUIREMENTS

Admission to the MSAI program as a regular graduate student requires the demonstration of high potential for success based on the following:

1. Submission of the Online Application for Graduate Admission
2. Official transcripts of all college work *, **
3. Resume
4. A minimum of one Letter of Recommendation (employers and professors are preferred);
5. Statement of Purpose (Optional, 1 page)

** Applicants must have earned a baccalaureate degree from an accredited U.S. institution **–or–** a non-U.S. degree equivalent to a four-year U.S. baccalaureate degree from a college or university of government recognized standing.*

*** A Bachelor of Science degree in Electrical and Computer Engineering or Mathematics and Computer Science (or technical related field) (minimum GPA of 3.0)*

Students with a GPA between 2.8 and 3.0 may be admitted on a provisional basis. They will be evaluated for official graduate student status upon completion of pre-core courses, if necessary, and 12 semester hours of required electrical and computer engineering graduate coursework at Lawrence Tech. This evaluation will be conducted by the program director and the Graduate Admissions Committee. Students are notified of their status within two weeks of completion of the minimum required hours.

Students with a Bachelor of Science degree in a field other than electrical or computer engineering or mathematics and computer science who have a GPA of at least 3.0 may be admitted on a provisional basis. These students must satisfy all prerequisite requirements before they can be granted official graduate status. The program director and the Graduate Admissions Committee decide what the prerequisite requirements are on a case-by-case basis.

REQUIREMENTS FOR CONTINUING MATRICULATION

In order to continue in the MSAI program, students must have a cumulative graduate GPA of at least 3.0 out of 4.0. A student whose cumulative GPA falls below 3.0 at any time during their tenure will be placed on academic probation and must consult with the program director regarding continuation in the program.
After admission to the MSAI program, students must meet with their academic advisor prior to class registration, each semester, to discuss and select plan of study. The final plan of study and selection of specialization must be submitted no later than by the time of completion of the lecture courses in the core curriculum.

REQUIREMENTS FOR COMPLETION OF DEGREE
Candidates for the MSAI degree must complete 30 semester hours within the MSAI curriculum. In the semester prior to their anticipated graduation, candidates for the MSAI degree will complete the form *Petition to Graduate*. The program director will then review the petition and articulate remaining degree requirements.

Artificial Intelligence Advisor/Director
All students should have an advisor/director-approved Plan of Work. Contact George Pappas, Director of Artificial Intelligence, at 248.204.2559 or gpappas@ltu.edu, to set up an appointment. Students are required to maintain an overall and program GPA of 3.0.

M.S. IN ARTIFICIAL INTELLIGENCE PROGRAM OUTCOMES
(MSAIPOs) Students will:

- Apply specialized tools or advanced technologies to make measurements on and interpret data, assessing intellectual curiosity
- Perform exhaustive literature search on research topics; analyze, organize, and summarize gathered information based on research applicability
- Analyze and create communication documents and presentations
- Design a system with process or create new knowledge or technologies in a technical area of Artificial Intelligence

OPTION 1: COURSEWORK ONLY
This option requires eighteen (18) credit hours of core courses plus three (3) credit hours of graduate project and nine (9) credit hours of specialization for a total of thirty (30) credit hours.

OPTION 2: COURSEWORK AND THESIS
This option requires twenty (21) credit hours plus a nine (9)-credit-hour thesis for a total of thirty (30) credit hours. The student, in consultation with his or her thesis advisor, proposes a thesis topic by submitting the "Petition for a Master's Thesis" form that describes the research topic in detail and presents the research plan. The thesis proposal must be successfully presented to the student's thesis committee before the master's thesis credits are elected. Once the thesis is accepted, the student can take any combination of EEE 6911, EEE 6912, and EEE 6913, to add up to the nine thesis credits. Once the thesis is completed, the student must successfully defend it before his or her thesis committee. Students must submit at least one conference or journal paper successfully prior to defending their thesis.

MSAI CURRICULUM
TOTAL CREDIT HOURS: 30

Core Courses (21 credit hours)
Complete six (6) lecture courses and one (1) graduate project or Thesis option seven (7) core courses and 3 Thesis courses

Course Number	*Subject*	*Cr. Hrs.*
EEE 5513	Software Development for AI	3
MCS 5623	Machine Learning and Pattern Recognition	3
EEE 5653	Digital Signal Processing	3
MCS 5243	Theory of Computation	3
MCS5813	Intro to Computer Security	3
EEE 5253	Deep Learning for Engineers	3
MCS 5803	Algorithm Design and Analysis	3
MCS/EEE/ MRE/EME 6xx3	Graduate Project	3
EEE 6xx3	Thesis	3

Specialization I. Choose three (3) of the following Robotics and Sensors courses:

EME 5983	Bioinspired Robotics	3
EEE 5563	Interface and Control of Robotics	3
EEE 5553	Application of Artificial Intelligence	3
MCS 5403	Intelligent Robotics with ROS	3
MRE 5183	Mechatronics Systems I	3
MRE 5323	Modern Controls Systems	3

Specialization II. Take the three (3) following Connected Vehicles courses:

EEE5293	Connected Vehicle Technologies	3
EEE 5353	Computer Vision	3
EEE6553	Adv. Deep Learning for Engineers	3
EEE 6243	Adv. Embedded Systems	3

Specialization III. Choose three (3) of the following Data Science courses:

MCS 6623	Natural Language Processing	3
MCS 5723	Social Network Mining	3
MCS 5993	Special Topics	3
MRE 5xx3	Applied Machine Learning	3

Specialization IV. Take the three (3) following Cybersecurity courses:

EEE 5223	Computer Network Cyber Security	3
EEE 5453	Embedded Networking	3
EEE 5463	Computer Networking	3
MCS 6523	Advanced Cryptography	3
INT 6043	Mgt. Info. Systems	3
INT 7223	Cybersecurity	3

MSAI TRANSFER POLICY

A maximum of eight graduate semester credit hours may be transferred, and these must be from an accredited Master of Science program in artificial intelligence. Credit for courses taken in a graduate program other than those listed above will be reviewed by the program director and the Graduate Admissions Committee for acceptability as a substitute within Lawrence Tech's program.

Courses transferred must have been taken in the last five (5) years and a grade of B (3.0) or higher must have been achieved. All petitions for course transfer consideration must be made in writing at the time of application. Credit may be earned at another university after matriculation by guest credit. Guest credit forms must be completed at both Lawrence Tech and the university where the courses are to be taken. No guest credit will be granted for courses that are being offered at Lawrence Tech during the same semester during which the student is applying for guest credit. Since fewer MSAI graduate courses are offered during the summer semester, some students apply for guest credit during the summer. All requests for transfer or guest credit must be accompanied by an official transcript.

MASTER OF SCIENCE IN AUTOMOTIVE ENGINEERING (MSAE)

Lawrence Tech's Master of Science in Automotive Engineering program is designed for working professionals who are graduates of accredited undergraduate mechanical or electrical engineering programs. All coursework is offered in the evening, allowing working students to complete their studies in approximately two years. Most courses meet once per week for two and one-half hours, usually starting at 5:45 p.m. Some courses are offered twice a week for 75 minutes starting at 4:20 or 5:45 PM.

Geared to help students use and improve their automotive engineering leadership skills, the MSAE encompasses automotive systems, design, product engineering, and manufacturing. A key element of the coursework is the concept that the complete automobile is a single system. All other components and component packages are subsystems, which cannot be changed independently. Woven throughout each course is the recognition that in such a complex system all areas must behave as a single entity to achieve goals. The program also emphasizes use of both full-time faculty from Lawrence Tech and an adjunct faculty of highly qualified experts currently working in the industry, who bring to the classroom their experience with the latest advancements in the field.

This MSAE program derives unique value from Lawrence Tech's historic relationship with the automotive and manufacturing industries, the University's philosophical emphasis on the practical application of knowledge, and the extensive utilization of industry experts as teachers and mentors.

The student body of practicing engineers, representing a broad variety of automotive related companies and a wide variety of job assignments, provides an important additional learning resource. The students work in teams on assigned projects in many of the courses, learning and enhancing teamwork as well as sharing expertise with one another.

The MSAE is an interdisciplinary program consisting of ten, three-credit courses: four core courses and six technical electives. A total of 30 credit hours are required for graduation.

Students are also allowed to select a thesis option by enrolling in three 3-credit-hour thesis courses in lieu of three technical electives. This option provides students with an in-depth experience in one subject area. Students who elect to enroll in the thesis option are required to select a faculty advisor from either the A. Leon Linton Department of Mechanical, Robotics, and Industrial Engineering or from the Department of Electrical and Computer Engineering. Students may also select an industrial advisor in addition to the faculty advisor. Students must submit their thesis to a professional society for publication (e.g., *SAE Technical Papers*, *ASME Journal*, etc.). Further, all students must make a verbal presentation of their findings.

Thesis students are required to meet regularly with their advisor. All thesis projects will be approved by the program director in addition to the faculty advisor. A copy of the proposal and the project commitment form, signed by the student and the advisor, must be presented to the program director before a student may register in the course. Upon thesis completion, two copies of the thesis, signed by both student and advisor must be presented to the program director. One copy will be maintained by the director and the second shall be held in the Lawrence Tech library.

MSAE LEARNING OBJECTIVES

The learning objectives indicate what the graduates are capable of doing upon graduation:

1. Demonstrate the ability to analyze, evaluate, and/or develop advanced knowledge in specialized areas in their discipline
2. Demonstrate the ability to recognize ethical expectations for dissemination of engineering work and evaluate ethical issues relevant to the impact of advancing technology in their discipline
3. Demonstrate the ability to analyze, evaluate and create communication consistent with their discipline
4. Demonstrate the ability to analyze, evaluate and /or create technologies consistent with their discipline

MSAE ADMISSION REQUIREMENTS

Admission to the MSAE program as a regular graduate student requires the demonstration of high potential for success based on the following:

1. Submission of the Online Application for Graduate Admission
2. Official transcripts of all college work *, **
3. Resume
4. A minimum of one Letter of Recommendation (employers and professors are preferred);
5. Statement of Purpose (1 page)

** Applicants must have earned a baccalaureate degree from an accredited U.S. institution* ***–or–*** *a non-U.S. degree equivalent to a four-year U.S. baccalaureate degree from a college or university of government recognized standing.*

*** A Bachelor of Science degree in mechanical engineering or electrical engineering (or related technical field) (minimum GPA of 3.0)*

Applicants who do not meet all of the conditions for regular graduate admission may be considered for provisional admission by the Graduate Admissions Committee, provided they demonstrate an exceptionally high aptitude and promise for doing graduate work in this area and hold a Bachelor of Science degree in mechanical or electrical engineering (or related technical field). Applicants may be required to take the GRE examination and pass the TOEFL examination.

Additionally, the academic background of candidates will be evaluated by the Graduate Admissions Committee as part of the admissions process. Students found deficient in a particular subject area are required to enroll in pre-core crossover courses before being allowed to enroll in some of the core program courses. No graduate credit will be granted for these pre-core courses.

Pre-core Courses (as needed)

Course Number	*Subject*	*Cr. Hrs.*
EME 4603	Introduction to Mechanical Systems	3
EME 4613	Introduction to Thermal Systems	3
EEE 2123	Circuits and Electronics	3
EME 4654	Mechatronics	4

MSAE TRANSFER POLICY

A maximum of six semester hours of graduate engineering courses taken at other accredited engineering colleges (or nine semester hours if coursework was taken at Lawrence Tech) may be transferred, provided they are deemed relevant by the Graduate Admissions Committee. Courses to be transferred must have been taken in the last five (5) years and a grade of B (3.0) or higher must have been achieved. Students should petition the Graduate Admissions Committee by letter prior to completion of the first semester of graduate work. Students must submit evidence, in addition to transcripts, in the form of syllabi and examinations for each transfer course proposed. The committee may require the applicant to demonstrate proficiency in the subject through interviews with faculty members who have expertise in the subject.

MASTER OF SCIENCE IN AUTOMOTIVE ENGINEERING CURRICULUM

TOTAL CREDIT HOURS: 30

Core Courses (12 credit hours)

Course Number	*Subject*	*Cr. Hrs.*
EME 5153	Applied Thermodynamics	3
EME 5213	Mechanical Vibrations	3
EME 5223	Advanced Mechanics of Materials	3
EME 5253	Engineering Analysis 1	3

Electives (18 credit hours)

Students may select **six** courses from the following list:

Course Number	*Subject*	*Cr. Hrs.*
EME 5263	Energy Resources and Technology	3
EME 5323	Modern Control Systems	3
EME 5373	Alternative Energy Engineering	3
EME 5433	Vehicle Dynamics 1	3
EME 5453	Vehicle Crashworthiness	3
EME 5573	Automotive HVAC 1	3
EME5983	Special Topics: Advanced Driver Assisted Systems-ADAS	3
EME5983	Special Topics: Battery Applications for Electric Vehicles	3
EME5983	Special Topics: Thermal Management for EV's 3	
EME5983	Special Topics: EV Safety Engineering 3	
EME 5983	Special Topics: Autonomous Vehicles	3
EME6113	Fatigue Analysis	3
EME 6333	Body and Chassis Systems	3
EME 6353	Automotive Mechanical Systems	3
EME 6363	Automotive Electrical Systems	3
EME 6373	Powertrain Systems 1-Engines	3
EME 6383	Powertrain Systems 2-Transmissions	3
EME 6623	Automotive Control Systems 1	3
EME 6913	Thesis	3
EME 7433	Vehicle Dynamics 2	3
EMS 6343	Automotive Manufacturing	3
EMS 6403	Quality Control	3

AUTOMOTIVE RESEARCH

The Johnson Controls Vehicle Engineering Systems Laboratory's unique 4x4 vehicle chassis dynamometer with individual wheel control is an invaluable research tool for studying vehicle performance, safety, stability, and fuel economy and responding to emerging needs in vehicle engineering. Focused on creating new knowledge in the field of automotive engineering, the lab extends Lawrence Tech's strong research and development capabilities to corporations and governmental organizations. Students may have opportunities to participate in applied research projects with these partners to research such subjects as vehicle dynamics, driveline technology, NVH, emerging energy technologies, and emissions.

MASTER OF SCIENCE IN BIOMEDICAL ENGINEERING (MSBME)

The comprehensive Master of Science in Biomedical Engineering enhances the knowledge of professionals for advanced and emerging topics in the field. This program covers a wide area of advanced biomedical engineering, life sciences, medical, and engineering applications topics. The MSBME curriculum is structured to prepare graduate students in fields such as biomechanics, tissue engineering, bioMEMS, bioinstrumentation, and medical imaging.

The MSBME, which totals 30 credit hours, is designed to provide Lawrence Tech's signature combination of theory and practice. Eligibility for the program is not limited to graduates with a bachelor's degree in biomedical engineering; interested students from other engineering and science backgrounds are also eligible to enroll in this program. Applicants may choose between two options to complete a Master's Design Project or a Master's Research Thesis. Early in the program, students can select a BME faculty member to serve as their adviser and to work with to determine the scope of their Project or Thesis work. Pending the approval of the MSBME Graduate Admissions Committee, working professionals pursuing the Project option can choose a topic in conjunction with their job or company.

MSBME ADMISSION REQUIREMENTS

Admission to the MSBME program as a regular graduate student requires the demonstration of high potential for success based on the following:

1. Submission of the Online Application for Graduate Admission
2. Official transcripts of all college work *, **
3. Resume
4. A minimum of one Letter of Recommendation (employers and professors are preferred);
5. Statement of Purpose (Optional, 1 page)

** Applicants must have earned a baccalaureate degree from an accredited U.S. institution **–or–** a non-U.S. degree equivalent to a four-year U.S. baccalaureate degree from a college or university of government recognized standing*

*** A Bachelor of Science degree in engineering or technical related field and plan to complete specified undergraduate curriculum courses (minimum GPA of 3.0)*

Students with a GPA lower than 3.0 or with baccalaureate degree in a field other than engineering may be admitted on a provisional basis. These students must satisfy prerequisite requirements as determined by the MSBME Graduate Admissions Committee before they can be granted official graduate status. They will be evaluated for official graduate student status upon completion of six semester hours of graduate coursework, achieving a minimum grade of 3.0 in each course. All coursework must be completed within five years after the program is started.

MSBME TRANSFER POLICY

For applicants transferring from other graduate programs into the MSBME program, no more than six graduate semester credit hours may be transferred, and these must be from an accredited institution. Any exceptions to this policy must be approved by the MSBME Graduate Admissions Committee. A minimum grade of 3.0 must have been achieved in all transfer courses. Credit for courses taken in a graduate program other than biomedical engineering will be reviewed to determine whether they may be substituted within the MSBME program at Lawrence Tech. A request for transfer courses to be considered must be made in writing at the time of application and must be accompanied by transcripts, course descriptions, and syllabi for each proposed transfer course.

MSBME DEGREE REQUIREMENTS

The MSBME program offers students two degree options:

OPTION 1: RESEARCH THESIS

Core Courses (5 courses)	15 credits
Electives (2-3courses)	6–9 credits
Research Thesis	6–9 credits
Total Credit Hours	30 credits

OPTION 2: DESIGN PROJECT

Core Courses (5 courses)	15credits
Electives (3-4 courses, 9–12 credits)	
Design Project	3–6 credits
Total Credit Hours	30 credits

Core Courses (15 Credits)

Choose **ONE** of the following advanced mathematics courses (3 credits):

Course Number	*Subject*	*Cr. Hrs*
EME 5253	Engineering Analysis 1	3
EME 6283	Engineering Analysis 2	3

Choose **THREE** of the following biomedical engineering courses (9 credits):

BME 5203	Biocompatibility	3
BME 5213	Advanced Biomaterials	3
BME 5303	Engineering Applications in Orthopedics	3
BME 5313	Cell Mechanobiology	3
BME 5403	Biosignals and Systems	3
BME 5503	Foundations of Medical Imaging	3
BME 5603	Introduction to MEMS	3
BME 5703	Quantitative Physiology	3
BME 5093	Special Topics in Biomedical Engineering	3

Select **ONE advanced laboratory course from your advisor (3 credits)**

BME 6503	Advanced Experimental Methods	3

Elective Courses (6-12 CREDITS)

Choose from biomedical engineering courses (level 5000 or above) or choose courses from another department (level 5000 or above) with MSBME Graduate Admissions Committee approval. Students may also choose level 4000 courses under special circumstances with MSBME Graduate Admissions Committee approval, and the total of level 4000 course credits cannot exceed six credits.

ADDITIONAL REQUIREMENTS

- Selection of Project Advisor or Thesis Committee
- Attend a minimum of four Professional Educational Experiences related to the topics of Ethics, Statistics, Regulatory Issues, and Industry/Academic Meetings
- BME 6803 Master's Design Project (3–6 credits) **–or–** BME 6903 Master's Research Thesis (6–9 credits)
- Oral Defense of Project **–or–** Thesis
- Written Final Report of Project **–or–** Thesis

MASTER OF SCIENCE IN CARDIOVASCULAR PERFUSION (MSCVP)

LTU's Master of Science in cardiovascular perfusion (MSCVP) program is a 21-month course of study. The MSCVP program has a total of 99 credits over five consecutive semesters. The curriculum aligns with the Master's degree level standard of Commission on Accreditation of Allied Health Education Programs (CAAHEP) and the American Board of Cardiovascular Perfusion (ABCP) Qualifications Framework. It also provides the appropriate depth and breadth of knowledge, applied, specialized preparation in critical thinking and scholarly research, problem-solving and analysis, communications, leadership, professional capacity, and autonomy in the field of cardiovascular perfusion. Students have two days of clinical instruction (simulation lab and operating theater cases) as well as three days of didactic instruction (classroom) for the first two semesters, followed by three semesters of clinical rotations while completing a Capstone Research Project. This simultaneous approach will allow students to immerse themselves in the perfusion technology course of study.

The MSCVP program at LTU is built on partnership with Comprehensive Care Services Inc. (CCS), a recognized leader for providing exceptional perfusion and autotransfusion services to medical centers across North America. Students will receive rigorous perfusion education and training with access to leading edge laboratories, simulation suites, and abundant clinical rotation opportunities across the country.

MSCVP ADMISSION REQUIREMENTS

Preferred Applicants to the MSCVP program may possess qualifications from either of these two options:

OPTION A

Bachelor of Science degree from an accredited college or university and/or:

- Respiratory Therapist (RRT) or Registered Nurse (RN)
- Critical care experience within the last three years
- A minimum GPA of 3.0, calculated using their entire RT or RN diploma/degree programs of study
- Documentation which is relevant to training and/or experience (CV or resume)
- A document or a letter from a recent employer confirming a minimum of one year of critical care experience within the past three years

The applicant's cumulative grade point average (GPA) will be calculated using grades from the entire undergraduate degree program of study. A minimum GPA of 3.0 on a 4.0 scale is required for admission to the MSCVP program.

OPTION B
A Bachelor of Science degree from an accredited college or university and successful completion of each of the following university courses with a minimum grade of B (GPA of 3.0 on a 4.0 scale):

- Anatomy
- College Algebra or Calculus
- Physiology
- Physics with Laboratory (course must cover the following: Newtonian laws, fluid dynamics and fluid statics)
- Organic or Inorganic Chemistry (course must cover the following: structure of matter, solutions, acid/base theory, and thermodynamics).

ADDITIONAL REQUIREMENTS
In order to be considered for admission to the MSCVP program, applicants must submit documentation of the following:

- Graduate Record Exam (verbal, quantitative and analytical writing) scores highly recommended but not required; preference to those who have completed GRE scores within the last three years
- An essay about why the applicant wishes to be a perfusionist and what makes the applicant a good candidate for acceptance into the program
- Two letters of recommendation
- Experience of interviewing with a practicing perfusionist, as demonstrated by a signed observation/interview form. The MSCVP program can help arrange a perfusionist referral if the applicant has difficulty finding such an opportunity
- Completion of the program interview process (by invitation only)

SPECIFIC HEALTH REQUIREMENTS FOR ADMISSION
Accepted candidates must show documentation of meeting the following specific health requirements prior to matriculation into the program:

- Completion of BLS First Aid/CPR training and certification

- Submission of Immunization Requirement Form (IRF), including laboratory reports
- Confirmation of a TB Test
- Completion of Mask Fitting Testing due to COVID-19 pandemic

Any costs associated with meeting the unique health requirements for admission are the responsibility of the student.

MSCVP CURRICULUM

The curriculum has a foundation based on the AC-PE-approved curriculum; each component of the AC-PE-approved curriculum is a mainstay in the LTU's perfusion program curriculum coursework.

Semester 1

Course Number	*Subject*	*Cr. Hrs.*
CVP 5134	Anatomy and Physiology for Cardiovascular Perfusion 4	
CVP 5002	Patient Care and Professionalism	2
CVP 5113	Monitoring of Cardiovascular Patients	3
CVP 6308	Perfusion Theory and Practice I Lab Component	8
CVP 6404	Perfusion Theory and Practice I	4
CVP6702	Research Methods	2
	TOTAL	23

Semester 2

Course Number	*Subject*	*Cr. Hrs.*
CVP 5012	Professional Practice and Quality Management	2
CVP 5212	Applied Pharmacology	2
CVP 5123	Pathophysiology and Cardiac Congenital Defects	3
CVP 6318	Perfusion Theory and Practice II Lab Component	8
CVP 6414	Perfusion Theory and Practice II	4
CVP 6711	Capstone Research Project I	1
	TOTAL	20

Semester 3

Course Number	*Subject*	*Cr. Hrs.*
CVP 6721	Capstone Research Project I	1
CVP 6809	Clinical Practice CVP Phase I	9
CVP 6819	Clinical Practice CVP Phase II	9
	TOTAL	19

Semester 4

Course Number	*Subject*	*Cr. Hrs*.
CVP 6731	Capstone Research Project II	1
CVP 6829	Clinical Practice	9
CVP 6839	Clinical Practice CVP Phase IV	9
	TOTAL	19

Semester 5

Course Number	*Subject*	*Cr. Hrs*.

CVP 6849	Clinical Practice CVP Phase V	9
CVP 6859	Clinical Practice CVP Phase VI	9
	TOTAL	18

Students are evaluated for both the didactic courses and clinical assignments. The following policies are applied to the MSCVP program:

- A student must maintain an overall GPA of B (3.0 on a 4.0 scale) in order to graduate
- A student can repeat a course if the grade in a course is below C+. The maximum credits a student in the MSCVP program can retake is 9
- In clinical rotation assignments, a student is evaluated by the clinical instructor as outlined in the syllabus of each clinical course. A final grade of B or higher is needed in order to receive a passing mark
- If a MSCVP student does not successfully complete Clinical Rotation I, II, III, IV, V, or VI, the student will be dismissed from the program, with appropriate warning and opportunity for remediation. The Program Director and Clinical Coordinator will establish policies regarding Satisfactory Academic Performance Warning, Probation and Dismissal. A student dismissed for unsatisfactory academic progress may reapply to the program in the future.

Graduates from the MSCVP program will be qualified to sit for the ABCP certification examination once the program achieves accreditation.

MASTER OF SCIENCE IN CIVIL ENGINEERING (MSCE)

Lawrence Technological University offers comprehensive master's programs in civil engineering that provide technical and practical expertise in a wide range of civil engineering subjects: structural, geotechnical, hydraulics/water resources, environmental, and transportation/highway engineering. Students must specialize in a minimum of one concentration but are able to select courses over various concentrations.

The Master of Science in Civil Engineering requires 30 or 33 credit hours, depending on the option chosen. In line with Lawrence Tech's theory and practice approach to education, the program emphasizes practical training and the development of theoretical concepts through classroom experiences and applied research projects. Students have access to industry-standard software packages and advanced experimental testing facilities.

Most courses are offered in the evening, and the standard completion timeline for a degree is two years. Some courses are available online.

MSCE ADMISSION REQUIREMENTS

Admission to the MSCE program as a regular graduate student requires:

1. An earned B.S. degree in civil engineering (or related field) from an accredited undergraduate program
2. Minimum undergraduate GPA of 3.00

3. Application for Graduate Admission
4. One letter of recommendation (employer and professor are preferred)
5. Official transcripts of all college work
6. Professional resume

Although not required, additional documents recommended include; additional recommendation letters and a statement of purpose discussing what the applicant plans to do with the degree and why the university was chosen. The director of the civil engineering graduate programs (or program director) may allow provisional admission to applicants who do not meet all conditions for regular admission. Non-civil engineering graduates or other civil engineering students who do not meet regular admission to the program may be required to pass additional courses as determined by the program director. A provisional student may also be granted regular status after receiving a minimum grade of "B" in a number of consecutive graduate-level courses.

SUMMARY OF MSCE DEGREE REQUIREMENTS

THESIS OPTION

Technical Electives	24 credits
Thesis	6 credits
Total Credit Hours	30 credits

PROJECT OPTION

Technical Electives	27 credits
Project	3 credits
Total Credit Hours	30 credits

COURSEWORK OPTION

Technical Electives	33 credits
Total Credit Hours	33 credits

MSCE COURSES

The following are all acceptable courses within the MSCE program and a combination of these courses can be taken with all selected concentrations following the guidelines specified in this document. For the construction engineering concentration, see courses later in this document.

Students selecting the coursework option need to choose eleven courses below. Students taking the project option must select nine of the courses below in addition to ECE 6053 Graduate Project. Students selecting the thesis option must select eight of the courses below in addition to ECE 6073 Thesis 1 and ECE 6083 Thesis 2. For proper selection of the eleven, nine or eight courses, please see other requirements later in this document.

ENVIRONMENTAL ENGINEERING

Course Number	*Subject*	*Cr. Hrs.*
ECE 5323	Environmental Cleanup	3
ECE 5333	Air Pollution Control	3

ECE 5343	Advanced Environmental Engineering	3
ECE 5353	Environmental Management	3
ECE 5363	Surface Water Quality Management	3
ECE 5393	Special Topics in Environmental Engineering	3
ECE 6313	Industrial Water and Wastewater Treatment	3

GEOTECHNICAL ENGINEERING

Course Number	*Subject*	*Cr. Hrs.*
ECE 5413	Shallow and Deep Foundation Design	3
ECE 5423	Geoenvironmental Engineering	3
ECE 5433	Ground Improvement Methods	3
ECE 5443	Designing with Geosynthetics	3
ECE 5473	Earth Retaining Structures	3
ECE 5493	Special Topics in Geotechnical Engineering	3
ECE 6413	Engineering Properties of Soils	3
ECE 6423	Geotechnical Earthquake Engineering	3

STRUCTURAL ENGINEERING

Course Number	*Subject*	*Cr. Hrs.*
ECE 5703	Design of Timber Structures	3
ECE 5713	Analysis and Design of Prestressed Concrete	3
ECE 5723	Advanced Analysis and Design of Structures	3
ECE 5733	Structural Masonry Design	3
ECE 5753	Advanced Concrete Design	3
ECE 5763	Advanced Composite Materials and Uses in Structures	3
ECE 5773	Advanced Steel Design	3
ECE 5783	Bridge Design I	3
ECE 5793	Special Topics in Structural Engineering	3
ECE 6723	Structural Analysis and Design for Fire Safety	3
ECE 6733	Finite Element Analysis	3
ECE 6743	Structural Dynamics	3

TRANSPORTATION ENGINEERING

Course Number	*Subject*	*Cr. Hrs.*
ECE 5813	Pavement Analysis and Performance	3
ECE 5823	Pavement Management Systems	3
ECE 5833	Traffic Engineering	3
ECE 5843	Highway Safety Engineering	3
ECE 5853	Airport Pavement Design and Management	3
ECE 5893	Special Topics in Transportation Engineering	3

WATER RESOURCES ENGINEERING

Course Number	*Subject*	*Cr. Hrs.*
ECE 5523	River Engineering	3

ECE 5533	Coastal Engineering	3
ECE 5543	Design of Stormwater Management Systems	3
ECE 5553	Ports and Harbors Engineering	3
ECE 5593	Special Topics in Hydraulic Engineering	3
ECE 6513	Groundwater Modeling	3

GENERAL COURSES

Course Number	*Subject*	*Cr. Hrs.*
ECE 5103	Applied Geographic Information Systems	3
ECE 5113	Sustainable Construction Practices	3
ECE 5911–3	Graduate Directed Study	1-3
ECE 5923	Special Topics in Civil Engineering	3
ECE 6113	Concrete Engineering	3

SELECTION OF CONCENTRATION

Students within the MSCE program are required to select a concentration and complete a minimum of four graduate level courses (12 credits) in one specific subdiscipline (water resources, structural, geotechnical, environmental, and transportation) as listed in the MSCE courses. Exceptions will be made when deemed necessary, often dependent on course availability and graduation timeline. A special case concentration for construction engineering is shown below.

CONSTRUCTION ENGINEERING (SPECIAL CASE CONCENTRATION):

If construction engineering is selected as the concentration, requirements more specific are necessary as outlined herein. This option is intended for those seeking a Thesis option only. A course only option is available in the Master of Construction Engineering Management program. This option is a 30-credit option that includes 6 credits of thesis work.

Core Courses

ECE 5113 Sustainable Construction Practices
ECE 5223 Techniques of Project Planning and Control
ECE 5263 Construction Safety Management
ECE 5283 Conceptual Estimating
ECE 6073 Thesis 1
ECE 6083 Thesis 2

The six courses above shall be combined with four of the following electives.* A minimum of one of the four must be taken at the 6000 level.

ECE 5203 Construction Quality Management
ECE 5213 Principles of Design-Build Project Delivery
ECE 5233 Advanced Construction Techniques and Methods
ECE 5243 Fundamentals of Construction Accounting and Finance
ECE 5253 Infrastructure Asset Management
ECE 5273 Construction Law

ECE 6113 Concrete Engineering
ECE 6223 Risk Management in Construction Engineering
ECE 6213 Issues in Integrated Engineering Management

**A student may replace one elective above with a course outside of the list if approved by the program director.*

If concentration besides Construction Engineering is selected, students may only take two of the above courses per the rules specified in "MSCE Transfer Procedure" as specified later in document with the exception of ECE5113 and ECE6113, which are listed above in General Courses.

ANALYTICAL CREDITS (NOT APPLICABLE FOR CONSTRUCTION ENGINEERING CONCENTRATION)
MSCE students must complete a breadth of courses that requires the use of analytical skills to solve complex problems. They must take a minimum of 14 analytical credits (ACs). The number of ACs offered by each course is different. A list of courses and the number of ACs each course offers can be obtained from the graduate program's director. The number of ACs offered by specific courses may change over time. An unexpected reduction in a course's ACs will be accommodated when a student is near graduation. The number of ACs contained in special topics courses and directed studies will be determined from the courses' content.

MSCE TRANSFER PROCEDURE
Students may transfer a maximum of six semester hours for graduate engineering courses taken at other accredited engineering colleges, provided they are deemed relevant. Students must have taken the courses within the past five years and achieved a grade of B (3.0) or better. To transfer courses, the student must submit a petition in writing prior to completion of the first semester of graduate work toward an MSCE degree. The student must submit transcripts and evidence consisting of syllabi and examinations. The program director may require the applicant to demonstrate proficiency in the subject through interviews with faculty members who have expertise in the subject.

With the approval of the program director, students may apply up to nine credits of construction engineering courses or courses from other Lawrence Tech programs (architecture, engineering, mathematics, and science) toward an MSCE degree. In addition, graduate students may apply up to six credits of 4000-level civil engineering courses (senior-level electives) with the approval of the program director.

MASTER OF SCIENCE IN ELECTRICAL AND COMPUTER ENGINEERING (MSECE)
Lawrence Tech's Master of Science in Electrical and Computer Engineering program is designed for the working professional with a bachelor's degree in electrical or computer engineering or their equivalent. Taking coursework entirely in the evening, the student can complete the degree in two years or less. The Master of Science in Electrical and Computer Engineering affords students an exciting opportunity to learn about advanced engineering methods used for high technology products and services. It is designed to provide advanced professional skills, expand knowledge of

specific technical disciplines, and improve a student's ability to apply scientific principles and mathematical techniques in solving engineering problems.

This degree is designed to provide graduates with the tools needed to maintain their knowledge of leading technology and enhance their ability to communicate with audiences having a variety of technical backgrounds. It is also designed to offer the background required for the pursuit of a senior engineering position or acceptance into a PhD program.

MSECE ADMISSION REQUIREMENTS

Admission to the MSECE program as a regular graduate student requires the demonstration of high potential for success based on the following:

1. Submission of the Online Application for Graduate Admission
2. Official transcripts of all college work *, **
3. Resume
4. A minimum of one Letter of Recommendation (employers and professors are preferred);
5. Statement of Purpose (Optional, 1 page)

** Applicants must have earned a baccalaureate degree from an accredited U.S. institution **–or–** a non-U.S. degree equivalent to a four-year U.S. baccalaureate degree from a college or university of government recognized standing*

*** A Bachelor of Science degree in Electrical and Computer Engineering (or technical related field) (minimum GPA of 3.0)*

Students with a GPA between 2.8 and 3.0 may be admitted on a provisional basis. They will be evaluated for official graduate student status upon completion of pre-core courses, if necessary, and twelve (12) semester hours of required electrical and computer engineering graduate coursework at Lawrence Tech. This evaluation will be conducted by the program director and the Graduate Admissions Committee. Students are notified of their status within two weeks of completion of the minimum required hours.

Students with a Bachelor of Science degree in a field other than electrical or computer engineering who have a GPA of at least 3.0 may be admitted on a provisional basis. These students must satisfy all prerequisite requirements before they can be granted official graduate status. The program director and the Graduate Admissions Committee decide what the prerequisite requirements are on a case-by-case basis.

MSECE TRANSFER POLICY

A maximum of six graduate semester credit hours may be transferred, and these must be from an accredited Master of Science program in electrical, electrical and computer, or computer engineering. Credit for courses taken in a graduate program other than those listed above will be reviewed by the program director and the Graduate Admissions Committee for acceptability as a substitute within Lawrence Tech's program.

Courses transferred must have been taken in the last five (5) years and a grade of B (3.0) or higher must have been achieved. All petitions for course transfer consideration must be made in writing at the time of application. Credit may be earned at another university after matriculation by guest credit. Guest credit forms must be completed at both Lawrence Tech and the university where the courses are to be taken. No guest credit will be granted for courses that are being offered at Lawrence Tech during the same semester during which the student is applying for guest credit. Since fewer MSECE graduate courses are offered during the summer semester, some students apply for guest credit during the summer. All requests for transfer or guest credit must be accompanied by an official transcript.

MSECE DEGREE REQUIREMENTS
The MSECE program offers students two degree options:

OPTION 1: COURSEWORK ONLY
This option requires twelve (12) credit hours of core courses plus eighteen (18) credit hours of technical electives for a total of thirty (30) credit hours. The core courses must be taken prior to the elective courses. At least one of the technical electives must be at the 6000 level. Advanced-level electives (6XX3) require completion of core courses or specific approval by both the instructor and the chair.

OPTION 2: COURSEWORK AND THESIS
If a student elects to write a thesis, the core courses requirement may be waived at the thesis advisor's discretion. This option requires twenty-one (21) credit hours of a combination of any of the core and technical electives courses plus a nine (9)-credit-hour thesis for a total of thirty (30) credit hours. The student, in consultation with his or her thesis advisor, proposes a thesis topic by submitting the "Petition for a Master's Thesis" form that describes the research topic in detail and presents the research plan. The thesis proposal must be successfully presented to the student's thesis committee before the master's thesis credits are elected. Once the thesis is accepted, the student can take any combination of EEE 6911, EEE 6912, and EEE 6913, to add up to the nine thesis credits. Once the thesis is completed, the student must successfully defend it before his or her thesis committee.

MASTER OF SCIENCE IN ELECTRICAL AND COMPUTER ENGINEERING CURRICULUM
TOTAL CREDIT HOURS: 30 (Both Option I Coursework and Option II Thesis)

Core Courses (12 credits)

Course Number	*Subject*	*Cr. Hrs.*
EEE 5113	Engineering Analysis	3
EEE 5653	Digital Signal Processing	3
EEE 5443	Digital Communications	3
EEE 5533	Digital Control Systems	3

Technical Electives (18-21 credits)

Course Number	*Subject*	*Cr. Hrs.*
EEE 5143	Power Distribution Systems	3

EEE 5133	Electrical Machines and Transformers	3
EEE 5203	Advanced Computer Architecture	3
EEE 5263	Advanced Microprocessors	3
EEE 5273	Digital Image Processing	3
EEE 5283	Parallel Architectures	3
EEE 5313	Power Electronics	3
EEE 5323	Network Synthesis	3
EEE 5363	Computer Networking	3
EEE 5523	Modern Control Systems	3
EEE 5553	Applications of Artificial Intelligence	3
EEE 5563	Interfacing and Control of Robots	3
EEE 6623	Digital VLSI Design	3
EEE 5633	Optical Systems Engineering	3
EEE 5783	Communication Circuits	3
EEE 5911–3	Directed Study	1–3
EEE 5923	Special Topics/Elect. and Comp. Eng.	3
EEE 6143	Smart Grid Communications	3
EEE 6443	Software Defined Radio	3
EEE 6523	Nonlinear and Optimal Control	3
EEE 6533	Adaptive Control	3
EEE 6703	Engineering Optimization	3
EEE 6783	Advanced Communication Theory	3
EEE 6901–3	Master's Project	1–3
EEE 6911–3	Master's Thesis Research	1–3
EEE 6993	Adv. Spec. Topics/Elect. and Comp. Eng.	3

The following Master of Science in Computer Science (MSCS) degree electives may be used as technical electives with the advisor's approval. (The prerequisites for these courses are listed in their course descriptions.)

Course Number	*Subject*	*Cr. Hrs.*
MCS 5023	Java Programming	3
MCS 5103	Software Engineering	3
MCS 5303	Database Systems	3
MCS 5503	Intelligent Systems	3
MCS 5703	Intro. to Distributed Computing	3
MCS 6123	Adv. Topics Software Eng. Techniques	3
MCS 6323	Distributive Database Systems	3
MCS 6513	Adv. Topics in Intelligent Systems	3
MCS 6723	Adv. Topics in Distributed Computing	3

MSECE ACADEMIC STANDING

Students are expected to maintain a 3.0 GPA or higher. If a student's GPA drops below 3.0, the student is placed on academic probation. Failure to raise the GPA to at least 3.0 by the end of one

semester of academic probation will necessitate the student's appearance before the ECE Graduate Committee to explain why he or she should not be terminated from the program. A student whose GPA has been below 3.0 for one semester and who fails to appear before the committee, or who has not attained a GPA of 3.0 after two semesters of academic probation will be terminated from the program. A student terminated from the program may reapply after one calendar year. No grade lower than B- can be counted toward a master's degree and the student's GPA should remain at or above 3.0.

MSECE WAIVER OF A REQUIRED COURSE

Students who have completed coursework that duplicates a required course may petition for waiver of that course. The petition must include the following:

1. The name of the institution where the equivalent coursework was taken
2. The name and number of the course that duplicates material in a required course
3. A copy of the course syllabus, which must include the name and author of the textbook used, as well as detailed descriptions of the topics covered

If the course was offered at the graduate level at the other institution, the student may petition to have the course transferred into the MSECE program. A maximum of eight (8) hours of credit may be transferred in this manner.

MSECE Director

Nabih Jaber, Director of MSECE, 248.204.2543 or njaber@ltu.edu.

MASTER OF SCIENCE IN ENGINEERING QUALITY (MSEQ)

MSEQ program is designed to provide advanced skills in Engineering Quality and prepare graduates to be leaders in the field of engineering quality practice and management.

The graduates will have solid knowledge in the Methods, Techniques, Practices, Models and advanced tools of Quality topics including: Six Sigma, Quality Management, Design and Analysis of Quality Improvement Experiments, Technometrics, Applied Reliability Engineering and more.

Students in the program will benefit from a unique opportunity that offered in the Department.

The department is accredited by the "The Council for Six Sigma Certification (C.S.S.C)," which oversea s Official Industry Standard for Six Sigma Accreditation to certify students finishing the Six Sigma related courses to take the exam and get certified at the Black Belt level. CSSC is the largest 6 Sigma accreditation provider world-wide.

The Certification is part of the program and does not requires extra credits.

The MSEQ program is designed to provide students with advanced analytical tools used in decision making and situation analysis. Students will be able to solve sophisticated technical and processes problems and conduct applied and professional research in their fields to improve performance,

quality and profitability.

Students who are already working in Industry may have an advantage of choosing the Master thesis approach towards their degree. This option will help students combine their job and academic needs simultaneously. Also, the thesis/project approach will facilitate acquiring the second level of Six Sigma Black Belt Certification.
The Master thesis is worth 9 credits and could substitute for the three elective courses.
The MSEQ is a cross-disciplinary program incorporating engineering, technology, and management.

All coursework can be taken in the evening or online, allowing working students to complete their studies in approximately two years.

MSEQ ADMISSION REQUIREMENTS
Admission to the Master of Science in Engineering Quality program requires:

1. Submission of the Application for Graduate Admission
2. A Bachelor of Science in Engineering, Engineering Technology, Math, Science, Management or equivalent degree from an accredited university (minimum GPA of 3.0)
3. Applicant might be asked to take some prerequisites based on the evaluation of the program director
4. Official transcripts of all completed college work
5. A minimum of one letter of recommendation (employers and professors are preferred)
6. A resume, including professional experiences and extracurricular activities
7. A statement of purpose that includes personal and professional achievements or goals

Applicants who do not meet all of the conditions for regular graduate admission may be considered for provisional admission by the Graduate Admissions Committee, provided they demonstrate an exceptionally high aptitude and promise for doing graduate work in this area and hold a Bachelor of Science degree in Engineering or Engineering Technology.

Additionally, the academic background of candidates will be evaluated by the Graduate Admissions Committee as part of the admissions process. Students found deficient in a particular subject area are required to enroll in pre-core crossover courses before being allowed to enroll in some of the core program courses. No graduate credit will be granted for these courses.

MSEQ COURSE TRANSFER POLICY
For students transferring from other graduate programs into LTU's Master of Science in Engineering Quality program, the following guidelines will be implemented:

1. No more than six graduate semester credit hours may be transferred, and these must be from an accredited institution. The director and the graduate committee will evaluate exceptions to this policy on a case-by-case basis

2. Credit for courses taken in a graduate program other than those listed above will be reviewed by the program director and the graduate committee for their acceptability as substitutes within LTU's program
3. A request for courses to be considered for transfer credit must be made in writing at the time of application
4. A minimum grade of 3.0 must have been achieved in the transfer courses
5. All Courses must be completed within five years after the program is started

In order to continue in the MSEQ program, students must have a cumulative GPA of at least 3.0. A student whose cumulative GPA falls below 3.0 after their formal admission to the MSEQ program may be placed on academic probation and must consult with the program director regarding continuation in the program.

REQUIREMENTS FOR DEGREE COMPLETION

After formal admission to the MSEQ program, students must complete a written plan of study, which will be approved by the program director and kept on file for updating purposes in the Department of Engineering Technology. The plan of study must be submitted no later than the second semester after the student has enrolled in the MSEQ program. In the semester prior to their anticipated graduation, candidates for the MSEQ degree will meet with the program director to ensure that they have met all program requirements and to complete the Petition for Graduation form. The program director will then review the petition and give final approval for graduation.

MSEQ CURRICULUM

TOTAL CREDIT HOURS: 30

Core Courses (21 credit hours)

Course Number	*Subject*	*Cr. Hrs.*
TIE 5013	Technometrics	3
TME 5343	Six Sigma 2	3
EIE 5613	Reliability and Maint. Eng.	3
TIE 5343	Engineering Project Management	3
TIE 6533	Engineering Quality Management	3
TIE 6353	Des. and Analys. of Quality Imp. Experiments	3
TME 6343	Special Topics in Technology	3

Elective Courses (9 credit hours)

Students may fulfill the requirements by one of the two following options:

Selecting **three** of the following courses*:

Course Number	*Subject*	*Cr. Hrs.*
INT 6043	Management Information Systems	3
EMS 6203	Manufacturing Processes	3
EMS 6823	Product Innovation and Design	3

EEM 6753	Eng. Supply Chain Management	3
EMS 6713	Production Planning and Control	3
EMS 6703	Manufacturing Systems	3
EIE 5513	Lean Manufacturing Systems	3
EMS 6303	Computer Integrated Manufacturing	3
EMS 6503	Manufacturing Productivity	3

** Other elective courses may be chosen based on the interest of the student subject to approval of the program director*

Complete a Master's Thesis to substitute for the elective courses.

MASTER OF SCIENCE IN INDUSTRIAL ENGINEERING (MSIE)

Industrial engineers are charged with developing more efficient processes, reducing costs, and increasing productivity within the manufacturing industry – essential functions that employers depend on to remain successful. In order to improve efficiency, industrial engineers use their knowledge of mathematics to study product requirements and then design the manufacturing and information systems needed to meet those requirements. They also design production planning and control systems, improve systems for the distribution of goods and services, develop wage and salary administration systems and job evaluation programs, and create management control systems to help with cost analysis and financial planning.

Just as industrial engineering itself is growing, so are certain disciplines within the field. In response to this growth, Lawrence Tech's Master of Science in Industrial Engineering features focus areas in healthcare systems, quality, and supply chain. Lawrence Tech's Master of Science in Industrial Engineering can prepare you to compete in today's ever-changing workforce by not only helping you stay abreast of current trends and technologies within the field, but also by developing your leadership skills. The MSIE focuses on providing advanced knowledge in operations optimization, process control, reliability, design of experiments, and more. This rigorous 30-credit hour program allows you to choose either a course-work-only option or a thesis option. Both feature the flexibility demanded by busy professionals, with most courses available in the evenings and some offered online.

MSIE ADMISSION REQUIREMENTS

Admission to the MSIE program as a regular graduate student requires the demonstration of high potential for success based on the following:

1. Submission of the Online Application for Graduate Admission
2. Official transcripts of all college work *, **
3. Resume
4. A minimum of one Letter of Recommendation (employers and professors are preferred);
5. Statement of Purpose (Optional, 1 page)

** Applicants must have earned a baccalaureate degree from an accredited U.S. institution **–or–** a non-U.S. degree equivalent to a four-year U.S. baccalaureate degree from a college or university of government recognized standing*

*** A Bachelor of Science degree in engineering, science, math, computer science or physical science (or technical related field) (minimum GPA of 3.0)*

Applicants who do not meet all requirements may be admitted on a conditional basis and will be granted regular status upon the completion of three consecutive graduate-level courses with a minimum 3.0 GPA.

MSIE TRANSFER POLICY

A maximum of six semester hours of graduate engineering courses taken at other accredited engineering colleges may be transferred, provided they are deemed relevant by the Graduate Admissions Committee. Transferred courses must have been taken in the last five years and a grade of B (3.0) or higher must have been achieved. Students should petition the Graduate Admissions Committee by letter prior to completion of the first semester of graduate work. Students must submit evidence, in addition to transcripts, in the form of syllabi and examinations for each transfer course proposed. The committee may require the applicant to demonstrate proficiency in the subject matter through interviews with faculty members who have expertise in the subject.

MSIE DEGREE REQUIREMENTS

Coursework and Thesis Option

Core Courses (6 courses)	18 credits
Electives (1 course)	3 credits
Thesis	9 credits
Total Credit Hours	30 credits

Coursework Only Option

Core Courses (6 courses)	18 credits
Electives (4 courses)	12 credits
Total Credit Hours	30 credits

Core Courses

Course Number	*Subject*	*Cr. Hrs.*
EMS 5603	Engineering Systems Simulation	3
EMS 6403	Quality Control	3
EIE 6653	Advanced Optimization Techniques	3
EIE 6663	Applied Stochastic Processes	3
EMS 6713	Production, Planning, and Control	3
EIE 6673	Six Sigma Processes	3

Electives

Students may select *one* course from the following list:

Course Number	*Subject*	*Cr. Hrs.*
EME 5513	Lean Manufacturing Systems	3
EME 5623	Product Development and Sustainability	3
EEM 6743	Value Engineering	3
EEM 6753	Engineering Supply Chain Management	3
EEM 6583	Enterprise Productivity	3
EMS 6703	Manufacturing Systems	3
EMS 6343	Automotive Manufacturing	3
EMS 7103	Design of Experiments	3
EMS 7203	Manufacturing Systems Simulation	3
EMS 7303	Design for Reliability	3
EMS 7403	Design of Manufacturing	3
EMS 7613	Technology Management	3

FOCUS AREAS

Three focus areas are available:

HEALTHCARE SYSTEMS FOCUS

The Healthcare Systems focus provides the student with sufficient knowledge and skills for modeling, analyzing, and designing healthcare systems. Students will have an option to graduate with a Healthcare Systems focus by taking electives related on healthcare systems instead of general electives.

Healthcare Focus – Any **four** courses related on healthcare systems (12 credits)

EIE 6843	Healthcare Systems Engineering
EIE 6853	Healthcare Operations Analysis
EIE 6863	Healthcare Information Systems
EIE 6873	Healthcare Human Factors
EIE 6883	Healthcare Economics
EIE 6893	Logistics in Healthcare Systems

QUALITY FOCUS

Recent experience in the world has shown that quality becomes an important factor in manufacturing and service industries for their business success and growth. Effective quality improvement programs provide a significant competitive advantage. This quality focus provides the student with sufficient knowledge and skills for improving quality and productivity in manufacturing and service organizations using modern quality concepts, tools, and techniques to develop, implement and maintain systems.

Quality Focus – Any **four** courses related on quality (12 credits)

EMS 6403	Quality Control
EIE 6673	Six Sigma Processes
EEM 6763	Quality Engineering Systems

EMS 7103 Design of Experiments
EMS 7303 Design for Reliability

SUPPLY CHAIN FOCUS
Due to globalization, companies are looking to supply chain and logistics for their strategic and competitive advantages. The supply chain focus provides a foundation in supply chain and logistics systems with national and global perspectives. It provides proficiency in problem solving, analytical methods, and decision-making processes in a wide variety of industries, including manufacturing, retail, logistics, distribution, healthcare, defense, service, and software.

Supply Chain Focus – Any **four** courses related on supply chain (12 credits)
EMS 6713 Production, Planning and Control
EEM 6753 Engineering Supply Chain Management
MIS 6113 Database and Enterprise Models
MIS 7643 Enterprise Integration
Special Topic on Customer Relationship Management (CRM)
Special Topic on Enterprise Resource Planning (ERP) and MRP II
Special Topic on Logistics
Special Topic on Warehousing

ONLINE ONLY
The Master of Science in Industrial Engineering is also offered online. Students can earn the same rigorous LTU education and enjoy the same prestigious, industry expert faculty while having the flexibility to manage full-time work and busy schedules.

MASTER OF SCIENCE IN MECHANICAL ENGINEERING (MSME)
Lawrence Tech's Master of Science in Mechanical Engineering provides opportunities for students to enhance their undergraduate engineering education. In the diverse field of mechanical engineering many students find it both necessary and rewarding to pursue more advanced study in their particular areas of interest to enhance their professional careers. The MSME curriculum is structured to prepare graduate students in fields such as combustion engines, emissions, energy systems, manufacturing processes and systems, structural analysis, vehicle dynamics, powertrain systems, dynamics, vibrations, fluid mechanics, and heat transfer.
The 30-credit-hour MSME is designed for full-time students and working professionals who are graduates of ABET-accredited undergraduate engineering programs. All coursework can be taken in the evening, allowing working students to complete their studies in approximately two years. Most courses meet once or twice a week for two and a half hours. Applicants may choose between two options, one focused strictly on coursework and the other incorporating a thesis. Pending the approval of the MSME Graduate Admissions Committee, working professionals pursuing the thesis option can choose a topic in conjunction with their job or company.

MSME ADMISSION REQUIREMENTS
Admission to the MSME program as a regular graduate student requires the demonstration of high potential for success based on the following:

1. Submission of the Online Application for Graduate Admission
2. Official transcripts of all college work *, **
3. Resume
4. A minimum of one Letter of Recommendation (employers and professors are preferred);
5. Statement of Purpose (Optional, 1 page)

** Applicants must have earned a baccalaureate degree from an accredited U.S. institution* ***–or–*** *a non-U.S. degree equivalent to a four-year U.S. baccalaureate degree from a college or university of government recognized standing*

*** A Bachelor of Science degree in Mechanical Engineering (or technical related field) (minimum GPA of 3.0)*

Applicants who do not meet all conditions for regular admission may be admitted on a provisional basis as determined by the Graduate Admissions Committee. The applicant will be evaluated for official graduate student status upon completion of nine hours of graduate coursework, achieving a minimum grade of 3.0 in each course, at the University. Applicants with an engineering baccalaureate degree in a field other than mechanical engineering who have a GPA of at least 3.0 may be admitted on a provisionary basis. These students must satisfy all prerequisite requirements before they can be granted official graduate status. All coursework must be completed within five years after the program is started.

MSME TRANSFER POLICY

For applicants transferring from other graduate programs into the MSME program, no more than six graduate semester credit hours may be transferred, and these must be from an accredited MSME program. Any exceptions to this policy must be approved by the Graduate Admissions Committee. A minimum grade of 3.0 must have been achieved in all transfer courses. Credit for courses taken in a graduate program other than mechanical engineering will be reviewed to determine whether they may be substituted within the MSME program at Lawrence Tech. A request for transfer courses to be considered must be made in writing at the time of application and must be accompanied by transcripts, course descriptions, and syllabi for each proposed transfer course. For some transfer courses, the Graduate Admissions Committee may require the applicant to demonstrate proficiency in the subject through interviews with faculty members who have expertise in the subject.

MSME DEGREE REQUIREMENTS

The MSME program offers students two degree options:

OPTION 1: COURSEWORK AND THESIS

Core Courses (4 courses)	12 credits
Electives (3 courses)	9 credits
Thesis	9 credits
Total Credit Hours	30 credits

OPTION 2: COURSEWORK ONLY

Core Courses (4 courses)	12 credits
Electives (6 courses)	18 credits
Total Credit Hours	30 credits

MASTER OF SCIENCE IN MECHANICAL ENGINEERING CURRICULUM

TOTAL CREDIT HOURS: 30

Core Courses – Thermal-Fluid Systems Track

Course Number	*Subject*	*Cr. Hrs.*
EME 5153	Applied Thermodynamics	3
EME 5353	Transport Phenomena I	3
EME 5363	Transport Phenomena II	3
EME 5253	Engineering Analysis I	3

Core Courses – Solid Mechanics, Dynamics, and Vibration Track

Course Number	*Subject*	*Cr. Hrs.*
EME 5333	Advanced Dynamics	3
EME 5213	Mechanical Vibrations	3
EME 5223	Advanced Mechanics of Materials	3
EME 5253	Engineering Analysis I	3

Students can choose elective courses and receive a concentration in one of six fields: Automotive; Energy Systems; Manufacturing; Mechatronics; Solid Mechanics, Dynamics, and Vibration Systems; and Thermal-Fluid Systems. Students who choose the thesis option can obtain a concentration if they take two courses from one of the above areas and write their thesis in that same field. Students not writing the thesis can obtain a concentration if they take four courses in one of the concentration areas. Students will be credited for only one concentration.

Electives

Depending on the degree option, students may select *three* to *six* courses from the following list:

CONCENTRATIONS

MATHEMATICS

Course Number	*Subject*	*Cr. Hrs.*
EME 6283	Engineering Analysis II	3

AUTOMOTIVE

Course Number	*Subject*	*Cr. Hrs.*
EME 5433	Vehicle Dynamics 1	3
EME 5573	Automotive HVAC 1	3
EME 5983	Special Topics – Autonomous Vehicles	3
EME 6333	Body and Chassis Systems	3
EMS 6343	Automotive Manufacturing	3

EME 6353	Automotive Mechanical Systems	3
EME 6373	Powertrain Systems 1	3
EME 6383	Powertrain Systems 2	3
EME 6473	Hybrid Electric Vehicles	3
EME 6623	Automotive Control System I	3

ENERGY SYSTEMS

Course Number	*Subject*	*Cr. Hrs.*
EME 5263	Energy Resources and Technology	3
EME 5273	Heat Pipes	3
EME 5283	Elements of Nuclear Engineering	3
EME 5293	Fusion Engineering	3
EME 5313	Biofuels and Biomass Energy Eng.	3
EME 5373	Alternative Energy Engineering	3
EME 5983	Special Topics – Aerospace Propulsion Systems	3
EME 5983	Special Topics – Batteries and Energy Storage	3
EME 5983	Special Topics – Energy Storage Engr.	3
EME 5983	Special Topics – Geothermal Energy Engr.	3
EME 5983	Special Topics – Solar Energy Engineering	3
EME 6163	Fuel Cells and Hydrogen	3

MANUFACTURING

Course Number	*Subject*	*Cr. Hrs.*
EMS 6203	Manufacturing Processes	3
EMS 6303	Computer Integrated Manufacturing	3
EMS 6323	Expert Systems in Manufacturing	3
EMS 6403	Quality Control	3
EMS 6703	Manufacturing Systems	3

MECHATRONICS

Course Number	*Subject*	*Cr. Hrs.*
MRE 5323	Modern Control Systems	3
MRE 5143	Aerospace Systems Engineering	3
MRE 5183	Mechatronic Systems I	3
MRE 5813	Unmanned Aerial Vehicles	3
MRE 6183	Mechatronic Systems II	3
EEE 5533	Digital Control Systems	3
EEE 5653	Digital Signal Processing	3

SOLID MECHANICS, DYNAMICS AND VIBRATIONS SYSTEMS

Course Number	*Subject*	*Cr. Hrs.*
EME 6113	Fatigue Analysis	3
EME 6123	Automotive Structural Analysis	3
EME 6213	Fundamentals of Acoustics	3

EME 6493	Theory of Plates and Shells	3
EME 6533	Mechanical Vibrations II	3
EME 6553	Structural Stability	3
EME 6593	Random Vibrations and Spectral Analysis	3
EME 6613	Elasticity I	3
EME 7113	Fracture Mechanics	3

THERMAL-FLUID SYSTEMS

Course Number	*Subject*	*Cr. Hrs.*
EME 6133	Viscous Flow	3
EME 6153	Incompressible Flow I	3
EME 6223	Conduction Heat Transfer	3
EME 6233	Convection Heat Transfer	3
EME 6243	Radiation Heat Transfer	3
EME 6253	Turbulence	3
EME 6393	Compressible Flow I	3
EME 6413	Advanced Thermodynamics	3
EME 6523	Combustion and Emissions	3
EME 6543	Computational Fluid Dynamics	3
EME 6563	Aerodynamics	3
EME 7213	Advanced Combustion and Emissions	3
EME 7543	Advanced Computational Fluid Dynamics	3

MASTER OF SCIENCE IN MECHATRONICS AND ROBOTICS ENGINEERING (MSMRE)

The Master of Science in Mechatronics and Robotics Engineering (MSMRE) program at Lawrence Technological University is a response to a rapidly growing need for mechatronics and robotics engineers who, in the course of product development, may be responsible for the design of a mechanical system, the development of algorithms to operate specific mechanisms, and the integration of requisite sensors and actuators.

Our goal is to provide students with a combination of classroom theory and hands-on experience. Theory classes include dynamics, vibrations, control theory, and the integration of common and advanced sensors and actuators. Two practical classes provide students with the experience of developing an integrated electro-mechanical system and the required communication and engineering skills.

Mechatronics and robotics experience and skill sets are especially important in a fast-paced and cost-conscious business environment, whose shortened product cycle times and profit margins require concurrent development of the mechanical, electrical, and software system. The ability to communicate and resolve system integration issues early in the product development cycle would serve to reduce engineering resource requirements and potential product defects and hence to maximize profitability and product quality.

Lawrence Tech's MSMRE program is designed for working professionals who are graduates of accredited undergraduate mechanical or electrical engineering programs. All coursework is offered in the evening, allowing working students to complete their studies in approximately two years.

MSMRE students gain deep analytical knowledge, research skills, and extensive hands-on experience through project-oriented courses, laboratories, and open-ended engineering projects.

MSMRE PROGRAM OBJECTIVES

The 30-credit-hour MSMRE program is designed to provide students with advanced knowledge in mechatronics. Students will be expected to:

1. Learn and apply mechatronic engineering principles and theories
2. Develop analytical and problem-solving skills for mechatronic systems
3. Evaluate technical mechatronics engineering publications
4. Effectively communicate technical information
5. Understand the importance of lifelong learning and the professional and ethical responsibilities of the engineering profession

MSMRE ADMISSION REQUIREMENTS

Admission to the MSMRE program as a regular graduate student requires the demonstration of high potential for success based on the following:

1. Submission of the Online Application for Graduate Admission
2. Official transcripts of all college work *, **
3. Resume
4. A minimum of one Letter of Recommendation (employers and professors are preferred);
5. Statement of Purpose (Optional, 1 page)

** Applicants must have earned a baccalaureate degree from an accredited U.S. institution* ***–or–*** *a non-U.S. degree equivalent to a four-year U.S. baccalaureate degree from a college or university of government recognized standing*

*** A Bachelor of Science degree in Mechanical Engineering, Electrical Engineering or Computer Engineering (or technical related field) (minimum GPA of 3.0)*

The MSMRE program director and, if necessary, the Program Committee, may evaluate and consider applicants who do not meet all conditions for regular admission, for conditional admission.

Applicants must satisfy all prerequisite requirements before they can be granted official graduate status. The MSMRE program director will decide prerequisite requirements. Applications to the MSMRE program may be submitted at any time of the year, for matriculation during any future semester.

MSMRE TRANSFER POLICY

No more than six graduate semester credit hours may be transferred, and these must be from accredited programs. A minimum grade of 3.0 must have been achieved in the transfer courses.

MSMRE CURRICULUM

The MSMRE curriculum requires:

Core Courses (7 courses)	21 credits
Thesis Option or Electives (3 courses)	9 credits
Total Credit Hours	30 credits

Core Courses

Course Number	*Subject*	*Cr. Hrs.*
EME 5253	Engineering Analysis I	3
EME 5213	Mechanical Vibrations	3
EME 5333	Advanced Dynamics	3
MRE 5323	Modern Control Systems	3
EEE 5533	Digital Control Systems	3
MRE 5183	Mechatronic Systems I	3
MRE 6183	Mechatronic Systems II	3

Electives

Students may select *three* courses of MRE, EME, EEE, MCS 5000:6999; Suggested options are as follows:

Course Number	*Subject*	*Cr. Hrs.*
EME 6913	Master Thesis	3
EME 5433	Vehicle Dynamics 1	3
EME 5983	Special Topics – Autonomous Vehicles	3
EME 5983	Special Topics – Bioinspired Robotics	3
ME 5983	Special Topics – Soft Robotics	3
EME 6623	Automotive Control Systems I	3
EME 7623	Automotive Control Systems II	3
MRE 5143	Aerospace Systems Engineering	3
MRE 5813	Unmanned Aerial Vehicles	3
MCS 5323	Artificial Intelligence	3
MCS 5403	Intelligent Robotics with ROS	3
MCS 5563	Intelligent Control	3
MCS 5623	Machine Learning and Pattern Recognition	3
MCS 6513	Advanced Topics in Intelligent Systems	3
EEE 5273	Digital Image Processing	3
EEE 5653	Digital Signal Processing	3

Courses may have prerequisites, which are listed in their course descriptions.

GRADUATE CERTIFICATE IN AERONAUTICAL ENGINEERING

Aeronautical engineers are in growing demand as air travel becomes faster, safer, and more environmentally friendly. Increased competition in the commercial aircraft industry, new initiatives in space exploration, the evolution of smaller aircraft and airports as alternatives to traditional airline travel, including the expanding market for personal jet aircraft known as very light jets (VLJs), are also fueling this trend. With our world becoming smaller by the day, the aeronautics industry relies on highly skilled aeronautical engineers to help meet the demands of business and pleasure travelers alike.

Lawrence Technological University's Graduate Certificate in Aeronautical Engineering offers a strong foundation with which to enter the industry, featuring a comprehensive curriculum focused on the fundamentals of aeronautical engineering for aircraft design, analysis, and testing. Designed for mechanical engineering graduates, the aeronautical engineering program at Lawrence Tech provides students with a deeper understanding of this broad field – beyond what is covered in the mechanical engineering program. Aeronautical engineering not only focuses on the design and fluid dynamic aspects of aerospace vehicles but also on aerodynamics, structural mechanics, control systems, noise and vibrations, and engineering materials.

GRADUATE CERTIFICATE IN AERONAUTICAL ENGINEERING ADMISSION REQUIREMENTS
Admission to the program as a graduate student requires the demonstration of high potential for success based on the following:

1. Submission of the Application for Graduate Admission (ltu.edu/apply)
2. A Bachelor of Science degree in mechanical engineering (or equivalent) from an ABET-accredited (or equivalent) college or university
3. Official transcripts of all completed college work
4. Two letters of recommendation, one from a professor in the student's undergraduate program and/or from a corporate supervisor

GRADUATE CERTIFICATE IN AERONAUTICAL ENGINEERING TRANSFER POLICY
No more than six graduate semester credit hours may be transferred, and these must be from an accredited program. Any exceptions to this policy must be approved by the certificate coordinator. A request for transfer courses to be considered must be made in writing at the time of application and must be accompanied by transcripts, course descriptions, and syllabi for each proposed transfer course. For some transfer courses, the certificate coordinator may require the applicant to demonstrate proficiency in the subject through interviews with faculty members who have expertise in the subject.

GRADUATE CERTIFICATE IN AERONAUTICAL ENGINEERING CURRICULUM
The 18-credit-hour Graduate Certificate in Aeronautical Engineering will be awarded upon the successful completion of the courses listed below.

Core Courses

Course Number	*Subject*	*Cr. Hrs.*
EME 4163	Aeronautical Engineering Fundamentals	3

EME 4323	Applied Fluid Mechanics	3
EME 5223	Advanced Mechanics of Materials	3

Elective Courses

Students may select three courses from the following list:

Course Number	*Subject*	*Cr. Hrs.*
EME 4243	Finite Element Analysis I	3
EME 5103	Fasteners and Bolted Joints	3
EME 5133	Advanced Fluid Mechanics	3
MRE 5323	Modern Control Systems	3
MRE 5143	Aerospace Systems Engineering	3
EME 5153	Applied Thermodynamics	3
MRE 5183	Mechatronic Systems I	3
EME 5203	Design of Mechanical Joints	3
EME 5213	Mechanical Vibrations	3
EME 5323	Modern Control Systems	3
EME 5333	Advanced Dynamics	3
EME 5353	Transport Phenomena I	3
EME 5363	Transport Phenomena II	3
EME 6103	Engineering Materials	3
EME 6113	Fatigue Analysis	3
EME 6133	Viscous Flow	3
EME 6153	Incompressible Flow	3
EME 6213	Fundamentals of Acoustics	3
EME 6253	Turbulence	3
EME 6393	Compressible Flow I	3
EME 6563	Aerodynamics	3
EME 6553	Structural Stability	3
EME 6543	Computational Fluid Dynamics	3

GRADUATE CERTIFICATE IN ENERGY ENGINEERING

Professionals who hold a Bachelor of Science degree in engineering or the natural sciences (primarily chemistry or physics) are eligible to enroll in the Graduate Certificate in Energy Engineering program. The certificate requires the completion of 18 credit hours. The goal of the Graduate Certificate in Energy Engineering is to:

- Educate students in energy engineering, including alternative (renewable) energy sources, traditional (fossil fuel) energy sources, nuclear energy, energy management, and conservation
- Help meet global needs with energy-educated engineers who can address the issues related to energy and the supply and demand balance of global fossil fuel resources and to transition the economy to more environmentally friendly energy systems

GRADUATE CERTIFICATE IN ENERGY ENGINEERING ADMISSION REQUIREMENTS

To be admitted to the Graduate Certificate in Energy Engineering program requires the applicant to have already earned a Bachelor of Science degree in engineering or to have earned a Bachelor of Science in chemistry or physics with an overall GPA of 3.0 or better for their undergraduate degree. Students with related degrees may be admitted to the Graduate Certificate in Energy Engineering program as long as they meet all course prerequisites. A grade of B or better is required in all make-up and prerequisite courses for this program. All students enrolled in the Certificate in Energy Engineering core or elective courses must earn a grade of B or better in all courses in this program. Any student not complying with minimum grade requirements will prompt a review of that student's academic standing and may result in his or her dismissal from the program.

The courses offered in this program are all College of Engineering technical electives and can typically be used as technical electives in the pursuit of an undergraduate Bachelor of Science in Mechanical Engineering or in Electrical and Computer Engineering, and most of the 5000-level courses may be used towards a Master of Science in Mechanical Engineering degree.

GRADUATE CERTIFICATE IN ENERGY ENGINEERING CURRICULUM

The Graduate Certificate in Energy Engineering requires the completion of six courses (18 credit hours) from the approved list of related courses. Three courses (nine credits) are required core courses, and three are elective courses (nine credits).

Core Courses

Course Number	*Subject*	*Cr. Hrs.*
EME 5373	Alternative Energy Engineering	3
EME 5153	Applied Thermodynamics	3
EME 5263	Energy Resources and Technologies	3

Electives

Students may select *three* courses from the following list:

Course Number	*Subject*	*Cr. Hrs.*
EME 4363	Thermal Fluid System Design	3
EME 5193	Solar and Wind Energy Generation Systems	3
EME 5163/6163	Fuel Cells and Hydrogen	3
EME 5283	Elements of Nuclear Engineering	3
EGE 5303	Energy and Environmental Management 1	3
EGE 5323	Energy and Environmental Management 2	3
EME 5273	Heat Pipes	3
EME 5293	Fusion Engineering	3
EME 5313	Biofuels and Biomass Energy Engineering	3

GRADUATE CERTIFICATE IN INTEGRATED PROJECT DELIVERY

GRADUATE CERTIFICATE IN INTEGRATED PROJECT DELIVERY ADMISSION REQUIREMENTS

Admission to the GCIPD program requires:

1. Submission of the Application for Graduate Admission (ltu.edu/apply)

2. A Bachelor of Science degree in civil engineering, architecture, construction management (or related field) from an accredited undergraduate program (minimum GPA of 3.0)
3. A minimum of one letter of recommendation (employer or former professor preferred)
4. Official transcripts of all college work
5. Professional resume

Although not required, additional documents recommended include: additional recommendation letters and a statement of purpose discussing what the applicant plans to do with the degree and why the University was chosen.

GRADUATE CERTIFICATE IN INTEGRATED PROJECT DELIVERY CURRICULUM

To obtain a GCIPD, students are required to earn 12 credits by completing the following graduate courses:

Course Number	*Subject*	*Cr. Hrs.*
ECE 5213	Principles of Design-Build Project Delivery	3
ECE 5273	Construction Law	3
ECE 5283	Conceptual Estimating	3
ECE 6213	Issues in Integrated Eng. Management	3

GRADUATE CERTIFICATE IN INTRAOPERATIVE NEUROMONITORING

GRADUATE CERTIFICATE IN INTRAOPERATIVE NEUROMONITORING (GCIONM) ADMISSIONS REQUIREMENTS

PREFERRED APPLICANTS TO THE GCIONM PROGRAM MUST/MAY POSSESS THE FOLLOWING QUALIFICATIONS:

1. Bachelor degree from an accredited college or university
    a. *Bachelor of Science degree preferred*
2. A minimum grade point average (GPA) of B (3.0 on a 4.0 scale), calculated using the entire undergraduate diploma/degree programs of study;
3. Documentation which is relevant to training and/or experience (CV or resume).

GRADUATE CERTIFICATE IN INTRAOPERATIVE NEUROMONITORING CURRICULUM

SEMESTER 1

Course number	*Subject*	*Cr.Hrs.*
IOM5103	Intro to Health and The OR	2
IOM5003	Neurological Anatomy and Physiology	3
IOM5206	Concept and Modalities in IONM	6
IOM5304	Simulation Lab and Theory	4

SEMESTER 2

Course Number	*Subject*	*Cr.Hrs.*
IOM5710	Clinical Practicum I	10

SEMESTER 3

Course Number	*Subject*	*Cr.Hrs.*
IOM5710	Clinical Practicum II	10

GRADUATE CERTIFICATE IN LEAN SIX SIGMA

Twenty-first century product and service quality are essential to modern competitiveness. The Graduate Certificate in Quality Engineering focuses on theory and practices on statistical methods, quality control systems, quality audit, quality control improvement, design and analysis of experiments, quality product design, and quality control in manufacturing, product development, defense applications and service systems. The 15-credit-hour Graduate Certificate in Lean Six Sigma consists of five three-credit engineering/manufacturing courses that concentrate on quality.

GRADUATE CERTIFICATE IN LEAN SIX SIGMA ADMISSION REQUIREMENTS

Applicants to the Graduate Certificate in Lean Six Sigma must:

1. Hold an undergraduate degree in engineering, science, math, computer science, or physical science (or other technical field) from an accredited college or university. Individuals with a degree in a non-engineering field may be required to take prerequisite course work.
2. Provide two letters of recommendation, preferably from employers and former professors.
3. Provide official transcripts of all completed college work.
4. Have earned an overall GPA of at least 3.0 on a 4.0 scale. Applicants who do not meet all conditions for regular admissions may be admitted on a provisional basis.
5. Provide a resume, documenting professional experiences and relevant extracurricular activities.
6. Submit a completed graduate application form.

GRADUATE CERTIFICATE IN LEAN SIX SIGMA CURRICULUM

The 15-credit-hour Graduate Certificate in Lean Six Sigma will be awarded upon the successful completion of the courses listed below.

Core Courses

Course Number Subject Cr. Hrs.
EIE 5513 Lean Manufacturing Systems 3
EIE 6673 Six Sigma Processes 3
EMS 6403 Quality Control 3

Elective Courses

Students may select two courses from the following list:
Course Number Subject Cr. Hrs.
EIE 5613 Reliability & Maintainability Engineering 3
EIE 5623 Product Development and Sustainability 3
EEM 6763 Quality Engineering Systems 3

EMS 5603 Engineering Systems Simulation 3
EMS 7103 Design of Experiments 3
EMS 6823 Product Innovation and Design 3
EIE 5983 Special Topics in IE (related on LSS) 3

GRADUATE CERTIFICATE IN STRUCTURAL ENGINEERING

The Graduate Certificate in Structural Engineering (GCSE) is a 12-credit hour certificate program that is intended to assist individuals in enhancing their knowledge in strategically selected topics within the structural engineering profession. The certificate program focuses on practical courses that contain knowledge necessary to pass the Structural Engineering (SE) exams administered by NCEES; en route to becoming a licensed structural engineer (https://ncees.org/engineering/se/). Students choose from four of six potential courses.

In a traditional Bachelor's of Science in Civil Engineering program, students learn detailed information about structural analysis and the design of reinforced concrete and hot-rolled steel structures. However, there are several additional subjects expected to be learned within the profession or in graduate studies. The courses in this certificate program are dedicated to these additional topics, which are not commonly offered at the bachelor level, and design standards associated with them. Therefore, necessary knowledge is obtained in an ideal educational setting.

GRADUATE CERTIFICATE IN STRUCTURAL ENGINEERING ADMISSION REQUIREMENTS

Admission to the GCSE program requires:

1. Submission of the Application for Graduate Admission (ltu.edu/apply);
2. An earned bachelor's degree in one of the following or closely related disciplines; Civil Engineering or Architectural Engineering;
3. Minimum undergraduate GPA of 3.0 at the time of application and after completing undergraduate degree requirements;
4. Demonstration that prerequisite courses prior to the courses in the chosen degree program have been completed;
5. Official transcripts of all completed college work

The Director of Civil Engineering Graduate Programs in consultation with the Dean of Graduate Studies may allow provisional admission to applicants who do not meet all of the above criteria. Special considerations may be made available for students from IMT.

GRADUATE CERTIFICATE IN STRUCTURAL ENGINEERING CURRICULUM

To obtain a GCSE, students are required to earn 12 credits by completing four of the seven following graduate courses:

Course Number	*Subject*	*Cr. Hrs.*
ECE5413	Shallow and Deep Foundation Design	3
ECE5703	Design of Timber Structures	3
ECE5713	Analysis and Design of Prestressed Concrete	3

ECE5733	Structural Masonry Design	3
ECE5753	Advanced Concrete Design	3
ECE5773	Advanced Steel Design	3
ECE5783	Bridge Design I	3
ECE6743	Structural Dynamics	3

If students do not have the required prerequisites from undergraduate coursework, they will be evaluated on a case by case basis.

GRADUATE CERTIFICATE IN TELECOMMUNICATIONS ENGINEERING (GCTE)

This certificate program is intended for those who wish to pursue a career or advance their career in the telecommunications industry. The certificate program is open to students who have a bachelor degree in electrical engineering, computer engineering, computer science, or a closely related field.

GRADUATE CERTIFICATE IN TELECOMMUNICATIONS ENGINEERING ADMISSION REQUIREMENTS

Admission to the Graduate Certificate in Telecommunications Engineering requires:

1. Submission of the Application for Graduate Admission (www.ltu.edu/apply);
2. A Bachelor of Science degree in electrical engineering, computer engineering, computer science, or a closely related field from an accredited university (minimum 3.0 GPA);
3. Official transcripts of all completed college work;
4. A minimum of one letter of recommendation from supervisors;
5. A resume, including professional experiences and extracurricular activities.

GRADUATE CERTIFICATE IN TELECOMMUNICATIONS ENGINEERING CURRICULUM

Students must choose four courses (16 credit hours) from the following list to earn the certificate. Current Lawrence Technological University Master of Science in Electrical and Computer Engineering students can earn the certificate by taking any three (12 credit hours) from the following list:

Course Number	*Subject*	*Cr. Hrs.*
EEE 5444	Digital Communications	4
EEE 5654	Digital Signal Processing	4
EEE 5784	Communication Circuits	4
EEE 6444	Software Defined Radio	4
EEE 6784	Advanced Communication Theory	4

GRADUATE CERTIFICATE IN TRANSPORTATION ENGINEERING

The Graduate Certificate in Transportation Engineering (GCTE) is a 12-credit hour certificate program that is intended to assist individuals in expanding their knowledge in topics of the transportation engineering profession beyond that obtained in a traditional undergraduate curriculum. The program is managed within the Master of Science in Civil Engineering degree program and targets the transportation courses in order to provide necessary skills to individuals explicitly employed in the discipline.

The graduate certificate program focuses on several topics including the expanded use of Geographic Information Systems (GIS) as utilized for transportation applications, pavement design and management, traffic engineering, and highway safety engineering.

Specific focus will be given to industry standard software applications such as Highway Capacity Software (HCS), CORSIM microsimulation modeling software, AASHTOware Pavement ME Design and AASHTOware Safety. The knowledge obtained in these classes are imperative to further development in the transportation engineering profession.

GRADUATE CERTIFICATE IN TRANSPORTATION ENGINEERING ADMISSION REQUIREMENTS
Admission to the GCTE program requires:

1. Submission of the Application for Graduate Admission (ltu.edu/apply)
2. An earned bachelor's degree in one of the following or closely related discipline: Civil Engineering
3. Minimum undergraduate GPA of 3.0 at the time of application and after completing undergraduate degree requirements
4. Demonstration that prerequisite courses prior to the courses in the chosen degree program have been completed
5. Official transcripts of all completed college work

The Director of Civil Engineering Graduate Programs in consultation with the Dean of Graduate Studies may allow provisional admission to applicants who do not meet all of the above criteria. Special considerations may be made available for students from IMT.

GRADUATE CERTIFICATE IN TRANSPORTATION ENGINEERING CURRICULUM
To obtain a GCTE, students are required to earn 12 credits by completing four of the following courses:

Course Number	*Subject*	*Cr. Hrs.*
ECE 5103	Applied Geographic Information Systems	3
ECE 5813	Pavement Analysis and Performance	3
ECE 5823	Pavement Management	3
ECE 5833	Traffic Engineering	3
ECE 5843	Highway Safety Engineering	3
ECE 5853	Airport Pavement Design and Management	3

If students do not have the required prerequisites from undergraduate coursework, they will be evaluated on a case by case basis.

COLLEGE OF HEALTH SCIENCES

Dean
Dr. Mary Schutten

M346, 248.204.4128

ABOUT THE COLLEGE OF HEALTH SCIENCES

Lawrence Technological University's College of Health Sciences prepares future leaders to navigate and transform complex, dynamic healthcare systems through research and evidence-based practices, leading edge technology, and diverse patient-centered, holistic care.

Through interprofessional collaboration and external partnerships, the College of Health Sciences is committed to educating compassionate healthcare professionals utilizing inclusive learning environments, advancing health outcomes of local and global communities, promoting a culture of advocacy for a just society, and enculturating lifelong learners dedicated to their professional careers.

SPECIALIZED PROGRAM ACCREDITATION

The ARC-PA has granted Accreditation-Provisional status to the LTU Physician Assistant Program, https://www.arc-pa.org/accreditation-history-lawrence-technological-university/

The baccalaureate degree program in nursing at Lawrence Technological University is accredited by the Commission on Collegiate Nursing Education www.ccneaccreditation.org

DEGREE PROGRAMS OFFERED

Doctor of Health Sciences (available online)
Master of Science in Healthcare Administration (available online)
Physician Assistant Program
Graduate Certificate in Healthcare Administration (available online)
Graduate Certificate in Healthcare Data Analytics (available online)
Graduate Certificate in Healthcare Data Science (available online)

DOCTOR OF HEALTH SCIENCES

The 100% online Doctor of Health Sciences (DHS) at Lawrence Tech offers an interdisciplinary approach covering healthcare industry policy, informatics, data sciences, and leadership essentials. It is one of very few DHS programs offered in the nation, made only more exceptional with its focus on allied health. This program is perfect for those seeking to build relevant skills that can apply toward career growth and leadership roles across the healthcare sector. It also offers career-building certificates in Healthcare Informatics, Health System Leadership, Academic Leadership, and Lifestyle Management embedded within the curriculum.

The DHS is a 54-credit program that includes four embedded certificates in Healthcare Informatics, Health System Leadership, Academic Leadership, and Lifestyle Management. This 54-credit hour curriculum also emphasizes building professional skills in the following areas most requested by workplaces: active listening, verbal communication, reading comprehension, critical thinking, writing, monitoring and evaluation of self and others, coordinating abilities with others, social perceptiveness, judgment, decision-making, problem-solving, active learning and time management

incorporating interprofessional and interdisciplinary learning, quality improvement projects, micro-credentialing by developing specializations in the program.

The DHS focuses on building evidence-based skills through applied and practical research that has real-time workplace value. The culminating project uses a structured research design and teaches students to design a quality improvement (QI) intervention through a sequence of research courses that build upon each other. Coursework focuses on developing a QI intervention proposal, implementing the intervention and collecting data, analyzing and evaluating the intervention, and to present and share research findings of their QI project.

Students specialize and receive a certificate in one of the following: Healthcare Informatics, Health System Leadership, Academic Leadership, or Lifestyle Management and possibly Healthcare Policy. For their culminating project, learners select a Quality Improvement (QI) project from a practice area they want to influence quality change. Their evidence-based and personalized QI project intends to improve healthcare delivery and outcomes.

The job market for DHS graduates has opportunities in various sectors such as hospital systems, community-based public health systems, long-term care facilities, consulting firms, health insurance organizations, higher education, and governmental agencies. The program's cutting-edge curriculum is designed to meet the sector's urgent need for professionals who can lead with cultural competence, collaborate on teams, effectively utilize research and evidence-based practice, craft strategic policy, and drive forward healthcare services and systems. As a graduate of this program, you will be poised to take on significant challenges and lead with confidence in the local, national, and global healthcare arenas.

DHS DEGREE REQUIREMENTS

Successful completion of the 54-credit online DHS program requires:

- Completion of 18 courses (54 credits)
- Completion of a culminating four-course research/Quality Improvement Project
- Students must maintain a minimum 3.0 cumulative grade point average to earn a graduate degree. Students are expected to meet with and be advised by academic advisors or program directors during their course of study and prior to graduation to ensure that all requirements are being met in a timely fashion.

ADMISSIONS REQUIREMENTS

- A Master's level degree or equivalent in healthcare-related or allied health fields.
- A minimum of two years of experience in healthcare or related fields as real-world experience helps conceptual theory practice and allows for better peer-to- peer discussions. The DHS is a research degree that has many components of a practice degree; therefore, field experience is essential.
- Grade point average: A 3.0 or above on a 4.0 scale.
- Transfer credits: At present, a maximum of nine (9) credits can be applied and approved towards the doctorate.

APPLICATION

Please submit completed admissions material and packet to **CoHS@LTU.edu**.

- Online application which can be found at **ltu.edu/admissions/graduate**
- Non-refundable application fee of $50 that can be paid online
- Official transcripts must be submitted from all post-secondary institutions attended
- Resume/CV
- Letters of reference: Two letters of reference.
- Personal statement outlining the applicant's research interests and professional goals

GRADE POLICY

Grades awarded in graduate courses are limited to A, A–, B+, B, B–, C+, C, C- and F. At most, one passing grade below B– may be counted toward a graduate degree. No more than one required course may be repeated.

DOCTOR OF HEALTH SCIENCES CURRICULUM

TOTAL CREDIT HOURS: 54

Foundations

1. Preparation for Doctorate Studies and Research Foundations

Course Number	*Subject*	*Cr. Hrs*
DHS 8013	Scholarly Writing and Presentations	3
DHS 8023	Evidence-based Principles and Practice	3

2. Professional Practice

Course Number	*Subject*	*Cr. Hrs*
DHS 8103	Management of Teams and Cultural Competence	3
DHS 8113	Teaching for Healthcare	3
DHS 8123	Emerging Technologies in Healthcare	3

3. Health Sciences

Course Number	*Subject*	*Cr. Hrs*
DHS 8203	Ethical Decisions in Healthcare	3
DHS 8213	Healthcare Inequities	3
DHS 8223	Policy and Legality in Healthcare	3

4. Environment and Global Health

Course Number	*Subject*	*Cr. Hrs*
DHS 8303	Global Health	3
DHS 8313	Human and Planetary Health	3
DHS 8323	Environmental and Occupational Health	3
	Foundations Credit Hour Total	**33**

Culminating Project: Quality Improvement Intervention Research

Course Number	*Subject*	*Cr. Hrs*
DHS 8903	Quality Improvement Proposals	3
DHS 8913	Data Collection and Intervention	3
DHS 8923	Data Analysis and Evaluation	3
DHS 8933	disseminating Research Findings	3
	Culminating Project Credit Hour Total	**12**

Specializations (Choose 1 Specialization)

1. Healthcare Informatics

Course Number	*Subject*	*Cr. Hrs*
DHS 7013	Information Systems and Healthcare	3
DHS 7023	Healthcare Regulation	3
DHS 7033	Health Informatics	3

2. Health System Leadership

Course Number	*Subject*	*Cr. Hrs*
DHS 7113	Leadership Competencies	3
DHS 7123	Organizational Behavior and Diversity	3
DHS 7133	Collaborative and Strategic Planning	3

3. Academic Leadership

Course Number	*Subject*	*Cr. Hrs*
DHS 7213	Program and Curriculum Development	3
DHS 7223	Adult Learning Theories	3
DHS 7233	Accreditation Preparation	3

4. Lifestyle Management

Course Number	*Subject*	*Cr. Hrs*
DHS 7313	Lifestyle Management in Healthcare	3
DHS 7323	Integrative Healthcare	3
DHS 7333	Behavioral Health and Holistic Care	3
	Specialization Credit Hour Total	**9**

MASTER OF SCIENCE IN HEALTHCARE ADMINISTRATION

In response to an evolving healthcare landscape, our interdisciplinary online Master of Science in Healthcare Administration (MSHA) equips learners with the necessary skills to navigate and excel in this dynamic environment. The MSHA degree is distinctive in its modular, stackable certificate approach, offering an educational experience to fit the specific needs and schedules of busy professionals.

The foundation of the MSHA degree is the 15-credit Graduate Certificate in Healthcare Administration. This certificate covers a comprehensive range of topics including Human Resource

Management, Fundamentals of Healthcare Finance, Healthcare Administration, Healthcare Policy, and Managerial Epidemiology, ensuring a robust base in healthcare management principles.

Complementing this foundation, students must choose between two specialized 15-credit tracks that integrate course-embedded project-based learning, allowing students to sharpen their technological skills with real-world problems and practical scenarios in the growing field of healthcare data.

The Graduate Certificate in Healthcare Data Analytics provides essential skills in Management Information Systems, Python for Data Analysis and Visualization, Statistics for Data Analytics and Visualization, Health Informatics and Data Privacy Protection, and Data Science for Business. This track is ideal for those looking to apply data analysis to decision-making and operational efficiency in healthcare settings.

Alternatively, the Healthcare Data Science Graduate Certificate offers a deep dive into the technical aspects with courses in Programming Concepts for Computer Science, Advanced Data Science, Statistics for Data Analytics, Health Informatics and Data Privacy Protection, and Machine Learning and Text. This track is suited for future specialists who are intent on pushing the boundaries of healthcare innovation through advanced data science techniques.

The job market for MSHA graduates has opportunities in various sectors such as hospital systems, community-based public health systems, long-term care facilities, consulting firms, health insurance organizations, and governmental agencies. The program's cutting-edge curriculum is designed to meet the sector's urgent need for professionals who can interpret complex data, craft strategic policy, and drive forward healthcare services and systems. As a graduate of this program, you will be poised to take on significant challenges and lead with confidence in the local, national, and global healthcare arenas.

MSHA DEGREE REQUIREMENTS

Successful completion of the 30-credit online MSHA program requires:

- Completion of the 15-credit Graduate Certificate in Healthcare Administration (required for the MSHA degree)
  and
- Completion of the 15-credit Graduate Certificate in Healthcare Data Analytics
  or
- Completion of the 15-credit Graduate Certificate in Healthcare Data Science
  or
- Completion of the 15-credit Graduate Certificate in Healthcare Leadership
- Students must maintain a minimum 3.0 cumulative grade point average to earn a graduate degree. Students are expected to meet with and be advised by academic advisors or program directors during their course of study and prior to graduation to ensure that all requirements are being met in a timely fashion.

ADMISSION REQUIREMENTS

- Possess an undergraduate degree from an accredited U.S. university or its equivalent in another country.
- GPA of 3.0 or better. If your GPA is lower than a 3.0, submit a one-page purpose/goal statement and one letter of recommendation

APPLICATION MATERIALS

- Online application which can be found at **ltu.edu/admissions/graduate**
- Non-refundable application fee of $50 that can be paid online
- Official transcripts must be submitted from all post-secondary institutions attended
- Professional resume showing your work experience and education history
- If your GPA is lower than a 3.0, please submit a one-page purpose/goal statement and one letter of recommendation

*U.S. students can apply with a GPA of 2.5 or higher.

GRADE POLICY

Grades awarded in graduate courses are limited to A, A–, B+, B, B–, C+, C, C- and F. At most, one passing grade below B– may be counted toward a graduate degree. No more than one required course may be repeated.

MASTER OF SCIENCE IN HEALTHCARE ADMINISTRATION CURRICULUM

TOTAL CREDIT HOURS: 30

Students must complete the 15-credit Graduate Certificate in Healthcare Administration (required certificate for the MSHA degree) and completion of the 15-credit Graduate Certificate in Healthcare Data Analytics or completion of the 15-credit Graduate Certificate in Healthcare Data Science.

1. REQUIRED GRADUATE CERTIFICATE IN HEALTHCARE ADMINISTRATION (15 Credit Hours)

Course Number	*Subject*	*Cr. Hrs.*
MBA6013	Human Resource Management	3
HHS6053	Fundamentals of Healthcare Finance	3
HHS6013	Healthcare Administration	3
HHS6023	Healthcare Policy	3
HHS6033	Managerial Epidemiology	3

2. SELECT ONE OF THE FOLLOWING GRADUATE CERTIFICATES

a. GRADUATE CERTIFICATE IN HEALTHCARE DATA ANALYTICS (15 Credit Hours)

Course Number	*Subject*	*Cr. Hrs.*
IINT6043	Management Information Systems	3
INT6103	Python for Data Analysis and Visualization	3
MBA6103	Statistics for Data Analytics and Visualization	3
HHS6043	Health Informatics and Data Privacy Protection	3
INT7623	Data Science for Business	3

b. GRADUATE CERTIFICATE IN HEALTHCARE DATA SCIENCE (15 Credit Hours)

Course Number	*Subject*	*Cr. Hrs.*
MCS5003	Programming Concepts for Computer Science	3
MCS5733	Advanced Data Science	3
MBA6103	Statistics for Data Analytics and Visualization	3
HHS6043	Health Informatics and Data Privacy Protection	3
MCS5223	Machine Learning and Text	3

c. GRADUATE CERTIFICATE IN HEALTHCARE LEADERSHIP (15 Credit Hours)

Course Number	*Subject*	*Cr. Hrs.*
HHS6043	Health Informatics and Data Privacy Protection	3
HHS6103	Advocacy and Care for Vulnerable Populations	3
HHS6113	Evidence-Based Communication and Data Storytelling	3
HHS6123	Leading High-Performing Healthcare Teams	3
HHS7143	Strategic Project Management for Healthcare Leaders	3

MASTER OF SCIENCE IN PHYSICIAN ASSISTANT STUDIES

The LTU PA Program is a two-year program and results in the award of a Master's of Science in Physician Assistant Studies (MSPAS) degree upon successful completion. The program focuses on patient-centered care. Compassion towards all patients across the lifespan is paramount to your success. A culture of humility will be present throughout, with a deep commitment to diversity, equity and inclusion of our patients, colleagues and community. You will learn to address barriers to providing optimal care related to personal bias, vulnerable and special populations. The ethical care of patients will be foundational to the program curriculum. The commitment to interprofessional collaboration will allow for a deeper understanding of the healthcare team which leads to better outcomes and more cost-effective and patient-centered care. For more information, such as the requirements and how to apply for admission, please visit our website. LTU PA Program. All applicants must apply via the CASPA portal.

DIDACTIC YEAR

TOTAL CREDIT HOURS: 60

First Semester

Course Number	*Subject*	*Cr. Hrs.*
PAS 5016	Clinical Medicine I	6
PAS 5114	Physical Assessment & Exploration (PAE) I	4
PAS 5212	Health Care Issues I	2
PAS 5312	Pharmacology I	2
PAS 5413	Anatomy	3
PAS 5513	Pathophysiology	3
	TOTAL	20

Second Semester

Course Number	*Subject*	*Cr. Hrs.*
PAS 5027	Clinical Medicine II	7
PAS 5124	Physical Assessment & Exploration (PAE) II	4
PAS 5222	Health Care Issues II	2
PAS 5322	Pharmacology II	2
PAS 5423	Behavioral Medicine	3
PAS 5523	Emergency Medicine	3
	TOTAL	21

Third Semester

Course Number	*Subject*	*Cr. Hrs.*
PAS 5035	Clinical Medicine III	5
PAS 5134	Physical Assessment & Exploration (PAE) III	4
PAS 5232	Health Care Issues III	2
PAS 5332	Pharmacology III	2
PAS 5433	Medical Diagnostics & Procedures	3
PAS 5533	Special Populations	3
	TOTAL	19

CLINICAL YEAR

TOTAL CREDIT HOURS: 45

Many of the clinical rotations are within the Ascension Healthcare System, a nationally recognized and highly respected system. Rotations are located in the greater Detroit and surrounding areas with preceptors committed to supporting the LTU Ascension partnership and vision. Your clinical experiences will be in both an outpatient and hospital setting, and will be arranged by LTU.

END OF ROTATION (EOR) DAYS

Each rotation will be five weeks. Students will spend on average four weeks and three days at the clinical site and the last three days of every rotation will be spent on campus or at the SIM lab. You will take an EOR (End of Rotation) exam for all core rotations. You will spend the last two days of every rotation having review sessions in both clinical medicine and physical exam skills as preparation for the PANCE, learning topics related to your future practice, covering other didactic year topics in greater depth and having the opportunities to practice skills you will potentially be utilizing during your next rotation. There will be professional topics such as CV building and interview strategies. There will also be an opportunity to meet with your advisor, participate in stress management and group activities in these three days. The repeat PACKRAT and summative exams will give you insight into your PANCE preparedness and will also be part of this time during your summer semester.

First Semester*

Course Number	*Subject*	*Cr. Hrs.*
PAS 6015	Family Medicine Rotation I	5
PAS 6025	Internal Medicine Rotation II	5
PAS 6035	Surgery Rotation III	5
	TOTAL	15

Second Semester*

Course Number	*Subject*	*Cr. Hrs.*
PAS 6045	Pediatric Rotation IV	5
PAS 6055	Women's Health Rotation V	5
PAS 6065	Behavioral Medicine Rotation VI	5
	TOTAL	15

Third Semester*

Course Number	*Subject*	*Cr. Hrs.*
PAS 6075	Emergency Medicine Rotation VII	5
PAS 6085	Elective Medicine Rotation VIII	5
PAS 6095	Preceptorship Rotation IX	5
	TOTAL	15

**Student rotation schedule may differ from displayed sample curriculum*

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Associate Professor of Radiology; Director, Division of Nuclear Medicine and molecular Imaging; Director, PET Chemistry; Director, Center for Positron Emission Tomography Michigan Medicine	Peter J. H. Scott

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	Daw Alwerfalli, DE
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Nursing Simulation Coordinator	Renay Bethke, MSN

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	Amber Murphy, MPAS, PA-C
Program Coordinator	Elizabeth Porter
Clinical Coordinator	Kendra Hawkins, MPA

GRADUATE STUDIES

Program Director	Jules Johnson, PhD

FACULTY COMMITTEES

ACADEMIC STANDING

The Academic Standing Committee consists of the University Academic Advising department, and representatives from the five colleges. Members are appointed by the provost upon recommendation of the deans. The committee acts on petitions of students who have been suspended from the University for academic reasons.

ADDITIONAL CREDIT REVIEW

The Additional Credit Review Committee is chaired by the registrar and has a faculty representative from each of the five colleges. It reviews all applications from students for additional transfer credit and for guest credit.

BENEFITS

The Benefits Committee is made up of an appointee from the Faculty Senate, an academic administrator, an administrative manager, and a staff member and is chaired by the director of human resources. It reviews and recommends changes to the University benefit package to the vice president of finance and administration.

CONFLICT RESOLUTION

The Conflict Resolution Committee is comprised of 15 members from faculty, staff, and administration who support the Conflict Resolution Policy by addressing work-related concerns brought before the committee that have not been resolved at the department/college level.

COUNCIL OF ACADEMIC DEANS
The Council of Academic Deans consists of the five college deans, the dean of students, and the dean of graduate studies. The council provides the principal advice to the provost on academic and administrative affairs.

FACULTY ACADEMIC MISCONDUCT
The Faculty Academic Misconduct Committee is a standing committee to advise the provost on issues and situations involving faculty academic misconduct. The committee is comprised of five members. All five colleges are represented by one tenured faculty member.

FACULTY COUNCILS
Organized to meet its own structural requirements, each college has a Faculty Council that advises the dean on academic and other matters. The councils are independent of administrative channels and may consider any issues they believe appropriate but are particularly involved with faculty personnel and curricular concerns within their colleges. Membership of the Faculty Councils consists of full-time college faculty. Advice of Faculty Councils is not binding on academic deans, but it is considered significant to administrative decision making.

FACULTY SENATE
The Faculty Senate is the entity officially constituted to represent and promote University-wide faculty aims for the purpose of furthering academic excellence and contributing to the long-term success of the University. Membership of the Faculty Senate consists of regular full-time faculty.

FINANCIAL AID AND SCHOLARSHIPS COMMITTEE
The Financial Aid and Scholarships Committee reviews all applications for financial aid and scholarship. This committee evaluates all necessary criteria that specific scholarships require including financial need, course of study, credits completed and cumulative grade point average.

GRADUATE COUNCIL
The Graduate Council consists of faculty with program experience or interests at the graduate level, and of observers from academic-service functions. All members are appointed by the provost upon the recommendation of the college deans. This group reviews and recommends graduate policies and programs. The dean of graduate programs studies serves as the chair.

LIBRARY
The Library Committee acts as an advisory board for the director of the library on service and policy issues. It consists of five full-time faculty members, one each from architecture, engineering, humanities, management, natural sciences, and technology, one of whom serves as chairperson. Members are appointed by the deans. The director of the library is an ex-officio member.

RESEARCH SUPPORT SERVICES
The Research Support Services Committee is made up of the provost's office, a representative of the vice president for finance and administration, a representative of the office of corporate and community partnerships, and five full-time faculty members appointed by the dean of each college.

This committee functions to identify and recommend improvements and support for Lawrence Tech faculty and students initiating and conducting research.

STANDING COMMITTEE ON TENURE REMOVAL

A panel of the Standing Committee on Tenure Removal, selected in accordance with Section 2 of the Faculty Handbook, hears all cases brought under section 2.10.10 for removal of tenure from a tenured faculty member.

UNIVERSITY ASSESSMENT

The Committee on University Assessment coordinates policy and procedures related to both college and University assessment programs. The committee's principal responsibility is to promote improvements in learning through implementation of the University's plan for academic assessment. The committee is advisory to the Council of Academic Deans, and its members are appointed by the dean of each college. The chairperson is appointed by the provost.