LAWRENCE TECHNOLOGICAL UNIVERSITY
GRADUATE CATALOG
2023-2024

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 2023–2024

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. 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.

Academic Calendar

FALL 2023 SEMESTER

April 10 – August 20	Registration open- no late fees apply
August 20	Last day to register for traditional semester courses without a late fee
August 21	Traditional semester courses begin; add/drop period begins
August 27	Last day to add/register for a class on Banner Web
August 28 – September 4	All adds and registrations require Instructor and Department Chair approval on paper Registration Form
September 4	Last day to drop traditional semester courses with refund (no refund for classes dropped after September 5)
September 5	Withdrawal period begins for traditional courses
September 2 – September 4	Campus closed for Labor Day break
September 5	Classes resume after Labor Day break
September 19	Faculty Assessment Day- all day and evening courses are cancelled
November 17	Last day to withdraw from traditional semester courses
November 21	Last day of classes before Thanksgiving break
November 22	No Classes, Campus is open
November 23 – November 26	Campus closed for Thanksgiving break
November 27	Classes resume after Thanksgiving break
December 2	Commencement (Fall 2023 graduates)
December 8	Last day of traditional semester classes before Final Exams
December 11-14	Traditional Semester Final Exams
December 14	Fall 2023 semester ends
December 19	Grades due for traditional semester courses (11:59 p.m.)

SPRING 2024 SEMESTER

November 6 –January 7	Registration open- no late fees apply
January 7	Last day to register for traditional semester courses without a late fee
January 8	Traditional semester courses begin; add/drop period begins
January 15	Last day to add/register for a class on Banner Web
January 15	Campus closed for Martin Luther King Day
January 16 – 19	All adds and registrations require Instructor and Department Chair approval on paper Registration Form
January 21	Last day to drop traditional semester courses with refund (no refund for classes dropped after January 21)
January 22	Withdrawal period begins for traditional courses
March 2	Last day of classes before mid-semester break
March 3 - March 10	Mid-semester break (no classes in session)
March 11	Classes resume after Mid-semester break
April 5	Last day to withdraw from traditional semester courses
April 29	Last day of traditional semester classes before Final Exams

April 30 – May 3	Traditional Semester Final Exams
May 3	Spring 2024 semester ends
May 4	Commencement (for Spring and Summer 2024 graduates)
May 8	Grades due for traditional semester courses (11:59 p.m.)

SUMMER 2024 SEMESTER

April 8 – May 12	Registration open- no late fees apply
May 12	Last day to register for traditional semester courses without a late fee
May 13	Traditional semester courses begin; add/drop period begins
May 17	Last day to add/register for a class on Banner Web
May 18– May 24	All adds and registrations require Instructor and Department Chair approval on paper Registration Form
May 19	Last day to drop traditional semester with refund (no refund for classes dropped after May 19)
May 28	Classes resume after Memorial Day break
May 24	Last day of classes before Memorial Day
May 25 – May 27	Campus closed for Memorial Day break
May 20	Withdrawal period begins for traditional courses
July 4 and 5	Campus closed for Independence Day break (no classes in session)
July 8	Classes resume after Independence Day break
July 8	Last day to withdraw from traditional semester
July 19	Summer 2024 Semester ends
July 24	Grades due for traditional semester courses (11:59 p.m.)

The University reserves the right to adjust the academic calendar as necessary.

Please note that for courses that start or end at times other than indicated or are of a different length, DIFFERENT dropping, adding and refund dates apply. 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 16, 2023
Holiday Break – December 23, 2023-January 1, 2024
Weekend of March 3, 2024
Weekend of May 18, 2024
Weekend of July 27, 2024

Possible Is Everything

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 a proven career placement make LTU unique. Lawrence Technological University is for students who dare to believe everything is possible and know that possible is everything. An independent, accredited university founded in 1932, Lawrence Tech offers nearly100 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, Health Sciences and Specs@LTU. 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 feeling 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 try 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 people 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, values, vision, and cause statements that guide Lawrence Tech's progress. These statements are:

Mission

To develop innovative and agile leaders through a student-centric learning environment and applied research embracing theory and practice.

Values

Character and Integrity
Theory and Practice
Teamwork and Trust
Student-focused and Caring

Vision

To be recognized for transformative STEM and Design education that develops leaders with an entrepreneurial mindset and global perspective.

Cause

The intellectual development and transformation of our students into critical thinkers, leaders, and lifelong learners.

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
Nursing: CCNE
Physician Assistant Program (Accreditation-Provisional): ARC-PA
Cardiovascular Perfusion Program (Provisional accreditation): AC-PE

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*.

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 Design. See more at www.ltu.edu/specs.

We are adding programs throughout the year. For further information on LTU's Professional Development Programs, visit www.ltu.edu/pdc or email us at prodev@ltu.edu.

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 supplies 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 Afflecks' 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 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 (Blue Devil Café, and bookstore. The Offices of the President and the Provost are also here. A fully enclosed three-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 a Provisions on Demand (P.O.D.) 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, Economic Development, Campus Facilities, 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 computer, lab, 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 Engagement, Clinical Counseling Services, University Housing, Laptop Help Desk, Academic Achievement Center, 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, Marketing and Public Affairs, LTU Online, e-Learning Services, Information Technology Services, and the Physician Assistant academic program.

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 to the **Architecture** and **Engineering** buildings.

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

Services for Students

ZAVEN MARGOSIAN ACADEMIC ACHIEVEMENT CENTER (AAC)

The AAC is located in the A. Alfred Taubman Student Services Center in room C201.

Mission
The AAC supports Lawrence Tech's mission by providing academic assistance to the University's students. We strive to educate, empower, and inspire students to become independent and successful lifelong learners.

Services Offered
Student Success Program is a student degree persistence and success program. First and second year students, student athletes and other undergraduate students who are facing academic obstacles receive additional support to help them succeed academically, build their academic skill set and strengthen their connection to the University. Students receive frequent academic updates throughout the academic year. Those having difficulties are invited to work with an AAC staff member to develop a plan for improvement and overall academic success.

In-Person Tutoring is available for architecture and design, chemistry, computer science, engineering, ESL conversation, mathematics, physics, and writing. Tutors include LTU faculty members and exemplary students. Students may walk into the AAC and work with a tutor any weekday during day and evening hours. The tutoring schedule is available in the AAC or online (https://www.ltu.edu/aac/tutoring-schedule-and-info).
Online Tutoring (TutorMe) is a 24/7 online tutoring service available free of charge to all LTU students. Students can work with a tutor online in subjects for which we don't have peer tutors available. Log in instructions are available in the AAC webpage (https://www.ltu.edu/aac/tutoring-schedule-and-info).

Academic Success Workshops are offered every semester and designed to aid students in their pursuit of academic excellence. The workshops are designed to help students improve skills like effective listening and note-taking, goal setting, effective reading of textbooks and literature, research, and time/stress management.

Pre-Courses are free workshops offered before fall classes start. Pre-Courses introduce students to the material that will be covered in specific classes while refreshing them on past material that they need to know. Visit our webpage to view the schedule and register online (https://www.ltu.edu/aac/pre-courses).

Supplemental Instruction in Science Modules (SIMS) is a new program. SIMS allows students to review short math and science videos online to refresh themselves on math and science concepts needed to succeed in their registered courses. Modules that review pre-algebra, algebra, trigonometry, linear equations, and logarithms have been developed.

Study Tables are designed to help student-athletes and LTU Scholars succeed in their courses. Study Tables are offered during the week and on weekends and are monitored by AAC staff. The weekly

study time requirement is set by the AAC staff. The time requirement takes into consideration the recommendation of the NAIA and Study Table programs similar to Lawrence Tech.

CAMPUS Connections is a free, immersive bridge program held before fall classes begin. CAMPUS Connections offers participants the opportunity to refresh key math concepts before retaking the math placement exam with the goal of placing into Precalculus (MCS1074) while also building community through meaningful academic and social activities. Students interested in CAMPUS Connections may access participant criteria and registration online.

LTU Scholars is a close-knit community of students who support each other's academic and life goals. LTU Scholars meet monthly and attend academic success workshops hosted by the AAC during the academic year. New, first-year students can get involved by participating in CAMPUS Connections or by attending an LTU Scholars meeting. Continuing students are also welcome to attend LTU Scholars meetings. Visit our webpage for more information.

Testing Services offers in-person and on-paper proctored testing to students who are unable to complete exams/quizzes during regularly scheduled class time. To use this service, contact the AAC at least 24 hours in advance for an appointment time and submit a Testing Service Request form (to be completed by the instructor). Visit https://www.ltu.edu/aac/test-proctoring-students for additional information.

ACADEMIC COUNSELING AND TUTORIAL SERVICES

The Academic Achievement Center works with the Office of Disability Services to provide tutorial and testing services for students with disabilities. To contact the Office of Disability Services, email disability@ltu.edu or call 248.204.4100.

HORLDT FAMILY WRITING CENTER

The Horldt Family Writing Center, located in C305 of the Taubman Student Services Center, assists students with their writing needs. The writing center is staffed by faculty members and assists students at any point in the writing process. The writing center's goal is to improve the student writer and stress the importance of the writing process within all disciplines.

The Horldt Family Writing Center offers one-on-one tutor sessions to address planning, developing, and revising written work. In addition to these sessions, the writing center facilitates the KCP Writing Workshop Fridays events. These workshops correspond to the writing assignments students have in the Core Curriculum.

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; students can contact us through the Canvas page, at writingcenter@ltu.edu, or drop by C305. For current hours and workshop dates please visit the center's website at https://www.ltu.edu/one-stop-center/hfwc.

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

(greekcouncil@ltu.edu)

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.

Greek Letter Organizations

Fraternities

Alpha Sigma Phi
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 about 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. The intramural sports calendar can be found at imleagues.com/ltu. Intramural sports include, but are not limited to, basketball, flag football, indoor soccer (futsal), dodgeball, golf, and A current LTU ID is required for all student participants. All participants are required to sign up online at imleagues.com/ltu.

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.

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

Fall and spring semester hours are Monday through Thursday, 10 a.m. –4 p.m., Friday, 10 a.m. – 1 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.

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.

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 – comfort food, deli, exhibition, grill, pizza and pasta, market (soups and salads) – and a bakery. Campus Dining also oversees the Einstein Bros. Bagels and a Provisions on Demand (P.O.D.) express outlet in the Buell Building atrium, which offers grab-and-go salads and sandwiches, snacks, and beverages.

Lawrence Tech offers residential and commuter meal plans and Blue Devil Dollars. Meal plans are used at the Blue Devil Café. Blue Devil Dollars work like a debit card and can be used 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 director of campus dining at 248.204.3203.

CAREER SERVICES

The Office of Career Services is more than a place where students can go to find a job when they graduate. 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 (ltu.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.

The office also posts student employment opportunities. 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 (ltu.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.

COMPUTER AND ONLINE LEARNING RESOURCES

The LTU Laptop Initiative has been transformed into an integral component of the LTuZone. ™ 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 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, the LTuZone™ 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. The pursuit and achievement of the Lawrence Tech mission of education, research, and public service requires that the privilege of the use of computing systems and software, internal and external data networks, as well as access to the internet, be safely available to all members of the University community. The preservation of that privilege for the full community requires that each faculty member, staff member, student, and other authorized user 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 assist and 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 "Administrative-IT Services" in your Google Drive.

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.

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 these programs:
Master of Architecture
Master of Business Administration
Master of Business Administration (online concentration: Cybersecurity and Project Management)
Master of Civil Engineering
Master of Construction Engineering Management
Master of Engineering Management
Master of Science in Industrial Engineering
Master of Science in Information Technology (Online concentration: Cybersecurity and Project Management)
Graduate Certificate in Cybersecurity
Graduate Certificate in Project Management
Dual Master of Business Administration and Master of Engineering Management
Dual Master of Business Administration and Master of Architecture

Other degree and certificate programs are under development; students should visit LTU Online (https://www.ltu.edu/elearning) 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, Freshman orientation, 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. The Student Code of Conduct can be found at https://www.ltu.edu/current-students/policies. The Academic Honor Code, which is Section C.1 of the Student Code of Conduct, can be found at https://www.ltu.edu/current-students/honor-code.

Support Services

Students needing assistance with personal or academic challenges during their college career are welcome to contact staff in the Office of the Dean of Students, who can act as liaisons between students and faculty. Academic study skills development and strategies are provided by staff in the Academic Achievement Center.

CLINICAL COUNSELING SERVICES

Lawrence Technological University is committed to the academic success, personal development, and well-being of all students. While acquiring a college education is exciting and challenging, it can also be stressful. LTU offers free Clinical Counseling services to all registered students.

Free individual counseling is available for all students currently enrolled and registered for classes, and we can help them with a variety of issues. Counseling sessions involve meeting with a clinician for up to 45 minutes per session. Sessions can be weekly or at whatever frequency is decided upon by the student and clinician. These meetings focus on concerns the student has and making progress towards their treatment goals. Counseling can be provided on both a short-term and long-term basis, depending upon the needs of the student.

Clinical Counseling Services is located within the Office of the Dean of Students, C405. Additional information can be found at ltu.edu/counseling. Contact us at clinicalcounseling@ltu.edu, or 248.204.4100.

DISABILITY SERVICES

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 Disability Services (ltu.edu) or contact the Office of Disability Services at 248.204.4100 or disability@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.

DIVERSITY, EQUITY, and INCLUSION (ODEI)

The Office of Diversity, Equity, and Inclusion (ODEI) is dedicated to cultivating a campus culture of belonging and engagement through research and resources, special events, and courageous dialogue. As an institutional office, ODEI is a collaborative unit that serves faculty, staff, students, and alumni, supporting our community to be critical thinkers and solution-focused on issues of social justice, equity, and access. ODEI hosts and co-sponsors academic, community, and student organization events as well as employee professional development training to encourage learning about anti-racism, anti-oppression, injustice, and privilege. Additional support is delivered through dedicated co-curricular programming as well as administrative assistance to the Office of the Dean of Students and Office of Human Resources for student and employee DEI-related offenses and complaints. ODEI holds an online collection of recommended readings, videos, and other resources to empower deeper exploration of culture and advocacy. The office is a part of the College of Arts & Sciences and is located in the A. Alfred Taubman Student Services Center (C405).

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.

FAX SERVICE

Fax services (send only) are available at the bookstore, which is located on the third floor of the Buell Building. There is a small fee for this service.

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 through Friday	5:30–12 a.m.
Saturday	9 a.m.–8 p.m.
Sunday	12 p.m.–12 a.m.
Football Saturdays	Facilities closed all day

May–August

Monday through Friday	8:00 a.m.–10 p.m.
Saturday and Sunday	9 a.m.–5 p.m.

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 LTU's newest residence, 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, cable television, 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, graduate residents must maintain full-time status (6 credits) per semester 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.

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 Blue Devil 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.

INTERNATIONAL STUDENTS

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 to process and update 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 America.

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 (C405) and can be reached at 248.204.4100 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 is a wonderful opportunity to explore a new country and a new culture. 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, France, England, and Italy, to name a few.

Going overseas for a summer term or a semester is the best way to develop as a leader with a global view. There is no better way to understand and appreciate the history, culture, and language of foreign society than to participate in an international experience opportunity.

LAPTOP SUPPORT HELP DESK
See Computer and Online Learning Resources.

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 included online via password-protected links. Students can access this content using their campus network log-in information whether on- or off-campus. The library hosts over 1,600,000 print and electronic materials including 104,000 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 special library account that may 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 directly from TechCat+, review their account for items checked out, 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.

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.

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 (#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.

MOTOR VEHICLES AND PARKING
Vehicle Registration
Members of the LTU community **must** register, and display LTU Parking Permits in their vehicles to park on LTU's campus. This system was put in place to ensure that students, staff and faculty have adequate parking on campus, and that the lots are used by authorized personnel only. There is **no charge** for the Parking Permit. To obtain a Parking Permit, visit Campus Safety's office in suite G102 in the General Services Building (#17). The following items are required to receive a Parking Permit:

- A valid driver's license
- A valid vehicle registration

- Banner ID card
- Completed vehicle registration form. This may be found at the Campus Safety office or online at: https://www.ltu.edu/campus-safety/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 their owners' expense.

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, provided they do not have a hold on their records (the result of owing the University money) that prohibits this function. See also Computer and Online Learning Resources.

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

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.

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.

SAFETY AND SECURITY

A safety team patrols LTU's campus 24 hours a day. No metropolitan area is immune from criminal activity. As such, all students should take an active role in assuring their personal safety. Students should immediately report any suspicious persons, objects or activity to Campus Safety.

The Department of Campus Safety is open 24 hours a day and located in suite G102 at the General Services Building (#17). Campus Safety may be reached by phone by dialing 3945 from any campus phone or 248.204.3945 from any other phone. For emergencies, dial 9-1-1 from any campus phone to be connected to Southfield emergency services. For incidents and reports of a non-urgent nature, Campus Safety may be reached by email at ltu_safety@ltu.edu.

In full compliance with the Federal Crime Awareness and Campus Security Act of 1990 (also known as the Clery Act), as amended through July 1, 2003, and the Campus Sex Crimes Prevention Act of 2000, Lawrence Technological University makes security information available to LTU students, faculty, and staff, applicants for admission, newly hired employees, and the general public. Statistics on campus crime may be examined at the Department of Campus Safety during business hours. Campus safety and security statistics for the prior academic year are available at: LTU Annual Security Report (https://www.ltu.edu/cm/attach/9B6576B3-3469-4C1B-BA9A-3428DB29B71B/2022-LTU-Annual-Security-and-Fire-Safety-Report-Final.pdf).

Remember, **"If you see something, say something."**

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 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 seeks to advance LTU's strong commitment to diversity in assisting in the recruitment, retention, and graduation of all students, and in particular, historically underrepresented groups on our campus (students of color, women, religious and ethnic minorities, and LGBTQ+ students), by

developing and implementing strategies that support students in the attainment of academic excellence and social success.

Student Life serves as a support and advocacy network through which students from underrepresented groups are provided effective assistance during their academic tenure. Programs include welcome receptions; cultural programs that provide forums to enhance the intellectual, social, and personal development of students; and discussions and speakers who focus on relevant social, cultural, and academic issues.

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
Destress 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; Academic Achievement Center; Campus Dining; Career Services; Clinical Counseling Services; Disability Services; Diversity, Equity and Inclusion (ODEI): International Programs; Student Life; Recreation, Athletics, and Wellness; 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 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.

VETERANS
LTU recognizes the contributions of the members of the Armed Forces. As a show of our appreciation military and veteran students are eligible for a reduced tuition rate. Your service may entitle you to several VA educational benefits. 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.

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. Veterans Affairs provides a wide range of benefits to veterans.

The monthly allowance for Lawrence Tech 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).

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

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.

1. Satisfactory grade (cumulative GPA and probation): All students receiving veteran's benefits must comply with the Academic Probation and Suspension guidelines of the University. A student who placed on probation may not be continued on probation more than two semesters in order to raise the cumulative GPA to that required for graduation and come off probation. If the student fails to come off probation, the U.S. Department of Veterans Affairs (USDVA) will be notified in writing.
2. Withdrawal and last date of attendance: The veteran's certification office will inform the USDVA of any change in semester hours and dates of attendance.
3. Credit for previous training: All students who are requesting veteran's benefits when enrolling at LTU will be given credit for previous training, where appropriate. The total length of the training program will be reduced proportionately. The student and the USDVA will be advised in writing of the credit given to the student and the appropriate reduction in the total length of the program. All students receiving veteran's benefits must have transcripts and other documents showing credit for previous training on file in the Registrar's Office by the end of the first semester of enrollment. Failure to do so will result in no further certification for veteran's benefits until those transcripts have been provided.

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 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 four 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.

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)
    a. TOEFL: 79
    b. IELTS: 6.0
    c. Duolingo English Test: 105
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 Admission

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 course fees that are associated with a wide variety of courses 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://www.ltu.edu/registrar/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. Transcripts, 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 date credit for withdrawal will be received can be obtained from Enrollment Services/Office of the Registrar.

A full tuition refund will be granted for all drops completed within the Drop/Add period. Official Drop/Add period dates for each semester are available at https://www.ltu.edu/academicsandmajors/academic-calendar.
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) 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 fafsa.gov; it is also accessible at ltu.edu/financial_aid/fafsa.asp.

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 March 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://www.ltu.edu/financial-aid for up-to-date financial aid information and links to scholarship search websites. Students should contact the DTE Energy One-Stop Center 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 (six 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 enrollmentservices@ltu.edu or go to studentloans.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 ltu.edu/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.

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.

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 ltu.studentaidcalculator.com/survey.aspx. This estimate can be used to determine eligibility for need-based funding. Cost minus the Expected Family Contribution (EFC) is the basis for determining the need for financial aid. The EFC is calculated based on the information provided on the FAFSA each year.

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://www.ltu.edu/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 DTE Energy One-Stop Center at enrollmentservices@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://www.ltu.edu/registrar/tuition. 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://www.ltu.edu/financial-aid/titleiv). 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.

Academic Regulations

The policies and procedures described in this *Catalog* determine the academic status of graduate 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 undergraduate programs, see Lawrence Tech's *Undergraduate 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 six or more 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 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 (2550 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 represents 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/Dissertation: 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.
Online (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 pre-specified 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. 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://www.ltu.edu/registrar/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://www.ltu.edu/registrar/waitlisting-faq.

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://www.ltu.edu/academicsandmajors/academic-calendar.

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://www.ltu.edu/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 (enrolled or not enrolled) 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://www.ltu.edu/registrar/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. Copies of transcripts will not be released without the student's authorization in writing. Transcripts will not be issued unless all financial obligations from prior semesters have been settled.

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://www.ltu.edu/registrar/forms-to-print).

Policies, Procedures, and Regulations

ACADEMIC HONOR CODE

Downloadable copy available at https://www.ltu.edu/current-students/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. Instructors are encouraged to review the Violation Reporting Process Flowchart, which is available online, along with the Academic Honor Code and the Violation Reporting Form on the Office of the Dean of Students webpage.

Portions of this document have been adapted from (a) the 2002-03 University of North Carolina at Wilmington Academic Honor Code, (b) the 2002-03 Binghamton University Academic Honesty Code, (c) the 2011 Baylor University Academic Integrity and Honor Code, and (d) the 2011 University of Notre Dame Academic Code of Honor.

A. ACADEMIC INTEGRITY

Students, faculty, and staff are expected to follow established standards of academic integrity and honesty. Academic misconduct entails dishonesty or deception in fulfilling academic requirements and includes but is not limited to cheating, plagiarism, or the furnishing of false information to the University or a University affiliate in matters related to academics. An affiliate of the University is any person, organization, or company who works in conjunction with Lawrence Technological University for the purposes of assisting students in fulfilling their academic requirements. It is therefore this institution's stated policy that no form of dishonesty among its faculty or students will be tolerated. Although all members of the University community have an obligation to report occurrences of dishonesty, each individual is principally responsible for his or her own conduct.

B. ACADEMIC DISHONESTY OFFENSES

Violation of any of the following standards will subject any student to disciplinary action:

1. **Plagiarism**
The term "PLAGIARISM" includes but is not limited to (a) the use, by paraphrase or direct quotation, of the published or unpublished work or creative and/or intellectual property in print, product, or digital media of another person without full and clear acknowledgment; (b) the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers, reports, or other academic materials; or (c) the appropriating, buying, receiving as a gift, or obtaining by any other means another person's work and the unacknowledged submission or incorporation of it in one's own work. Plagiarism is unethical, since it deprives the true author of his/her rightful credit and then gives that credit to someone to whom it is not due. Examples include:
   - Quoting, paraphrasing, or summarizing written material, even a few phrases, without acknowledgment.
   - Failing to acknowledge the source of either a major idea or an ordering principle central to one's own paper.
   - Relying on another person's data, evidence, or critical method without credit or permission.
   - Submitting another person's work as one's own.
   - Using unacknowledged research sources gathered by someone else.
   - Copying portions or outcomes of two- or three-dimensional creative property of previously published work.
   - Copying items from Internet websites without acknowledgment of the source.

2. **Bribery**
The term "BRIBERY" includes the offering, giving, receiving, or soliciting of any consideration in order to obtain a grade or other treatment not otherwise earned by the student through his/her own academic performance.

3. **Cheating**
The term "CHEATING" includes but is not limited to (a) use of or giving to others any unauthorized assistance in taking quizzes or examinations; (b) dependence upon aids beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; (c) the acquisition, without permission, of tests or other academic material belonging to a member of the University faculty or staff; or (d) the unauthorized use of any electronic or mechanical device during any program, course, quiz, or examination or in connection with laboratory reports or other materials related to academic performance.

4. **Misrepresentation**
The term "MISREPRESENTATION" includes any act or omission undertaken with intent to deceive an instructor for academic advantage. Examples include:
   - Using a computer program generated by another and handing it in as one's own work unless expressly allowed by the instructor.
   - Lying to an instructor to improve one's grade.

- Lying or misrepresenting facts when confronted with an allegation of academic dishonesty.

5. **Conspiracy**
The term "CONSPIRACY" means planning or acting with one or more persons to commit any form of academic dishonesty in order to gain academic advantage for oneself or another.

6. **Fabrication**
The term "FABRICATION" means the use of invented information or the falsification of research or other findings with the intent to deceive and thereby gain academic or professional advantage.

7. **Multiple Submissions**
The term "MULTIPLE SUBMISSIONS" means submitting substantial portions of the same work for credit more than once, unless there is prior explicit consent by the instructor(s) to whom the material is being or has been submitted.

8. **Unauthorized Collaboration**
The term "UNAUTHORIZED COLLABORATION" means collaborating on projects, papers, computer programs, lab reports, or other academic assignments where such collaboration has been prohibited by the instructor.

9. **Sabotage**
The term "SABOTAGE" means deliberately impairing, destroying, damaging, or stealing another's work or working material. Examples include:

- Destroying, stealing, or damaging another's lab experiment, computer program, term paper, exam, or project.
- Removing uncharged library materials with the effect that others cannot use them.
- Defacing or damaging library materials with the effect that others cannot use them.
- Hoarding or displacing materials within the library with the effect that others have undue difficulty using them.
- Interfering with the operation of a computer system so as to have an adverse effect on the academic performance of others.

C. JURISDICTION

All students enrolled at Lawrence Technological University are subject to the Academic Honor Code.

D. RESPONSIBILITY OF THE UNIVERSITY COMMUNITY

1. **General Responsibility**
It shall be the responsibility of every faculty member, student, administrator, and staff member of the University community to uphold and maintain the academic standards

and integrity of Lawrence Technological University. Any member of the University community who has reasonable grounds to believe that an infraction of the Academic Honor Code has occurred has an obligation to report the alleged violation.

2. **Student Responsibility**
Each student shall abide by the Academic Honor Code at all times.

3. **Responsibility of Individual Instructors**
Instructors are encouraged to make their classes aware of the Academic Honor Code during the first week of each term. Instructors should include a reference to the Academic Honor Code in the course syllabus. The Academic Honor Code is understood to be in effect in every course regardless of whether or not the instructor makes explicit reference to it.

4. **Responsibility of the University Administration**
The Office of the Dean of Students is responsible for the publication and dissemination of the Academic Honor Code and any amendments or changes approved by the Deans Council with the recommendation of the Faculty Senate and the Faculty Councils of the colleges. All new University faculty, administrative staff, personnel, and students should be advised of the Academic Honor Code upon becoming members of the University community.

The dean of each college may establish additional steps for addressing violations of the Academic Honor Code that are consistent with the mission and academic programs offered by the college and the Academic Honor Code. Such additional steps must be endorsed by the dean of students, filed, and communicated to all faculty members and students within the college.

5. **Responsibility of the Office of the Registrar and the Office of the Dean of Students**
The Office of the Registrar and the Office of the Dean of Students shall receive and maintain comprehensive records of all matters relating to violations of the Academic Honor Code. The dean of students will receive a copy of the Academic Honor Code Violation Reporting Form completed by the instructor and/or Academic Honor Council, to be included in the student's academic record.

E. ACADEMIC HONOR COUNCIL

1. **Responsibilities**
   a. Determines through the process of a hearing whether an accused student has violated the Academic Honor Code;
   b. Recommends one or more sanction(s), such as rewriting of the assignment, failure of the assignment/exam, failure in the course, suspension, or expulsion (the last two sanctions are limited to second-time violators of the Academic Honor Code), for students who have been found in violation of the Academic Honor Code; and
   c. Assists in educating the University community about the Academic Honor Code.

2. **Composition**
The Academic Honor Council is composed of eight student members and eight faculty members. Each college is represented by two students and two faculty members. The student members shall be appointed annually by the dean of students with the advice of the dean of each college. The faculty members shall be appointed for three-year terms by their respective deans. A chair and vice chair shall be appointed by the provost from among the faculty members appointed to the council. Each student member must have a current and cumulative grade point average of 3.0 or higher at the time of the appointment and must maintain a current and cumulative grade point average of 2.5 or higher during service.

3. **Jurisdiction**
The Academic Honor Council has exclusive jurisdiction over all academic matters involving dishonorable conduct that are not resolved between the student and the instructor in whose class the incident occurred. The Academic Honor Council automatically conducts a hearing for any incident where the student has been previously found in violation of the Academic Honor Code.

4. **Quorum**
A quorum for an Academic Honor Council hearing is three faculty and two student members. A quorum is not affected by a member of the Academic Honor Council disqualifying him- or herself after a hearing has begun.
In the event a quorum cannot be obtained for a pending matter, and the chair determines that a hearing must occur before a quorum can be obtained using regular Academic Honor Council members, students serving on the Student Discipline Committee may be used as substitutes, provided they otherwise meet the qualifications of Academic Honor Council members and have received similar training.

5. **Disqualification**
A member of the Academic Honor Council shall disqualify him- or herself if he or she feels that, in reaching a decision as to whether or not an accused student has violated the Academic Honor Code, he or she cannot act on the weight of the evidence without bias or prejudice. The Academic Honor Council may, by two-thirds vote, disqualify one of its members from sitting on a hearing, if that would best serve the interests of the Academic Honor Council and the University.

F. REPORTING AND ADJUDICATION PROCEDURES

1. **Reporting a Violation**
A suspected violation of the Academic Honor Code may be reported by any member of the University community who has knowledge of such infraction. The infraction should be reported to the instructor of the course in which it occurred, where applicable. If the course or instructor is unknown, the incident may be reported to the appropriate academic department chair or dean, or to the dean of students. Such an accusation should be made within seven (7) calendar days from the time of discovery, unless extenuating circumstances prevent reporting.

2. **Presumption of Non-Violation**
Any student charged with a violation under this Code shall be presumed not responsible until it is proven that the violation of the rule or regulation occurred. The burden of proof shall rest with those bringing the charges and is defined as a preponderance of the evidence.

3. **Responding to Reports of a Violation**
Upon receiving an accusation of a violation or having evidence of a violation, the instructor in charge of the course or materials in question may handle the matter directly with the student or refer it to the Academic Honor Council. In either situation, the instructor must report the alleged violation to the department chair or dean of the college and to the dean of students by email. The instructor is encouraged to discuss the matter with his or her department chair, dean of the college, or the dean of students. The dean of students will verify if the student has previously violated the Academic Honor Code. If the student has previously violated the Academic Honor Code, the alleged violation will be referred to the Academic Honor Council. In a situation where a student has not previously violated the Academic Honor Code, the instructor may choose to handle the matter directly with the student or refer the matter to the Academic Honor Council.

Course withdrawal does not ensure immunity against the consequences of an Academic Honor Code violation. Should a student successfully withdraw from a course after an alleged violation is reported, the class may be administratively reinstated to the student's schedule and the appropriate academic sanction imposed. In this situation, the student is not eligible for a refund of tuition and fees.

Additionally, a student is allowed to remain in a course and participate without prejudice until he or she has exhausted all appeals. The findings of an investigation shall not be shared with other students in the course. The instructor is expected to treat the student without prejudice during the investigation of a potential violation and after sanction if the student is allowed to remain in the course.

4. **Handling the Matter Directly with the Student for a First Violation**
   a. If the instructor handles the matter directly with the student, the issue must be addressed within seven (7) calendar days after discovering the violation. If the instructor would like additional time beyond the seven (7) days to resolve the matter with the accused student, the instructor may ask the dean of students and the department chair or dean of his or her college for an extension. The instructor must make the request for more time within the original seven (7)-day time period.
   b. The instructor will inform the student in writing (email) of the alleged violation, describe the evidence supporting the alleged violation, and request a written response from the student by a certain date. The instructor should copy the dean of students and his or her department chair on all correspondence with the student related to the alleged violation. If necessary, the instructor will conduct an interview with the student. The instructor will determine whether the student violated the Academic Honor Code. If the instructor finds the

student guilty of violating the Academic Honor Code, the instructor must file the Academic Honor Code Violation Reporting Form with the dean of students. The report will describe the nature of the violation and the sanction (action taken).

If the student is found in violation, the instructor may choose from the following sanctions: rewriting of the assignment, failure of the assignment/exam, or failure in the course.

The dean of students will send a copy of the report to the student and retain the original report in the student's file. The Academic Honor Code Violation Reporting Form is available in the Office of the Dean of Students and online at www.ltu.edu/myltu/honor-code.asp.

c. If the faculty member finds the student **not** guilty of dishonorable conduct in connection with an alleged violation, the allegations are dismissed and the matter is closed. The faculty member is expected to document his or her findings and rationale for dismissing the allegation to his or her dean or department chair and the dean of students.

d. A student found in violation of the Academic Honor Code by an instructor may appeal the findings to the Academic Honor Council. The student must request a meeting with the dean of students to initiate the appeal process.

5. **Referring the Matter to the Academic Honor Council**

If an instructor believes a student may have violated the Academic Honor Code and chooses to refer the matter to the Academic Honor Council, the instructor must first report the alleged violation to his or her department chair or the dean of the college by email and provide the dean of students with the Academic Honor Code Violation Reporting Form. By providing the dean of students with the report, the instructor is indicating to the dean of students that he or she has chosen not to handle the investigation and instead is referring the case to the Academic Honor Council. The referral must be made within seven (7) calendar days after discovery of the violation.

G. HEARINGS

1. **Procedure**

a. **Notice to the Grievant and Accused**

Within five (5) calendar days after an alleged violation of the Academic Honor Code has been referred to the Academic Honor Council, the dean of students shall notify in writing the grievant and the accused student of the basis for the alleged violation of the Academic Honor Code; the date, time, and place the violation allegedly occurred; the nature of the evidence upon which the grievant will rely; and the date, time, and place at which the Academic Honor Council will meet to determine if a violation has occurred. The notice must inform both the grievant and the accused of their responsibilities at the hearing. If written evidence will be relied upon in whole or in part to establish a violation, the accused student shall be given an opportunity to examine such evidence prior to the time of the hearing. Ordinarily, such writings shall remain in the possession of the dean of students and subject to the control of the chair of the Academic Honor Council. The dean of students shall make necessary arrangements to afford the accused sufficient access to such writings to permit

his or her preparation of an appropriate response to charges based in whole or in part upon such writings.

b. **Hearing Date**

The Academic Honor Council must meet to consider an alleged violation of the Academic Honor Code within ten (10) calendar days after the alleged violation is referred to the Academic Honor Council. However, the hearing should not take place until three (3) calendar days after the notification is sent to the student unless the student desires an expedited hearing and waives the three-day waiting requirement. If the hearing should fall during a University holiday, semester break, the summer months, or a time when a quorum of the Academic Honor Council is not available, the chair has the responsibility to schedule the hearing within the earliest reasonable time frame.

c. **Who May Attend**

Only members of the Academic Honor Council, the accused, the grievant, witnesses (while giving testimony), and the dean of students, or his or her designee, may attend a hearing. Lawyers representing the accused or the grievant and character witnesses are specifically excluded. The dean of students, or his or her designee, is present to assist with administrative matters and shall not vote.

d. **The Hearing**

The hearing is presided over by the chair of the Academic Honor Council, or in his or her absence, the vice chair. If the vice chair also is not present, the members of the Academic Honor Council may elect a temporary chair or postpone the hearing. The chair shall select a secretary for the hearing.
The chair is in charge of the hearing and has broad discretion. The chair shall exercise control over the conduct of all persons participating in the hearing and direct the initial questioning to the grievant and the accused and their witnesses. The chair shall act as a hearing examiner by developing the facts and evidence necessary to enable the Academic Honor Council to make a decision as to whether or not the Academic Honor Code has been violated. In so doing, the chair may exclude irrelevant, immaterial, and unduly repetitious evidence. The chair may, at his or her discretion, recess the hearing as often as necessary to ensure fairness to the grievant or the accused.

The hearing shall consist of two phases: (1) the presentation of evidence and (2) the deliberations of the Academic Honor Council. During the presentation of evidence phase, the grievant and the accused shall present to the Academic Honor Council facts and circumstances that will enable the Academic Honor Council to determine whether or not the accused has violated the Academic Honor Code. In presenting their positions, the grievant and the accused may ask others to present testimony or documentary evidence. In order to clarify issues, resolve inconsistencies or conflicts in testimony, or to ascertain facts,

each member of the Academic Honor Council may ask questions of any person appearing at the hearing.

e. **Evidence**

The accused and the grievant may present to the Academic Honor Council any evidence, oral or written, that, at the discretion of the chair of the Academic Honor Council, is pertinent to the alleged Academic Honor Code violation or that might shed light on the facts and circumstances surrounding it. It is important for the grievant and the accused to offer all of their evidence at the time of the hearing. The presentation of evidence is audio recorded. Once the presentation of evidence is concluded, and the audio recorder is turned off, the Academic Honor Council may not consider additional evidence or testimony. Witnesses and evidence must be presented at the hearing if a party wants them to be considered by the Academic Honor Council.

It is essential that witnesses with first-hand knowledge of the facts and circumstances surrounding the alleged Academic Honor Code violation appear in person. A contention by a party appearing before the Academic Honor Council that he or she could get a witness to testify, if necessary, is not helpful to the Academic Honor Council. When a witness cannot be present at the hearing, the grievant or the accused may present to the Academic Honor Council a signed, notarized statement from the absent witness. Because the absent witness cannot be questioned by the other party or the members of the Academic Honor Council, this evidence may be given less weight than other first-hand testimony.

f. **Questioning**

In addition to members of the Academic Honor Council, the grievant and the accused may question one another or the witness(es) of either.

g. **Failure to Appear**

If the grievant or the accused fails to appear before the Academic Honor Council on the date and at the time and place specified in the notice, the Academic Honor Council may take the available testimony and evidence and reach a decision on the basis of that evidence. Failure of one party to appear and offer evidence may leave the Academic Honor Council little choice but to decide in favor of the party presenting the only evidence and testimony.

If either party is unable to appear before the Academic Honor Council on the date specified in the notice, he or she should notify the Academic Honor Council chair and explain why. If the Academic Honor Council chair determines that good cause exists for the party's non-appearance at the scheduled hearing time, he or she shall set a new date for the hearing.

2. **Standard of Proof**

The Academic Honor Council determination shall be made on the basis of whether it is more likely than not that the accused student violated the Academic Honor Code. If a majority of the Academic Honor Council votes that the evidence supports the allegation, the Academic Honor Council shall render a decision that the accused has violated the Academic Honor Code. In finding a student in violation of the Academic Honor Code, the Academic Honor Council has determined that the evidence supporting the violation was of greater weight or more convincing than the evidence that was offered in opposition by the student. If the majority of the Academic Honor Council determines the evidence does not support the accusation, the student will be found not in violation of the Academic Honor Code.

3. **Decision of the Academic Honor Council**

After the presentation of evidence is concluded, the chair shall excuse the accused and the grievant from the Academic Honor Council meeting. The Academic Honor Council shall then discuss the evidence presented during the hearing, and when finished, the chair shall poll the members on whether or not they think the evidence supports the allegation that the accused violated the Academic Honor Code.

If a majority of the Academic Honor Council votes that a preponderance of the evidence supports the allegation, the Academic Honor Council shall render a decision that the accused has violated the Academic Honor Code. If less than a majority of the Academic Honor Council votes that the evidence supports the allegation, the Academic Honor Council shall render a decision that the allegation was not substantiated. A voting member of the Academic Honor Council who is not disqualified may not abstain from voting.

If the Academic Honor Council determines that the accused student has violated the Academic Honor Code, it shall also recommend the sanction(s) it believes should be imposed upon the student. The Academic Honor Council must give great weight to the sanction(s) recommended by the instructor, but it may also consider the materials and information presented at the hearing, and the student's academic and honor code records. Possible sanctions include, but are not limited to, failure of the assignment, failure of the course, probation, suspension, and/or expulsion. In the case of a second violation, the likely sanction is expulsion from the University.

4. **Summary Report and Record of Hearing**

a. The secretary of the Academic Honor Council shall prepare a summary report of the hearing, including the decision of the Academic Honor Council. The members of the Academic Honor Council shall review this summary; make necessary changes, if any; and indicate their approval of it by signing it.

b. The record of the hearing shall consist of the audio recording of the hearing and the tangible evidence presented at the hearing.

5. **Notification**

The chair of the Academic Honor Council shall report the Council's decision to the dean of students. In addition, if the decision is that the Academic Honor Code has been violated, the Academic Honor Council chair shall deliver to the dean of students the

record of the hearing, along with the recommended sanction(s). The dean of students will implement the sanction(s) recommended by the Academic Honor Council. If the Academic Honor Council recommends expulsion, the dean of students will immediately initiate expulsion proceedings.

6. **Disposition of Summary Report and Record of Hearing**
   a. If the Academic Honor Council decides that the Academic Honor Code was not violated, the chair shall destroy the record of the hearing. The dean of students will make a record of the decision without any identifying information and destroy all other information pertaining to the charge. The student may continue in the class without prejudice.
   b. If a student is found by the Academic Honor Council to have violated the Academic Honor Code, the dean of students shall maintain the summary report and record of the hearing.
   c. The dean of students shall notify the instructor, department chair, and the dean of the college in writing of the Academic Honor Council's decision.

H. APPEAL PROCESS

1. A decision reached, or a sanction imposed, by the Academic Honor Council may be appealed by the student(s) found to be in violation or the grievant(s) to the Discipline Appeals Committee within seven (7) calendar days of the decision. Such appeals shall be in writing and shall be delivered to the dean of students or designee.

2. The Discipline Appeals Committee is composed of three (3) members: the chair of the Faculty Senate; the associate provost; and the president of Student Government.

3. Except as required to explain the basis of new information, an appeal shall be limited to the review of the verbatim records of the Academic Honor Council hearing and supporting documents for one or more of the following purposes:

   a. To determine whether the Academic Honor Council hearing was conducted fairly in light of the charges and information presented, and in conformity with prescribed procedures, giving the complaining party a reasonable opportunity to prepare and present evidence that the Academic Honor Code was violated, and giving the other party a reasonable opportunity to prepare and to present a response to those allegations. Deviations from designated procedures will not be a basis for sustaining an appeal unless significant prejudice results.
   b. To determine whether the decision reached regarding the accused student was based on substantial information; that is, whether the facts in the case were sufficient to establish that a violation of the Academic Honor Code occurred.
   c. To determine whether the sanction(s) imposed were appropriate for the violation of the Academic Honor Code that the student was found to have committed.
   d. To consider new information sufficient to alter a decision or other relevant facts not brought out in the original hearing, because such information and/or

facts were not known to the person appealing at the time of the original Academic Honor Council hearing.

4. If the Discipline Appeals Committee supports an appeal, the matter may be returned to the original Academic Honor Council for a reconsideration of the original determination and/or sanction(s).

   a. In cases involving appeals by students accused of violating the Academic Honor Code, the Discipline Appeals Committee may, upon review of the case, reduce but not increase the sanctions imposed by the Academic Honor Council.
   b. In cases involving appeals by persons other than the student(s) accused of violating the Academic Honor Code, the Discipline Appeals Committee may, upon review of the case, reduce or increase the sanctions imposed by the Academic Honor Council.

5. Following the appeal, the dean of students shall advise the accused student(s) in writing of the determination of the Discipline Appeals Committee and of the sanction(s) imposed, if any. A copy of the notification will be retained in the student's disciplinary record. Cases involving University suspension and expulsion will be filed in the student's academic record.

I. EXPULSION PROCEEDINGS

1. Expulsion proceedings will be initiated by the dean of students for students found in second violation of the Academic Honor Code. The student will be contacted by the office of the dean of students for a meeting to explain proceedings of expulsion.

2. Students being expelled will receive written notification from the dean of students indicating the sanction of expulsion and the process for appeal.

3. The sanction of expulsion may be appealed by the accused student to the provost within seven (7) calendar days of the decision. Such appeals shall be in writing and shall be delivered to the dean of students or designee.

4. Except as required to explain the basis of new information, an appeal shall be limited to a review of documents and notes of the Academic Honor Council, the accused student, and supporting documents for one or more of the following purposes:

   a. To determine whether the student received fundamental fairness in the investigative and decision-making processes.
   b. To determine whether the facts in the case were sufficient to establish that a violation of the Academic Honor Code occurred in both cases.
   c. To consider relevant and material new evidence.

5. Following the appeal, the provost shall advise the accused student in writing of the determination of the appeal, and of the sanctions imposed, if any. A copy of the

notification will be retained in the student's academic record and the student's disciplinary record.

Student Pledges
In adopting this Academic Honor Code, students of Lawrence Technological University recognize that academic honesty and integrity are fundamental values of the University community. The quality of a Lawrence Tech education is dependent upon the community acceptance and enforcement of the Academic Honor Code. Members of the Lawrence Technological University community pledge to hold themselves and their peers to the highest standards of academic honesty and integrity. An individual who becomes aware of a violation of the Academic Honor Code has an obligation to report this violation.

Undergraduate Students
The following pledge is required on all academic work submitted by undergraduate students at Lawrence Technological University:

"I have neither given nor received unauthorized aid in completing this work, nor have I presented someone else's work as my own."

Graduate Students
All graduate students at Lawrence Technological University are required to sign the student pledge when they start graduate studies:

"I pledge that on all academic work that I submit, I will neither give nor receive unauthorized aid, nor will I present another person's work as my own."

STUDENT CODE OF CONDUCT
Lawrence Technological University is an institution that encourages the intellectual and personal growth of its students as scholars and citizens. Linking theory and practice with advanced learning technologies, the University's mission is to provide superior undergraduate, graduate, and lifelong learning for leadership, professional achievement, and civic excellence. In this pursuit, the University recognizes that the transmission of knowledge, the pursuit of truth, and the development of individuals require the free exchange of ideas, self-expression, and the challenging of beliefs and customs. Academic freedom is essential to the achievement of these purposes.

Honesty, integrity, and caring are essential qualities of an educational institution, and the 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 Tech community and thereby assumes the obligation of abiding by the standards prescribed in the Student Code of Conduct. Students are required to engage

in responsible social conduct that reflects credit upon the University community and to model good citizenship in any community. 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.

All students enrolled at Lawrence Technological University have access to the Student Code of Conduct. Printed copies are available through the Office of the Dean of Students and the Office of University Housing. The Student Code of Conduct, along with other helpful information, also may be accessed online at www.ltu.edu/myltu/code-conduct.asp.

A. Definitions

1. The term "UNIVERSITY" means Lawrence Technological University.

2. The term "STUDENT" includes all persons taking courses at the University either full-time or part-time, pursuing undergraduate, graduate, or professional studies. Persons who withdraw after allegedly violating the Student Code, who are not officially enrolled for a particular term but who have a continuing relationship with the University, or who have been notified of their acceptance for admission are considered "students," as are persons who are living in University residence halls, although not enrolled in this institution. This Student Code does apply at all locations of the University, including education centers in Wayne, Oakland, Macomb, and outlying counties in Michigan and centers in other states and foreign countries.

3. The term "FACULTY MEMBER" means any person hired by the University to conduct classroom or teaching activities or who is otherwise considered by the University to be a member of its faculty.

4. The term "UNIVERSITY OFFICIAL" includes any person employed by the University who is performing assigned administrative or professional responsibilities.

5. The term "MEMBER OF THE UNIVERSITY COMMUNITY" includes any person who is a student, faculty member, University official, or any other person employed by the University. A person's status in a particular situation shall be determined by the dean of students.

6. The term "UNIVERSITY PREMISES" includes all land, buildings, facilities, and other property in the possession of or owned, used, or controlled by the University, including adjacent streets and sidewalks.

7. The term "ORGANIZATION" means any number of persons who have complied with the formal requirements for University recognition.

8. The term "STUDENT DISCIPLINE COMMITTEE" means any person or persons authorized by the dean of students to determine whether a student has violated the Student Code and to recommend sanctions that may be imposed when a regulations violation has been committed.

9. The term "STUDENT CONDUCT OFFICER" means a University official authorized on a case-by-case basis by the dean of students to impose sanctions upon any student found to have violated the Student Code. The dean of students may, in certain circumstances, authorize a

student conduct officer to serve simultaneously as a student conduct officer and as the sole member, or one of the members, of the Student Discipline Committee. The dean of students may authorize the same student conduct officer to impose sanctions in all cases.

10. The term "DISCIPLINE APPEALS COMMITTEE" means any person or persons authorized by the dean of students to consider an appeal from a Student Discipline Committee's determination as to whether a student has violated the Student Code.

11. The term "SHALL" is used in the imperative sense.

12. The term "MAY" is used in the permissive sense.

13. The term "POLICY" means the written regulations of the University as found in, but not limited to, the Student Code, the *Student Handbook*, the *Guidelines for University Living*, the University webpage and computer use policy, and *Undergraduate* or *Graduate Catalogs*.

14. "LEVEL I" violations of the Student Code are those for which the sanctions may be a warning, disciplinary probation, special restrictions or loss of privileges, fines, restitution, imposed reassignment of course section or housing assignment, or assignments of discretionary sanctions. Level I violations will generally be heard by a student conduct officer.

15. "LEVEL II" violations of the Code are those for which the sanctions may be, in addition to those listed in Level I, suspension from University Housing and/or from the University or expulsion from University Housing and/or from the University. Level II violations will generally be heard by the Student Discipline Committee.

16. The term "COMPLAINANT" means any person who submits a charge alleging that a student violated this Student Code. When a person believes that she/he has been a victim of another student's misconduct, the student who believes she/he has been a victim will have the same rights under this Student Code as are provided to the complainant, even if another member of the University community submitted the charge itself.

17. The term "ACCUSED STUDENT" means any student accused of violating this Student Code.

B. Student Code Authority

1. The dean of students shall determine the composition of the Student Discipline Committee and Discipline Appeals Committee and determine which Student Discipline Committee, student conduct officer, and Discipline Appeals Committee shall be authorized to hear each matter.

2. The dean of students is that person designated by the University president to be responsible for the administration of the Student Code. The dean of students shall develop policies for the administration of the student conduct system and procedural rules for the conduct of Student Discipline Committee hearings that are not inconsistent with provisions of the Student Code.

3. Decisions made by the Student Discipline Committee and/or student conduct officer designated by the dean of students shall be final, pending the normal appeal process.

4. The Student Discipline Committee may be designated as arbiter of disputes within the student community in cases that do not involve a violation of the Student Code. All parties must agree to arbitration and to be bound by the decision with no right of appeal.

C. Conduct – Rules and Regulations

Acts of academic dishonesty are regulated by procedures outlined in the *Academic Honor Code*. Any student found to have committed the following misconduct is subject to the disciplinary sanctions outlined in Section H:

1. Acts of dishonesty, including but not limited to the following: cheating, plagiarism, or other forms of academic dishonesty; furnishing false information to any University official, faculty member, or office; forgery; alteration or misuse of any University document, record, or instrument of identification; helping or attempting to help another student commit an act of dishonesty; tampering with the election of any University-recognized student organization.

2. Disruption or obstruction of teaching, research, administration, disciplinary proceedings, or other University activities, including its public-service functions on or off campus or other authorized non-University activities, when the act occurs on University premises.

3. Physical abuse, verbal abuse, threats, intimidation, harassment, coercion, stalking, and hate crimes or acts that are racially motivated or due to one's sexual orientation, gender expression, and/or other conduct that threatens or endangers the health or safety of any person.

4. Sexual misconduct, the unauthorized form of any sexual contact with another person without the consent of that person. The Sexual Misconduct Policy can be found on https://www.ltu.edu/title-ix/index. Hard copies of the policy are available in the Office of the Dean of Students.
5. Attempted or actual theft of and/or damage to property of the University or property of a member of the University community or other personal or public property, on or off campus.

6. Hazing, defined as an act that endangers the mental or physical health or safety of a student, or which destroys or removes public or private property, for the purpose of initiation, admission into, affiliation with, or as a condition for continued membership in a group or organization. The express or implied consent of the victim will not be a defense. Apathy and/or acquiescence in the presence of hazing are not neutral acts; they are violations of this regulation.

7. Failure to comply with directions of University officials or law enforcement officers acting in performance of their duties and/or failure to identify oneself to these persons when requested to do so.

8. Unauthorized possession, duplication, or use of keys to any University premises or unauthorized entry to or use of University premises.

9. Violation of any University policy, rule, or regulation published in hard copy, posted on campus, or available electronically on the University website.

10. Violation of federal, state, or local law on University premises or at University-sponsored or supervised activities.

11. Use, possession, manufacturing, or distribution of marijuana, heroin, narcotics, or other controlled substances, except as expressly permitted by law; use or possession of drug paraphernalia. Although many states (Michigan included) have passed laws legalizing medical marijuana, all forms of marijuana continue to be illegal under federal law. Federal law supersedes state law, and as a result, institutions are not obligated to accommodate users of medical marijuana in residence halls, on campus, or otherwise. LTU does not allow the use or possession of any form of marijuana on campus.
12. Use, possession, manufacturing, or distribution of alcoholic beverages, except as expressly permitted by the law and University regulations, or public intoxication. Alcoholic beverages may not, in any circumstances, be used by, possessed by, or distributed to any person under 21 years of age.

13. Possession of firearms (including BB, pellet, and air soft guns), ammunition, bows and arrows, explosives, any object that by its intended or actual use may be used to threaten or harm people or damage or destroy property, or other weapons or dangerous chemicals on University premises. Students risk severe University discipline and/or suspension if found with firearms or other dangerous weapons on campus.

14. Participation in an on-campus or off-campus demonstration, riot, or activity that disrupts the normal operations of the University and infringes on the rights of other members of the University community; leading or inciting others to disrupt scheduled and/or normal activities within any campus building or area; intentional obstruction that unreasonably interferes with freedom of movement, either pedestrian or vehicular, on campus.

15. Obstruction of the free flow of pedestrian or vehicular traffic on University premises or at University-sponsored or supervised functions, or violation of any regulations outlined in the Lawrence Tech *Campus Safety Guide*.

16. Conduct which is disorderly, lewd, indecent, or a breach of the peace; or aiding, abetting, or procuring another person to breach the peace on University premises or at functions sponsored, or participated in, by the University or members of the academic community. Disorderly conduct includes but is not limited to: any unauthorized use of electronic or other devices to make an audio or video recording of any person while on University premises without his/her knowledge, or without his/her effective consent when such recording is likely to cause injury or distress. This includes but is not limited to surreptitiously taking pictures of another person in a gym, locker room, or restroom.

17. Theft or other abuse of computer facilities and resources, including but not limited to: unauthorized entry into a file to use, read, change, or delete the contents or for any other purpose; unauthorized transfer of a file; use of another individual's identification and password; use of computing facilities to interfere with the work of another student, faculty member, or University official; use of computing facilities to send obscene or abusive messages; use of computing facilities to interfere with normal operation of the University computing system; use of computing facilities and resources in violation of copyright laws; any violation of the University's *Computing and Network Policy*.

18. Tampering with any telecommunications services, including but not limited to: telephone, cable television, and/or voicemail; providing unauthorized service to another room, suite, or apartment by any means through unauthorized installation of wiring jacks or extensions.

19. Abuse of the student conduct system, including but not limited to: failure to obey the summons of the Student Discipline Committee, Discipline Appeals Committee, student conduct officer, or University official to appear for a meeting or hearing as part of the student conduct system; falsification, distortion, or misrepresentation of information before a Student Discipline Committee, Discipline Appeals Committee, or student conduct officer; disruption or interference in bad faith with the orderly conduct of a proceeding; attempting to discourage an individual's proper participation in, or use of, the student conduct system; attempting to influence the impartiality of a member of a Student Discipline Committee or Discipline Appeals Committee prior to, and/or during, and/or after a student conduct proceeding; harassment (verbal or physical) and/or intimidation of a member of the Student Discipline Committee or Discipline Appeals Committee prior to, and/or during, and/or after a student conduct proceeding; failure to comply with the sanction(s) imposed under the Student Code; influencing or attempting to influence another person to commit an abuse of the student conduct system.

20. Actions that endanger the student, the University or local community, or the academic process, or that cause harm to oneself or others.

D. Jurisdiction of the Lawrence Technological University Student Code

The Lawrence Technological University Student Code shall apply to conduct that occurs on University premises, at University-sponsored activities, and to off-campus conduct that adversely affects the University community and/or the pursuit of its objectives. Each student shall be responsible for his/her conduct from the time of application for admission through the actual awarding of a degree, even though conduct may occur before classes begin or after classes end, as well as during the academic year and during periods between terms of actual enrollment (and even if their conduct is not discovered until after a degree is awarded). The Student Code shall apply to a student's conduct even if the student withdraws from school while a disciplinary matter is pending. The dean of students shall decide whether the Student Code shall be applied to conduct occurring off campus, on a case-by-case basis, at his/her sole discretion.

The University reserves the right to review student conduct that occurs off campus when such behavior reflects upon the integrity of the University. Students are representatives of Lawrence Technological University. In cases of inappropriate off-campus behavior, the dean of students or

designee will investigate and may refer students to the Student Conduct system. This provision is also applicable to students studying abroad.

LTU community members also are responsible for their guests' behavior should the guests violate any University policies. The University reserves the right to sanction its students for criminal or civil violations, or for a violation of University policy independent of or in addition to any actions taken by a criminal or civil court of law. Where Lawrence Technological University's interests as a community are clearly involved, however, the University president or designee may assert special authority in determining the future status of this member of the University community.

The residence halls have policies and procedures to which all students are subject. These policies and procedures are described in the *University Housing Guidelines*. Students are also subject to the policies, rules, and regulations of the colleges/schools in which they are enrolled or taking classes. All academic grievances are handled by the individual colleges/schools.

E. Violation of Law and University Discipline

1. University disciplinary proceedings may be instituted against a student charged with conduct that potentially violates both the criminal law and this Student Code (that is, if both possible violations result from the same factual situation) without regard to the pendency of civil or criminal litigation in court or criminal arrest and prosecution. Proceedings under this Student Code may be carried out prior to, simultaneously with, or following civil or criminal proceedings off campus at the discretion of the dean of students. Determinations made or sanctions imposed under this Student Code shall not be subject to change because criminal charges arising out of the same facts that gave rise to violation of University rules or regulations were dismissed, reduced, or resolved in favor of or against the criminal law defendant.

2. When a student is charged by federal, state, or local authorities with a violation of law, the University will not request or agree to special consideration for that individual because of his or her status as a student. If the alleged offense is also being processed under the Student Code, the University may advise off-campus authorities of the existence of the Student Code and how such matters are typically handled within the University community. The University will attempt to cooperate with law enforcement or other agencies in the enforcement of criminal law on campus and in the conditions imposed by criminal courts for the rehabilitation of student violators (provided that the conditions do not conflict with campus rules, regulations, or sanctions). Individual students and other members of the University community, acting in their personal capacities, remain free to interact with governmental representatives as they deem appropriate.

3. If a student is charged with an off-campus violation of federal, state, or local laws, but not with any other violation of this Code, disciplinary action may be taken by the University and sanctions imposed for grave misconduct which demonstrates flagrant disregard for the University community. In such cases, no sanction may be imposed unless the student has been found guilty in a court of law or has declined to contest such charges, although not actually admitting guilt (e.g., "no contest" or "nolo contendere").

F. Student Code of Conduct Procedures

All suspected violations of the Student Code will be reviewed in accordance with the procedures outlined below.

1. Disciplinary Correspondence

   All disciplinary correspondence will be sent to the student's official mailing address as listed with Enrollment Services/Office of the Registrar. The University reserves the right to use other reasonable means to notify students.

2. Filing Complaints
   a. Any member of the University community may make a complaint and/or referral or offer information concerning such complaint and/or referral to the Office of the Dean of Students. A complaint or referral made against a student or students alleging violation(s) of the Student Code of Conduct shall be directed to the dean of students for review. Any complaint should be prepared in writing on a University incident report form and should be submitted as soon as possible after the event takes place, preferably within 48 hours.
   b. While action on a complaint of violating a University rule or regulation is pending, the status of the student shall not be altered except for reasons outlined in Section J.

3. Presumption of Non-Violation

   Any student charged with a violation under this Code shall be presumed not responsible until it is proven that, more likely than not, the violation of the rule or regulation occurred.

4. Preliminary Investigation

   When the dean of students or designee receives information that a student has allegedly violated University rules or regulations, or local, state, or federal law, the dean or designee shall investigate the alleged violation and determine whether further action is necessary. After completing a preliminary investigation, the dean or designee may:

   a. Find no basis for the complaint and dismiss the allegation as unfounded, or
   b. Contact the student for a discussion and either:
      (1) Dismiss the allegation.
      (2) Identify that the alleged violation(s) equates to a Level I infraction and assign the case to a student conduct officer to conduct a student conduct meeting with the student(s).
      (3) Identify that the alleged violation(s) equates to a Level II infraction and schedule a hearing with the Student Discipline Committee.

5. Summoning a Student for a Student Conduct Meeting

   A student conduct meeting is a meeting between a student(s) involved in an alleged violation of the Code and a student conduct officer and may include sanctions. In some cases, the meeting may resolve the matter.

   a. The student conduct officer shall provide the student with:
      (1) Written notice of the charge(s) and an outline of rights.

(2) Review of all available information, documents, exhibits, and a list of witnesses that may testify against the student.

b. Following receipt of the notice of charges, a student:
   (1) May elect not to contest the charges and to accept responsibility for them. If this election is made, the student must sign a waiver of the right to a hearing, and must accept the sanction imposed by the student conduct officer. The decision to waive a hearing and accept the sanction is final and not appealable.
   (2) May contest the charges and elect to proceed to a hearing. The hearing shall be scheduled not less than five (5) nor more than 15 calendar days from the student conduct meeting.

G. Hearing Process

Hearings provide the forum in which parties to an allegation are afforded the opportunity to present information for review by a Student Discipline Committee presided over by the chair of the Committee and moderated by the dean of students. The dean of students is an ex-officio member of the Committee. A time shall be set for a Student Discipline Committee hearing not less than five (5) nor more than 15 calendar days after the student has been notified. The maximum time limit for scheduling of hearings may be extended at the discretion of the dean of students or designee.

Hearings shall be conducted by the Student Discipline Committee according to the following guidelines, except as provided by article J below:

1. In cases in which the Student Discipline Committee has been authorized by the dean of students to conduct a hearing, the recommendations of the members of the Student Discipline Committee shall be considered in an advisory capacity by the dean of students in determining and imposing sanctions.

2. Composition: The Student Discipline Committee is composed of 15 members. Recommendations for membership on the Student Discipline Committee from the deans of each academic college, the faculty, the administration and staff of the University, and the executive committee of Student Government will be sought by the dean of students on an annual basis, or more frequently as needed. At the discretion of the dean of students, general solicitation of the student body for participation may be made. Based upon these recommendations and/or solicitations, candidates who meet eligibility requirements will be invited to apply and interview for participation on the Student Discipline Committee.

3. Term of service: Students shall serve for one academic year and may continue to serve at the discretion of the provost and the dean of students.

4. Student eligibility: All students, full- or part-time, shall be eligible for recommendation to the Student Discipline Committee provided they have maintained a 2.3 cumulative grade point average, are not currently on disciplinary probation, and have not been suspended from the residence halls or the University.

5. Training: All members of the Student Discipline Committee, upon receiving notice of appointment, shall be given all necessary information about their responsibilities and the means for carrying them out.

6. Five students from the Student Discipline Committee will be chosen by the dean of students to hear a proceeding.

7. Hearings normally shall be conducted in private.

8. The complainant, the accused student, and their advisors, if any, shall be allowed to attend the entire portion of the Student Discipline Committee hearing at which information is received (excluding deliberations). Admission of any other person to the hearing shall be at the discretion of the Student Discipline Committee and/or the dean of students or designee.

9. In the case of Student Discipline Committee hearings involving more than one accused student, the dean of students or designee, at his/her discretion, may permit the Student Discipline Committee hearings concerning each student to be conducted either separately or jointly.

10. The complainant and the accused student have the right to be assisted by any advisor they choose, at their own expense. The advisor may be an attorney. The complainant and/or the accused are responsible for presenting his or her own information and, therefore, advisors are not permitted to speak or to participate directly in any hearings before the Student Discipline Committee. A student should select as an advisor a person whose schedule allows attendance at the scheduled date and time for the Student Discipline Committee hearing because delays will not normally be allowed due to the scheduling conflicts of an advisor.

11. The complainant, the accused student, and the Student Discipline Committee may arrange for witnesses to present information to the Student Discipline Committee. The University will try to arrange the attendance of possible witnesses who are members of the University community, if reasonably possible, and who are identified by the complainant and/or accused student at least two (2) business days prior to the Student Discipline Committee hearing. Witnesses will provide information to and answer questions from the Student Discipline Committee. Questions may be suggested by the accused student and/or complainant to be answered by each other or by other witnesses, with such questions directed to the chair, rather than to the witness directly. This method is used to preserve the educational tone of the hearing and to avoid creation of an adversarial environment. Questions of whether potential information will be received shall be resolved at the discretion of the chair of the Student Discipline Committee, in consultation with the dean of students or designee.

12. Pertinent records, exhibits, and written statements (including Student Impact Statements) may be accepted as information for consideration by the Student Discipline Committee, at the discretion of the dean of students.

13. All procedural questions are subject to the final decision of the dean of students.

14. After the portion of the Student Discipline Committee hearing concludes in which all pertinent information has been received, the Student Discipline Committee shall determine by majority vote whether the accused student has violated each section of the Student Code that the student is charged with violating.

15. The Student Discipline Committee's determination shall be made on the basis of whether it is more likely than not that the accused student violated the Student Code.

16. Formal rules of process, procedure, and/or technical rules of evidence, such as are applied in criminal or civil court, are not used in Student Code proceedings.

17. There shall be a single verbatim record, such as a transcription or tape recording, of all hearings before a Student Discipline Committee (not including deliberations). Deliberations shall not be recorded. Transcriptions and/or tapes made during Student Discipline Committee hearings shall be the property of the University. These materials are confidential. They are made available in case of appeal and, upon request, to the Discipline Appeals Committee hearing the appeal.

18. If the accused student, with notice, does not appear before a Student Discipline Committee hearing, the information in support of the charges shall be presented and considered even if the accused student is not present. If the accused student fails to attend the hearing, it shall be deemed that he or she denies all allegations. When appropriate, a sanction will be determined and the student will be notified in writing.

19. The Student Discipline Committee may accommodate concerns for the personal safety, well-being, and/or fears of confrontation of the complainant, accused student, or other witness during the hearing by providing separate facilities, by using a visual screen, and/or by permitting participation by telephone, videophone, closed circuit television, video conferencing, videotape, audio tape, written statement, or other means, where and as determined in the sole judgment of the dean of students to be appropriate.

H. Sanctions

1. The following sanctions may be imposed upon any student found to have violated the Student Code:
    a. WARNING – A notice in writing to the student that the student is violating or has violated institutional regulations.
    b. PROBATION – A written reprimand for violation of specified regulations. Probation is for a designated period of time and includes the probability of more severe disciplinary sanctions if the student is found to violate any institutional regulation(s) during the probationary period.
    c. LOSS OF PRIVILEGES – Denial of specified privileges for a designated period of time.
    d. LOSS OF ACADEMIC CREDIT – Failing grade assigned for the course due to academic dishonesty.
    e. FINES – Published fines may be imposed.

f. RESTITUTION – Compensation for loss, damage, or injury. This may take the form of appropriate service and/or monetary or material replacement.
g. DISCRETIONARY SANCTIONS – Work assignments, essays, service to the University, or other related discretionary assignments. (Such assignments must have the approval of the dean of students.)
h. RESIDENCE HALL SUSPENSION – Separation of the student from the residence halls for a definite period of time, after which the student is eligible to return. Conditions for readmission may be specified.
i. RESIDENCE HALL EXPULSION – Permanent separation of the student from the residence halls.
j. UNIVERSITY SUSPENSION – Separation of the student from the University for a definite period of time, after which the student is eligible to return. Conditions for readmission may be specified.
k. UNIVERSITY EXPULSION – Permanent separation of the student from the University.
l. REVOCATION OF ADMISSION AND/OR DEGREE – Admission to, or a degree awarded from, the University may be revoked for fraud, misrepresentation, or other violation of University standards in obtaining the degree, or for other serious violation committed by a student prior to graduation.
m. WITHHOLDING DEGREE – The University may withhold awarding a degree otherwise earned until the completion of the process set forth in this Student Code of Conduct, including the completion of all sanctions imposed, if any.

2. More than one of the sanctions listed above may be imposed for any single violation.

3. Other than University suspension, expulsion, or revocation or withholding of a degree, disciplinary sanctions shall not be made part of the student's permanent academic record, but shall become part of the student's disciplinary record. Upon graduation, the student's confidential record may be expunged of disciplinary actions, other than residence hall expulsion, University suspension, University expulsion, or revocation or withholding of a degree, upon application to the dean of students. Cases involving the imposition of sanctions other than residence hall expulsion, University suspension, University expulsion, and revocation or withholding of a degree shall be expunged from the student's disciplinary record three (3) years after the student completes all requirements for graduation.

4. In situations involving both an accused student(s) (or group or organization) and a student(s) claiming to be the victim of another student's conduct, the records of the process and of the sanctions imposed, if any, shall be considered to be part of the education records of both the accused student(s) and the student(s) claiming to be the victim because the educational career and chances of success in the academic community of each may be impacted.

5. The following sanctions, in addition to those listed above, may be imposed upon groups or student organizations: loss of selected rights and privileges for a specified period of time, and/or deactivation/loss of all privileges, including University recognition, for a specified period of time.

6. In each case in which a student conduct officer determines that a student has violated the Student Code, the recommendation of the student conduct officer shall be considered by the dean of students in determining and imposing sanctions. In cases in which the Student Discipline Committee has been authorized to determine that a student has violated the Student Code, the recommendation of all members of the Student Discipline Committee shall be considered by the dean of students in determining and imposing sanctions. The dean of students is not limited to sanctions recommended by members of the Student Discipline Committee.

7. Following the Student Discipline Committee hearing, the dean of students shall advise the accused student(s), group, and/or organization (and complaining student who believes she/he was the victim of another student's conduct) in writing of the Committee's determination and of the sanction(s) imposed, if any. A copy of the notification will be retained in the student's disciplinary record. Cases involving suspension or expulsion will also be filed in the student's academic record.

I. Appeals

1. A decision reached, or a sanction imposed, by the Student Discipline Committee may be appealed by the accused student(s) or complainant(s) to the Discipline Appeals Committee within seven (7) school days of the decision. Such appeals shall be in writing and shall be delivered to the dean of students or designee.

2. Composition: The Discipline Appeals Committee is composed of three (3) members: (a) the chair of the Faculty Senate; (b) the assistant provost for enrollment management; (c) the president of Student Government.

3. Except as required to explain the basis of new information, an appeal shall be limited to review of the verbatim records of the Student Discipline Committee hearing and supporting documents for one or more of the following purposes:
    a. To determine whether the Student Discipline Committee hearing was conducted fairly in light of the charges and information presented, and in conformity with prescribed procedures, giving the complaining party a reasonable opportunity to prepare and present evidence that the Student Code was violated, and giving the accused student a reasonable opportunity to prepare and to present a response to those allegations. Deviations from designated procedures will not be a basis for sustaining an appeal unless significant prejudice results.
    b. To determine whether the decision reached regarding the accused student was based on substantial information; that is, whether the facts in the case, if believed by the fact finder, were sufficient to establish that a violation of the Student Code occurred.
    c. To determine whether the sanction(s) imposed was appropriate for the violation of the Student Code that the student was found to have committed.
    d. To consider new information sufficient to alter a decision or other relevant facts not brought out in the original hearing because such information and/or facts were not known to the person appealing at the time of the original Student Discipline Committee hearing.

4. If the Discipline Appeals Committee upholds an appeal, the matter may be returned to the original Student Discipline Committee for reopening of the Student Discipline Committee hearing to allow reconsideration of the original determination and/or sanction(s).
    a. In cases involving appeals by students accused of violating the Student Code, the Discipline Appeals Committee may, upon review of the case, reduce but not increase the sanctions imposed by the Student Discipline Committee.
    b. In cases involving appeals by persons other than the student(s) accused of violating the Student Code, the Discipline Appeals Committee may, upon review of the case, reduce or increase the sanctions imposed by the Student Discipline Committee.

5. Following the appeal, the dean of students shall advise the accused student(s) in writing of the determination of the Discipline Appeals Committee and of the sanction(s) imposed, if any. A copy of the notification will be retained in the student's disciplinary record. Cases involving University suspension, expulsion, or revocation or withholding of a degree will be filed in the student's academic record.

J. Exceptional Procedures

1. Interim Suspension
   In certain circumstances, the dean of students or designee may impose a University or residence hall suspension prior to the hearing before the Student Discipline Committee. Interim suspension is an action requiring that a student immediately leave the campus and University property.
    a. Interim suspension may be imposed only: (a) to ensure the safety and well-being of members of the University community or preservation of University property; (b) to ensure the student's own physical or emotional safety and well-being; or (c) if the student poses an ongoing threat of disruption of or interference with the normal operations of the University. During the interim suspension, the student shall be denied access to housing facilities and/or the campus (including classes) and/or all other University activities or privileges for which the student might otherwise be eligible, as the dean of students or designee may determine to be appropriate.
    b. Any student who is suspended on an interim basis and returns to the campus and University property during the suspension shall be subject to further disciplinary action and may be treated as a trespasser. Permission to be on campus for a specific purpose (e.g., to take an exam, to consult with the dean of students, or to participate in the disciplinary procedures) may be granted in writing by the dean of students or designee.

2. Suspension from the Housing Facilities
   The director of residence life or the dean of students or designee may, when charges are served, suspend an accused student(s) from the housing facilities pending the hearing and determination thereof, whenever the continued presence of such a student would constitute a danger to the student or to the safety of persons or property in the housing facilities, or would pose a threat of disruptive interference with the normal conduct of housing facility activities and functions, or the seriousness of the charges warrants such action. The dean of students or designee shall grant an immediate review (by the end of the next business day after the suspension) on request of any student so suspended with respect to the basis for such a

suspension, at which time the suspended student may have the right to present statements tending to show that the basis for the suspension from the housing facilities does not exist. Suspension may apply to all housing facilities, an individual residence hall/apartment, or any portion thereof.

3. Residence Hall/Temporary Reassignment and Restriction from Facilities
   The director of residence life or the dean of students or designee may temporarily reassign a resident to another facility and/or restrict a resident from specific campus facilities pending an investigation and/or hearing whenever the continued presence of a resident in a particular campus facility would constitute a danger to the student or to the safety of persons or property in the housing facilities and campus facilities, or the seriousness of the allegations warrants such action. The director of residence life shall grant an immediate review (by the end of the next business day after the temporary reassignment and/or restriction) on request of any resident so reassigned and/or restricted with respect to the basis for such a reassignment and/or restriction.

4. Temporary Restriction from Personal Contact
   The director of residence life or the dean of students or designee may temporarily restrict a student from any personal, verbal, written, telephone, electronic, and third-party contact with another person pending an investigation and/or hearing whenever the contact could constitute a danger to the person or to the safety of the person or property, or the seriousness of the allegations warrants such action. Any student so restricted may obtain an explanation of the basis for such restriction upon request.

5. Withdrawal Prior to Student Conduct Proceedings
   The student who withdraws or fails to return to the University while disciplinary action is pending will be ineligible for readmission until the outstanding matter is resolved. The University reserves the right to formally restrict individual(s) from the campus grounds while such action is pending. Any further readmission would require an appeal in writing to the dean of students or designee and approval by the dean of students or designee.

K. Interpretation and Review

1. Any question of interpretation regarding the Student Code shall be referred to the dean of students or his/her designee for final determination.
2. The Student Code will be reviewed every three (3) years under the responsibility of the dean of students with the input of an advisory team.

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 the Dean of Students 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://www.ltu.edu/registrar).

College of Architecture and Design
Master of Architecture (also online)
Architecture, Direct-Entry (combined bachelor's and master's programs)
Master of Interior Design
Master of Fine Arts in Social Practice
Master of Architecture/Master of Business Administration Dual Degree
Master of Architecture/Master of Urban Design Dual Degree

Master of Architecture/Bachelor of Interior Architecture Dual Degree
Master of Architecture/Bachelor of Science in Civil Engineering Dual Degree
Master of Architecture/Bachelor of Science in Construction Management Dual Degree
Master of Architecture/Bachelor of Science in Media Communication Dual Degree

Graduate Certificate in Building Information Modeling (also online)
Graduate Certificate in Geographic Information Systems
Graduate Certificate in Public Interest Design

College of Arts and Sciences
Master of Science in Computer Science – Database Systems
Master of Science in Computer Science – Data Science Big Data and Data Mining
Master of Science in Computer Science – Distributed Systems
Master of Science in Computer Science – Intelligent Systems
Master of Science in Computer Science – Cybersecurity
Master of Science in Computer Science – Web Software Engineering

Graduate Certificate in Cybersecurity
Graduate Certificate in Web Development
Post-Baccalaureate Certificate in Premedical Studies

College of Business and Information Technology
Master of Business Administration (also online)
Master of Science in Business Data Analytics
Master of Science in Healthcare Administration
Master of Science in Information Technology (also online)
Master of Business Administration /Master of Science in Information Technology Dual Degree
Master of Business Administration /Master of Engineering Management Dual Degree (also online)
Master of Business Administration /Master of Architecture Dual Degree

Graduate Certificate in Cybersecurity
Graduate Certificate in Project Management (also online)

College of Engineering
Doctor of Philosophy in Civil Engineering
Doctor of Philosophy in Mechanical Engineering
Master of Construction Engineering Management (also online)
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) (also online)
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 Lean Six Sigma
Graduate Certificate in Telecommunications Engineering

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 3.5 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/Graduation 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://www.ltu.edu/registrar/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 courses 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
Geology	GLG
Humanities	HUM
Language and Literature	LLT
Mathematics and Computer Science/Math Co-op	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
Management Information Systems	MIS
Marketing	MKT
Master of Business Administration	MBA
Military Sciences and Leadership	MSL
Research	RES

College of Engineering

Architectural Engineering	EAE
Biomedical Engineering	BME
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
Industrial/Operations Engineering	IOE
Manufacturing Systems	EMS
Mechanical Engineering	EME
Mechanical Engineering Technology	TME
Mechatronics and Robotics Engineering	MRE
Tech Alternative Energy	TAE
Technology Audio Systems	TAS

College of Health Sciences

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

ADMINISTRATION

Dean
Karl Daubmann
248.204.2810
kdaubmann@ltu.edu

Associate 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://www.ltu.edu/architecture-and-design/student_resources. Additional information about the College of Architecture and Design, its faculty, students, and staff, is available at https://www.ltu.edu/architecture-and-design/home.

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

Single-Subject Degree Programs

Master of Architecture
Graduate Certificate in Building Information Modeling (BIM)
Graduate Certificate in Design Thinking
Graduate Certificate in Geographic Information Systems (GIS)
Graduate Certificate in Public Interest Design

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
Master of Architecture/Bachelor of Science in Media Communication

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

Lawrence Technological University is an accredited institutional member of the National Association of Schools of Art and Design (NASAD).

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 I (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 (61 or 80 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 80-graduate-credit curriculum intended for students whose undergraduate environmental design degrees are from schools other than LTU, and a minimum 61-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 Critical Practice Studio is the only course in the program not available totally online.

Critical Practice 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://www.ltu.edu/architecture-and-design/critical-practice.

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 downloaded at ltu.edu/apply
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 a 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 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	Design Theory
ARC 5913	Professional Practice

Design Studio (or Thesis Courses) (12 credits)

ACR 5804	Critical Practice Studio
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	Non-CoAD Elective (3 credits)

Note: Critical Practice 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 **Critical Practice 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
ACR 5804 Critical Practice Studio
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 Design Theory

Technical Courses (21 credits)

ARC 5513 Basic Structures* ++
ARC 5523 Intermediate Structures* ++
ARC 5543 Advanced Structures*
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	Non-CoAD 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	Critical Practice Studio
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	Design Theory
ARC 5423	Ecological Issues

Technical Courses (21 credits)

ARC 5513	Basic Structures*
ARC 5523	Intermediate Structures*
ARC 5543	Advanced Structures*
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 (80 credits)

Studio Sequence (30 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 Critical Practice Studio**
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 Design Theory**
ARC 5423 Ecological Issues

Technical Courses (21 credits)
ARC 5513 Basic Structures*
ARC 5523 Intermediate Structures*
ARC 5543 Advanced Structures*
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 Critical Practice 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	Design 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
Master of Architecture and Bachelor of Science in Media Communication
Master of Architecture and Bachelor of Science in Interior Design

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

Geographic Information Systems (GIS) Certificate-Graduate

We offer a Graduate Certificate in Geographic Information Systems (GIS) consisting of four credit hours of existing Master of Urban Design coursework, six credit hours of existing architecture coursework, and two new courses on GIS (five credits), gathered as a brief but useful step into the

understanding and application of urban design-focused GIS, and advancing the urban design profession.

All credits for the certificate are supported through coursework available online. In terms of current students, this program of study will be of particular interest to students enrolled in urban design and planning majors, who will find that they may earn the certificate with as few as 15 additional credits hours. Additionally, this course of study would be valuable for professionals in a range of fields, including urban design, urban planning, architecture, landscape architecture, and community development.

Although traditionally GIS has been used predominately in the fields of urban planning and natural resources, there is a growing demand for the use of GIS in designing of the physical environment in design, planning, and real estate development industries. While there are a number of GIS certificate programs across the country, a GIS certificate that focuses on urban design is rare, providing a unique and valuable training for our students. The certificate in GIS offers students the opportunity to gain an understanding of the built environment such that it might add value and focus to a major degree as well as enrich an LTU education in general. The certificate curriculum advances visualization, mapping, and spatial education in general.

The certificate curriculum advances visualization, mapping, spatial analysis, thematic diagrams and other urban design-supportive GIS based techniques and skills. Coursework covers methods, theories, principles, practices, and application of GIS in urban design. The program consists of three subject area components: Quantitative Methods in Urban Design and Visual Communications 3 (theory focus); advanced GIS, urban design methods, and Visual Communications 4 (practice focus); and GIS Practicum (application).

Graduate Certificate Required Courses (15 credits total)
Theory (5 credits)
ARC 5752 Quantitative Methods in Urban Design
ARC 5813 Visual Communication

Practice (8 credits)
ARC 5673 Advanced GIS
ARC 5742 Urban Design Methods
ARC 5823 Simulation and Prototyping

Application (2 credits)
ARC 5672 GIS Practicum

Public Interest Design Certificate (Graduate)
We offer a Graduate Certificate in Public Interest Design (PID) consisting of four credit hours of existing Master of Urban Design coursework, six credit hours of existing Master of Architecture and Master of Interior Design coursework, and a two-credit, introductory course on community development, presented as a focused study in public interest design and a means to advancing socially responsible design and community development professions. Socially responsible development is a common thread that runs through our core curriculum in architecture, interior design, art, and urban

design. Detroit, like other postindustrial cities, has seen bourgeoning practices in community development, which is closely relevant to public interest design. Outside the CoAD, PID is a growing point of emphasis in fields of art, architecture and design and a growing point of interest for students entering programs in these fields. In terms of current students, the program of study will likely be of specific interest to students enrolled in design majors, who will find that they may earn the certificate with as few as 12 additional credit hours.

Additionally, this course of study would be valuable for professionals in a range of fields, including urban design, urban planning, architecture, landscape architecture, and community development. The certificate in public interest design offers students the opportunity to gain an understanding of the built environment such that it might add value and focus to a major degree as well as enrich an LTU education in general. The certificate curriculum advances socially responsible design ideas and skills. Coursework covers methods, theories, principles, practices, policies, and implementation strategies in public interest design. The program consists of three subject area components: introduction to community development (theory focus); public interest design, design ethics, and adaptive reuse and rehab (practice focus); and urban studio (design strategies).

Graduate Certificate Required Courses (12 credits total)
Theory (2 credits)
ARC 5852 Introduction to Community Development

Practice (6 credits)
ARC 5242 Public Interest Design
ARC 5812 Adaptive Reuse and Rehabilitation
ARC 6002 Design Ethics

Application (4 credits)
ARC 5714 or 5724 Urban Studio

College of Arts and Sciences

Interim Dean
Patrick Nelson
S101, 248.204.3500

Associate Dean
Glen Bauer
S101, 248.204.3500

DEGREE PROGRAMS OFFERED
Lawrence Tech's College of Arts and Sciences offers these graduate programs:

Master of Science in Computer Science
ONLINE Master of Science in Computer Science – Customize around student's desired state-of-the-art topics
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. Four core courses provide rigor in computer science foundations. This program is designed so that students can select four additional electives or current topics in computer science to, cover at least one concentration and to, strengthen their understanding and give them a unique competitive advantage with employers. Available concentrations include Intelligent Systems, Distributed Systems, Data Science and Big Data, Cybersecurity, Database Systems and Web Software Engineering. In addition, state of the art advanced topics are introduced such as Pattern Recognition, Deep Learning, Virtual Reality and Augmented Reality.

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

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 courses 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 (12 credits, four courses)**

   MCS 5243 Theory of Computation
   MCS 5323 Artificial Intelligence
   MCS 5303 Intro to Database System
   MCS 5803 Algorithm Design & Analysis

2. **Concentrations: Satisfy at least one concentration (>=6 credits)**

   a. **Intelligent System**
      i. MCS 5403 Intelligent Robotics with ROS
      ii. MCS 6543 Current Development in Int. System
   b. **Distributed System**
      i. MCS 5703 Intro to Distributed Computing

ii. MCS 6723 Advance Distributed Computing

c. Data Science and Big Data

i. MCS 5623 Machine Learning and Pattern Recognition
ii. MCS 5723 Social Network Mining

d. Cybersecurity

i. MCS 5813 Cryptography
ii. MCS 7993 Adv. Topics Computer Science (Software Security)

e. Database System

i. MCS 6623 Data Warehousing
ii. MCS 6323 Distributive Database Systems

f. Web Software Engineering

i. MCS 5013 Web Server Programming
ii. MCS 7993 Adv. Topics Computer Science (Web Software Engineering)

3. **Current Topics in Computer Science (2+3 must equal to 12 credits)**

i. MCS 7993 Advanced Topics in Computer Science

Select at least two special topics classes. Options include:

Big Data Management
Bioinformatics
Cybersecurity
Data Science
Deep Learning
Distributed Computing
Intelligent Systems
Robotics
Software Engineering

ii. Appropriate graduate-level courses in related disciplines (e.g., Information Technology, Biomedical Engineering and/or Computer Engineering may be substituted with the approval of the program director.

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

ONLINE MASTER OF SCIENCE IN COMPUTER SCIENCE CURRICULUM

TOTAL CREDIT HOURS: 30

Students entering the on-line MSCS program will be advised initially by Dr. Mohammed El-Bathy, (melbathy@ltu.edu) After completion of the first semester you will then chose an advisor that will be

specific to your course of study and research. You will need to complete 30 credits. The 30 credits include the following coursers along with your advisor's approval.

1) Core courses (12 credits, four courses)

MCS 5243 Theory of Computation
MCS 5323 Artificial Intelligence
MCS 5303 Intro to Database System
MCS 5803 Algorithm Design & Analysis

2) Graduate electives (12 credits)

Any advisor's approved MCS course > 5000. Fulling concentrations described in the MCS curriculum above is optional.
Appropriate graduate-level courses in related disciplines (e.g., Information Technology, Biomedical Engineering and/or Computer Engineering may be substituted with the approval of the program director.

3) 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

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 Artificial Intelligence 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 Intelligent 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 Intelligent 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: 123 + 21 Graduate credits = 144 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 1001	Pathways to Research Careers	1
COM 1103	College Composition	3
MCS 1243	Foundations of CS	3
MCS 1414	Calculus 1	4
SSC 2413	Foundations of American Experience	3

		TOTAL	14

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
LLT 1213	World Masterpieces 1	3
MCS 1424	Calculus 2	4
MCS 1514	Computer Science 1	4
SSC 2423	Development of American Experience	3
PSY/SSC xxx3	PSY/SSC Elective	3
	TOTAL	17

Sophomore Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
LLT 1223	World Masterpieces 2	3
MCS 2414	Calculus 3	4
MCS 2514	Computer Science 2	4
MCS 2523	Discrete Math	3
MCS 1111	Coding Club (1st 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 2513	Software Engineering 1	3
MCS 3633	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 3543	Intro. to Database Systems	3
MCS 3663	Computer Architecture and Assembly	3
MCS xxx3	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	MCS Topics Neural Networks Deep Learning w/ Python	3
BIO/PHY/CHM/ GLG/PSCxxx3	Natural Sciences Elective 1	3
MCS 5323	Artificial Intelligence.	3
MCS 2403	Intro to Data Science	3

	TOTAL	15

Senior Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
MCS 4613	Computer Networks	3
MCS 4833	Senior Project	3
PSY/SSC 3/4xx3	PSY/SSC Junior/Senior Elective	3
MCS 1111	Coding Club (2nd of 2)	1
MCS 5993	MCS Topics: Text Mining and Data Analytics	3
COM 4001	Pathways Capstone Lab	1
	TOTAL	14

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
LLT 3/4xx3	LLT Junior/Senior Elective	3
MCS 4643	Comparative Prog. Languages	3
MCS 5243	Theory of Computation	3
MCS 4843	Senior Project 2	3
MCS 5623	Machine Learning & Pattern Recognition	3
	TOTAL	15

FIFTH YEAR

Fall Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5803	Algorithm Design and Analysis	3
MCS 5xx3	Computer Science Elective	3
MCS 5993	Topics in Computer Science	3
	TOTAL	9

Spring Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5xx3	Computer Science Elective	3
MCS 5993	Topics in Computer Science	3

Choose 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
	TOTAL	21

**Select from MCS 2423 Differential Equations or MCS 3403 Probability & Statistics*

4+1 with BSCS - Cybersecurity Concentration

TOTAL CREDIT HOURS: 123 + 21 Graduate credits = 144 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 1001	Pathways to Research Careers	1
COM 1103	College Composition	3
MCS 1243	Foundations of CS	3
MCS 1414	Calculus 1	4
SSC 2413	Foundations of American Experience	3
	TOTAL	14

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
LLT 1213	World Masterpieces 1	3
MCS 1424	Calculus 2	4
MCS 1514	Computer Science 1	4
SSC 2423	Development of American Experience	3
PSY/SSC xxx3	PSY/SSC Elective	3
	TOTAL	17

Sophomore Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
LLT 1223	World Masterpieces 2	3
MCS 2414	Calculus 3	4
MCS 2514	Computer Science 2	4
MCS 2523	Discrete Math	3
MCS 1111	Coding Club (1st 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 2513	Software Engineering 1	3
MCS 3633	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 3543	Intro. to Database Systems	3
MCS 3663	Computer Architecture and Assembly	3
MCS xxx3	Math Elective*	3
MCS xxx3	MCS 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 MCS: Machine Learn. and Embed. Sys. Security.	3
BIO/PHY/CHM/ GLG/PSCxxx3	Natural Sciences Elective	3
MCS 2403	Intro to Data Science	3
PSY/SSC 3/4xx3	PSY/SSC Junior/Senior Elective	3
	TOTAL	15

Senior Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
MCS 4613	Computer Networks	3
MCS 4833	Senior Project	3
MCS 1111	Coding Club (2nd of 2)	1
MCS 4993	MCS Topics: Malware Analysis & Rev. Engineering	3
MCS xxx3	Advanced Computer Network and Security	3
COM 4001	Pathways Capstone Lab	1
	TOTAL	14

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
LLT 3/4xx3	LLT Junior/Senior Elective	3
MCS 4643	Comparative Prog. Languages	3
MCS 5243	Theory/Computation	3
MCS 4843	Senior Project 2	3
MCS 5813	Intro to Computer Security	3
	TOTAL	15

FIFTH YEAR

Fall Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5803	Algorithm Design and Analysis	3
MCS 5xx3	Computer Science Elective	3
MCS 5993	Topics in Computer Science	3
	TOTAL	9

Spring Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5xx3	Computer Science Elective	3
MCS 5993	Topics in Computer Science	3

Choose 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
	TOTAL	21

**Select from MCS 2423 Differential Equations or MCS 3403 Probability & Statistics*

4+1 with BSCS - Scientific Software Development Concentration

TOTAL CREDIT HOURS: 124 + 21 Graduate credits = 145 total credits

The Scientific Software Development concentration for the Bachelor of Science in Computer Science is the best selection for the greatest flexibility. It prepares the student for graduate work in computer science as well as professional software development in any application.

Freshman Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
COM 1001	Pathways to Research Careers	1
COM 1103	College Composition	3
MCS 1243	Foundations of CS	3
MCS 1414	Calculus 1	4
SSC 2413	Foundations of American Experience	3
	TOTAL	14

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
LLT 1213	World Masterpieces 1	3
MCS 1424	Calculus 2	4
MCS 1514	Computer Science 1	4
SSC 2423	Development of American Experience	3
PSY/SSC xxx3	PSY/SSC Elective	3
	TOTAL	17

Sophomore Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
LLT 1223	World Masterpieces 2	3
MCS 2414	Calculus 3	4

MCS 2514	Computer Science 2		4
MCS 2523	Discrete Math		3
MCS 1111	Coding Club (1st 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 2513	Software Engineering 1	3
MCS 3633	Functional Programming	3
MCS 2403	Intro to Data Science	3
MCS 2111	MCS Seminar	1
	TOTAL	17

Junior Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
MCS 3543	Intro. to Database Systems	3
MCS 3663	Computer Architecture and Assembly	3
MCS xxx3	Math Elective*	3
PHY 2413	University Physics 1	3
PHY 2421	University Physics 1 Lab	1
MCS 3863	Linear Algebra	3
	TOTAL	16

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
MCS 4663	Operating Systems	3
MCS 4993	Topics in MCS	3
PHY 2423	University Physics 2	3
PHY 2431	University Physics 2 Lab	1
GEN xxx3	General Elective	3
GEN 3/4xx3	Junior/Senior General Elective	3
	TOTAL	16

Senior Year

FIRST SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
MCS 4613	Computer Networks	3
MCS 4833	Senior Project	3
PSY/SSC 3/4xx3	PSY/SSC Junior/Senior Elective	3
MCS1111	Coding Club (2nd of 2)	1
MCS 5803	Algorithm Design and Analysis	3
COM 4001	Pathways Capstone Lab	1
	TOTAL	14

SECOND SEMESTER

Course Number	*Subject*	*Cr. Hrs.*
LLT 3/4xx3	LLT Junior/Senior Elective	3
MCS 4643	Comparative Prog. Languages	3

MCS 5243	Theory/Computation		3
MCS 4843	Senior Project 2		3
MCS 5323	Artificial Intelligence		3
		TOTAL	15

FIFTH YEAR

Fall Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5xx3	Computer Science Elective	3
MCS 5703	Intro to Distributed Computing	3
MCS 5xx3	Computer Science Elective	3
	TOTAL	9

Spring Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5993	Topics in Computer Science	3
MCS 5993	Topics in Computer Science	3

Choose 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
		TOTAL	21

**Select from MCS 2423 Differential Equations or MCS 3403 Probability & Statistics*

The following are the different concentrations for the MSCS:

INTELLIGENT SYSTEMS

Fall Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5243	Theory of Computation	3
MCS 5803	Algorithm Design and Analysis	3
MCS 5303	Intro. to Database Systems	3

Spring Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5403	Intelligent Robotics with ROS	3
MCS 5323	Artificial Intelligence	3
MCS 5993	Topics in Computer Science	3

Fall Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5993	Topics in Computer Science	3
MCS 5713	Deep Learning and Neural Networks	3

Choose 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:

Course Number	*Subject*	*Cr. Hrs.*
MCS 7113	Master's Thesis 1	3
MCS 7133	Master's Thesis 2	3
	TOTAL	30

DISTRIBUTED SYSTEM

Fall Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5243	Theory of Computation	3
MCS 5703	Intro. to Distributed Computing	3
MCS 5803	Algorithm Design and Analysis	3

Spring Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5323	Artificial Intelligence	3
MCS 5303	Intro. to Database Systems	3
MCS 6723	Advanced Distributed Computing	3

Fall Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5993	Topics in Computer Science	3
MCS 5993	Topics in Computer Science	3

Choose 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:

Course Number	*Subject*	*Cr. Hrs.*
MCS 7113	Master's Thesis 1	3
MCS 7133	Master's Thesis 2	3
	TOTAL	30

DATA SCIENCE and BIG DATA

Fall Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5243	Theory of Computation	3
MCS 5803	Algorithm Design and Analysis	3
MCS 5623	Machine Learning and Pattern Recognition	3

Spring Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5303	Intro. to Database Systems	3
MCS 5323	Artificial Intelligence	3
MCS 5993	Topics in Computer Science	3

Fall Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5723	Social Network Mining	3
MCS 5993	Topics in Computer Science	3

Choose 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:

Course Number	*Subject*	*Cr. Hrs.*
MCS 7113	Master's Thesis 1	3
MCS 7133	Master's Thesis 2	3
	TOTAL	30

CYBERSECURITY

Fall Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5243	Theory of Computation	3
MCS 5803	Algorithm Design and Analysis	3
MCS 5303	Intro. to Database Systems	3

Spring Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5323	Artificial Intelligence	3
MCS 5813	Intro. to Computer Security	3
MCS 5993	Topics in Computer Science	3

Fall Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5993	Topics in Computer Science (Software Security)	3
MCS 5993	Topics in Computer Science	3

Choose 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:

Course Number	*Subject*	*Cr. Hrs.*
MCS 7113	Master's Thesis 1	3
MCS 7133	Master's Thesis 2	3
	TOTAL	30

DATABASE SYSTEMS

Fall Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5243	Theory of Computation	3
MCS 5303	Intro. to Database Systems	3
MCS 6623	Data Warehousing	3

Spring Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5323	Artificial Intelligence	3
MCS 6323	Distributive Database Systems	3
MCS 5993	Topics in Computer Science	3

Fall Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5803	Algorithm Design and Analysis	3
MCS 5993	Topics in Computer Science	3

Choose 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:

Course Number	*Subject*	*Cr. Hrs.*
MCS 7113	Master's Thesis 1	3
MCS 7133	Master's Thesis 2	3
	TOTAL	30

WEB SOFTWARE ENGINEERING

Fall Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5243	Theory of Computation	3
MCS 5803	Algorithm Design and Analysis	3
MCS 5303	Intro. to Database Systems	3

Spring Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5323	Artificial Intelligence	3
MCS 5013	Web Server Programming	3
MCS 5993	Topics in Computer Science	3

Fall Semester

Course Number	*Subject*	*Cr. Hrs.*
MCS 5993	Topics in Computer Science (Web Software Eng.)	3
MCS 5993	Topics in Computer Science	3

Choose 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:

Course Number	*Subject*	*Cr. Hrs.*
MCS 7113	Master's Thesis 1	3
MCS 7133	Master's Thesis 2	3
	TOTAL	30

GRADUATE CERTIFICATE IN WEB DEVELOPMENT – ADMISSION REQUIREMENTS

In addition to the policies and procedures described in the Academic Regulations section of this *Catalog*, admission to the Graduate Certificate in Web Development Program requires completion of (MCS 2514 Computer Science 2 or MCS 3603 Java) and MCS 2534 Data Structures

Description

With the rapid growth of web-based applications in all facets of today's businesses, there is an increasing emphasis and a growing need for Computer Science and Information Technology professionals with web development skills. The Web Technologies Certificate Program will present the fundamental concepts and knowledge to understand the technologies that enable the development of web-based applications and to prepare the students to acquire the skills and tools necessary to develop such applications. This program of study provides a focused training in the theoretical concepts and applied skill sets necessary to prepare the student to be capable and technically competent in the evolving and expanding field of web technologies. Prerequisites: (MCS 2514 Computer Science 2 or MCS 3603 Java) and MCS 2534 Data Structures.

Four core courses:

MCS 5013 - Web Software Programming

Web authoring using HTML; advanced Web authoring with dynamic HTML, XML; JavaScript programming; CGI programming in C, C++ and PERL. Introduction to ASP to the middle tier.

MCS 5023 – Enterprise Computing with Java

Includes Networking Database access with Java, Java Beans, Servlets and JSP, multi-tier application development, Java design patterns and enterprise models and architectures.

MCS 5303- Intro to Database Systems
Design and implementation of relational, hierarchical and network database system.

MCS 5993 - Advanced Topics in Web Technologies
Current trends, tools, and frameworks in web development, web security, NoSQL databases, etc.

GRADUATE CERTIFICATE IN CYBERSECURITY – ADMISSION REQUIREMENTS

In addition to the policies and procedures described in the Academic Regulations section of this *Catalog*, admission to the Graduate Certificate in Cybersecurity Program requires completion of MCS 4613 Computer Networks and MCS 2534 Data Structures

Description:
The Computer Science Cybersecurity Certificate provides students with the opportunity to gain a technical understanding of computing system security from software, hardware, and communications perspectives. The program is comprised of three subject areas: Foundations of Computer Security and Operational Security (theory); Software Security, Malware Analysis and Reverse Engineering (practice); and Emerging Machine Learning Security and IoT Security (applications). It also provides students with information and skills to implement exploitation techniques, mitigation solutions, and best practices to enforce security through bundled programming and hands-on security labs.
Prerequisites: MCS 2534 Data Structures and
MCS 4663 Operating Systems

MCS 4613 Computer Networks
Transmission media, local asynchronous communication (RS232) long distance communication, LAN Technologies, network topologies, hardware addressing, LAN wiring, physical topologies, interface hardware, extending LANs, fiber modems repeaters, bridges, and switches, WAN topologies and routing.

MCS 5813 – Introduction to Computer Security
Security measures are associated with various types of computing systems.

MCS 6143 - Reverse Engineering and Software Security
The objective of this course is to familiarize students with the practice of performing reverse engineering on suspicious files and firmware by utilizing static and dynamic techniques and procedures.

MCS 6503 - Advanced Networking and Internet Security
The emphasis is to focus on technologies commonly used on the Internet for network systems and widely implemented protocols.

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 45-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: 45

Candidates for the Post-Baccalaureate Certificate in Premedical Studies must complete the equivalent of 45 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 (7 credits minimum)

Course Number	*Subject*	*Cr. Hrs.*
MCS 1414	Calculus 1	4
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

Interim Dean
Matthew Cole
M331, 248.204.3050

DEGREE PROGRAMS OFFERED
Lawrence Technological University's College of Business and Information Technology offers these graduate programs:

Master of Business Administration (available on-campus and online)
Direct-Entry 4+1 BSBA/MBA Program
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 BSIT/MSIT Program

MBA/Master of Science in Information Technology Dual Degree (available on-campus and online)
MBA/Master of Engineering Management Dual Degree
MBA/Master of Architecture Dual Degree (available online)

Graduate Certificate in Cybersecurity (available online)
Graduate Certificate in Project Management (available online)

Using a model of theory and practice, the College of Business and Information Technology prepares a diverse student body for success that emphasizes ethics and teamwork, analytical, management, and advanced technological skills to be strategic and innovative thinkers and leaders in a global environment.

Student-Centered: The College of Business and Information Technology's commitment to student-centered education encompasses all aspects of the educational experience, particularly quality teaching and excellent faculty, student service, and academic support.

Ethical Leadership: Motivated by a commitment to the education of the whole person, intellectually, morally, and socially, the College of Business and Information Technology provides a rigorous and integrated business education for ethical and socially responsible leadership.

Urban Setting: Lawrence Tech is located in Southfield in the heart of southeastern Michigan, which has more than 9,000 businesses and over 100 Fortune 500 companies. Lawrence Tech's students learn in a dynamic urban community and gain valuable experience that only a major metropolitan area offers. The quality and diversity of the student body, together with the University's location, provide students with an educational experience that prepares them for an increasingly diverse workplace.

Interdisciplinary Programs: As stated by Peter Senge, "Good results in a complex system require integrating as many perspectives as possible." Lawrence Tech's business programs are organized to cut across subject-matter lines, bringing together various aspects of the curriculum into meaningful association. Students get more than just theories and equations at Lawrence Technological University. They are exposed to the tools and practical experiences they will need to realize their dreams.

Founded in 1952, Lawrence Tech's College of Business and Information Technology has more than 10,000 alumni. For a school its size, the college has produced a large number of alumni prominent not only in Michigan but throughout the United States and the world.

ACCREDITATION

The College of Business and Information Technology 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 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 better 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.

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 nine credit hours may be accepted for the Master of Science in Information Technology program and the Master of Science in Business Analytics program. 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 better; 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 taught fully online, replacing classroom time entirely. Online courses are designed to take advantage of the best online teaching methods with course content that can be effectively taught in an online environment. These courses provide maximum flexibility for busy working professionals to better manage their work and personal schedule while fulfilling their academic goals.

Regardless of the delivery format, curriculum, faculty or course content, learning goals are the same for all courses. All graduate students are required to have a laptop/computer when taking online 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.

MASTER OF BUSINESS ADMINISTRATION (MBA)

The Master of Business Administration was first introduced into university curricula at the turn of the 20th century and underwent a major restructuring in the late 1940s and 1950s. Today, enrollment in MBA programs has exponentially increased, as the degree has become a necessary credential for those wishing to hone and enhance their managerial and leadership skills to compete in a global economy. The intent of the "traditional" MBA program, often found in business schools, is to provide the business community with a degree-holder who has been exposed to a wide body of knowledge and is prepared to be effective in a rapidly changing business environment.

Lawrence Tech's MBA is performance driven and links knowledge to organizational activities by melding theory with practice. The intent of Lawrence Tech's Master of Business Administration program is to develop leadership and management skills by providing the student with a broad understanding of the roles and responsibilities of business management, thereby enhancing the graduate's effectiveness as a manager and leader. The learning is active, replacing the "read, look,

listen, and take an exam" approach found in traditional MBA programs. The program is further designed to develop the student's skills in areas such as problem solving, communication, and team building and helps develop a cross-disciplinary approach to managing the organization.

MBA PROGRAM DESIGN

Lawrence Tech's 36-credit-hour MBA program consists of nine core classes and three electives. Students can select one of seven areas of concentration to help expand their experiences and meet future goals: Business Analytics, Cybersecurity, Finance, Information Technology, Marketing, and Project Management. The MBA can be obtained in as few as two years of evening and/or online study.

Foundation courses may be required of students who have not taken undergraduate coursework in business. Waivers from the foundation courses are generally granted at the time of admission to the MBA program. The essential foundations of accounting, finance, statistics, legal environment, economics, marketing and management are covered in these courses. Foundation classes may be taken concurrently with those core classes that require no prerequisites.

Core courses are designed to provide students with meaningful experiences in analyzing and implementing operational concepts and programs as well as lead directly to the selections of appropriate elective courses. Global Strategic Management is the Capstone course and should only be scheduled near the end of the student's program.

MBA DEGREE REQUIREMENTS

Successful completion of the 36-credit-hour MBA program requires:

- Nine core courses and three electives, with at least 24 graduate credit hours taken at Lawrence Tech;
- Completion (or waiver) of all foundation courses;
- Overall GPA of at least 3.0 in core/elective program areas;
- Completion of the above requirements within seven years of program entry.

MASTER OF BUSINESS ADMINISTRATION CURRICULUM

Foundation Courses

Course Number	*Subject*	*Cr. Hrs.*
ACC 5003	Fundamentals of Financial Accounting	3
MBA 5013	Business Application of Statistical Analysis	3
ECN 5011T	Managerial Economics	1.5
ECN 5021T	Fundamentals of Macro Economics	1.5
MBA 5031T	Fundamentals of Marketing	1.5
MBA 5041T	Fundamentals of Management	1.5
MBA 5051T	Fundamentals of Finance	1.5
MBA 5061T	Legal Environment of Business	1.5

Core Courses

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

Electives

Concentration: Business Analytics

Course Number	*Subject*	*Cr. Hrs.*
INT 7213	Business Analytics and Intelligence	3
INT 7253	Visual Analytics	3
INT 7513	Data Mining Algorithms	3

Concentration: Cybersecurity

Course Number	*Subject*	*Cr. Hrs.*
INT 6143	Enterprise Network Infrastructure	3
And *two* of the following classes:		
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

Concentration: Finance

Course Number	*Subject*	*Cr. Hrs.*
MBA 7003	Investment Management	3
MBA 7013	Financial Markets and Institutions	3
MBA 7023	International Finance	3

Concentration: Information Technology

Course Number	*Subject*	*Cr. Hrs.*
MBA 7063	Project Management	3
Two other approved IT electives		6

Concentration: Marketing

Course Number	*Subject*	*Cr. Hrs.*
MBA 7073	Digital Marketing	3
MBA 7083	Marketing Research and Consumer Behavior	3
One other approved graduate-level open elective class		3

Concentration: Project Management

Course Number	*Subject*	*Cr. Hrs.*
MBA 7063	Project Management	3
And *two* of the following classes:		

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

Other Electives

Course Number	*Subject*	*Cr. Hrs.*
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 MBA 6073: Global Strategic Management course. This is an MBA program requirement to graduate. The Major Field Test for MBA consists of 124 multiple-choice questions, half of which are based on short case-study scenarios. The questions require knowledge of MBA content areas in marketing, management, finance, and accounting. The test also includes questions that address international business, information technology, the legal and regulatory environment of business, ethics and social responsibility in business, statistical analysis, managerial economics, and e-commerce. A calculator is not required. For more information, visit ets.org or ask your faculty advisor.

DIRECT-ENTRY 4+1 BSBA/MBA PROGRAM AND DIRECT-ENTRY 4+1 BSIT/MSIT PROGRAM

The 4+1 accelerated Bachelor of Science in Business Administration/Master of Business Administration and Bachelor of Science in Information Technology/Master of Science in Information Technology programs provide a head start for the ambitious and motivated student to earn a BSBA/MBA or BSIT/MSIT in five years.

Students in the 4+1 program start graduate course work prior to the completion of their undergraduate degree during their junior and senior years. Students are allowed to count up to nine credit hours of graduate coursework toward both their undergraduate and graduate degrees. After graduating with a Bachelor's degree, 4+1 students can complete their Master's degree in three additional semesters or one academic year (summer, fall, spring).

Freshman LTU Academic Scholarships will be continued through the fifth year. This allows students to earn a Master's degree while saving cost and time. Students get the added benefit of networking opportunities when they take Master level courses with working professionals.

The total number of credits for the BSBA/MBA combined program is 145. There are 112 undergraduate credits, 24 graduate credits, and 9 graduate credits that are double counted.

The total number of credits for the BSIT/MSIT combined program is 141. There are 111 undergraduate credits, 21 graduate credits, and 9 graduate credits that are double counted.

Admission requirements of the 4+1 BSBA/MBA and BSIT/MSIT are the same as requirements for the first-year freshmen for Bachelor's degree, *except the following*:

- Applicants should have a high school GPA of 3.5 or higher
- Once admitted, students must maintain cumulative GPA of 3.0 or better with no grade below a "C" in the undergraduate core classes

Application process for current undergraduate students

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 after completing 60 semester credit hours. Once accepted to the program, students must achieve a minimum of a "B" letter grade or better in each of the graduate level courses. Students interested in an accelerated undergraduate and graduate degree program should inform their academic adviser to set up a plan upon completion of sophomore year or 60 credit hours.

4+1 BSBA/MBA and 4+1 BSIT/MSIT Program Policy and Procedures

- This program is mainly for freshmen or sophomore transfer students seeking admission into LTU's BSBA or BSIT Program.
- Current undergraduate Business or IT students with 60 credit hours or fewer may apply for this program. At the time of their application, their current LTU GPA must be 3.3 or higher.
- Up to nine graduate credits may be double counted toward both BSBA and BSIT degree programs.
- Each of the graduate classes must have a "C" or better grade to be transferred to the undergraduate transcript.
- Freshman LTU Scholarships will be continued through the fifth year.
- Students are required to pay graduate tuition rates for all graduate-level courses taken.
- In the junior year, after earning at least 60 credit hours, 4+1 BSBA/MBA and 4+1 BSIT/MSIT students must meet with the program director or with an Academic Adviser to develop an academic program plan, and file a petition to officially begin the graduate portion of the program. The most important factors for the approval are the cumulative GPA, which must be 3.3 or better. If the petition is approved, they remain in the 4+1 program. If the petition is not approved, they may exit the 4+1 program and pursue only a Bachelor's degree.
- There is no obligation to enter the fifth year MBA or MSIT degree program, if the student chooses to do so.
- Students may choose to delay completion of their Master degree beyond the fifth year. However, scholarship funds will end after five years.

MASTER OF SCIENCE IN BUSINESS DATA ANALYTICS

TOTAL SEMESTER CREDIT HOURS: 30

Core Courses (30 credit hours)

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 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 seven core courses (21 credit hours) and three elective courses (9 credit hours). Each course is delivered by way of workshops, seminars, exercises, case analyses, and other forms of interactive learning. Students can select one of three areas of concentration to help expand their experiences and meet future goals: Business Analytics, Cybersecurity, and Project Management.

The MSIT can be completed in two years by taking two classes each semester. The flexible schedule offers courses in the evenings, hybrid courses, and some courses are available fully online.

MSIT DEGREE REQUIREMENTS

Successful completion of the MSIT program requires:

- 21 credit hours of core courses and nine credit hours of electives;
- Completion or waiver of all necessary foundation courses;
- An overall GPA of at least 3.0 in core and elective program areas; and
- Completion of the above requirements within seven years of program entry.

MASTER OF SCIENCE IN INFORMATION TECHNOLOGY CURRICULUM

TOTAL CREDIT HOURS: 30

Students without an IT background must take foundation coursework in statistical methods, programming, and management information systems.

Foundation Courses (up to 6 credit hours, may be waived by advisor)

Course Number	*Subject*	*Cr. Hrs.*
MBA 5013	Business Applications of Statistical Analysis	3
INT 6043	Management Information Systems	3

Core 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 7623	Data Science for Business	3
INT 7223	Cybersecurity	3

Electives (9 credit hours)
Concentration: Business Analytics

Course Number	*Subject*	*Cr. Hrs.*
INT 7213	Business Analytics and Intelligence	3
INT 7253	Visual Analytics	3
INT 7513	Data Mining Algorithms	3

Concentration: Cybersecurity

Course Number	*Subject*	*Cr. Hrs.*
INT 7233	Cyber Law, Policy, and Ethics	3
INT 7243	Disaster Recovery and Business Continuity	3
INT 7263	Vulnerability Assessment and Penetration	3

Concentration: 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.

Specialization Courses (9 credit hours)
These courses can be tailored to meet the student's field of interest, subject to advisor approval.

MASTER OF SCIENCE IN HEALTHCARE ADMINISTRATION

Healthcare administration is a growing field that allows administrators to tackle today's complex and exciting challenges in an expanding healthcare industry. The Master of Science in Healthcare Administration's (MSHA) unique design is perfect for the busy student wanting to advance their career. Students will learn the essential knowledge required for senior managerial and planning careers in the health services and systems sectors. Opportunities in healthcare administration exist locally, nationally, and globally. Because the modules focus on different aspects of the industry, graduates can have a successful career in a variety of organizations such as hospitals, nursing homes, physician group practices as well as with insurance providers and other health-related companies. As

the U.S. population continues to age and national health expenditures continue to increase, the demand for qualified healthcare administrators will become ever more pressing.

MSHA PROGRAM DESIGN
The MSHA program is offered in a series of three 9-credit modules (27 credit hours) and one elective (3 credit hours). Modules can be taken separately for individual certificates or stacked for the full MSHA degree.

MSHA PROGRAM REQUIREMENTS
Successful completion of the MSHA program requires:

- 27 credit hours of core courses and three credit hours of electives
- An 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 HEALTHCARE ADMINISTRATION CURRICULUM
TOTAL CREDIT HOURS: 30
Core Courses (27 Credit Hours)

Course Number	*Subject*	*Cr. Hrs.*
Module 1: Accounting, Finance and Marketing for Healthcare		
HCA 6003	Accounting Fundamentals for Healthcare Management	3
HCA 6033	Healthcare Finance	3
HCA 6053	Healthcare Marketing	3
Module 2: Healthcare Administration Fundamentals		
HCA 6073	Human Resources Management in Healthcare Administration	3
HCA 6093	Essentials of US Healthcare Sector	3
HCA 6203	Health Law and Regulations	3
Module 3: Information Technology in Healthcare and Global Healthcare Systems		
HCA 6233	Research and Data Analysis in Healthcare	3
HCA 6253	Information Technology and Healthcare IT Infrastructure	3
HCA 6273	Comparative Health Systems	3

Elective Course (3 Credit Hours)
Choose *one* of the following classes (prerequisites may apply):

Course Number	*Subject*	*Cr. Hrs.*
INT 6253	Managing Outsourced Project	3
INT 7253	Visual Analytics	3
INT 7623	Data Science for Business	3
INT 7513	Business Analytics and Data Mining	3
INT 7563	Agile Project Management	3
MBA 7003	Investment Management	3
MBA 7013	Financial Markets and Institutions	3
MBA 7023	International Finance	3
MBA 7073	Digital Marketing	3
MBA 7083	Marketing Research and Consumer Behavior	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
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

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 a unique dual degree program that combines the technical skill development of a specialty master's degree with the leadership competence gained through the MBA degree. Students enrolled in this program will receive two master's degrees, one in their field of expertise or specialty and the other in management (MBA), with one set of curricular requirements.

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 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. Most importantly, the fully accredited dual degree program remains true to Lawrence Tech's mission of blending theory and practice to provide its students with real-world experience.

The dual degree program consists of a minimum of 51 credits (excluding foundation courses), 27 of which are MBA credits. Many students are able to complete the program, exclusive of any required foundation coursework, in three years or less.

MASTER OF BUSINESS ADMINISTRATION/MASTER OF SCIENCE IN INFORMATION TECHNOLOGY (MBA/MSIT) CURRICULUM

TOTAL CREDIT HOURS: 51

Foundation Coursework

Students should consult with an academic advisor to discuss required foundation courses as they may vary depending on the program declared as the primary master's degree. Foundation courses are required for students without undergraduate coursework in business or information technology

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

MSIT Courses (21 credit hours)

Course Number	*Subject*	*Cr. Hrs.*
MBA 7063	Project Management	3
INT 6103	Python for Data Analysis and Visualization	3
INT 6113	Database Management Systems	3
INT 6123	Systems Analysis	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, the 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 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.

Additional Requirements
Foundation courses required for students without undergraduate coursework in business.

MASTER OF BUSINESS ADMINISTRATION/MASTER OF ARCHITECTURE (MBA/MArch) CURRICULUM
TOTAL CREDIT HOURS: 54

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.*

Additional Requirements
Foundation courses required for students without undergraduate coursework in business.

DUAL DEGREE PROGRAM FOR CURRENT STUDENTS AND ALUMNI

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.

GRADUATE CERTIFICATE IN CYBERSECURITY

This 15-credit-hour certificate is designed to provide students comprehensive knowledge of cybersecurity.

Students may work toward the Graduate Certificate in Cybersecurity 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 15 credit hours of the courses listed below (excluding foundation course INT 6043) and achieve a GPA of 3.0 or better.

Concentration: Cybersecurity
Foundation Course

Course Number	*Subject*	*Cr. Hrs.*
INT 6043	Management Information Systems	3

Core Courses

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 CERTIFICATE IN PROJECT MANAGEMENT

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 better.

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

Dean
Nabil Grace
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 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 Structural Engineering
Graduate Certificate in Telecommunications Engineering
Graduate Certificate in Transportation Engineering

DOCTOR OF PHILOSOPHY IN MECHANICAL ENGINEERING (PhD)

TOTAL CREDIT HOURS: 57

PhD IN MECHANICAL ENGINEERING ADMISSION REQUIREMENTS

Students applying for admission to the program are required to meet the following criteria:

- Hold a Master of Science in Mechanical Engineering or an equivalent degree in a related field from an accredited college or university. Exceptional students with an earned Bachelor of

Science in Mechanical Engineering may be considered for direct admission into the doctoral program. Please contact the program director.

- Have earned an overall GPA of at least 3.3 (B+) on a 4.0 scale in the Master of Science 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 online application for doctoral admission a minimum of two months before the beginning of the term in which the applicant expects to enroll.
- Submit three letters of recommendation.
- Submit a research statement describing subject(s) of interest.
- Non-native speakers of English must document English proficiency upon entry to the program (TOEFL minimum 450 or IELTS minimum 5.5). Students with TOEFL scores below 450 or IELTS below 5.5 will be directed to ESL coursework in addition to regular academic classes.

Students with a graduate GPA lower than 3.3 may be admitted on a provisional basis. They will be evaluated for continuation upon completion of nine credits of graduate coursework. This evaluation is conducted by the director of the PhD in Mechanical Engineering program, the chair of A. Leon Linton Department of Mechanical, Robotics, and Industrial 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 in Mechanical Engineering, then they are expected to terminate their 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 mechanical engineering and 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 program advisor(s) will define the prerequisite requirements.

PhD IN MECHANICAL ENGINEERING REQUIREMENTS

Students admitted to the program have to complete a minimum of 27 course credits (beyond the MS degree) and a minimum of 30 dissertation credit hours to satisfy the doctoral degree requirements. This is in addition to passing (a) Preliminary Qualifying Examination, (b) Final Qualifying Examination, and (c) Dissertation Defense.

It should be noted that those who are admitted to the program are defined as "PhD applicant" until they pass the Final Qualifying Exam. After passing the Final Qualifying Exam they become "PhD candidates."

Course credits are subjected to following requirements:

- 24 credits from 6000 level or higher mechanical engineering courses
- Three credits of mathematics (EME 6283 Engineering Analysis II)
- 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. Students are allowed to register for a maximum of 12 dissertation credits before becoming PhD candidates.

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

This decision will be impacted by the course's students took during their Master of Science in Mechanical Engineering program. 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 they select, students will be assigned to an advisor who will guide them throughout the process.

DOCTOR OF PHILOSOPHY IN MECHANICAL ENGINEERING REQUIREMENTS FOR DEGREE COMPLETION

Preliminary Qualifying Examination

All students are required to pass a written Preliminary Qualifying Examination within one year (12 months) after being formally admitted to the program as a PhD applicant. The exam is designed to test and evaluate the students' knowledge of the advanced application of the fundamental theories, principles, and concepts from their upper-level undergraduate and master's studies in engineering. Each student has only two chances to pass this examination, which will be administered twice a year (once in the fall and once in the spring semester).

It is the PhD applicant's responsibility to initiate the process by making a written request for the Preliminary Qualifying Examination. Eligibility to take the exam is determined by the director of the PhD in Mechanical Engineering program. The director forms a Qualifying Examination Committee, which creates and grades the exam. The director also administers the exam.

The three possible outcomes of the examination are: 1) pass; 2) fail (first try) and deferment for re-examination; or 3) fail (second try) and dismissal from the program. The student who is dismissed from the program will not be permitted to continue work toward the PhD and will be expected to terminate studies within the A. Leon Linton Department of Mechanical, Robotics, and Industrial 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 receiving written notice. The decision of the Doctoral Governance Committee is final.

The Qualifying Examination Committee reports examination results to the director of the PhD in Mechanical Engineering program and the department chair.

Selection of Academic Advisor and Dissertation Topic

All PhD applicants are required to select an academic advisor within one semester after passing the Preliminary Qualifying Examination. Typically, the academic advisor becomes the chair of the dissertation committee. If necessary, any full-time engineering faculty member can serve as co-chair.

The student's dissertation research must make a significant and important contribution to the knowledge in the 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 Doctoral Dissertation Committee, which serves as both the Final Qualifying Examination Committee and the Dissertation Committee for each PhD applicant/candidate, will be formed at least two semesters prior to the student taking the Final Qualifying Examination. The Dissertation Committee must include at least five members: a qualified academic advisor, an industrial advisor (if the research project is sponsored by a company), at least two members from the A. Leon Linton Department of Mechanical, Robotics, and Industrial Engineering, and at least one member from a cognate field outside of the department. Other qualified individuals not affiliated with Lawrence Technological University may also be appointed. 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.

When the Dissertation Committee has been selected and each prospective member has consented to serve, the designated Dissertation Committee chair requests that the department formally recommend the appointment of the Dissertation Committee to the Associate Dean of Graduate Studies and Research

Final Qualifying Examination
Before registering for more than 12 credits of Doctoral Dissertation Research, each student is required to successfully pass the Final Qualifying Examination. The examination is administered by the student's Doctoral Dissertation Committee and consists of an oral presentation of the student's proposed dissertation research and an optional written examination in the field of study pertaining to the proposed research. The written examination is given at the discretion of the student's Doctoral Committee and program director and is usually waived for students who are in good standing. To become eligible to take the Final Qualifying Examination, the PhD applicant must have maintained a minimum of 3.3/4.0 GPA. In consultation with their academic advisor, the PhD applicant should assume the responsibility for arranging the date, time, and venue of the Final Qualifying Examination.

The Final Qualifying Examination will consist of a presentation followed by an oral examination during which the PhD applicant defends his or her Dissertation Proposal in front of the Doctoral Dissertation Committee. Only the presentation portion of the examination is open to the public.

The student passes the oral and optional written examination upon the recommendation of the Doctoral Dissertation Committee. The student is allowed only one re-examination for each of the oral and written parts. After the student successfully completes the Final Qualifying Examination, the Final Qualifying Examination Committee recommends to the director of the PhD in Mechanical Engineering program and the department chair that the student can advance to Doctoral Candidate

status. Advancement to PhD candidate status is granted by the dean of the graduate programs upon recommendation of the department chair.

Preparation of the Dissertation
The steps in the process of completion, submission, and approval of the dissertation are specified in the *Doctoral Procedures*. The dissertation must be prepared according to the requirements. . A *final* draft of the dissertation must be submitted to each member of the Dissertation Committee for review and evaluation two weeks prior to the scheduled dissertation defense.

Dissertation Defense
The student must complete a minimum of 30 dissertation research credits to fulfill the degree requirements. The student may be enrolled in any remaining credits (typically six credits) during the semester of the dissertation defense. PhD candidates are responsible for maintaining constant contact with their committee members and updating them on their progress.

The Dissertation Defense is conducted by the Dissertation Committee. During the Dissertation Defense, the PhD candidate gives an oral presentation of the research and defends the dissertation. The Dissertation Defense is advertised by the department, but only the presentation portion of the Dissertation Defense is open to the public.

At the end of the Dissertation Defense, the Dissertation Committee informs the student of the outcome. The three possible outcomes of the Dissertation Defense are: 1) acceptance of the dissertation as it is; 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. Following successful completion of the Dissertation Defense, the Dissertation Committee recommends that the associate dean of graduate studies and research award the PhD in Mechanical Engineering degree to the PhD candidate.

An unbound final copy of the dissertation, incorporating all corrections specified by the Dissertation Committee, is required. This final copy is sent to a publisher for printing and binding the required number of copies as well as providing an electronic version.

Residency Requirement for PhD
Completing a PhD dissertation requires the complete commitment of the candidate to research that must be accomplished by working in a research laboratory that contains the necessary equipment. A PhD candidate must be a full-time student for at least two consecutive semesters (including a spring-fall semester combination) while working on the dissertation research project. The residency requirement shall be fulfilled by registering for six hours of dissertation research credits for two consecutive semesters.

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:

- Have a civil engineering background at the undergraduate level. Students with non-civil engineering backgrounds may only be considered on a case-by-case basis under very exceptional circumstances
- Hold a Master of Science in Civil Engineering or an equivalent degree from an accredited college or university. Exceptional students with an earned Bachelor of Science in Civil Engineering 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 in 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 civil engineering
- Submit an up-to-date professional resume
- 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 3.3 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 civil engineering graduate programs, the chair of the Department of Civil 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 civil engineering who have a GPA of at least 3.3 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 CIVIL ENGINEERING REQUIREMENTS FOR DEGREE COMPLETION

Students admitted to PhD in Civil Engineering program must earn a minimum of 24 course credits (beyond the master's degree) and 36 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.

Course credits are subjected to the following limitations:

- A maximum of 9 credits from the 5000-level civil engineering courses
- A minimum of 15 credits from 6000-and higher-level courses
- A maximum of 9 credits from 6000-and higher-level courses from other departments
- A maximum of 9 credits from three Civil Engineering Independent Research courses (i.e., ECE 7993)
- 6 credits of 4000- and higher-level courses in mathematics, probability, statistics or programming
- English as a Second Language (ESL) course credits and any required prerequisite course credits are not counted toward the degree

Descriptions of all graduate courses offered by the Department of Civil and Architectural Engineering are provided on BannerWeb. Students are required to consult the director of civil engineering graduate programs 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

To become eligible to take the PhD Qualifying Examination, PhD applicants must have completed a minimum of 12 credit hours beyond the master's degree and have a GPA of 3.3 or better in graduate coursework at Lawrence Tech. With special permission from the director of civil engineering graduate programs, students may include up to three credits of Civil Engineering Independent Research.

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 civil 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 civil 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 civil engineering graduate programs. The committee, comprised of at least three graduate faculty members, two of whom must be from the civil 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 Civil and Architectural 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 Civil

and Architectural 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.

Selection of a 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. 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 Committee

The Dissertation Committee must include at least four members of qualified faculty, including at least two from the Department of Civil and Architectural Engineering and at least one from a cognate field outside the Department of Civil and Architectural Engineering. Other qualified individuals not affiliated with Lawrence Technological University may also be appointed. 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.

After the prospective Dissertation Committee members agree to serve, the designated Dissertation Committee chair requests the Doctoral Governance Committee and the Department of Civil and Architectural Engineering to formally recommend the appointment of the Dissertation Committee to the associate dean of graduate studies and research.

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 a minimum of 30 credits toward the degree, including a maximum of 12 dissertation credits. In addition, this must occur within three years of passing the PhD Qualifying Exam. The Department of Civil and Architectural Engineering requires the student to have completed or enrolled in a minimum of six PhD dissertation credits at the time of the Proposal Examination. To become eligible to take 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 chair of the Department of Civil and Architectural 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 Civil and Architectural 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.

Preparation of the Dissertation
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 Examination
The student must complete a minimum of 36 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 Civil and Architectural Engineering and the College of Engineering's Doctoral Governance Committee of its decision. The PhD in Civil 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.

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 (Topic Dependent)	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 six credits of 4000-level civil engineering courses (senior-level electives) with the approval of the program director. In addition, students may apply up to 12 credits of the MCEM degree toward the MBA program at Lawrence Tech.

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

All architectural engineering graduates must:

1. Select appropriate concepts and principles of mathematics to solve architectural engineering problems
2. Apply concepts and principles of chemistry, calculus-based physics, and at least one other area of the natural sciences, to solve architectural engineering problems
3. Apply concepts and principles of social sciences relevant to architectural engineering
4. Apply aspects of the humanities to the solution of architectural engineering problems
5. Apply concepts and principles of materials science to solve architectural engineering problems
6. Select appropriate concepts and principles of solid and/or fluid mechanics to solve architectural engineering problems
7. Select appropriate experiments and analyze the results in the solution of architectural engineering problems
8. Develop a set of appropriate solutions to a complex problem, question, or issue relevant to architectural engineering

9. Analyze components of a project management plan for a complex architectural engineering project
10. Apply concepts and principles of engineering economics in the practice of architectural engineering
11. Apply concepts and principles of probability and statistics to determine risk relevant to architectural engineering
12. Integrate solutions to complex problems that involve multiple specialty areas appropriate to the practice of architectural engineering
13. Develop an appropriate design alternative for a complex architectural engineering project that considers realistic requirements and constraints
14. Assess advanced concepts and principles in the solutions of complex problems to develop a mastery in a specialty area of architectural engineering
15. Apply concepts and principles of sustainability to the solution of complex architectural engineering problems
16. Integrate different forms of effective and persuasive communication to technical and nontechnical audiences
17. Apply concepts and principles of teamwork and leadership, including diversity and inclusion, in the solutions of architectural engineering problems
18. Integrate new knowledge, skills, and attitudes acquired through self-directed learning into the practice of architectural engineering
19. Explain professional attitudes relevant to the practice of architectural engineering, including creativity, curiosity, flexibility, and dependability
20. Apply professional responsibilities relevant to the practice of architectural engineering, including safety, legal issues, licensure, credentialing, and innovation.
21. Apply appropriate reasoning to an ethical dilemma

All students should have an advisor/director-approved Plan of Work. Contact 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.*
SSC 2413	Foundations of American Experience	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.*
SSC 2423	Development of American Experience	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 1213	World Masterpieces 1	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.*
LLT 1223	World Masterpieces 2	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
EME 3033	Engineering Numerical Methods	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
EME 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.*
ECE 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 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 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

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 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.

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 10 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 three-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. 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 5203	Design of Mechanical Joints	3
EME 5243	Finite Element Analysis 2	3
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
EME 5983	Special Topics: Autonomous Vehicles	3
EME 6103	Engineering Materials	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 6473	Hybrid Electric Vehicles	3
EME 6523	Combustion and Emissions	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 I: Research Thesis

Core Courses (5 courses)	15/16credits
Electives (2-3courses)	6-9 credits
Research Thesis	6–9 credits
Total Credit Hours	30/31 credits

Option II: Design Project

Core Courses (5 courses)	15/16credits
Electives (3-4courses)	9-12 credits
Design Project	3–6 credits
Total Credit Hours	30/31 credits

Core Courses (15/16 Credits)

Choose **ONE** of the following advanced mathematics courses (3/4 credits):

Course Number	*Subject*	*Cr. Hrs*
EME 5253	Engineering Analysis 1	3
EEE 5114	Engineering Analysis	4
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 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 88 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 5132	Anatomy for Cardiovascular Science	2
CVP 5003	Patient Care and Professionalism	3
CVP 5103	Physiological Science and Hematology	3
CVP 5113	Monitoring of Cardiovascular Patients	3
CVP 6400	Perfusion Theory and Practice I Lab Component	0
CVP 6406	Perfusion Theory and Practice I	6
	TOTAL	17

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 6410	Perfusion Theory and Practice II Lab Component	0
CVP 6416	Perfusion Theory and Practice II	6

CVP 6702	Research Methods		2
		TOTAL	15

Semester 3

Course Number	*Subject*		*Cr. Hrs.*
CVP 6711	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 6721	Capstone Research Project I		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 six 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 eight 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 I: Coursework Only
This option requires sixteen (16) credit hours of core courses plus sixteen (16) credit hours of technical electives for a total of thirty-two (32) 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 (6XX4) require completion of core courses or specific approval by both the instructor and the chair.

Option II: 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 (20) credit hours of a combination of any of the core and technical electives courses plus a ten (10)-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 ten 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: 32 (Option I Coursework Option) or 30 (Option II Thesis Option)

Core Courses (16 credits)

Course Number	*Subject*	*Cr. Hrs.*
EEE 5114	Engineering Analysis	4
EEE 5654	Digital Signal Processing	4
EEE 5444	Digital Communications	4
EEE 5534	Digital Control Systems	4

Technical Electives (14-16 credits)

Course Number	*Subject*	*Cr. Hrs.*
EEE 5144	Power Distribution Systems	4
EEE 5134	Electrical Machines and Transformers	4
EEE 5204	Advanced Computer Architecture	4
EEE 5264	Advanced Microprocessors	4
EEE 5274	Digital Image Processing	4
EEE 5284	Parallel Architectures	4
EEE 5314	Power Electronics	4
EEE 5324	Network Synthesis	4
EEE 5364	Computer Networking	4
EEE 5524	Modern Control Systems	4
EEE 5554	Applications of Artificial Intelligence	4
EEE 5564	Interfacing and Control of Robots	4
EEE 5624	VLSI Systems Design	4
EEE 5634	Optical Systems Engineering	4
EEE 5784	Communication Circuits	4
EEE 5911–4	Directed Study	1–4
EEE 5993–4	Special Topics/Elect. and Comp. Eng.	3–4
EEE 6144	Smart Grid Communications	4
EEE 6444	Software Defined Radio	4
EEE 6524	Nonlinear and Optimal Control	4
EEE 6534	Adaptive Control	4
EEE 6704	Engineering Optimization	4
EEE 6784	Advanced Communication Theory	4
EEE 6901–4	Master's Project	1–4
EEE 6911–3	Master's Thesis Research	1–3
EEE 6993–4	Adv. Spec. Topics/Elect. and Comp. Eng.	3–4

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.

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 nine 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 I: Coursework and Thesis

Core Courses (4 courses)	12 credits
Electives (3 courses)	9 credits
Thesis	9 credits
Total Credit Hours	30 credits

Option II: 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 5453	Vehicle Crashworthiness	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.*
EME 6103	Engineering Materials	3
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 5534	Digital Control Systems	4
EEE 5654	Digital Signal Processing	4

Solid Mechanics, Dynamics, and Vibrations Systems

Course Number	*Subject*	*Cr. Hrs.*
EME 5203	Design of Mechanical Joints	3
EME 5343	Mechanics of Composite Materials and Structures	3
EME 5983	Special Topics – Adv. Structural Mechanics for Mechanical Engineers	3
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 31-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)	22 credits
Thesis Option or Electives (3 courses)	9 credits
Total Credit Hours	31 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 5534	Digital Control Systems	4
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
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
MRE 6113	Analytical & Adaptive Dynamics in Mechatronic Sys.	3
MRE 6123	Mechanical Design of Mechatronic Sys./Robots	3
MRE 6143	Adaptive Control in Mechatronic Systems	3
MRE 6153	Optimization in Mechatronic Systems	3
MRE 6283	Autonomous Wheel Power Mgt. Systems	3
MRE 6293	Intelligent Tire & Vehicle Structure Mechatronics	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 5274	Digital Image Processing	4
EEE 5654	Digital Signal Processing	4

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
MSE 5133	Modern Control in Mechatronics	3
MSE 5143	Aerospace Systems Engineering	3
EME 5153	Applied Thermodynamics	3
MSE 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

**Students must have a minimum grade of C- in ECE 5213 before taking this class.*

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

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

Interim Dean
Richard Heist
M346, 248.204.4103

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 evidence-based practice guidelines, 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.

MASTER OF SCIENCE IN PHYSICIAN ASSISTANT STUDIES

LTU is pleased to announce that it has launched a 2-year master's degree program in Physician Assistant Studies that commenced in the Fall Semester 2022. Students have the privilege to practice in a state-of-the-art simulation lab and utilize a newly built laboratory and classroom with integrated technology throughout. Our cohort of 30 students means smaller class sizes and opportunities for individualized instruction. Our interdisciplinary team of PA faculty are committed to your success from the beginning and are looking forward to speaking with you about the program. 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 two 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 three 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. Your 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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	Jacqueline Moody
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Ascension Metro West Region	
Chief Nursing Officer	Tammie Steinard, RN, BS, BSN,
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Department Chair/Program Director	**Charles Regan, M.S., PA-C**
Medical Director	Alan Ghassan, M.D.
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	MPAS, PA-C
	Janelle Yousif, MPAS, PA-C
	Amber Murphy, MPAS, PA-C
Program Coordinator	Elizabeth Porter
Clinical Coordinator	Robin Ochoa

Faculty Committees

Academic Standing

The Academic Standing Committee consists of the University Academic Advising department, and representatives from the four 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 four 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 four college deans, the dean of students, and the dean of graduate programs. 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 four members. All four 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 on annual contracts.

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 is an ex-officio member.

Library
The Library Committee acts as an advisory board for the director of the library on service and policy issues. It consists of six 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 assistant provost, a representative of the vice president for finance and administration, a representative of the office of corporate and community partnerships, and four 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 2.10.7 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.