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KETTERING UNIVERSITY ONLINE

Graduate Online offers seven degree programs and eight certificates that continue to focus on developing graduates with strong technical and business skills and individuals poised to take on the challenges of leadership in organizations. The format for each course has been designed to promote more interactivity between students in the classes, as well as live office hours each week with a professor to ensure comprehensive learning. Graduate Online courses are taught primarily in accelerated sessions (seven and nine-week courses), and some twelve-week courses are offered in the MSE ECE- Advanced Mobility program. These models allow adult students to move more efficiently through their Graduate programs employing a ***"Learn Today-Use Tomorrow"*** philosophy that provides practical application of knowledge to the real world.

Currently, Graduate Online offers the Master of Science Lean Manufacturing (MSLM), the Master of Science in Lean Systems (MSLS), the Master of Science Engineering Management (MSEM), the Master of Science Operations Management MSOM), the Master of Science Supply Chain Management (MSSCM), Master of Business Administration (MBA), and the Master of Science Engineering (Concentration in Electrical and Computer Engineering-Advanced Mobility). The Advanced Mobility program is focused on reskilling engineers to work in the field of electrification and autonomous vehicles.

In addition to degrees, Graduate Online offers eight distinct certificates taken as part of a Master's degree or as a stand-alone. Individuals may take one or more classes to enhance their skills and do not need to pursue an entire degree. This option allows the student to use the class towards a degree later. Students who finish a first Master's degree can also add a second Master's degree within the six-year time period with as few as four to five additional courses.

Graduate Online continues to work to provide students with one of the best career development and enhancement options in the Midwest. We continually strive to provide the best graduate and online education options available in the country with our award-winning staff and programs.

About the Catalog

The online Kettering University catalog (Undergraduate, Graduate, Kettering University Online) reflects current academic policies, procedures, degree offerings, course descriptions, and other pertinent information. This digital version of the catalog is the official catalog of the University. The printed catalog is no longer the official catalog of the University, and in the case of any difference between the printed catalog and the online catalog, University officials will be guided by the online catalog.

The catalog should not be considered a binding contract between Kettering University and students, and the University reserves the right to make changes in curricula, degree requirements, course offerings, or academic policies at any time **with or without prior notice**.

2025-2026 Academic Calendar - Graduate Online

The calendar is a downloadable .pdf file on Kettering University's Academic Calendars Webpage.

Seven Week Terms

Date	Event
June 30-August 15, 2025	Summer I
August 11-September 26, 2025	Summer II
September 22-November 7, 2025	Fall I
November 3-December 19, 2025	Fall II
January 5-February 20, 2026	Winter I
February 16-April 3, 2026	Winter II
March 30-May 15, 2026	Spring I
May 11-June 26, 2026	Spring II

Nine Week Terms

Date	Event
June 30-August 29, 2025	Summer
September 22-November 21, 2025	Fall
January 5-March 6, 2026	Winter
March 30-May 29, 2026	Spring

12 Week Terms

Date	Event
September 22-December 12, 2025	Fall
January 5-March 27, 2026	Winter
March 30-June 19, 2026	Spring

Graduate Online Academic Programs

Kettering University has been offering graduate programs through distance education since 1982. Today, those distance programs have transitioned to online delivery using platforms and formats in keeping with industry best practices. Each program is designed to prepare future leaders for a global workplace with 'first-class education that reflects the real world.' Many students are able to complete a program in less than two years since most programs only require ten classes for completion (prerequisites and other criteria may apply to some programs). Graduate programs leverage nationally-ranked faculty and professionals who are recognized for their commitment to the practical application of learning to the real world. Kettering University has long been admired by educational peers and businesses as a leader in developing top engineers and corporate managers, in short, individuals who change the world.

Graduate Programs

- Master of Business Administration
- MS Engineering (Concentration in Electrical and Computer Engineering-Advanced Mobility)
- MS Engineering Management
- MS Lean Manufacturing
- MS Lean Systems
- MS Operations Management
- MS Supply Chain Management

Certificate Programs

- Electric Vehicles Certificate (stand-alone certificate only)
- Foundations of Data Science
- Global Leadership
- Lean Principles for Healthcare
- Management and Leadership
- Operations Management
- Supply Chain Management Level I & Level II

MS in Lean Manufacturing

This program is available online.

One of a kind – Developed in Partnership with General Motors

Kettering University's online Master of Science in Lean Manufacturing emphasizes engineering and practical application of theory and is the only program of its kind. What better place to learn modern manufacturing process knowledge and Lean Six Sigma skills than the university that taught the brightest minds in automotive manufacturing? Kettering University's online Lean Manufacturing degree was developed in collaboration with General Motors to provide the skills needed to improve quality output, streamline processes and reduce waste. General Motors employees who complete the Capstone course bring the results of this course back to the company to share waste reduction and cost savings ideas. Within a ten year period the program is reported to have saved General Motors over $30M.

The curriculum for the Lean Management program involves 10 courses totaling 40 credit hours including:

- Seven core courses for 28 credits, plus
- Three certificate courses for 12 credits

Code	Title	Credit Hours
MFGO-601	Globally Integrated Manufacturing Company	4
MFGO-619	Six Sigma: Introduction to DMAIC	4
MFGO-633	Lean Production Systems	4
MFGO-635	Work Analysis for Lean Production Application	4
MFGO-639	Quality Assurance and Reliability	4
MFGO-649	Metrics for Lean Production Improvement	4
MFGO-659	Integrative Capstone Project	4
	Credit Hours Subtotal:	*28*

Certificate options are Global Leadership, Lean Principles for Healthcare, Operations Management , Supply Chain Management Level I & Level II and Management and Leadership.

MS in Lean Systems

Lean thinking has emerged as a powerful approach for enhancing efficiency, reducing waste, and achieving operational excellence in both manufacturing and service industries. While other Lean programs focus primarily on manufacturing, the Master of Science in Lean Systems (MSLS) provides the knowledge and tools necessary to understand, implement, and lead Lean practices in a variety of organizational settings.

The Master of Science in Lean Systems (MSLS) provides students with a deep understanding of Lean principles, systems thinking, and their application across diverse industries. The program combines the core tenets of Lean methodology with cutting-edge systems engineering concepts to produce graduates who are adept at optimizing complex systems, driving operational excellence, and leading transformative change within organizations.

Program Structure: The MSLS program is typically structured over a span of two academic years and
comprises a blend of core courses, elective courses, and a culminating capstone experience.

Code	Title	Credit Hours
MFGO-610	Foundations of Lean Organizations	4
MFGO-619	Six Sigma: Introduction to DMAIC	4
MFGO-633	Lean Production Systems	4
MFGO-635	Work Analysis for Lean Production Application	4
MFGO-639	Quality Assurance and Reliability	4
MFGO-649	Metrics for Lean Production Improvement	4
MFGO-659	Integrative Capstone Project	4
Total Credit Hours		**28**

Plus, one of the three-course graduate certificates listed below:

- Global Leadership
- Operations Management
- Lean Principles in Healthcare
- Management and Leadership
- Supply Chain Level I
- Supply Chain Level II

BS/Master Pathway

BS/Master Pathway

This option is available to Kettering University undergraduate students entering any Kettering University graduate program, either residential or online.

Kettering University undergraduate students interested in graduate study may elect to apply to the BS/ Master Pathway, which provides students with an opportunity to complete a baccalaureate degree while earning credit towards a graduate degree. This program is exclusively available to Kettering University undergraduate students and leverages the University's premier academic programs. Students admitted to the BS/Master Pathway will complete the same total number of Co-op work terms as conventional undergraduate students.

- Students can apply before graduating (after completing 90 undergraduate credit hours) or within four (4) years of obtaining their baccalaureate degree.

- The student completes the baccalaureate degree, with the traditional undergraduate thesis (BS), and receives the degree at the conventional time.
- Up to sixteen (16) credits or four courses, of *400 or 600 level credit, completed as an undergraduate, and for which a grade of B or better was earned, are also applied to the graduate degree. (Undergraduate capstone courses are not eligible.) (*400 level courses must be part of an approved 400/600-course offering.)
- Twenty-four (24) graduate credits remain to meet the graduation requirement of 40 graduate credits for a degree (Master of Engineering students will need to complete six additional graduate courses to complete the graduation requirement).

Grade Requirements for Admission to BS/Master Pathway

A minimum GPA of 3.0 is required. Students with a GPA below 3.0 may be considered on an individual basis. The degree granting department will determine acceptance.

Other Requirements

- Both part-time and full-time students may qualify for this program.
- This program is only available to students who will receive (or have received) a Kettering University bachelor's degree.

For more information, please contact the Graduate School at gsr@kettering.edu.

Second Master's Degree

Pursuing a Second Master's Degree

Graduates of Kettering University's MS and MBA programs are encouraged to pursue a second master's degree subject to the following policies.

- Students pursue a single master's degree at a time. Students desiring a second master's degree must complete the application.
- To earn a second master's degree, students must complete all degree requirements for the degree. In so doing, students must complete additional credit hours equal to a minimum of 40% of the second degree's requirements:
  - For MBA (or MS) graduates pursuing a 10 course MS degree – minimum of four additional courses (16 credits).
  - For MS graduates pursuing a 10 course MBA degree – minimum of four additional courses (16 credits).
  - For students interested in pursing an MS in Mobility Systems or Mechanical Engineering as the 2nd degree see below:
    - Both MS Mobility Systems & Mechanical Engineering require students to meet ALL requirements for the program. The minimum amount of additional graduate work to meet these requirements is 24 credit hours (for those students who choose the graduate thesis option - four courses plus eight hours of graduate thesis). Students who do not elect the graduate thesis option will need to complete an additional 28 credit hours.
    - For the Mobility Systems graduate program **only,** ECE-610 (4 credits) is required. However, students only need to complete it once. For example, if ECE-610 was completed during the first Masters degree program, students are not required to take it again as part of the second graduate degree program.
    - For the Mechanical Engineering graduate program **only,** MECH-600 (4 credits) is required. However, students only need to complete it once. For example, if MECH-600 was completed during the first Masters degree program, students are not required to take it again as part of the second graduate degree program.
    - Two graduate level courses (8 credits) from the first Masters degree can be applied to the second Masters degree program assuming the courses are eligible core or elective graduate program courses. A third graduate level course from the first graduate degree program may also be applied provided that A) the student elects to pursue a Masters thesis option in the second Masters degree program and B) the third course is also an appropriate core or elective course in the second Masters degree program.
- In order to gain maximum advantage from prior course work, graduates must apply for their second master's degree within three years of graduating from their first-degree program. The admission committee will review applications beyond the three-year time limit to establish the relevancy of their course work. Students in this case may be required to complete more than 40% of the second degree's requirements.
- Students may request to transfer in a maximum of eight credits to Kettering University for use in their graduate studies. Pursuit of a second master's degree does not raise this limit. Transfer credit is only considered for courses with a grade of B or better.
- Students must successfully complete all prescribed courses within the six (6) year limit. A student who anticipates not meeting the time limit must notify the Graduate Office at least six (6) months prior to the expiration of the six (6) year limit.

Learning Outcomes

Graduate Learning Outcomes

- **Communication** – demonstrate effective communication to a diverse range of professional audiences
- **Research and analytical skills** – demonstrate the ability to collect and synthesize information in ways consistent with the highest professional standards
- **Ethics** – develop a framework that recognizes and chooses ethical courses of action
- **Leadership and teamwork** – exhibit professional integrity, ethical leadership, and effective collaboration skills
- **Global perspective** – contribute to a sustainable world as informed by a global perspective
- **Entrepreneurial Mindset** – possess the skills necessary for creative and innovative problem-solving, awareness of customer needs, and opportunity recognition

Admissions for Graduate Online

Graduate Online Programs

- **Master of Science Engineering Management**
- **Master of Science Engineering - ECE - Advanced Mobility**
- **Master of Science Lean Manufacturing**
- **Master of Science Lean Systems**
- **Master of Science Operations Management**

- **Master of Business Administration**
- **Master of Science Supply Chain Management**

Students admitted to the MS Engineering Management, MS Operations Management, MS Lean Manufacturing, MS Lean Systems, MSEN (ECE) and MBA programs require certain completed undergraduate courses (prerequisites) in specified areas. A course in these required areas must have been passed with a C or better. Applicants who have not completed courses in these areas may require prerequisite courses prior to beginning a program. In some cases, an applicant may be able to take the Foundations of Business course or Business Statistics course and pass to meet the requirement for prerequisites. Alternatively, a student may complete the required prerequisite course(s) through Kettering University or another accredited University or taking the self-directed study courses and passing a qualifying exam to opt out of taking a full course. Contact your Admissions Advisor or Kettering Global (graduateonline@kettering.edu (kuonline@kettering.edu)) for further information about the self-directed studies offered in certain prerequisite areas.

To be admitted to the MSEN (ECE) or MS Engineering Management degree programs an applicant must have an undergraduate engineering degree (not engineering technology degree) or in some cases a degree in computer science..

Graduate Online Admission is the process by which a student submits a completed application, including official transcripts, a statement of purpose (why the applicant is pursuing this degree from Kettering), letters of recommendation (one from current supervisor, two professional), current resume, and meet all admission requirements for a specific degree program. Review for admission into a graduate degree program occurs once the application process is complete. Student admission applications are evaluated individually and fully to determine not only if a student meets all admission requirements, but if the committee believes the student can be successful in a program based on the information submitted. The student is either granted or denied program admission. After being granted program admission, the student will be contacted by their professional advisor to be registered for courses. KUO students may not self-register. This is to ensure that students do not register for an incorrect or unnecessary course. Students are expected to take a course within two terms from approval and be registered or taking a course at all times from that point on. Failure to begin courses may result in removal from the program and the need to reapply.

Expectations for registrations and taking classes

Students pursuing degrees through Graduate Online are expected to be actively pursuing their degrees. Once admitted, a student is immediately registered for the term they requested in the application. Students can delay the start of classes by only one term. Failure to begin classes within two terms will require a petition to remain active and may require students to reapply for admission.

Students are expected to be taking a course or registered for a future course in the same academic year to be considered actively pursuing their degree. The expectation is that students take a minimum of four (4) courses per academic year in order to ensure that learning takes place during an appropriate time period, and the degree can be completed within an appropriate time frame. Failure to remain active may result in auto-withdraw of the student by the University. In special circumstances, students may request permission to defer taking courses. This deferment may or may not be granted.

Graduate Online's admission process can be completed in three steps:

- Determine which MS program fits your needs
- Complete an Admissions Application online
- Request all required materials to be mailed or emailed to Kettering University's Kettering Global Office or to the appropriate Admissions Advisor.

The Admissions Committee for the appropriate program will not review an admission file until it contains all required materials. Kettering does not discriminate on the basis of race, color, sex, gender identity, creed, age, physical challenge, or national origin.

Application Deadlines

KUO has rolling admission, and applications may be submitted at any time.

Admission Requirements

Opportunity for full admission requires*:

- A minimum of a 3.0 on a 4.0 Grading System, or International equivalency
- 85 Overall Grade Point Average on a 100 grade point scale (former Kettering University scale)
- Three (3) letters of recommendation (one from a current supervisor and two professional recommendations)
- Statement of Purpose
- Current Resume
- Transcripts from all academic institutions attended
- Joint Services Transcript (if applicable)

There is no application fee for Graduate Online for domestic or International students.

International students - See international requirements

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*KUO reserves the right to deny admission to applicants who do not
 have an undergraduate degree in a
STEM-related field or from an accredited University or who do not
 meet prerequisite expectations.
The Admission committee's decision is final.
All applicants are reviewed and decided on a case-by-case basis.
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Undergraduate Degree from an Accredited Institution

A bachelor's degree from a regionally accredited U.S. university/college or its international equivalent is required for admission into a graduate program.

Engineering Management applicants must possess a degree in an engineering discipline from an ABET-accredited engineering program.

MSEN (ECE) applicants should have a degree in an engineering, math, computer science or physics discipline from an ABET-accredited engineering program to be accepted.

All students applying for admission must submit official copies of their undergraduate transcripts for any institutions attended prior to application submission, including transcripts indicating receipt of an undergraduate degree from an accredited U.S. college or university or international equivalent. Transcripts cannot be accepted directly from the student.

An official transcript is an unopened, original transcript submitted directly from the previous college to Kettering University. International students are required to submit a credential evaluation from a member of the National Association of Credential Evaluation Services (NACES). This evaluation is at the expense of the student. Applicants who received their undergraduate degree from Kettering University do not need to submit their Kettering transcripts, but are required to submit transcripts from any other university attended.

Applicant Checklist

Use the admissions checklist below to assist you in completing your admission packet. Refer to the specific degree program admission requirements in this catalog to ensure that you include all necessary materials for your desired program.

Application for Admissions

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Apply online: online.kettering.edu
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Official Transcripts

Request all official transcripts (unopened, original transcripts from all institutions the applicant attended an undergraduate studies course) to be sent directly from your previous college/university to graduateonline@kettering.edu. Individuals with military service should also submit a Joint Services Transcript.

Statement of Purpose

All applicants should create a statement of purpose, detailing reasons for choosing a Kettering Master's degree, explaining any inconsistencies in undergraduate academic performance, as well as ways this degree may enhance their life and career.

Letters of Recommendation

Three **professional** letters of recommendation are required for all program applicants. One letter must be from a current supervisor; personal letters of recommendation from family or friends are not accepted. All letters of recommendation should be from professional colleagues or former instructors.

Resume

A current, up-to-date resume.

GRE General Section Test

While the GRE General Section test is not required, it is strongly recommended for applicants.

International Applicants

International Applicants must complete all of the above requirements but must also:

- **Pass an English language proficiency exam with a qualifying score (see below)**
- **Provide a copy of their passport**
- **Provide a translation of their academic transcript(s) from an accredited agency, if applicable**
- **There is no application fee for international students taking exclusively online programs. No evidence of financial ability is required. Students who do not pay for classes are barred from further registration. International transcripts must provide an evaluation from an approved accrediting body**

Credential evaluation for foreign transcripts

A course-by-course credential evaluation of undergraduate transcripts is required for admission for students who have completed their Bachelor's degree outside the U.S. A course-by-course evaluation identifies and describes each credential in terms of its principal elements: name of credential, requirements for entry and program length, and expresses an equivalency in terms of U.S. education. The fee for this service will be at the student's expense. KUO only accepts transcript evaluations from companies that are recognized by the National Association of Credential Evaluating Services (NACE). The minimum Grade Point Average (GPA) for full admission is 3.0 on a 4.0 scale, or the International equivalent is also required. Applicants without a GPA equivalency may only be admitted provisionally. Provisional admittance requires a student to complete their first two core program graduate courses with a GPA of 3.0. Failure to complete the first two courses with a 3.0 may result in dismissal from the program.

English Language Proficiency

Applicants whose native language is not English and who have not earned a Bachelor's degree from a U.S. institution are required to take TOEFL, International English Language Testing System (IELTS), or complete level 112 at an approved ELS center. Please have official scores sent to your Admissions Advisor or graduateonline@kettering.edu. Photocopies will not be accepted. Our minimum score requirements are:

TOEFL: Internet-based IBT: 79; TOEFL essentials minimum score of 8.5 with section scores of at least 8.0

IELTS: Minimum Ban score of 6.0

These scores are good for two years.

Submission of Application Documentation

The application portal allows you to upload all requested documents directly, except for transcripts.

Notification of Admission

Applicants will be notified of the Admissions Committee's decision via email. Once Graduate Online has received your application and all supporting documents, please allow approximately two weeks for processing.

Readmission Policy

Students who were previously accepted and lost their active status need to reapply.

The process to reapply is as follows:

- Complete the Graduate application for readmission form and submit to graduateonline@kettering.edu
- Request official transcripts from any institution attended since previous admission be sent to graduateonline@kettering.edu
- Submit three new letters of recommendation (one supervisor, two professional) to graduateonline@kettering.edu. Previously submitted letters will not be accepted.
- Submit a new Statement of Purpose addressing the reason for reapplication and plan for success in the program to graduateonline@kettering.edu

Financial Aid

Several financial aid programs exist for Graduate Online students. Loans may be available; students who contemplate applying for financial aid should contact the Financial Aid Office for further information at: 800-955-4464 ext. 7859 or finaid@kettering.edu.

Students who receive tuition assistance or reimbursement from their employer should contact their financial aid advisor to see how their aid is impacted.

Federal Direct Loan

If you are considering Financial Aid please apply as soon as possible.

There are two types of Federal Direct Loans that graduate students may apply for:

1. **Direct Unsubsidized Loans** – Eligible students may borrow up to $20,500 per school year.
2. **Direct PLUS Loans for Graduate Students** – Eligible graduate students who need to borrow more than the maximum unsubsidized loan amounts to meet their cost of attendance may apply for a PLUS loan. A credit check will be performed during the application process.

In order to qualify for the Direct Loan, students must first complete the FAFSA (Free Application for Federal Student Aid) and submit all requested documents to the Financial Aid Office.

International students do not qualify for U.S. Federal loans.

Alternative Loans

Alternative loans (private student loans offered by various lenders) are another source of financing educational costs. These loans are based on credit approval, and interest begins accruing upon disbursement of the loan. Each loan has different terms, borrowing limits, interest rates, and other special criteria. Additional information on alternative loans can be found on this website.

Satisfactory Academic Progress (SAP)

Minimum cumulative grade-point average (GPA): For financial aid consideration, students remain in good standing when they maintain a cumulative grade point average (GPA) of 3.0 or higher. Students falling below the minimum cumulative grade point average of 3.0 and the minimum last term GPA of 3.0 are placed on Financial Aid Probation or Suspension as appropriate.

Maximum time frame for degree completion: Graduate students are expected to begin their education in the term of admittance. Students who wish to request a deferment to begin their program must make a formal request. Students who are not taking a course or registered for a future course may be withdrawn from the University. Students must complete their degree(s) within 6 years of the start of their first course; failure to do so may result in retaking of courses.

Financial Aid Warning

Graduate students are evaluated at the end of each academic term to determine if students meet the standards described above. Graduate students who fail to meet the minimum 3.0 cumulative grade point average standard will be placed on Financial Aid Warning for the subsequent term/period of enrollment. Financial aid can be received during the term of warning. Financial aid disbursement for the next period of enrollment will be held until grades have been reviewed for the warning term/period of enrollment of Financial Aid Warning; they must successfully complete the term without any failures, incompletes, or withdrawals.

Financial Aid Suspension

The Financial Aid Office reviews the records of students on financial aid warning at the end of the term in which they are placed on warning. If the student is still not meeting the minimum cumulative grade point average (3.0), the student forfeits eligibility for all federal and institutional financial aid programs.

Financial aid will be suspended until the student successfully meets the cumulative grade point average standards. The student is responsible for paying their own expenses, such as tuition, fees, books, supplies, etc., and will not be reimbursed for the period(s) of financial aid suspension.

Right to Appeal

Students have the right to appeal any decision of ineligibility to continue to receive financial assistance unless they have previously been granted an appeal. Appeals must be filed within 30 days of notification that aid eligibility has been lost.

An appeal should be based upon some unusual situation or conditions that prevented a student from passing one or more courses or that necessitated withdrawal from courses. Examples of possible situations include documented serious illness, severe injury, or death of a family member.

Graduate Level Tuition and Fees

Expenses

The current tuition and business related fees are listed below. The Student Accounts Office will send an email notification to your Kettering email when your tuition bill is ready to view via KU.ePay in Banner Self Service.

KU.ePay is the university's online billing and payment service, which provides our students the ability to view and pay their student account bill online, 24 hours/day, seven days a week. Students may authorize others to access their KU.ePay account and make payments on their behalf.

With KU.ePay, students and authorized users are able to:

- Review their student account activity.
- View and print billing statements.
- Make a payment on their student account, including a single payment or sign up for a payment plan.
- View and print Form 1098-T.

Payments may be made via an ACH transaction from a bank account or credit card. International payments may be made through KU.ePay, and will be processed as a bank wire. Please visit KU.ePay for more information. Payment in the form of a check, money order, or cashier's check may be sent directly to the Student Accounts Office.

Any account not paid in full by the first day of class will be subject to a $40 late fee and a financial hold.

Tuition for the 2025-26 Academic Year

Graduate Online Tuition (per credit hour)	
Online MBA	$1028

Online MSSCM	$992
Online MSLM	$1008
Online MSLS	$1008
Online MSECE 30 Credit Hours	$1035
Online MSEM	$819
Online MSOM	$693
Electric Vehicle Certificate	$1035
All Other Stand Alone Certificates	$965
MGMT-510 & BUSN-522	$1028

Business Related Fees

NSF ACH/Check Processing Fee	$25
Graduate Late Payment Fee	$40
Graduate Transfer or Credit Posting Fee (per credit hour)	$5
Graduate Graduation Fee	$160

When registered for courses, students acknowledge enrollment in the course(s) and authorize Kettering University to bill for any related tuition and fees. Payment is due by the first day of class. A financial hold and late fee will be assessed on the account for those students who have not paid their tuition or submitted a tuition assistance voucher from their employer. This 'hold' prohibits future course registration and may cause course cancellations, and will result in grades and transcripts being withheld.

Employer Assistance

Many employers provide financial assistance for graduate study. Programs differ, so interested students should contact the appropriate office at their place of employment. Depending on company policy, Kettering University may be able to bill the employer directly for tuition. Students whose tuition is to be billed to their employers must submit complete and proper authorization from the employer to the Kettering University Student Accounts Office via fax 810-762-9603 or email studentaccounts@kettering.edu. Students should apply for their employer tuition assistance as soon as possible since costs and course offerings are known in advance. **Any portion of tuition that will not be paid by the employer must be paid by the student**. Kettering University will hold the student responsible for payments not received from the employer.

Tuition Refund Policy for Graduate Online Programs

Due to the shorter length of online courses, there is a limited refund policy. Students in online courses should be certain to become familiar with all course materials in the week prior to classes beginning to make a decision about continuing. Registered students who do not drop their course by Wednesday of preview week will be charged the full tuition for the course.

Preview Week Wednesday	100%
After Wednesday 11:59 pm ET of Preview Week	No Refund

Online students wishing to drop a course should contact their Professional Adviser by Wednesday of Preview Week.

Questions related to tuition and fees should be directed to the Student Accounts Office at 800-955-4464 ext. 9552 or studentaccounts@kettering.edu.

VA Education Benefits

Kettering University will permit any covered individual 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 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:

1. The date on which payment from VA is made to the institution.

2. 90 days after the date the institution certified tuition and fees following the receipt of the certificate of eligibility.

Kettering University 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 student borrow additional funds because of the student’s inability to meet their financial obligations to the institution due to the delayed disbursement of a payment to be provided under chapter 31 or 33.

Academic Policies and Regulations

All faculty and students are urged to review and understand the University’s Academic Policies and Regulations. This section is intended as a convenient reference for faculty, staff and students. It also serves as a description of the student’s academic rights and responsibilities and as a guarantee of equitable treatment for all students. Some sections may reference other sections of the catalog, when necessary. Each section also concludes with the name of the official or office to contact with questions.

Academic Advising/Standing/Status

Academic Advising

Academic advising represents a shared relationship between the student and their academic or professional advisor and a process of continuous improvement, clarification and evaluation with the aim of assisting the student in achieving their goals. Each academic department has established its own system for facilitating academic advising processes. In addition to following the representative program, students are encouraged to communicate regularly with an advisor to discuss academic matters, to determine progress toward degree completion, and to ensure that prerequisites have been satisfied and other departmental requirements have been met.

In addition to Academic Advising, all KUO learners are paired with a Professional Advisor. The Professional Advisor aids the students with general process questions, assures the student is registered in the appropriate courses and aids in any issues related to a student’s successful continuation in Online programs. This includes aid with drop/adds. Students may communicate the desire to drop a course by the deadline by phone or email. Emails are logged by the time they are sent Eastern Time. To ensure a full refund, it is imperative that an email is

received before the drop deadline. All academic issues are referred to an Academic Advisor in the appropriate department.

Academic Standing

Provisional Admission

Provisional Admission is a temporary admission status granted on a case-by-case basis that allows students to demonstrate readiness for graduate education. A graduate student that has been granted provisional admission will be granted full admission after the completion of their first two courses with a GPA of 3.0 or better. Failure to complete the first two core courses with a grade of 3.0 or better may result in dismissal from the program.

The criteria for provisional admission are uniquely determined by the KUO Admission's Committee, and in some cases collateral work may be required from the applicant to confirm their readiness for a specific program.

Probation

A graduate student whose cumulative grade point average falls below a 3.0 is automatically placed on academic probation. Probationary status is removed only when a graduate student's cumulative GPA equals or exceeds the minimum of 3.0 required to earn a Master's degree.

A graduate student who remains on probation after completing 12 credit hours since being placed on probation may be dismissed from the program. A student on probation whose cumulative GPA falls below 2.5 will automatically be dismissed from the graduate program. Such dismissals may be appealed to the Graduate Academic Review Committee. Advising regarding the appeal process to return after academic dismissal is provided through the Graduate Office.

Separation

A student may be separated from the University if they fail to demonstrate progress toward the degree by successfully completing a class within the academic year.

Deferment

Students may request up to one year of deferment from classes for medical, personal and family emergencies, or service in the military.

Appeal Process to Return after Academic Dismissal

After academic dismissal, students may appeal to the Graduate Academic Review Committee for readmission by submitting a letter of appeal and any supporting documentation to Kettering University Online via email at kuonline@kettering.edu one term prior to the term in which they are seeking re-admittance.

This letter of appeal for re-admittance must state the cause(s) of the student's academic problems, changes in the student's situation that may rectify those problems and a proposed plan of action to ensure success in the Graduate Studies Program. Students are readmitted on a probationary status for one term.

Decisions of the Graduate Academic Review Committee are final.

Questions: Contact the Kettering Global offices at 1-800-955-4464 ext. 9575.

Active Status

Students are expected to enroll in their first course for the term in which they have been accepted for admission. If there is a reason this may not occur, the student must have a discussion with their professional advisor and formally request a change of start date for one term in the future. Failure to begin courses within two terms of acceptance may lead to an admission's status change to Inactive. This Inactive status may be changed only when the student appeals with a letter to the Kettering University Online Admissions. If a student does not appeal the Inactive status he or she may be withdrawn from the University and must reapply at a later date.

The expectation is that students are either taking a course or registered for a course to be considered Active. Students should take four-five courses per academic year. This ensures students complete their program in a timely manner.

Attendance

Attendance

Reporting Last Known Date of Attendance

Kettering University Online does not require graduate faculty to take attendance. However, the U.S. Department of Education requires the Financial Aid Office to differentiate students who fail a class because they quit attending from those who fail a class based on merit. Due to the fact that a student could be a financial aid applicant at any point during the academic year, we must collect this information for all students, so that financial aid eligibility can be accurately determined.

The "Last Known Date of Attendance" Reporting Policy is necessary to appropriately assess the financial liability for students, ensure good stewardship of financial aid funds, and limit the financial liability for the university and academic consequences for the student. The amount of Title IV funds earned by a student is based on the amount of time spent in attendance by the student for that term. In addition, this is often useful in arbitrating cases when students believe they completed the process to drop or withdraw from a course.

After the drop/add period each term, a 'last date of attendance' notification, or 'never attended' notification by a faculty member will result in the automatic assignment of either a WN (withdrawal for non-attendance) grade or an FN (failure for non-attendance) grade by the Registrar's Office. This will initiate re-evaluation of a student's financial aid and Federal Title IV aid will be adjusted for those classes.

Student Responsibility

Students are expected to regularly attend classes in which they are enrolled. Students who decide to stop attending courses should immediately withdraw from those course(s) prior to the course withdrawal deadline specified on the academic calendar. Students who do not officially withdraw from a course (or courses) they are not attending may be reported by their instructor as having a last date of attendance. When this happens, the student will remain responsible for any financial liability.

University Responsibility

After the drop/add period each term, a last date of attendance reporting by a faculty member will result in the automatic assignment of either a grade of WN (withdrawal for non-attendance) or FN (failure for non-attendance) by the Registrar's Office as follows:

- A grade of WN (withdrawal for non-attendance) will be issued if the last known date of attendance is within the course withdrawal period specified on the academic calendar. A WN grade is treated the same as a W (withdrawal) grade in that it will not affect a student's term or overall GPA.
- A grade of FN (failure for non-attendance) will be issued if the last known date of attendance is after the course withdrawal period specified on the academic calendar. An FN grade is treated the same as a failing grade in that it will be included in a student's term and overall GPA.
- Once a faculty member has reported a last date of attendance, the student will no longer be able to attend or participate in the class.

Last Date of Attendance

The last date of attendance for KUO is the last date a graded assignment was submitted Online. Email to professors and other students will not count as notice of the last date of attendance. **Only** the date a graded assignment was submitted counts as the official last date of attendance for all purposes.

With the "Last Known Date of Attendance Reporting Policy", the assumption is that students who receive an F in a class have received that grade based on merit, and not because they stopped attending.

Questions: Contact the Kettering Global Offices at 1-800-955-4464 ext. 9575.

Computer/Email Requirements

Computer Requirements for Students

Kettering students are expected to have reliable access to high speed Internet outside of their **workplace**. The following minimum hardware requirements: a processor rated at 2 GHz with 2 GB of RAM, a camera and microphone for meetings via the Internet, a printer, a monitor with resolution of 1024x768, 20GB of free hard drive space, and speakers. Internet minimum requirements are broadband (high-speed) Internet with a connection speed of 4 Mbps. Software minimum requirements include Windows 10 Version 1809 or Mac OSX Version 10.13, a word processing package, a spreadsheet package, a Microsoft PowerPoint viewer, Google Chrome is required for all KUO students. **KUO students also require a webcam and microphone for courses.** Students in some classes may be required to load additional software to complete assignments. Administrative computer access may be necessary which is why **work computers are not allowed for taking courses**.

It is required that students have their own computers and **do not use a computer at their place of employment due to frequent limitations related to Firewalls.**

KUO Programs are supported by Kettering University's Online Blackboard™ (Bb) system and require a stable broadband Internet connection for test administration.

Testing

Online proctoring is used for all KUO course exams. Instructions for taking proctored exams are available in all courses with exams.

E-mail: Notification/Obligation to Read

All students have the privilege of having a Kettering University Google Apps e-mail account. The Kettering e-mail account is one of the official ways Kettering University faculty and staff communicate to students. Email from private accounts will not be accepted and Kettering University will only communicate with students through this official email system. Students are responsible for required actions conveyed to them through this communication vehicle, **whether or not they read the message**. Kettering provides each student with unlimited e-mail server storage. Therefore, we strongly recommend that students do not auto forward to another e-mail service provider which may have less storage capacity, fewer features, and may hinder you to reply directly to the original email source.

Due to the proliferation of spam and phishing emails, be advised that you may receive emails that may request personal information such as usernames and passwords. Although it may look authentic, pretending to originate from a legitimate source such as Kettering, **do not respond**. Immediately delete the email recognizing that a legitimate source such as the Kettering IT department would never ask you to provide information such as passwords. Be cautious regarding any unsolicited email as it may contain elements that would prove to be detrimental to your computer.

Questions: Contact the Help Desk at **(810) 237-TECH** *(extension 8324) or submit a* Support Request Zoho.

Conduct Expectations

Ethics in the University

The mission of Kettering University rests on the premise of intellectual honesty; in the classroom, the laboratory, the office, and at the examination desk. The very search for knowledge is impaired without a prevailing ethic of honor and integrity in all scholarly, professional, and personal activities. The principles of honor and integrity make it possible for society to place trust in the degrees we confer, the research we produce, the scholarship we present and disseminate, and the critical assessments we make of the performance of students. In order to achieve our goals of preserving, disseminating, and advancing knowledge, Kettering University expects all members of the community to be open to new ideas, to be governed by truthfulness, and to be considerate of the rights of others. We strive to foster these values in all our endeavors and will employ all possible means to discourage dishonest behavior in any form. We hold students accountable for their choices and actions through the Code of Student Conduct, administered by the Vice President of Student Affairs & Dean of Students.

Academic Integrity

We believe fairness, openness, and intellectual honesty to be the keystones of our educational mission. We foster these qualities in all our endeavors and use all possible means to discourage dishonesty, in any form. All members of the Kettering community should report academic dishonesty to the appropriate faculty person, as well as to the Vice President of Student Affairs & Dean of Students. Academic dishonesty prohibited at Kettering includes, but is not limited to, the following forms:

- **Cheating**
  Intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise.
- **Fabrication**
  Intentional and/or unauthorized falsification or invention of any information or citation in an academic exercise.
- **Facilitating Academic Dishonesty**
  Intentionally or knowingly helping or attempting to help another to engage in academic dishonesty in any form.
- **Plagiarism**

Intentionally or knowingly representing the words, ideas, or images of another as one's own in any academic exercise without proper citation and reference.

Students found to have carried out any form of academic dishonesty are subject to the faculty member's scrutiny and sanctions, as well as the University's policies and procedures. Please note the use of AI or CHATGPT or similar programs to complete any part of assignments is prohibited. Students using these programs may face disciplinary proceedings up to and including expulsion from the university.

Kettering Code of Student Conduct

The Kettering University Code of Student Conduct represents a body of behavioral standards for all students. These standards are strictly and vigorously enforced by Kettering University to ensure members of this educational community a productive, safe, and equitable environment for growth and development. Kettering University students are expected to conduct themselves as mature individuals while on campus, online, at home, and in their work-section communities.

Students are expected to comply with all University regulations governing student conduct and the use of University property and facilities. Kettering University has the right to take action and investigate any offense that involves our students, either as reporting as victims or students accused of violating the Code of Student Conduct or any federal, state, and/or local laws/ordinances. The Code of Student Conduct extends to students at their places of employment. We expect students to honor their employer's standards for workplace demeanor and may impose our Judicial Affairs procedures upon any student charged by an employer with workplace misconduct.

As a matter of practice, students who are related, married, domestic partners or living in the same household will not be allowed to take the same course at the same time. This protects the student(s) from all potential concerns regarding integrity and the sharing of assignments or coursework.

Code of Student Conduct

Conduct for which students may be subject to judicial action falls into, but is not limited to, the following categories:

- Endangering people or their property
- Obstructing the normal functions of Kettering University or their employer
- Theft or damage to property, including intellectual property, of Kettering University, an employer, or any individual
- Any willful damage to the reputation or psychological well-being of others
- Threatening, intimidating, harassing, coercing, or verbally abusing another
- Any physical violence directed at any member of the Kettering University community or an employer
- Unauthorized entry to, use of, or occupancy of Kettering University facilities or an employer's facility
- Any dishonesty, cheating, forgery, plagiarism, or alteration of, or misuse of Kettering University documents, records or identification, or those of an employer
- Computer misuse, while on academic or work term, at the University or at employment, including but not limited to:
  - Theft or other abuse of computer operations
  - Unauthorized entry into a file to use, read, or change the contents, or for any other purpose
  - Unauthorized transfer of a file or files
  - Unauthorized use of another individual's identification and/or 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 the normal operation of Kettering University or an employer's computer system
- Violation of applicable public laws while on Kettering University owned property, University or student-sponsored or supervised functions, an employer's owned or controlled property, or at an employer-sponsored or supervised function
- Possession or use on campus or at a place of employment of firearms, explosives, explosive fuels, dangerous chemicals or other dangerous weapons, except as specifically authorized by Kettering University or an employer
- Use, possession, or distribution of narcotics or controlled substances except as expressly permitted by law
- Possession or use of alcohol on Kettering's campus; any underage possession or use of alcohol
- Failure to comply with directions of Kettering University or an employer officials acting in performance of their duties.
- Conduct which adversely affects the student's suitability as a member of the Kettering University and/or employment communities

Student Rights and Responsibilities Provided by Kettering University

Any student accused of any violation of Kettering University's Code of Student Conduct will be extended the following rights and responsibilities:

- Formal, written notification of all charges to be heard at either an Administrative Hearing or a University Board of Student Conduct.
- Right to a timely hearing. The University has the right to establish deadlines for hearing a case, as well as hear a case in a student's absence should they fail to appear at the established time and place.
- Opportunity to review the misconduct file which is presented at an Administrative Hearing or University Board of Student Conduct.
- Time to prepare a defense. Students will receive at least 48 hours' notice of the time and place of an Administrative Hearing or University Board of Student Conduct.
- Right to be present at an Administrative Hearing or University Board of Student Conduct.
- Right to have an adviser present at an Administrative Hearing or University Board of Student Conduct. The adviser must be a member of the Kettering University community and may advise the accused student, but may not conduct the student's defense.
- Right to ask questions of any witnesses who appear at an Administrative Hearing or University Board of Student Conduct.
- Right to present defense witnesses whose presence has been requested, in writing, at least 48 hours prior to an Administrative Hearing or University Board of Student Conduct.
- All hearings will be closed. Hearing results will be held in confidence, except that the Vice President of Student Affairs & Dean of Students

may determine that other Kettering University officials ought to be aware of the results and will inform them.

- Crime victims will be notified of hearing results, in accordance with existing federal, state, and local laws.

Kettering University has the right to request a student return to campus during a work- or off-term in order to expedite a case perceived as serious and pressing in nature. Students are entitled to the rights afforded by the Family Educational Rights and Privacy Act (FERPA).

Resolution Options

Administrative Hearing

In cases where charges do not appear to merit suspension or expulsion, or in cases which the accused does not contest the charges, the Vice President of Student Affairs & Dean of Students may designate a Conduct Officer to investigate the case and conduct a hearing with the accused. Administrative hearings accommodate all those rights and procedures accorded to students by the University's policies. Following the hearing, the University will provide the student with written notification of the results of the hearing, as well as information about the appeal process.

University Board of Student Conduct

The Vice President of Student Affairs & Dean of Students designates a University Board of Student Conduct (UBSC) whenever charges may result in suspension or expulsion, including all cases involving academic misconduct. In these cases, the Dean of Students chairs the UBSC, comprised of a minimum of three members of the Kettering community and including representatives from faculty, staff, and students. The Dean of Students investigates the charges and prepares the case for presentation to the UBSC. All presentations include resolution options. The UBSC makes recommendations to the Vice President of Student Affairs & Dean of Students, who may endorse, alter, or dismiss the recommendations.

Other Resolution Options

The Vice President of Student Affairs & Dean of Students may, after consultation with the involved parties, provide other avenues of resolution, including mediation and/or reconciliation.

Administrative and University Board of Student Conduct Hearings Decisions

All decisions will be based only on documents, testimony, and evidence presented at administrative and judicial board hearings.

Sanctions

The University has the right to enforce a variety of sanctions upon students who are found to have violated the Code of Student Conduct. They include, but are not limited to, the following:

- **Creation of a Misconduct File**
  The University applies this sanction whenever a designated hearing officer upholds charges against a student for violating the Kettering Code of Student Conduct, yet it appears that interviews and counseling associated with the pre-hearing and hearing are sufficient to deter further violation. The Dean of Students creates an official file detailing the student's offense.
- **Misconduct Warning**
  A Misconduct Warning consists of a formal, written notice that the student has violated the Code of Student Conduct and that any future violation will result in more serious consequences.
- **Community Service**
  This sanction requires students to contribute a fixed number of hours, without compensation, to benefit the University or the local community. The University retains the right to require that students complete community service with particular organizations it specifies.
- **Misconduct Probation**
  Misconduct probation implies a medial status between good standing at Kettering, and suspension or expulsion. A student on Misconduct Probation will be permitted to remain enrolled at Kettering University under certain stated situational conditions, depending on the nature of the violation and the potential learning value that may be derived from such conditions. Usually, Misconduct Probation extends over a stated period, during which it is clearly understood that the student is subject to further disciplinary action, including suspension or expulsion, if the student violates the terms of probation or in any way fails to conduct themselves as a responsible member of the Kettering University community. Misconduct Probation serves as a final warning to the student to re-evaluate and modify their unacceptable behavior. Students on Misconduct Probation will not be allowed to represent the University in any formal manner and may not serve in a student leadership position during the period of probation. Knowledge of a student's Misconduct Probation status may be made known to others at the University on a need-to-know basis.
- **Interim Suspension and/or Altered Privileges**
  Kettering imposes interim suspension when it appears the accused poses a threat to themselves or others at the University. It may also be imposed following allegations of sexual or physical assault, drug use and/or distribution, threats of violence, etc.
  The Vice President of Student Affairs & Dean of Students or designee may alter or suspend the privileges/rights of a student to be present on campus and/or to attend classes for an interim period prior to the resolution of a misconduct proceeding. Decisions of this sort will be based upon whether the allegation of misconduct appears reliable and whether the student's continued presence reasonably poses a threat to the physical or emotional condition and/or well-being of any individual, including the accused student's. Interim suspension may also be imposed when the accused student's continued presence appears to disrupt the University's regular or special functions, or threatens the safety or welfare of university property.
  Interim suspension and/or altered privileges remain in effect until a final decision is made on a pending incident. The Vice President of Student Life & Dean of Students or designee may repeal interim suspension or altered privileges at their discretion.
- **Suspension**
  Suspension—an involuntary separation of a student from Kettering University—implies and states a time for return to the university. Suspension may extend for a school and/or work term, for a specified period, until a specified date, or until a stated condition is met. A University Board of Conduct may recommend suspension, but only the Vice President of Student Affairs & Dean of Students may impose it.
- **Expulsion**
  Expulsion—a permanent involuntary separation of a student from Kettering University—may be recommended by a University Board of Conduct, but only the Vice President of Student Affairs & Dean of Students may impose it.
- **Appeals**
  Any student who has been sanctioned through Kettering University Student Misconduct processes has the right to appeal to the Vice President of Student Affairs & Dean of Students. All appeals must

be made in writing within five [5] business days of notification of the results of a hearing and must state the grounds upon which the appeal is based. Grounds for appeal might include claims of procedural errors, new information, denial of rights, or inappropriately severe punishment. Should the Vice President of Student Affairs & Dean of Students choose to grant an appeal, the case will be reviewed and a written decision will be conveyed to the student indicating whether the sanction[s] shall stand, be modified, or reversed.

Students' Use of Technology

The use of any personal computer or communications devices in the classroom, not otherwise governed by University or course policies, is subject to the approval of the instructor. This includes, but is not limited to, the use of calculators, computers, personal digital assistants, text pagers, and cell phones. Any use of such devices without the instructor's approval is prohibited. The use of such devices without permission of the instructor may be considered disruptive behavior. Students who persist in such activity may be subject to the University's "Dismissal Due to Disruptive Behavior" policy.

The use of electronic devices to facilitate an act of academic misconduct, such as cheating or plagiarism, will be considered a violation of the Code of Student Conduct and adjudicated following standard student misconduct policies and procedures.

Students are expected to familiarize themselves with Kettering University's Acceptable Use Policy, posted on the "Policies and Standards" section of the Information Technology website.

Dismissal from Class Due to Disruptive Behavior

Whenever an enrolled student's presence or behavior in class disrupts the learning environment and, in the faculty member's opinion, undermines the best interests of the class and/or the student, the faculty member may request in writing (with a copy to the appropriate Department Head) that the student be issued an administrative dismissal. The faculty member should discuss the student's behavior with the Vice President of Student Affairs & Dean of Students (VPSA) and/or their designee, who will meet with the faculty member to discuss the alleged incident. The VPSA will also meet with the student to determine possible judicial action after determining whether or not the student's behavior violated the Kettering Code of Student Conduct. The VPSA will either appoint a judicial officer to adjudicate the matter or refer it for action to a University Board of Student Conduct. If the dismissal occurs by Friday of seventh week, student will receive a grade of W (withdrawal). If the dismissal occurs after Friday of seventh week, student will receive a non-passing grade.

Productive Learning Environment

Kettering University expects all students, faculty, and staff to contribute to a productive learning environment by demonstrating behavior that neither interferes with another individual's performance nor creates an intimidating, offensive, or hostile environment. The University will not tolerate harassment or discrimination in any forms, regardless of intent and/or the victim's reaction.

Harassment

The University prohibits all sexual harassment and/or offensive conduct, on campus and in students' work section communities. Such conduct includes, but is not limited to sexual flirtation, touching, verbal or physical advances or propositions, verbal abuse of a sexual nature, graphic or suggestive comments about an individual's dress or body, sexually degrading words to describe an individual, and/or the display of sexually suggestive objects or pictures, including nude photographs. Behavior constitutes sexual harassment when it is unwelcome and it interferes with the ability of another person to carry out their responsibilities, creates a hostile learning or work environment, or its expression implies that acceptance of the behavior is a condition of course registration, course completion, course evaluation, or employment.

If you believe the words or actions of a University employee or student on campus constitutes unwelcome harassment, take the following steps:

- Inform the employee or student that their actions are unwelcome and the harassing behavior must cease.
- Keep a written record of the details, including time, date, what was said, or what occurred.
- Report the discrimination to the Vice President of Student Affairs & Dean of Students, the Director of Human Resources, other University officials, or via our Non-Academic Grievance Form, available in the Student Affairs Office, Academic Services, the Wellness Center, Thompson Hall, and online at the Student Affairs website.

If harassment occurs at your work site, you should report it to your supervisor or the appropriate person as directed by your employee handbook, as well as to your Cooperative Education Manager/Educator. Enlist the counsel of a trusted adviser, if necessary, to report sexual harassment wherever and whenever it occurs. The University pledges to investigate promptly all complaints of harassment and to pursue a timely resolution, which the appropriate University officials will communicate to the parties involved. Confidentiality will be maintained to the extent reasonably possible.

Discrimination

Kettering University is committed to a policy of non-discrimination and equal opportunity for all persons regardless of race/ethnicity, color, ancestry, national origin, religion, sex, sexual orientation, age, marital status, height, weight, marital, military or disability status or any other basis protected by federal or state law. Discrimination includes, but is not limited to the following:

- Preventing any person from using University facilities or services because of that person's race/ethnicity, color, ancestry, national origin, religion, sex, sexual orientation, age, height, weight, and/or marital, military, or disability status
- Making determinations regarding a person's salary based on race/ethnicity, color, ancestry, national origin, religion, sex, sexual orientation, age, height, weight, and/or marital, military, or disability status
- Denying a person access to an educational program based on that person's race/ethnicity, color, ancestry, national origin, religion, sex, sexual orientation, age, height, weight, and/or marital, military, or disability status
- Instigating or allowing an environment that is unwelcoming or hostile based on a person's race/ethnicity, color, ancestry, national origin, religion, sex, sexual orientation, age, height, weight, and/or marital, military, or disability status
- Denying raises, benefits, promotions, leadership opportunities, or performance evaluations on the basis of a person's race/ethnicity, color, ancestry, national origin, religion, sex, sexual orientation, age, height, weight, and/or marital, military, or disability status

If discrimination takes place at your work site, you should report it to your supervisor or the appropriate person as directed by your employee handbook. Enlist the counsel of a trusted adviser, if necessary, to

report discrimination wherever and whenever it occurs. The University pledges to investigate promptly all complaints of discrimination and to pursue a timely resolution, which the appropriate University officials will communicate to the parties involved. We will maintain confidentiality to the extent reasonably possible

If you believe the words or actions of a University employee or student constitutes discrimination, take the following steps:

- Inform the employee or student that their actions are unwelcome and the discriminating behavior must cease
- Keep a written record of the details, including time, date, what was said, or what occurred
- Report the discrimination to the Vice President of Student Affairs & Dean of Students, the Director of Human Resources, other University officials, or via our Non-Academic Grievance Form, available in the Student Life Office, Academic Services, the Wellness Center, and Thompson Hall

Student Grievance Procedures

A grievance is a written or verbal expression of dissatisfaction or formal allegation against the university, its units, its employees (including faculty and staff), and/or its students.

Other Grievances

Currently, enrolled students who have a grievance or issue should first try to work out the issue informally by discussing it in an honest and constructive manner with those persons most involved. Many grievances can be resolved when a student makes an effort to honestly communicate their frustrations or concerns. If a student has a grievance related to a specific course they are enrolled in, they should first consult with the instructor of the course. If necessary, the student or instructor may consult with the academic department head responsible for the course for guidance on how to best resolve the student's concern. Kettering University Online students should complete a Student Concern Form located in the student toolbox of each KUO course. This form goes directly to the VP for Kettering Global who will respond within 24 hours.

For any grievances that the student cannot resolve informally with the parties involved, the student should contact either the Dean of Students (for non-academic-related issues) or the Associate Provost for Assessment & Academic Support (for academic-related issues).

Student Complaints & Resolution Processes

Kettering University maintains processes for the good faith review and resolution of student academic and non-academic complaints. The University's student complaint process will encourage informal resolution of alleged violations at the lowest unit level; allow for a formal resolution mechanism if not resolved informally; and provide for appeal to a final decision maker.

Students may bring complaints regarding the University's provision of education, academic services, and non-academic services affecting their role as students and must be based upon a claimed violation of a University policy, regulation, or established practice.

Student complaints do not include those regarding University employment, disciplinary action under the Code of Student Conduct; grades, or University admission decisions.

Resolution under this policy may include student reinstatement or other corrective action for the benefit of the student, including refunds, but may not award monetary damages or direct disciplinary action against any employee of the University.

This policy does not limit the University's right to change policies, regulations, or practices related to the provision of academic or non-academic services and education.

Institutional Records of Student Complaints

To comply with federal regulations, Kettering University will maintain records of formal, written academic and non-academic student complaints filed with the Office of the Provost or the Office of Student Life. The records will include information about the disposition of the complaints, including those referred to external agencies for final resolution. These records will be available to the Higher Learning Commission (HLC) comprehensive evaluation teams for review.

II. DEFINITIONS

Student Academic Complaint: Complaints brought by students regarding the University's provision of education and academic services affecting their role as students. Academic complaints do not include grade disputes and appeals, which are managed under the Grade Appeal Policy.

Non-academic Complaint: Complaints brought by students regarding the University's provision of non-academic services affecting their role as members of the Kettering community. Non-academic complaints may include, but are not limited to, student or employee behavior regarding harassment or discrimination; billing disputes; disability accommodation challenges; medical and counseling services, athletics, etc. They do not include parking violation disputes, which are managed under Campus Safety's Parking Appeals Policy.

III. DETAILS/PROCEDURES

Informal Resolution for Student Complaints

The first step of any resolution should be at the lowest unit level, between the parties involved or the parties and an appropriate third party (e.g., other faculty, department head, director of graduate studies, administrator). If no informal resolution is reached at the lowest unit level, a student may seek informal resolution at the next level with the other party and higher level administrators. If the issue is not resolved informally, the student may seek formal resolution.

Formal Resolution for Student Complaints

If still unresolved after following the appropriate informal complaint process, a student may choose to officially document the complaint to seek formal resolution. Students may file complaints regarding academic matters, excluding grade appeals, with the Office of the Provost. Non-academic complaints, excluding parking citations, should be filed with the Vice President of Student Life. Students should consult with the pertinent office to prepare a formal complaint; both offices follow these general procedures:

- Students must submit, in writing, an explanation of the concern or appeal, including a full description of the matter, a description of the efforts that have been made to resolve the issue informally, and a statement of requested remedy. Submissions must include accurate contact information. Copies of pertinent materials should be attached.

- A student must begin the informal resolution process during the term in which the concern arises, and must register, if applicable, an officially documented complaint no later than thirty days after the

first day of classes of the term immediately following the term during which the concern arose.

- If the grievance contains confidential medical information, the University will maintain the confidentiality of that information and will not release it without the student's consent, except as allowed by law.

- Academic complaints should be submitted to the Associate Provost for Assessment and Academic Support in the Provost's office. Non-academic complaints should be submitted to the Vice President of Student Life. Upon receipt, the institutional officer will review the complaint for timeliness and appropriateness under this complaint procedure, notify the student if the complaint is accepted for further investigation, and provide a copy of the complaint to the individual against whom it has been made.

- The institutional officer will complete or designate someone to complete an investigation of the matter. The investigator may interview, consult with, and/or request a written response to the issue[s] raised in the complaint from any individual the investigator believes to have relevant information, including faculty, staff, and students. All parties will have the opportunity to provide the investigator with information or evidence that s/he believes is relevant to the complaint. The investigator will respect the privacy of all parties, to the extent possible.

- The University will inform the student and the party against whom the student has filed a complaint that the institution will not tolerate real or implied retaliation, will take steps to prevent retaliation, and will take appropriate responsive action[s], up to and including termination of employment, if an employee is found to have retaliated. Students will be held accountable for retaliation through the Code of Student Conduct and related disciplinary procedures. Individuals should immediately notify the appropriate institutional officer should retaliation occur.

- If a non-academic complaint involves a faculty member, the Vice President of Student Life will inform the Provost of the complaint, the determination by the investigator, and any appeal. Academic and non-academic complaints that involve a faculty and/or staff member will be reported to the Director of Human Resources.

- All investigations will be completed within thirty [30] working days of the filing of the written complaint. The deadline may be extended by the Provost or Vice President of Student Life for good cause. At the request of the complainant, the institutional officer may determine if the formal process can and should be expedited.

- The institutional officer will prepare a written report, including findings and a final resolution of the matter. The officer will submit the report within 30 calendar days of receipt of the formal complaint, unless there are compelling reasons for delay. The institutional officer will send the report to all interested parties. If the complaint challenges an action personally engaged in by the institutional officer, the Provost will appoint another administrator to fulfill the officer's role under this procedure.

- Decisions made by institutional officers are final and may not be appealed.

Other Complaints

Currently, enrolled students who have a complaint or issue should first try to work out the problem informally by discussing it in an honest and constructive manner with those persons most involved with the issue. Many complaints can be resolved when a student makes an effort to honestly communicate his/her frustrations or concerns. If a student has a complaint related to a specific course he or she is enrolled in, he/she should first consult with the instructor of the course. If necessary, the student or instructor may consult with the academic department head responsible for the course for guidance on how to best resolve the student's concern.

For any complaints that the student cannot resolve informally with the parties involved, the student should contact either the Associate Dean of Student Engagement and Success (for non-academic-related issues) or the Provost (for academic-related issues).

Questions: Contact the Student Experience Office for non-academic issues or the Office of the Provost for academic-related issues

Enrollment

Academic Terms

KUO operates eight starts a year for 7 week courses, four starts a year for 9 week courses and 4 starts a year for 12 week courses.

Questions: Contact the Graduate Online office.

Auditing a Course

Auditing of courses offered through Graduate Online is not allowed.

Enrollment Status/Verification

Enrollment verification may be obtained through the Office of the Registrar. Enrollment verification confirms a student's enrollment status (full-time, half-time, less than half-time) and expected graduation date. Listed below are the enrollment statuses at Kettering University:

Enrollment Status

8 or more credits in a 12 week period = Full Time
4-7 credits in a 12 week period = Half Time
1-3 credits = Less Than Half Time

Questions: Contact the Office of the Registrar

Graduate Program Extension Policy

Taking an extended completion time to finish a degree is costly to both students and the University, for a variety of reasons. Indeed, timely progress is a sign of intellectual vigor, competence and commitment. Therefore, students have up to six years to complete all requirements for the Master's degree at Kettering University. If a student cannot complete the degree within the six-year time limit, they must request an extension. To be considered eligible for a time extension, the student must 1) demonstrate satisfactory progress towards the completion of the degree and 2) receive endorsement or approval from the Department Head.

Items that must be addressed on the Time Extension Request include:

The reasons for the request.

An explanation of how the student's circumstances have changed to enable them to complete the degree now.

An agreed-upon plan and timeline for completion of the degree.

If approved, the student must complete the program requirements as outlined on the approved Program Time Extension form. During the extension, the student must meet with their Advisor periodically to ensure that adequate progress towards degree completion is being maintained.

Appeal Process

If the Department Head will not approve a request for extension, the student may appeal to the Graduate School. In such cases, the Graduate Dean will confer with the Graduate Council to examine the extension request. If the Graduate School is not able to approve the request, the student may make a final appeal to the Provost.

Registration

Graduate Online students are registered for courses administratively. Students may register for at **least** two terms at a time.

Students registered for courses will receive an email notification from the Student Accounts Office to their Kettering email account with instructions on how to log into Banner Web to retrieve their official invoice. This invoice will confirm enrollment and denote the required tuition. Detailed payment information will be in the email and on the invoice. Payments can be made online or by mail.

Curricula Restrictions

A student may elect no more than two (2) courses numbered below 600-level to count toward their Master's degree.

Questions: Contact the program advisor

Dropping a Course

Please note that the first week of all courses, while part of the course, is a preview week. During preview week assignments are not due except for Capstone courses but students should use this time to buy books, begin required reading and gain a course overview. **Student must drop courses by Wednesday of preview week by 11:59 pm ET via email to their advisor to receive a full refund. Any drops after this date will be required to pay the tuition in full.**

University Withdrawal

Withdrawing from the University requires a written request to the Office of the Registrar at registrar@kettering.edu with a copy to the Graduate Online office.

Withdrawing from Courses

Students may withdraw from courses up to the Sunday (11:59 pm ET) before the final week of courses. For seven week courses this is the Sunday before Week 6 and for nine week courses it is the Sunday before Week 8 begins and for twelve week courses it is the Sunday before Week 11 begins. All students who withdraw must pay for the course in full.

Withdrawal due to Armed Forces Active Duty

Students may withdraw from the University and receive a 100% tuition refund upon presenting to the Registrar, the original Armed Forces orders. Non-punitive grades of W will be issued. Should the call to duty come during the eighth week or later, in the judgment of the instructor and the student, incompletes may be given with no reimbursement of tuition. Coursework then would be completed per arrangements agreed upon by the instructor and student.

Questions: Contact the Office of the Registrar

Repeating a Course

A graduate student who receives a failing grade in a required course must retake the course next. If the student is unable to retake the course immediately due to scheduling issues, the student may request special permission from the Graduate School to take one other class, keeping in mind the Graduate School GPA requirements. Should the student fail the same course twice, they must appeal in writing to the Graduate Appeal Committee to retake the course for a third and final time. The decision of the Graduate Appeal Committee will be final.

The option to retake a failed required course can only be utilized for one course requirement in a degree program. Students who fail a course and then subsequently fail another different course will be dismissed from the program.

Graduate students may also retake courses in which they have not met the scholastic standards of Kettering University's Graduate School (earned a grade lower than a B-).

Students electing to repeat a course will be subject to the following conditions:

- Students planning to repeat a course in which they received a grade above "F " should consult with the Financial Aid or their company as the repeated course may not be eligible for scholarship or tuition support
- Courses taken for undergraduate credit at Kettering University may not be repeated at the graduate level. Furthermore, Kettering undergraduate courses cannot be counted as graduate credit except as approved per the Accelerated Master's Option policy guidelines
- Courses taken after degree conferral cannot be used for a GPA adjustment
- Once a repeated course has been passed satisfactorily the *most recent passing* grade for that course will be used to calculate the student's cumulative GPA
- Course withdrawals (W grade), incomplete courses (I grade), and courses completed as Credit/No Credit (CR/NC grades) are not eligible for the GPA adjustment
- A student's grade in the original course may not be a result of academic misconduct as documented through the Office of Student Affairs
- All occurrences of the course along with associated grades will remain on the student's academic record as well as on the official transcript

Transfer Credit

The maximum number of graduate credits for which a person may receive transfer credit is eight (8) credit hours. Credit is considered for transfer for classes with grades of B or better. All requests for transfer credit should be for graduate-level courses (taken for graduate credit) significantly similar to a specific course within the student's program.

To apply for transfer credit, the student must complete an Application for Transfer Credit Form and furnish an official transcript from an accredited institution, plus a course description and syllabus. There is a processing fee of $5.00 (U.S.) **per credit hour** for transfer credit (i.e., the processing fee to transfer a 4-credit course is $20.00).

Questions: Contact the Graduate Online office

Family Educational Rights and Privacy Act (FERPA)

The Family Educational Rights and Privacy Act (commonly referred to as “FERPA” or the “Buckley Amendment”), helps protect the privacy of student records. The Act provides for the right to inspect and review education records, the right to seek to amend those records and to limit disclosure of information from the records. The Act applies to all institutions that are the recipients of federal funding.

In accordance with FERPA, Kettering University has policies and procedures in place to protect the privacy of education records. Students will be notified of their FERPA rights annually by publication in the Undergraduate and Graduate Catalogs and by an annual email message to students at the beginning of the academic year.

Disclosure of Education Records

Kettering University will disclose information from a student's education record only with the written consent of the student, except:

1. To school officials who have a legitimate educational interest in the records.
   A school official is:
   - A person employed by the university in an administrative, supervisory, academic, research, or support staff position (including Campus Safety and Wellness Center staff);
   - A person elected to the Board of Trustees;
   - A student serving on an official committee, such as disciplinary or grievance committee, or assisting another school official in performing his or her task;
   - A volunteer or person employed by or under contract to the university to perform a special task, such as legal counsel or an auditor;
   - Agencies conducting business on behalf of Kettering University (i.e. National Student Clearinghouse, officials of the U.S. Department of Education and state and local educational authorities, accrediting organizations and banks).

   Educational Need to Know:
   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 responsibilities for Kettering University.
2. To officials of another school, upon request, in which a student seeks or intends to enroll.
3. In connection with a student's request for or receipt of financial aid, as necessary to determine the eligibility, amount, or conditions of the financial aid, or to enforce the terms and conditions of the aid.
4. To organizations conducting certain studies for or on behalf of the university.
5. To comply with a judicial order or a lawfully issued subpoena.
6. To appropriate parties in a health or safety emergency.
7. When the request is for directory information (see below).

Directory Information

Institutions may disclose information on a student without violating FERPA through what is known as "directory information." Kettering University designates the following categories of student information as public or "Directory Information." Such information may be disclosed by the institution at its discretion.

- Corporate affiliation
- Degrees awarded, including dates (actual and expected)
- Dates of attendance
- Degree program (major field of study, concentrations and minors)
- Degrees and honors awarded (including Dean’s List)
- Enrollment Status (including full or part-time)
- Honor Societies
- Photo
- Previous institutions attended
- Class standing (freshman, sophomore, junior, senior, graduate student)
- Name, address and phone number
- E-mail address

Solomon Amendment

Federal law requires that all institutions of higher learning provide directory information to the military upon request, including student name, address, telephone number, age or year of birth, academic major and level of education (e.g. freshman, sophomore, etc. or degree awarded). Where there is a conflict between the Family Educational Rights and Privacy Act of 1974 (FERPA), the Solomon Amendment would supersede FERPA.

Annual Notification to Students of Rights Under FERPA

FERPA affords students certain rights with respect to their education records. They include:

1. **Inspect and Review of Records**
   The right to inspect and review the student's education records within 45 days after the day the University receives a request for access. A student should submit to the registrar, dean, head of the academic department, or other appropriate official, a written request that identifies the record(s) the student wishes to inspect. The University official 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 University official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.
2. **Amendment of Records**
   The right to request the amendment of the student's education records that the student believes are inaccurate, misleading, or otherwise violate the student's privacy rights under FERPA. Students should write the University official responsible for the record, clearly identify the part of the record they want changed, and specify why it should be changed. If the University decides not to amend the record as requested, 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. **Consent to Disclosure**
   The right to provide written consent before the university discloses personally identifiable information from the student's education records, except to the extent that FERPA authorizes disclosure without consent.

The school discloses education records without a student's prior written consent under the FERPA exception for disclosure to school officials with legitimate educational interests. A school official is a person employed by Kettering University in an administrative, supervisory, academic, research, or support staff position (including Campus Safety and Wellness Center staff); a person serving on the board of trustees; a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his or her task; a volunteer or person employed by or under contract to the university to perform a special task, such as legal counsel or an auditor; agencies conducting business on behalf of Kettering University (i.e. National Student Clearinghouse, accrediting organizations and banks).
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 responsibilities for Kettering University.

4. **FERPA Complaints**
The right to file a complaint with the U.S. Department of Education concerning alleged failures by Kettering 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

For more information on the Family Educational Rights and Privacy Act, visit the Office of the Registrar Website, under FERPA.

Grades

Grades

Course grades are available after each term via Banner Web. Federal law prohibits communication of grades by telephone. Students may access their grade report and/or print a grade report to provide to their company by logging on to Banner Web.

Grade	Description	Points
A	Outstanding	4.0
A-	Outstanding	3.7
B+	Satisfactory	3.3
B	Satisfactory	3.0
B-	Satisfactory	2.7
C+	Less than satisfactory	2.3
C	Less than satisfactory	2.0
C-	Less than satisfactory	1.7
F	Fail	0.0
CR	Credit	0.0
FN	Failure for non-attendance	0.0
I	Incomplete	0.0
W	Withdrawal	0.0
WN	Withdrawn for non-attendance	0.0

Course Hours and Points Definitions

Quality Points = Grade x Credit Hours
GPA = Quality Points ÷ GPA Hours

Attempted hours (AHRS) – are the sum of the course credit hours for which a student has registered. Attempted hours per term is the basis for determining tuition charges and a measure of the student load.

Credit hour – The Higher Learning Commission, Kettering University's regional institutional accreditor, requires that the University articulate an institutional policy regarding the awarding of credit. Kettering's policy, which is in compliance with the federal definitions regarding the assignment of credit, reflects the current practices of the University.

Federal definitions and regulations regarding the assignment of credit hours appear as follows under Section 600.2 and 600.24(f) of the Higher Education Opportunity Act:

Credit hour: Except as provided in 34 CFR 668.8(k) and (l), a credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates not less than ---

1. One hour of classroom or direct faculty instruction and a minimum of two hours of out of class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or ten to twelve weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time; or

2. At least an equivalent amount of work as required in paragraph (1) of this definition for other academic activities as established by the institution including laboratory work, internships, practicum, studio work, and other academic work leading to the award of credit hours.

The University awards three [3] or four [4] credits for all courses in all graduate (KUO and on-campus) degree programs. Courses require students to expend between 90-120 hours of effort per term: seven week courses require approximately 20 hours of student work per week; nine week courses require approximately 15 hours per week; twelve-week courses require approximately16 hours per week.

Kettering University Online [KUO] courses require a considerable amount of class time in the form of discussion board activities, synchronous webinars, or other online interactions, including individual interactions with professors. Preparation, research, viewing of media, and assignment completion require additional time.

Earned hours (EHRS) – represent work equivalent to that defined for a University credit hour that the student has successfully completed at Kettering University, at another university or by examination. Not all earned hours necessarily apply to the specific degree program being pursued by the student.

Grade Point Average (GPA) – is computed for each term individually and cumulatively. In either case, the weighted GPA is computed by dividing the total quality points earned by the total quality hours accumulated.

GPA hours (GPA-HRS) – are equal to the credit hour value of the course and are awarded only for course work taken at Kettering University. Only course work resulting in GPA hours is used in computing a student's grade point average (GPA).

Quality Points (QPTS) – are a computational value used to compute a student's grade point average (GPA). The quality points earned for a given course are equal to the credit hour value of the course multiplied by the numerical equivalent of the letter grade.

Questions: Contact the Office of the Registrar

Grade Appeal Process

The course instructor has the authority and obligation to assign appropriate grades in any course. Questions concerning an assigned final grade are to be handled through the grade appeal process. The first level in this process involves contacting the course instructor by email to set an appointment to discuss the grade. If there is an agreement to adjust the grade, the instructor will complete the grade change process and forward to the Kettering Global offices. If the grade issue cannot be resolved, the student should begin the formal Grade Appeal process.

The process is initiated by completing a Grade Appeal Form which is available on the Registrars website. Each student must complete the appeal form and attach any pertinent documentation to support his/her claim. Appeals should be initiated as soon as possible but no later than one term after the grade has been posted. The student's failure to access grades does not provide an exemption from the time limitation. This form is sent to the instructor and cc'd to the VP Kettering Global. The course instructor should respond within two (2) weeks of the student's appeal in writing regarding the request for grade modification.

Students who are not satisfied with the decision of the course instructor to whom they appealed, may subsequently appeal to the Dean of the Department within 30 days of the course instructor's response. The Dean of Department must respond in writing to the student with a copy to the instructor within 30 days of receipt of the appeal. The Dean of the Department will serve as a mediator between the student and the instructor but cannot change a grade.

Students may submit a final appeal to the Dean of the Graduate Department under the following conditions:

- Final course grades may be appealed only if the student can demonstrate that the grading policy applied to his/her grade does not conform with the stated grading policy of the professor. The absence of a grading policy will be considered reasonable grounds for appeal
- The only legitimate grounds for second level appeal are arbitrariness, prejudice, or error, as applied to a specific student
- Final appeals are restricted to cases in which the Dean of Graduate Studies disagrees with the course instructor's decision

When a final appeal is initiated, the Dean of the Graduate College (or designee) will convene an appeal board comprised of the following members: one tenured faculty member from the course instructor's department, chosen by the course instructor; one tenured faculty member from the course instructor's department, chosen by the Dean of Graduate Studies; one tenured faculty member from outside the course instructor's department, chosen by the Chair of the Promotion, Tenure and Ethics (PTE) Committee; and the Vice President of Kettering University Online (or designee), who does not vote, but chairs the board and handles all administrative matters. If the Appeal Board chooses to override the course instructor's grade, they can only do so by changing the grade to a "P" for passing. The Dean of the Graduate College will provide a written overview of the Appeal Board's decision to all involved parties. Appeal Board actions represent a final University decision.

Students who are dismissed or suspended for reasons other than academic should refer to the Student Handbook for appeal procedures.

Questions: Contact the Office of the Registrar

Grade Changes

Grades (except incompletes) reported by an instructor are considered permanent and final. However, requests for a change of grade after an instructor reports final grade will be honored to correct an error in calculating or assigning that grade. To facilitate this process, the course instructor will submit to the VP Kettering Global who will verify and approve and then forward to the Registrar the grade change, noting the rationale for the change and what retroactive correction is to be made. Grade changes must be processed within one calendar year (12 months) form the last date of the term in which the course was taken. This includes incomplete grades that have been changed to a grade or have converted to a failing grade. Grade changes are not permitted after a degree has been awarded.

Incomplete Grades

Students may receive an Incomplete if they have attempted and submitted 80% of all assignments for the course within the course term. Students cannot make up points earned for Discussion Forums. Students may make up all written assignments and may submit individual versions of team assignments. Students must complete these assignments by the end of the next regular term (7, 9, or 12) depending on the length of the course. For example:

- Summer I Incomplete – All work must be completed by the end of Summer II term
- Summer II Incomplete– All work must be completed by end of Fall I term
- Fall I Incomplete– All work must be completed by the end of Fall II term
- Fall II Incomplete– All work must be completed by the end of Winter I term
- Winter I Incomplete– All work must be completed by the end of Winter II term
- Winter II Incomplete– All work must be completed by the end of Spring I term
- Spring I Incomplete– All work must be completed by the end of Spring II term
- Spring II Incomplete – All work must be complete by end of Summer I term

In the case of 12 week courses, the student will have until the end of the next 12 week term to complete their course. In special circumstances a student may have their Incomplete Grade completion time extended. This must be approved in writing by the instructor.

A written agreement must be developed between the instructor and the student to clarify a plan for course completion. The student must initiate this agreement by completing an Incomplete Agreement Form after the Incomplete grade has been issued by the instructor. The form will be filed in the Office of the Registrar as official documentation of the agreement.

Students should note that an incomplete grade does not yet reflect credit in the course.

Students who fail to complete all assignments by the following term will have their Incomplete grade converted to an F.

Graduation

Graduation Requirements

Application

Students must apply to graduate to begin the graduation process. The time-frame to submit this application is when registering for your last term of courses.

In order for a graduate degree to be awarded and verified by the Office of the Registrar, the following requirements must be satisfied:

- Successfully complete all prescribed courses within the six (6) year limit. A student who anticipates not meeting the time limit must notify the Graduate Office at least six (6) months prior to the expiration of the six (6) year limit.
- Achieve a final cumulative grade-point average (GPA) of 3.0 or higher.

Commencement

Commencement is the formal ceremony which recognizes and celebrates graduates and graduation candidates. At Kettering University, commencement is held annually at the conclusion of the spring term. Refer to the published academic calendar for the date of commencement. Detailed information including eligibility requirements is available on the Office of the Registrar website.

Questions: Contact the Office of the Registrar

Degree Completion for Inactive Students with Coursework Remaining

Inactive students who wish to return to Kettering University must contact the Registrar's Office for assistance. After ensuring there are no outstanding financial obligations to the university, the Registrar will refer such students to the appropriate Academic Department Head to develop a plan of study. The final plan will be annotated as a NOTE in the student's Degree Works audit. These students will be subject to meeting the requirements for degrees in effect at the time of readmission.

Diplomas

Diplomas are personally presented to students by the President of Kettering University at commencement. Students who are unable to attend commencement will receive their diplomas **after the event**.

Diplomas are not considered official proof of graduation. For proof of graduation, students must request an official transcript.

Final Degree Verification Letter

Students may request a final letter when all requirements for graduation are met. Final letters will not be issued until all grades for the graduating term are submitted and posted to the student's record. Final letters will not be issued once a degree has been awarded, students must request an official transcript.

Financial Obligations

Diplomas are withheld until the student has satisfied all financial obligations with the University. Students cannot participate in commencement if they have not satisfied all financial obligations with the University.

Student Records

The Office of the Registrar maintains the students' permanent academic record, including course registrations, enrollment status and the official transcript. The Registrar's Office is the point of contact for any required enrollment and degree certifications. As such, it is important that students keep the office current with their permanent mailing address so these services can be provided.

Note: The Registrar's Office will not discuss the student record with any third party without a written consent from the student.

Address, Phone, and Name Changes

Changes in phone numbers should be made by the student through Banner Self Service. Permanent address changes can be made by contacting the Registrar's Office.

In order to process a name change, a copy of a government-issued photo ID, such as a driver's license, and either a marriage license, a Social Security card, or a court order that reflects the new name is necessary. Name changes must be processed through the Registrar's Office.

Permanent Academic Records

All information, applications, correspondence, etc., involved in admitting and processing the active progress of an admitted student are maintained for five years after the student has last been an active degree-seeking student. After five years, only the student's attendance dates, academic performance, corporate affiliate, and degree awarded are kept as a permanent record.

Transcripts

A student's official academic record is maintained by the Registrar's Office at Kettering University and is normally reflected through a transcript. All requests for transcripts must be submitted through the National Student Clearinghouse. Transcripts are $2.90 for domestic mailing or pickup and $3.90 for electronic delivery. Unofficial transcripts are available to active students on Banner Self Service.

Official transcripts from other institutions are not reissued or copied for distribution. If needed, they must be obtained directly from the issuing institution.

Information Technology

All students have the privilege of using Kettering technology resources as long as they abide by the Acceptable Use of Information Technology Resources Policy, the Information Resources Policies, Etiquette & Rules, and any other IT policies as documented. Some of the major technical services provided to students are:

Help Desk

The Help Desk provides technical support for computing resources. Sending an e-mail to helpdesk@kettering.edu at any time will get the necessary resources. The staff will respond to support requests during normal business hours.

E-mail

All students have the privilege of having a Kettering University Google e-mail account. The Kettering e-mail account is the official way Kettering University faculty and staff communicate with students. Students

are responsible for required actions conveyed to them through this communication vehicle, **whether or not they read the message**. Kettering provides each student with unlimited e-mail server storage. Our policy is to communicate by Kettering email, to ensure FERPA compliance. Therefore, do not auto-forward to another e-mail service provider which may have less storage capacity, fewer features, and may hinder you from replying directly to the original email source.

Due to the proliferation of spam and phishing emails, be advised that you may receive emails that request personal information such as usernames and passwords. Although it may look authentic, pretending to originate from a legitimate source such as Kettering, do not respond. Immediately delete it recognizing that a legitimate source such as the Kettering IT department would never ask you to provide information such as passwords. Be cautious regarding any unsolicited email as it may contain elements that would prove to be detrimental to your computer.

Virus Protection

We strongly recommend that all students install virus protection software and maintain it to protect their personal PCs. Any up-to-date properly licensed or free virus protection software would be acceptable.

It is mandatory to have virus protection installed, current, and running when connected to the Kettering network.

Web-Based Student Services

All students have access to a variety of online services through their web browser. They can view academic information such as grades, class schedules, and transcripts, as well as information about their financial account. They can also have access to view and update addresses, telephone numbers, and email addresses to facilitate communication with Kettering University faculty and staff.

Blackboard

Professors utilize the Blackboard Learning Management System for course syllabi, homework assignments, and tests. Access to Blackboard is available from anywhere a student has an internet connection. To help protect your privacy, security, and confidential information, you must sign on to Blackboard to access these services.

Virtualization

The Virtual Computer Lab (KUcloud) provides students virtual access to lab and classroom software typically only available while on campus. Virtualization provides access to classroom software anytime from anywhere.

Information and Help Sheets

Help for accessing the various systems, including the Internet, is available through the Help Desk and on the IT website. The IT web pages contain valuable information to help maximize your use of the Kettering University computing resources.

Library Services

Kettering University Library

The Kettering University Library moved services to the Learning Commons when it opened in July 2022. You can find us at our third and fourth-floor service desks. The Library supports Graduate Online student research by subscribing to more than 150 multi-disciplinary databases. We feature digital collections of books, academic journals, technical papers, standards, newspaper and magazine articles, conference proceedings, and streaming films and documentaries on a variety of science, engineering, mathematics, and computer science topics, as well as the humanities. If you can't make it in person, please contact us at library@kettering.edu. Access is available 24/7 for all off-campus students through the Library website.

For Kettering Online students, resources not owned by the Library are often available through Materials on Demand, formerly known as Inter-Library Loan. LinkedIn Learning courses can help you catch up on specific skills, and Mango Languages courses are ready for those interested in language learning.

Some helpful library telephone numbers:

Phone Number	Contact
810-762-7814	Circulation
810-762-9841	Materials on Demand (MoD), formerly Inter-Library Loan
810-762-9598	Research/Instruction
810-255-9009	Text a Librarian
800-955-4464	Kettering University Toll-free Number

Kettering University Archives and Special Collections

Visitors to campus are invited to stop by the Kettering University Archives located in the Durant-Dort Factory One building at 303 W. Water Street near downtown Flint. It's just a twenty-minute walk along the Flint River Trail. The Archives document America's industrial and business heritage with particular focus on the American automobile industry, the city of Flint, and the history of Kettering University.

The Charles F. Kettering Collection is one of the largest collections in the Archives and has been used by scholars worldwide. The digital photo collection now exceeds 100,000 images. A partial online catalog, along with digitized photos, can be found on the Archives website. Kettering University's Curator of Special Collections may be reached at (810) 762-9690.

The Humanities Art Center Collection includes artworks that were donated to Kettering University and contains modern abstract and representational art from the 20th century. Joan Miró, Victor Vasarely, and Annie Albers are among the artists represented in the over 400 items in the permanent collection. Exhibitions are held regularly in the gallery at the Kettering University Learning Commons. The collection is open to research and loan to other institutions. For more information about the Humanities Art Center Collection, please contact Kettering University's Curator of Special Collections at (810) 762-9690 or the Library's Administrative Specialist at (810) 762-9840.

Administration and Faculty

Senior Administration

Dr. Robert K. McMahan, Jr., President
Dr. James Z. Zhang, Senior Vice President, Academic Affairs and Provost
Ms. Marsha Bewersdorf, Vice President, Administration and Finance
Mr. Geoffrey Marsh, Vice President, Instructional, Administrative, and Informational Technology

Ms. Suzanne Petrusch, Interim Vice President, Enrollment and Co-operative Services
Mr. Dale Pilger, Vice President, University Advancement and External Relations
Ms. Enza Sleva, Vice President and Chief Student Experience Officer
Dr. Kathryn Svinarich, University Chief of Staff
Ms. Jennifer Umberger, Vice President, University Marketing and Communications

Deans and Head of School

Dr. Scott Grasman, Dean, College of Engineering and Computer Science, Professor of Industrial Engineering
Dr. Terence J. Pitre, Dean, School of Management, Professor of Accounting
Dr. Scott W. Reeve, Dean, Graduate School and Sponsored Research, Professor of Chemistry
Dr. Ronald Tackett, Head of School, School of Foundational Studies, Associate Professor of Physics

Graduate Online Faculty

The Graduate Online faculty listed below have been designated to teach the graduate courses for online programs. The majority hold doctorates and nearly all of them have consulting experience in industry and business.

Danielle L. Babb, Contributing Faculty, School of Management
B.S. 1997, University of California - Riverdale; MBA 2000, University of Redlands; Ph.D. 2004, Capella University

Anjali Barnick, Contributing Faculty, School of Management
B.S. 1990, University of Massachusetts; M.B.A. 2002, Cleveland State University; M.A. 2014, Cleveland State University; Ph.D. 2015, Cleveland State University

Eugene Bell, Contributing Faculty, School of Management
B.S. 1992, Bradley University; M.B.A. 2003, Keller Graduate School of Management

Mark E. Brown, Contributing Faculty, School of Management, Industrial and Manufacturing Engineering
B.S. 1970, Worcester Polytechnic Institute; Ph.D. 1977, University of Minnesota

Kelly Bruning, Contributing Faculty, School of Management
B.S. 1994 & M.B.A. 1998 Lake Superior State University; Ph.D. 2003 Capella University

Richard Bushart, Contributing Faculty, School of Management
B.B.A. 1995, Northwood University; M.B.A. 2000, Davenport University; D.B.A. 2015, Northcentral University

Kathleen M. Chao, Contributing Faculty, School of Management
B.S. 1986, Kettering University; M.S. 1998, Oakland University

Deloris Easley, Contributing Faculty, School of Management
B.S. 1992, Montclair State University; M.B.A. 2002, Keller Graduate School of Management; D.B.A. 2016, Capella University

Michael Eblenkamp, Contributing Faculty, School of Management, Industrial Manufacturing Engineering
B.S. 1992, University of Applied Science, Germany; M.S. 1993, University of Applied Science, Germany

Joy Gianakura, Contributing Faculty, School of Management
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Ph.D. Computer Science 2013, Universite de Geneve, Switzerland; MSc Technology Information and Data Analysis 2010, Universidad Rey Juan Carlos, Madrid, Spain; MSc Computer Vision and Artificial Intelligence 2009, Universitat de Autonoma de Barcelona, Spain; MSc Computer Science and Software Engineering 2006, Universidad Technologica de Pereira, Columbia, South America

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Ph.D. 2019, Instituto Pedagogico y de Estudios Superiores de Jalisco, Mexico; M.A. 2007, Instituto Tecnologico y de Estudios Superiores de Monterrey, Mexico; M.S. 1997, Universidad de Guadalajara, Mexico

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A.A. 1994, Coastal Carolina Community College; BSW 1996, MSW 1997, Ph.D. 2014, Virginia Commonwealth University

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Ph.D. 2012, University of Michigan; M.S. 2005, University of Michigan; B.S. 2003, Washington University

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Ph.D. 2013 New York University; MBA 1999 City University of New York; BS 1983 New York University

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B.S. 1984, National Institute of Technology; M.S. 1991, University of Alabama; M.S. 1994, University of Cincinnati; M.B.A. 2002, University of Maryland University College; Ph.D. 2008, Capella University

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D.B.A. 2018, Northcentral University; M.A. 2011, Devry University; MBA 2005, Lindenwood University

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M.S.N.Ed. 2015, University of Phoenix; B.S.N. 2013, University of Phoenix

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M.S.C.S. 2006, University of Southern California; B.E.C.E. 2000, Turkish Naval Academy, Istanbul, Turkey

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M.Eng. 1982, Technical Institute of Cologne, Germany; B.Eng. 1978, Technical Institute of Cologne, Germany

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B.A. 1979, Fairfield University; M.B.A. 1995, Rensselaer Polytechnic Institute; M.S. 1997, Rensselaer Polytechnic Institute; D.B.A. 2013, Northcentral University

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B.S.M.E. 1993, University of Notre Dame; M.S. 2000, University of Illinois at Chicago; Ph.D. 2010, University of Michigan

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B.S. 2001 University of Phoenix, M.A. 2004 & Ph.D. 2006, St. Mary's University (San Antonio)

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B.S.M.E. 1999, Escuela Politecnica Nacional, Ecuador; M.S.M.E. 2001, Gannon University;
M.B.A. 2005, University of California, Irvine; D.B.A. 2016, Grenoble Ecole de Management, France

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Diploma. 1985 & M.S.1985, Polytechnic University of Bucharest, Ph.D. 1998 University of Toledo

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M.A. 1998, Centre for Communications Research, Leicester University; Ph.D. 2001, Trinity College University; D.B.A. 2016, University of San Miguel - European Campus
Professional Masters: Quality Management and Internal Audit, Computer Forensics and Court Forensic Judicial Certified Expert, Security Management

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Ph.D. 2012, University of Siegen, Germany; M.S.E.E. 2006, B.S.E.E. 2003, Jordan University of Science and Technology, Jordan

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B.S. 1993, Turkish Naval Academy, Turkey; M.S. 1999, University of Pittsburgh; Ph.D. 2009, Auburn University

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M.B.A. 2011, California Coast University; B.S. 2003, California Coast University

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B.A. 1998, MBA 2002, Wayne State University

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B.B.A. Florida International University, M.S. Accounting, University of Phoenix. 2010, M.A. Management and Leadership, 2013, Liberty University, D.B.A 2015, North Central University

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B.S. Purdue University, M.B.A. 1988, Winthrop University (SC), M.S. 1993 Kettering University, D.B.A. Liberty University

Keith Wade, Contributing Faculty, School of Management
B.S. 1994, Oakland University, M.B.A. 2001, University of Detroit Mercy, D.B.A. 2016 Argosy University

Joseph Weagraff, Contributing Faculty, School of Management
B.S. 2002, Excelsior College; M.A. 2004, Webster University; D.B.A. 2016, Walden University

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B.B.A. 1981, University of Michigan; M.B.A. 1986, Wayne State University; Ph.D. 2016, Northcentral University

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B.Sc.C.E. 1992, Shiraz University, Fars, Iran; M.A.Sc.E.E. 2004, Concordia University, Montreal, Canada; Ph.D. 2009, University of Waterloo, Ontario, Canada

Contact Information

The information below provides contact information that students may need during their studies in the Kettering University graduate online program. Students may contact the respective person(s) as required to address their questions or concerns.

Main Online Contact Information	(800) 955-4464 ext 9827 / Graduateonline@kettering.edu
Admission/Application Status	(800) 955-4464 ext 9768 / Graduateonline@kettering.edu
Advisors	Graduateonline@Kettering.edu
Blackboard/Banner Web Questions	Helpdesk: (810) 237-TECH (8324) / HelpDesk@kettering.edu
Course Withdrawal	GraduateOnline@Kettering.edu
Enrollment Verification	Registrar's Office: registrar@kettering.edu
Financial Aid Office	(800) 955-4464 ext.7859 / finaid@kettering.edu
Financial Standing/Tuition payments/Receipts/Tax Info	Student Accounts : (810) 762-9552/ studentaccounts@kettering.edu
Grades	Registrar's Office: registrar@kettering.edu

Graduation Information	Registrar's Office: registrar@kettering.edu
Incomplete Grades/Status	Contact your advisor
Registration Information	Graduateonline@Kettering.edu
Student Change of Name, Address, Info	Registrar's Office: registrar@kettering.edu
Technical Support	Helpdesk: (810) 237-TECH (8324) / HelpDesk@kettering.edu
Transcript Request	https://www.kettering.edu/academics-research/academic-services/registrars-office/transcripts
Transfer Credits	Janell Beil, Graduate School (810) 762-9768/ jbeil@kettering.edu
VA Benefits:	Cierra Boegner, School Certifying Official, Office of the Registrar: cboegner@kettering.edu

Non-Discrimination

Non-Discrimination Policy Statement

Kettering University, as an equal opportunity/affirmative action employer, complies with all applicable federal and state laws regarding nondiscrimination and affirmative action.

Kettering University is deeply committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race, color, national origin, age, marital status, sex, sexual orientation including gender identity or expression, disability, religion, height, weight, genetic information, or veteran status in employment, educational programs and activities, and admissions except where religion, sex, or age are bona fide job related employment requirements.

Discrimination on the basis of race/ethnicity, color, ancestry, religion, national origin, sex, including marital status, age, disability, or status as a Vietnam-era veteran, special disabled veteran, recently separated veteran or other protected veteran is prohibited by federal and state statutes as amended, including Titles VI and VII of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Sections 503 and 504 of the Rehabilitation Act of 1973, the Pregnancy Discrimination Act of 1978, the Age Discrimination in Employment Act of 1978, the Vietnam Era Veteran's Readjustment Assistance Act of 1974, the Americans with Disabilities Act of 1990, and the Civil Rights Act of 1991.

Inquiries or grievances may be addressed to the Director of Human Resources, Office of Human Resources, 1700 University Avenue, Flint, MI 48504, 810-762-9500.

Title IX Statement

It is the policy of Kettering University to comply with Title IX of the Education Amendments of 1972, which prohibits discrimination (including sexual harassment and sexual violence) based on sex in the University's educational programs and activities. Title IX also prohibits retaliation for asserting or otherwise participating in claims of sex discrimination. The Title IX coordinator and the deputy coordinator have been designated to oversee Kettering's compliance with Title IX and to respond to reports of violations. For more information about Title IX, go to Kettering's Title IX website. A person may also file a complaint with the Department of Education's Office for Civil Rights regarding an alleged violation of Title IX by visiting the U.S. Department of Education's website or calling 800-421-3481.

Accounting (ACCT)

ACCT-518 Accounting/Financial Concepts 4 Credits
Prerequisites: None
Students will gain an understanding of how accounting data is developed and used by managers in making decisions. The course is divided into three sections. First, the Financial Accounting section discusses how basic financial events are recorded and presented in the accounting statements. Second, the Cost Accounting section discusses the nature and recording of manufacturing costs, development of overhead rates, job and process costing, budgeting, and control of manufacturing cost. Third, the Managerial Accounting section discusses profit volume analysis, relevant cost analysis, time value of money concepts, and capital budgeting.
Lecture: 3, Lab 0, Other 1

ACCT-639 Managerial Accounting 4 Credits
Prerequisites: ACCT-518 or MGMT-510
The use of managerial accounting information for planning and control is presented. Design, implementation and the use of planning and control systems to achieve the firm's strategies are emphasized, with a focus on managerial decision-making.
Lecture: 3, Lab 0, Other 1

ACCT-691 Special Topics in Mgr Accting 4 Credits
Prerequisites: None
Lecture: 4, Lab 0, Other 0

Business (BUSN)

BUSN-522 Business Statistics 4 Credits
Prerequisites: None
Solving complicated business programs in today's increasingly competitive global marketplace demands new thinking and new skills. This course is designed to provide insight for learners about how to collect, analyze and interpret data in order to make sound business decisions. Probability analysis, sampling, hypothesis testing, descriptive and inferential statistics along with additional tools and techniques used by business professionals in market research, business forecasting and risk mitigation are employed.
Lecture: 4, Lab 0, Other 0

BUSN-621 Lean Operations Management 4 Credits
Prerequisites: None
This course provides students with the principles and applications of Lean Enterprise and other leading models of operational excellence for office, service, distribution, and production operations. Lean Transformation methods are introduced to quantify the potential of Lean operations and provide a roadmap to transformation of the enterprise. Lean Work Flow methods are practiced to experience Lean operational work and materials management. Lean Work Design techniques are applied to structure work processes for output to meet customer demand, as well as rebalancing given changes in the demand rate. Integrating Experiences that schedule and manage operational activities of Lean Systems are applied throughout the course culminating in a comprehensive application exercise. Students may not receive credit for both BUSN-421 and BUSN-621.
Lecture: 4, Lab 0, Other 0

BUSN-629 Entrepreneurial Finance 4 Credits
Prerequisites: FINC-619
This is a course on financing startups and other small businesses. The objective is to provide students with an understanding of how financing from venture capital and private equity funds, as well as angel investors, finds its way to entrepreneurial ventures. The course follows a basic framework for study and analysis via the life cycle of an entrepreneurial venture consisting of (a) opportunity recognition, (b) valuation and terms of financing, (c) growing the entrepreneurial venture, and (d) harvesting the venture to create profits through Initial Public Offerings (IPOs) or a sale of the business. Students will examine the financial concepts, tools, and techniques for a successful entrepreneurial venture, with an emphasis on the financial management practices needed to secure financing and using business valuation models. Students may not receive credit for both BUSN-429 and BUSN-629.
Lecture: 4, Lab 0, Other 0

BUSN-659 International Business 4 Credits
Prerequisites: None
This course provides an overview of business practices in an interdependent, integrated, global economic system. A focus will be placed on understanding the opportunities and challenges that businesses must address in the face of globalization with emphasis on best practices in international business. Students may not receive credit for both BUSN-459 and BUSN-659.
Lecture: 4, Lab 0, Other 0

BUSN-689 Organizational Behavior 4 Credits
Prerequisites: MGMT-639 or MGMT-510
Students engage in a comprehensive examination of organizational behavior theories including analysis at individual, group and organizational levels. Individual levels include perception, personality, and motivation. Group levels include decision-making, group dynamics, and team building. Organizational levels include effective communication, empowerment, leadership, diversity, cross-cultural issues, and conflict resolution. Experiential activities provide opportunity for theoretical application and real-world understanding.
Lecture: 4, Lab 0, Other 0

BUSN-779 MBA Capstone: Innovation & New Ventures 4 Credits
Prerequisites: MGMT-659 or MGMT-510
This capstone course is focused on the formation of a new company or organization based on an innovation in product, service, process or delivery. Students develop a comprehensive business plan showcasing their understanding of business management concepts. This course requires an integrative approach to produce a business plan applicable to a variety of industries.
Lecture: 4, Lab 0, Other 0

Computer Engineering (CE)

CE-612 Digital Systems Design 4 Credits
Prerequisites: None
The principles and practices used in the design of modern complex combinational and sequential digital systems are covered in this course. Digital logic design, analysis, simulation, and implementation techniques are covered. Fundamental algorithms underlying computer-aided design (CAD) tools are studied. Schematic diagrams, hardware description languages (HDL), and system-on-programmable chip (SoPC) design tools are used to specify designs targeted for implementation in technologies ranging from discrete ICs to programmable logic devices, ASICs and SoPCs. Topics in testing of logic circuits and hardware-software co-design will be covered. The course is accompanied by laboratory component that allows students to exercise the principles and practices learned.
Lecture: 3, Lab 2, Other 0

CE-620 Microcomputer Systems 4 Credits
Prerequisites: None
The architectural features, design principles, development tools and techniques of advanced embedded microcomputers are covered in this advanced level course. The topics include architectures of contemporary 16-bit and 32-bit RISC microcontrollers (considering Microchip PIC24 and PIC32 as example cases for the practical development experiences), instruction set, addressing modes, software development & debugging, parallel and serial interfacing, interrupts, timer module, ADC module, etc.; The course has a strong laboratory component, which will be carried out on a microcomputer development kit with the latest family of 16-bit and 32-bit microcontrollers. Students will also complete independent projects or research assigned by the instructor on topics such as low-power micro architectures and power-aware computing.
Lecture: 3, Lab 2, Other 0

CE-622 Computer Architecture and Organization 4 Credits
Prerequisites: None
Fundamental concepts in computer architecture and organization are presented. Laboratory assignments using VHDL simulation are a major portion of the course. Topics include fixed point and floating point computer arithmetic; assessing and understanding performance; control unit design; microprogramming; memory organization; cache design; a 32-bit instruction-set architecture; single-cycle, multicycle and pipelined CPU architectures; RISC architecture; examples of commercial computer architectures. An independent study or project will be completed.
Lecture: 3, Lab 2, Other 0

CE-624 VLSI Design 4 Credits
Prerequisites: None
Design techniques and basic theory of integrated circuit design are discussed. Topics include review of the semiconductor physics associated with NMOS and PMOS transistors; fabrication process; CMOS combinational circuits; memory cells; stick diagrams; layout techniques using CAD tools; circuit extraction and analysis. An advanced project is completed.
Lecture: 3, Lab 2, Other 0

CE-626 Real-Time Embedded Systems 4 Credits
Prerequisites: None
Implementation and applications of real-time embedded computers are studied. Topics include the case study of an embedded real-time operating system, typical applications of embedded computers, real-time hardware and software interfacing, and real-time scheduling algorithms. This course includes a lab component with several short design projects and research-oriented final project.
Lecture: 3, Lab 2, Other 0

CE-642 Mobile Robotics 4 Credits
Prerequisites: None
Fundamentals of robotics with an emphasis on mobile robots, which are intelligent integrated mechanical, electrical and computational systems functioning in the physical world will be covered. Topics include state-of-the-art technologies in mobile robotics, such as locomotion, sensing, control, communication, localization, mapping, navigation, etc. Advanced topics such as coordination of multiple mobile robots will also be explored. The course aims to provide both theoretical and practical experience to students through lectures and simulation software. Students will also complete independent projects or research on current topics covering mobile robotics technologies and related fields.
Lecture: 3, Lab 2, Other 0

CE-6423 Mobile Robotics 3 Credits
Prerequisites: None
Fundamentals of robotics with an emphasis on mobile robots, which are intelligent integrated mechanical, electrical and computational systems functioning in the physical world will be covered. Topics include state-of-the-art technologies in mobile robotics, such as locomotion, sensing, control, communication, localization, mapping, navigation, etc. Advanced topics such as coordination of multiple mobile robots will also be explored. The course aims to provide both theoretical and practical experience to students through lectures and simulation software. Students will also complete independent projects or research on current topics covering mobile robotics technologies and related fields. This course is designed for online delivery and available only through Kettering University Online to students in the MS in Engineering: Electrical & Computer Engineering-Advanced Mobility program.
Lecture: 3, Lab 0, Other 0

CE-650 App Devel for Mobile Devices 4 Credits
Prerequisites: None
Terms Offered: Winter of even years; Spring of odd years
This course discusses an overview of how to get started developing mobile apps for Android and iOS platforms. These two app development platforms share similar challenges but have different approaches to addressing them. Both platforms will be taught to encourage students to see how the two different approaches can be used to solve similar issues. Students will choose one platform for their final design project. Topics include user interface design, network, communication, and sensor interfacing. This course includes lab components with design projects and final directed design project.
Lecture: 3, Lab 2, Other 0

CE-651 Introduction to Autonomous Driving 4 Credits
Prerequisites: None
This course provides an overview of theoretical and practical background regarding the design and development of autonomous vehicles. Topics include an overview of autonomous vehicle systems, autonomous vehicle localization technologies, perception in autonomous driving, decision and planning, and control for autonomous driving. This course aims to cover the basics of autonomous driving through lectures, lab assignments, a term project, and readings on current related topics. CE-651 students will be required to complete additional projects or independent review of research topics with approval of the instructor. Students may not receive credit for both CE-451 and CE-651.
Lecture: 3, Lab 2, Other 0

CE-6513 Introduction to Autonomous Driving 3 Credits
Prerequisites: None
This course provides an overview of theoretical and practical background regarding the design and development of autonomous vehicles. Topics include an overview of autonomous vehicle systems, autonomous vehicle localization technologies, perception in autonomous driving, decision and planning, and control for autonomous driving. This course aims to cover the basics of autonomous driving through lectures, assignments, a term project, and readings on current related topics. This course is designed for online delivery and available only through Kettering University Online to students in the MS in Engineering: Electrical & Computer Engineering-Advanced Mobility program.
Lecture: 3, Lab 0, Other 0

CE-652 Artificial Intelligence for Autonomous Driving 4 Credits
Prerequisites: None
This course will provide introductory theories and technologies in artificial intelligence focusing on machine learning, covering a wide range of machine learning methods, concepts and applications. Machine learning studies algorithms that learn from large quantities of date, identify patterns and make predictions on new data. The major list of machine learning fields are computer vision, robotics, autonomous driving, voice/gesture recognition, and automated planning & scheduling, etc. Students will study the concepts that underlie intelligent systems and investigate advanced topics in intelligent systems through a course project.
Lecture: 3, Lab 2, Other 0

CE-6523 Artificial Intelligence for Autonomous Driving 3 Credits
Prerequisites: None
This course will provide introductory theories and technologies in artificial intelligence focusing on machine learning, covering a wide range of machine learning methods, concepts and applications. Machine learning studies algorithms that learn from large quantities of date, identify patterns and make predictions on new data. The major list of machine learning fields are computer vision, robotics, autonomous driving, voice/gesture recognition, and automated planning & scheduling, etc. Students will study the concepts that underlie intelligent systems and investigate advanced topics in intelligent systems through a course project. This course is designed for online delivery and available only through Kettering University Online to students in the MS in Engineering: Electrical & Computer Engineering-Advanced Mobility program.
Lecture: 3, Lab 0, Other 0

CE-654 Computer Vision for Autonomous Driving 4 Credits
Prerequisites: None
This course will cover introductory theories and modern technologies in computer vision systems for autonomous driving. Data from visual sensors play crucial roles in many fields such as autonomous driving, surveillance camera, and robotics. The computer vision system seeks to automate tasks that the human visual system can do. The goal of this course is to learn technologies that enable a computer automatically to understand the content of visual sensors for autonomous driving. The first half of this course will focus on fundamental models and algorithms in computer vision and in the second half of the course students can learn about computer vision applications and programming skills to accomplish computer vision tasks. Graduate students taking this course are also required to complete independent review or survey of cutting edge research topics in computer vision systems, such as object-detection methods for autonomous driving, Deep Neural Network for environmental perception, and innovative applications, etc., selected by the students with approval of the instructor. The survey or research report must be presented in a conference paper format that is ready for submission to a conference.
Lecture: 3, Lab 1, Other 0

CE-672 Virtual Reality Systems: M&C 4 Credits
Prerequisites: None
This course provides the required theoretical and practical background to design and development of multimodal virtual reality (VR) systems. Particularly, the main focus is onVR-based human-in-the-loop systems that enable users to interact and/or manipulate virtual objects in simulated environments. This course aims to cover basics of these systems through lectures, homework, lab assignments, a term project, and readings on current related topics. Through lab assignments, students acquire hands-on skills to create a multimodal virtual environment. Topics include multimodal virtual reality, current VR technology and devices, human-centered simulation: human perception and psychophysics, basic control and stability analysis of VR systems, and human factors in the design of VR displays. CE-672 students will be required to complete additional projects or independent review of research topics with approval of the instructor.
Lecture: 3, Lab 2, Other 0

CE-680 Computer Networks 4 Credits
Prerequisites: None
Organization, analysis, and design of interconnected systems of computers are studied. Topics include the Open System Interconnection model and the Internet TCP/IP reference architecture. Standard protocols and technologies at each network layer will be covered, such as HTTP and a socket programming API at the application layer, TCP and UDP at the transport layer, and IPv4 and IPv6 along with fundamentals of routing at the network layer. Ethernet and Wi-Fi with their related physical mediums are discussed. The course will also introduce error detection and correction methods, basic network security principles and mobile technologies.Students are also required to complete a research project, to be determined and assigned with approval of the instructor. Students may not receive credit for both CE-480 and CE-680.
Lecture: 3, Lab 2, Other 0

CE-684 Internet of Things (IoT) 4 Credits
Prerequisites: None
The most important topics of the Internet of Things and its applications will be addressed. Topics include an introduction to network stacks and embedded operating systems, IoT architecture models, smart devices, connections and access technologies, the IoT network layer, application layer protocols relevant to IoT, and IoT security practices. Various IoT application areas will be discussed, such as industrial, home automation, manufacturing, energy, utilities, vehicles, smart cities, agriculture and health care. Students complete a term project to develop a complete IoT application. Students are also required to complete a research project, to be determined and assigned with approval of the instructor. Students may not receive credit for both CE-484 and CE-684.
Lecture: 3, Lab 2, Other 0

CE-691 Computer Engineering Special Topics 4 Credits
Prerequisites: None
Graduate level Special Topics in Computer Engineering.
Lecture: 4, Lab 2, Other 0

CE-695 Graduate Research in Computer Engineering 8 Credits
Prerequisites: None
This course is directed research towards a master's thesis. Students must take this course under the direction of a faculty advisor, and it is graded Satisfactory/Unsatisfactory. This course may be repeated for credit.
Lecture: 0, Lab 0, Other 0

CE-699 Computer Engineering Independent Study 8 Credits
Prerequisites: None
Terms Offered: As needed
Graduate level Independent Study in Computer Engineering
Lecture: 8, Lab 0, Other 0

Communications (COMM)

COMM-601 Communicating about Data 4 Credits
Prerequisites: None
Visualizations are powerful. Theories of visual rhetoric and design teach us that good visualization is not only clear and accurate but appealing as well. When executed well, visualizations enhance oral or written communication, by supporting arguments and claims, b providing insight into complex issues, and by supporting recall and decision-making in audiences. This relationship goes both ways, however, even well-crafted visualizations must be supported by effective oral and written communication. In this course, students explore both sides of this relationship, becoming familiar with common genres of visualization and with techniques both for designing them effectively and ethically, and for presenting visualizations orally and in prose.
Lecture: 4, Lab 0, Other 0

Computer Science (CS)

CS-601 Programming Methods for Data Science 4 Credits
Prerequisites: None
Introduction to computer science concepts and basic programming skills that are specifically geared toward data science, and forms a part of the introductory coursework for a Data Science & Data Analytics degree. Course emphasizes writing programs that are capable of retrieving and manipulating large amount of data. The first half of the course focuses on Python as a first programming language, while the second half of the course covers selected advanced topics such as data visualization, web scraping, database access and others.
Lecture: 4, Lab 0, Other 0

CS-625 Parallel Programming and Algorithms 4 Credits
Prerequisites: None
Parallel computing has long played a vital role in addressing the performance demands of high-end engineering and scientific applications. Over the last decade, parallel computing has become important to a much broader audience as nearly all computer systems are being built using chips with multiple processor cores. The goal of CS-625 is to introduce students to the foundations of parallel computing including the principles of parallel algorithm design, analytical modeling of parallel programs, programming models for shared- and distributed-memory systems, parallel computer architectures, along with numerical and non-numerical algorithms for parallel systems. The course will include material on emerging multicore hardware, shared-memory programming models, message passing programming models used for cluster computing, data-parallel programming models for GPUs, and problem-solving on large-scale clusters using MapReduce. A key aim of the course is for students to gain a hands-on knowledge of the fundamentals of parallel programming by writing efficient parallel programs using some of the programming models learned in class. There will be different projects in CS-425 and CS-625. Students may not receive credit for both CS-425 and CS-625.
Lecture: 4, Lab 0, Other 0

CS-641 Foundations of Data Science 4 Credits
Prerequisites: CS-601
The concepts, principles, issues and techniques for big data and cloud computing are introduced in this course. This course will provide a foundation in data science based on data curation and statistical analysis. The primary goal of this course is to introduce data analysis concepts and techniques that facilitate making decisions from a rich data set. Students will investigate big data concepts, metadata creation, interpretation, and basics of information visualization. Students may not receive credit for both CS-441 and CS-641.
Lecture: 4, Lab 0, Other 0

CS-651 Cloud Computing: Architecture & Applications 4 Credits
Prerequisites: CS-601
A comprehensive overview of cloud computing and its application to big data and data science. Current technologies that comprise the concept of cloud computing are discussed. Exploration of major Cloud frameworks that support large data storage and applications that support data analytics.
Lecture: 4, Lab 0, Other 0

CS-661 Database Systems 4 Credits
Prerequisites: CS-601
Database design and implementation, entity-relationship model, relational model, relational query languages, physical data organization, XML, distributed database concepts, Big Data technologies, enhanced data models.
Lecture: 4, Lab 0, Other 0

CS-665 Information Retrieval and Data Mining 4 Credits
Prerequisites: CS-601
Information retrieval and data mining topics, including information storage and retrieval, file structures, precision and recall, probabilistic retrieval, search strategies, automatic classification, automatic text analysis, decision trees, genetic algorithms, nearest neighbor method, and rule induction.
Lecture: 4, Lab 0, Other 0

CS-681 Artificial Intelligence 4 Credits
Prerequisites: CS-601
Topics covered include: Types of intelligence, knowledge representation, cognitive models, Heuristic and algorithmic techniques in problem solving, knowledge representation, reasoning under uncertainty, and learning. Selected topics from natural language processing, vision processing, game playing, pattern recognition, speech recognition, robots, and other current topics in artificial intelligence. There will be different projects in CS-481 and CS-681. Students may not receive credit for both CS-481 and CS-681.
Lecture: 4, Lab 0, Other 0

CS-682 Machine Learning 4 Credits
Prerequisites: CS-601
This course provides an introduction to machine learning. Topics include: supervised learning including generative, discriminative learning, parametric and non-parametric learning, neural networks, support vector machines; unsupervised learning including clustering, dimensionality reduction, kernel methods; learning theory bias/variance trade-offs; VC theory; large margins; reinforcement learning. The course will also include applications of machine learning to big data.
Lecture: 4, Lab 0, Other 0

CS-683 Algorithms for Deep Learning 4 Credits
Prerequisites: CS-601
This course provides students with the knowledge to implement the key algorithms related to deep learning. Deep learning is a branch of machine learning concerned with the development and application of modern neural networks. Deep learning is behind many recent advances in AI, including Siri's speech recognition, Facebook's tag suggestions, etc. Students will cover a range of topics including the foundational algorithms and data structures of neural networks, belief networks, generative learning models, convolutional and recurrent network structures, as well as overcoming issues with training and security. Graduate students will go into greater depth on certain topics and have additional readings and homework assignments, and a more complex project. Students may not receive credit for both CS-483 and CS-683.
Lecture: 4, Lab 0, Other 0

CS-690 Data Science Capstone Project 4 Credits
Prerequisites: None
Lecture: 4, Lab 0, Other 0

CS-691 Data Science Special Topics 4 Credits
Prerequisites: None
Current topics in Data Science are discussed and analyzed.
Lecture: 4, Lab 0, Other 0

CS-693 Internship in Data Science 4 Credits
Prerequisites: None
Guided professional practicum experience for on-campus graduate students serving as an extension of the curriculum that facilitates the development of knowledge and skills in the application of theory to real-world problems in a non-classroom setting. This experiential learning engagement builds upon, applies, and assesses the concepts that are developed through the curriculum and advances the student's professional growth through a meaning full real-world job experience. Requires prior approval of the organization in which the internship will be done and by the Department Head of Computer Science. Four-credit hour enrollments in this course will be considered as full-time status. The course can be repeated a second time for a total of eight credit hours. Internships are graded on a Credit/No Credit basis, to be entered by the Department Head upon the student's completion of all internship requirements.
Lecture: 0, Lab 0, Other 4

CS-695 Thesis in Data Science 4 Credits
Prerequisites: None
Lecture: 0, Lab 0, Other 0

CS-699 Computer Science Independent Study 4 Credits
Prerequisites: None
Graduate level Independent Study.
Lecture: 4, Lab 0, Other 0

Elect. & Computer Engrg (ECE)

ECE-601 ECE Principles for Mobility 4 Credits
Prerequisites: None
This graduate level course is designed to introduce the fundamental principles of electrical and computer engineering that are required for application in mobility systems for students with non-ECE degrees. Topics include: passive circuit components, basic laws and analysis techniques; active electronic elements and circuits, digital logic circuits, digital and analog sensors and actuators, electrical machines; power electronics and batterings; digital systems; signal processing; microcomputers and interfacing; and basic mobility system networking and CAN concepts. Approximately one week is devoted to each topic illustrated in the context of specific applications in mobility systems. Case studies with specific applications of ECE in mobility systems will be assigned.
Lecture: 4, Lab 0, Other 0

ECE-610 Modeling of Dynamic Systems 4 Credits
Prerequisites: None
This course covers modeling, simulation, and analysis of multivariable dynamic systems. Approaches to modeling a variety of dynamic physical systems are discussed using examples of dynamic systems taken from a variety of fields. The course places emphasis on modeling and analysis of electric vehicle systems and components. Transient and steady state behavior of power electronic circuits using state space models is included in this course. These systems are simulated using MATLAB simulation tools. Most of the course is devoted to the analysis of linear systems using now classical techniques based on linear algebra, state-space representations and the state transition matrix.
Lecture: 4, Lab 0, Other 0

ECE-6103 Modeling of Dynamic Systems 3 Credits
Prerequisites: None
This course covers modeling, simulation, and analysis of multivariable dynamic systems. Approaches to modeling a variety of dynamic physical systems are discussed using examples of dynamic systems taken from a variety of fields. The course places emphasis on modeling and analysis of electric vehicle systems and components. Transient and steady state behavior of power electronic circuits using state space models is included in this course. These systems are simulated using MATLAB simulation tools. Most of the course is devoted to the analysis of linear systems using now classical techniques based on linear algebra, state-space representations and the state transition matrix. This course is designed for online delivery and available only through Kettering University Online to students in the MS in Engineering: Electrical & Computer Engineering-Advanced Mobility program.
Lecture: 3, Lab 0, Other 0

ECE-630 Digital Signal Processing Techniques for Automotive Engineering 4 Credits
Prerequisites: None
This graduate level course is designed to introduce critical digital signal/ image processing principles/theories and techniques applied to a variety of automotive engineering applications. Special focus is given to autonomous driving and NVH analysis. Examples include, but are not limited to, edge detection methods in traffic sign recognition and identification, Kalman filtering for vehicle state estimation, Modal analysis (frequency domain) and expansion to time-frequency domain analysis of dynamic response using techniques such as wavelets and Empirical Mode Decomposition (EMD). MATLAB will be heavily used for analysis and simulations.
Lecture: 4, Lab 0, Other 0

ECE-6303 Digital Signal Processing Techniques for Automotive Engineering 3 Credits
Prerequisites: None
This graduate level course is designed to introduce critical digital signal/ image processing principles/theories and techniques applied to a variety of automotive engineering applications. Special focus is given to autonomous driving and NVH analysis. Examples include, but are not limited to, edge detection methods in traffic sign recognition and identification, Kalman filtering for vehicle state estimation, Modal analysis (frequency domain) and expansion to time-frequency domain analysis of dynamic response using techniques such as wavelets and Empirical Mode Decomposition (EMD). MATLAB will be heavily used for analysis and simulations. This course is designed for online delivery and available only through Kettering University Online to students in the MS in Engineering: Electrical & Computer Engineering-Advanced Mobility program.
Lecture: 3, Lab 0, Other 0

ECE-632 Automotive Control Systems 4 Credits
Prerequisites: None
This class will focus on applying students' knowledge of fundamental principles of control systems to a variety of systems within automobiles. Specific topics will include the control of the air-fuel ratio, spark timing, idle speed, transmissions, cruise and headway, lane-keeping, and active suspensions. Other topics that may be included are antilock brakes, traction control and vehicle stability control. Simulations will be used and students will be using MATLAB/Simulink for many of the assignments.
Lecture: 4, Lab 0, Other 0

ECE-6323 Automotive Control Systems 3 Credits
Prerequisites: None
This class will focus on applying students' knowledge of fundamental principles of control systems to a variety of systems within automobiles. Specific topics will include the control of the air-fuel ratio, spark timing, idle speed, transmissions, cruise and headway, lane-keeping, and active suspensions. Other topics that may be included are antilock brakes, traction control and vehicle stability control. Simulations will be used and students will be using MATLAB/Simulink for many of the assignments. This course is designed for online delivery and available only through Kettering University Online to students in the MS in Engineering: Electrical & Computer Engineering-Advanced Mobility program.
Lecture: 3, Lab 0, Other 0

ECE-642 Machine Drives for Electric Vehicles 4 Credits
Prerequisites: None
Methods of controlling electric machines and their applications in electric vehicles are discussed. Topics include solid-state devices; various switching schemes; types of drives; characteristics of motors; controlling motors including vector control; braking of motors; and dynamics of electric drives and applications.
Lecture: 4, Lab 0, Other 0

ECE-6423 Machine Drives for Electric Vehicles 3 Credits
Prerequisites: None
Methods of controlling electric machines and their applications in electric vehicles are discussed. Topics include solid-state devices; various switching schemes; types of drives; characteristics of motors; controlling motors including vector control; braking of motors; and dynamics of electric drives and applications. This course is designed for online delivery and available only through Kettering University Online to students in the MS in Engineering: Electrical & Computer Engineering-Advanced Mobility program.
Lecture: 3, Lab 0, Other 0

ECE-648 Electromagnetic Compatibility 4 Credits
Prerequisites: None
In-depth classical and currents topics in the field of electromagnetic compatibility (EMC) are studied in this course. This includes signal integrity, high-speed digital design matching techniques, passive filter design, single and multilayer shielding, electrostatic discharge, high-frequency measurements, circuit board layout, and grounding methodology. Basic course work in electromagnetic compatibility is a prerequisite for this course.
Lecture: 4, Lab 0, Other 0

ECE-6593 Integrative Capstone Project 3 Credits
Prerequisites: None
This course is designed for students to create an MSE ECE focused project applicable to current ECE applications especially related to electrification or advanced mobility. Throughout the course, students develop their proposal regarding an organization-based electrification or advanced mobility challenge; including identifying and incorporating all feedback from stakeholders. Students establish a team contract, identify deliverables, and collect and analyze data. At the end of the course, students develop and deliver a presentation with solutions to their organization's challenge(s). This course is designed for online delivery and available only through Kettering University Online to students in the MS in Engineering: Electrical & Computer Engineering-Advanced Mobility program.
Lecture: 3, Lab 0, Other 0

Electrical Engineering (EE)

EE-610 eMobility System Analysis & Control 4 Credits
Prerequisites: None
This course will provide system analysis and design methods for electrified road vehicles. Firstly, the components and subsystems of electrified powertrain will be reviewed with real application design, including battery, electric motor and inverter etc. Modeling and simulation methods with MATLAB/Simulink will be covered for students to adopt multi-physical level model skills. With the knowledge of the systems, powertrain design basics will be reviewed, including hybrid/electric powertrain configurations, E/E architecture and energy management strategies. Finally, functional safety topics will be covered, including subjects and work products of road vehicle functional safety standard ISO-26262. System and function analysis methods, such as fault tree analysis (FTA), will be covered as well. Graduate students are required to complete a research project, to be determined and assigned with the approval of the instructor. Students may not receive credit for both EE-410 and EE-610.
Lecture: 4, Lab 0, Other 0

EE-621 Energy Storage Systems with EV Applications 4 Credits
Prerequisites: None
This course introduces the basics of energy storage systems. Several competing energy storage concepts and management systems will be considered with emphasis on rechargeable Li-ion batteries for EV applications. The course will focus on the fundamentals of Li-ion batteries with respect to the physical principles of operation, design, modeling and state estimation, as well as battery management systems. Graduate students are also required to complete a research project, to be determined and assigned with approval of the instructor. Students may not receive credit for both EE-421 and EE-621.
Lecture: 4, Lab 0, Other 0

EE-624 Power Electronics & Applications 4 Credits
Prerequisites: None
Electrical energy conversion principles, along with several powerelectronic devices and converter topologies are studied. Topics include: characteristics of diodes, thyristors, BJTs, IGBTs, and MOSFETs; transistor gate-drive circuits; operating principles of AC/DC, DC/DC and DC/AC converter circuits; isolation and isolated DC/DC converter circuits; power loss and efficiency calculations; high-frequency magnetic component design, and computer-aided analysis of the dynamic response of the converter circuits. Applications involving the dynamic representation and speed control of electric motors, together with power electronics, are also studied. Graduate students are also required to complete a research project, to be determined and assigned with approval of the instructor. Students may not receive credit for both EE-424 and EE-624.
Lecture: 3, Lab 2, Other 0

EE-626 Power Electronics for Vehicle Electrification 4 Credits
Prerequisites: None
This is an advanced class in power electronics. Advanced converter topologies, control methods, and analyses used in electric-vehicle and power-system domains will be discussed. topics include state-variable modeling of DC-DC converters for closed-loop control system design, isolated DC-DC converter topologies (half, full, and dual bridges) and resonant DC-DC converter topologies (series, parallel and series-parallel) for wireless power transfer and battery charging, soft-switching concepts and control methods for isolated DC-DC converters, single-phase and three-phase inverter design, inverter control methods including six-step, Sine PWM, Space Vector PWM, and Discontinuous PWM and the design and control of multilevel and modular multilevel inverters.
Lecture: 0, Lab 0, Other 0

EE-6263 Power Electronics for Vehicle Electrification 3 Credits
Prerequisites: None
This is an advanced class in power electronics. Advanced converter topologies, control methods, and analyses used in electric-vehicle and power-system domains will be discussed. topics include state-variable modeling of DC-DC converters for closed-loop control system design, isolated DC-DC converter topologies (half, full, and dual bridges) and resonant DC-DC converter topologies (series, parallel and series-parallel) for wireless power transfer and battery charging, soft-switching concepts and control methods for isolated DC-DC converters, single-phase and three-phase inverter design, inverter control methods including six-step, Sine PWM, Space Vector PWM, and Discontinuous PWM and the design and control of multilevel and modular multilevel inverters. This course is designed for online delivery and available only through Kettering University Online to students in the MS in Engineering: Electrical & Computer Engineering-Advanced Mobility program.
Lecture: 3, Lab 0, Other 0

EE-633 Digital Control Systems 4 Credits
Prerequisites: None
Control of continuous-time processes using computer-based controllers is studied. Topics include design of control algorithms for implementation, modeling of discrete time systems, application of z-transforms, stability analysis, root locus analysis, controller design via conventional techniques, state-space analysis and modeling, and design and implementation of digital controller. Implementation of real-time digital controllers is performed in the laboratory. Graduate students will be assigned an area or topic for a final class project which will be involved in researching an actual digitally controlled application, identifying all sub-systems, study of digital controller, analysis of system performance using topics covered in the class, developing Simulink model for the control system and finally proposing alternative solution for the controller for system response improvement. Students may not receive credit for both EE-433 and EE-633.
Lecture: 3, Lab 2, Other 0

EE-634 Digital Signal Processing 4 Credits
Prerequisites: None
Basic principles, design, and applications of digital signal processing systems are presented. Topics include: review of discrete-time signals and systems, the z-transform, discrete-time Fourier analysis, the Discrete Fourier Transform, the Fast Fourier Transform, digital filter structures, FIR filters, and IIR filters, statistical signal processing. The course includes extensive use of MATLAB and experimental design projects using real-time digital signal processors. Graduate students are also required to complete a research project, to be determined and assigned with approval of the instructor. Students may not receive credit for both EE-434 and EE-634.
Lecture: 3, Lab 2, Other 0

EE-643 Fundamentals of Power Systems 4 Credits
Prerequisites: None
Basic structure of electrical power systems and characteristics of power transmission lines, transformers and generators are studied. Topics include: conventional and renewable energy resources for power generation, representation of power systems; symmetrical three-phase fault analysis; symmetrical components; unsymmetrical fault computations; and simulation tools and network analyzers. Graduate students are also required to complete a research project, to be determined and assigned with approval of the instructor. Students may not receive credit for both EE-443 and EE643.
Lecture: 3, Lab 2, Other 0

EE-646 Vector Control of AC Electric Machines 4 Credits
Prerequisites: None
Methods of controlling electric machines and their applications in electric vehicles are discussed. Topics include the theory of permanent-magnet and induction machines; coordinate-frame transformations; analysis and tuning of torque and speed control systems; modeling and dynamics of electric drives and vehicles, power-electronic devices, power-electronic circuits and switching schemes; rotor-flux oriented vector control; regenerative braking; and rotor-flux position-sensing methods. Machine and vehicle models will be developed using MATLAB Simulink. A low-voltage permanent-magnet machine and power-electronic inverter will be analyzed and tested. Students are also required to complete a research project, to be determined and assigned with approval of the instructor. Students may not receive credit for both EE-446 and EE-646.
Lecture: 3, Lab 2, Other 0

EE-682 Robot Dynamics and Control 4 Credits
Prerequisites: None
Review of mathematical principle for robotics including matrix operations and their concepts. Principles of robot analysis, design, and operation are presented. Topics include review of historical robotics evolutions and applications, robot coordinate system placement rules, kinematic model development, kinematic solutions and analysis, trajectory planning and movement optimization, collision avoidance and path planning, feedback control system for robotics, feedforward, study of sensors for robotics applications, vision system types and application for robotics and mobile robots. Graduate students will complete an advanced robotic application project to integrate and highlight the application of course materials. Examples of application area include surgery, space exploration, radioactive material handling, agriculture automation. Students may not receive credit for both EE-482 and EE-682.
Lecture: 4, Lab 0, Other 0

EE-691 Graduate Special Topics in EE 4 Credits
Prerequisites: None
Graduate Level Special Topics in Electrical Engineering.
Lecture: 4, Lab 0, Other 0

EE-695 Graduate Research in Electrical Engineering 8 Credits
Prerequisites: None
This course is directed research towards a master's thesis. Students take the course under the direction of a faculty advisor. This course may be repeated for credit.
Lecture: 0, Lab 0, Other 0

EE-699 Graduate Level Independent Study in Electrical Engineering 4 Credits
Prerequisites: None
Graduate level Independent Study in Electrical Engineering.
Lecture: 0, Lab 0, Other 0

Engineering (ENGR)

ENGR-693 Internship in Engineering 4 Credits
Prerequisites: None
Guided professional practicum experience for on-campus graduate students serving as an extension of the curriculum that facilitates the development of knowledge and skills in the application of theory to real-world problems in a non-classroom setting. This experiential learning engagement builds upon, applies, and assesses the concepts that are developed through the curriculum and advances the student's professional growth through a meaningful real-world job experience. The internship should be substantial and practical, including analysis, evaluation, and application of engineering concepts. At least 240 clock hours of on-site work over the term are required for four credit hours. Requires prior approval of the organization in which the internship will be done by the Dean of the College of Engineering and appropriate review and approval of the specific experience gained. Four-credit hour enrollments in this course will be considered as full-time status. The course can be repeated a second time, however, it will not count toward degree completion once four credit hours are earned. Internships are graded on a Credit/No Credit basis, to be entered by the Dean upon the student's completion of all internship requirements.
Lecture: 0, Lab 0, Other 0

Financial (FINC)

FINC-619 Financial Management 4 Credits
Prerequisites: ACCT-518 or MGMT-510
The purpose of this course is to provide students with an overview of financial management within organizations. The focus of this course is on the theoretical valuation of stocks and bonds and the capital markets in which they are traded. There is also emphasis on both the use of financial leverage by the firm and working capital management. The purpose is to enable managers to participate fully in financial decision-making.
Lecture: 4, Lab 0, Other 0

Healthcare Management

HMGT-609 Healthcare Management 4 Credits
Prerequisites: None
In this course students gain a broad understanding of the organization, financing and issues in health care delivery systems in the US. Students will apply core business skills and knowledge of health care unique functional areas in analyzing health care case studies. Students will critically evaluate health care issues and polices and their effect on health care system performance.
Lecture: 4, Lab 0, Other 0

Indust/Manufctrng Engrg (IME)

IME-601 IME Principles for Mobility Systems 4 Credits
Prerequisites: None
This graduate level course is designed to introduce the fundamental principles of industrial and manufacturing engineering that are required for application in mobility systems for students with non-IME degrees. Topics include: product and process design, work design, production systems, quality/six sigma, and management/leadership. Approximately two weeks are devoted to each topic illustrated in the context of specific applications in mobility systems. Case studies with specific applications of IME in mobility systems will be assigned.
Lecture: 4, Lab 0, Other 0

IME-603 Numerical Control Machining 4 Credits
Prerequisites: None
The fundamentals of computer numerical control (CNC) programming and computer-aided manufacturing (CAM) are introduced in this course. The fundamental theoretical and operational concepts of machining are also presented. The course focuses on the programming of cutting operations; tool materials, selection, and uses. Significant topics include: G-code programming, Introduction to CAM software, Taylor's tool life model, Criteria for tool selection, and the Orthogonal Cutting Model. Laboratories use CNC machine tools for programming and cutting, and are designed to illustrate theoretical concepts and methods for solving practical engineering machining problems.
Lecture: 3, Lab 2, Other 0

IME-608 Industrial Robotics 4 Credits
Prerequisites: None
Basic concepts of robotic system theory and applications are presented. Human and robotic system interface with diverse real environments are discussed. Human and robotic safety is stressed. Advantages, limitations, business case justifications of investment and benefits of robotic systems for LEAN and quality operations are emphasized. Flexible manufacturing operations, Work cell design, cycle time, work path, end-effectors, collaborative robots are covered. Robotic computer model simulation is included in the course. Hands on Labs are included. Graduate students analyze more in-depth applications of robotic systems, simulations and current industry applications. Students may not receive credit for both IME-408 and IME-608.
Lecture: 3, Lab 2, Other 0

IME-614 Design for Manufacturing and Assembly 4 Credits
Prerequisites: None
This course aims to provide an in-depth understanding of the complex interrelationships between design and manufacturing. It covers essential topics, principles, and practices of Design for Manufacturability and Assembly, with a focus on the product development process, customer requirements, design requirements, robust design, manufacturability, assembly, and design for Misc (DOX), as well as designed experiments (DOE) and GD&T. In DFMA, the students will learn about assembly documentation, constraint analysis, variation, sequence analysis, concurrent engineering, and how to efficiently model assembly systems. Students will be expected to work in small teams, apply methods they learn, and present results and conclusions based on assigned work to practice being part of a project team. Graduate students will supplement course content by investigating and presenting late-breaking research findings and trends in the area of design for manufacturing and assembly. Students may not receive credit for both IME-414 and IME-614.

Lecture: 4, Lab 0, Other 0

IME-616 Additive Manufacturing 4 Credits
Prerequisites: None
Additive Manufacturing (AM), commonly known as 3D printing, involves creating three-dimensional objects directly from computer-aided designs (CAD) by adding material layer by layer. In this course, students will gain a comprehensive understanding of AM processes, design principles for AM, materials selection, and reverse engineering techniques. The course will explore how AM drives innovation in different industries, such as automotive, aerospace, and healthcare. Through laboratories, students will gain hands-on experience with advanced CAD for AM, SLA, FDM, reverse engineering, and tackling real-world challenges Graduate students will be required to do additional projects/assignments related to additive manufacturing technologies. Students may not receive credit for both IME-416 and IME-616.
Lecture: 3, Lab 2, Other 0

IME-622 Simulation 4 Credits
Prerequisites: None
An understanding and need for simulation in practice will be developed. The course will focus on basic and advanced concepts in simulation including comparing the simulated results with analytical results, and successfully develop simulation models useful in production/ manufacturing, supply chains, transportation, and other areas related to Industrial and Manufacturing Engineering. Simulation package such as ARENA will be integrated and used throughout the course. Graduate students will create advanced digital simulation models. Students may not receive credit for both IME-422 and IME-622.
Lecture: 4, Lab 0, Other 0

IME-652 Production System Design 4 Credits
Prerequisites: None
Students gain an understanding of the decision-making tools necessary to design value in the global supply chain from concept to customer. Quantitative methods are employed to aid the decision-making process of demand forecasting and enterprise planning for the purpose of increased profit and value to stakeholders. Basic concepts in strategy, forecasting, demand planning, inventory control and value stream mapping will be taught and utilized to enable the decision-making process to be based on quantitative metrics. Graduate students will be required to do additional projects/assignments related to supply chain management. Students may not receive credit for both IME-452 and IME-652.
Lecture: 4, Lab 0, Other 0

IME-653 Supply Chain Design 4 Credits
Prerequisites: IME-652
This course introduces principles of supply chain and logistics network from an engineering perspective. Students gain an understanding of the decision-making process required to design and manage the global supply chain. The key concepts such as inventory planning, warehousing, logistics and distribution networks, facility location planning, probabilistic project management, transportation systems, and sustainability are covered in this course. Graduate students will be required to do additional projects/assignments related to supply chain management. Students may not receive credit for both IME-453 and IME-653.
Lecture: 4, Lab 0, Other 0

IME-654 Enterprise Resource Planning 4 Credits
Prerequisites: None
An understanding of the integrated approach to enterprise planning and its evolution from MRP I and MRP II is provided in this course. It describes the core structure of ERP systems and highlights the characteristics of emerging ERP based organizations. Various ERP tools and techniques are described and compared. The fundamental success factors in moving from traditional business functions to an integrated process-based ERP environment are introduced.
Lecture: 3, Lab 0, Other 1

IME-656 Engineering for Healthcare Systems 4 Credits
Prerequisites: None
This course examines the technical structure of the healthcare delivery system and the role that industrial and systems engineering (ISE) plays in its design and improvement. Included will be how healthcare systems work in hospitals, medical offices, clinics and other healthcare organizations. Traditional ISE methods for improving quality, patient safety, and employee productivity and satisfaction will be presented within a systematic application of value chain engineering designed to produce lean processes.
Lecture: 3, Lab 0, Other 1

IME-662 Ergonomics 4 Credits
Prerequisites: None
Human factors and ergonomics concepts for design of work. Topics include functional anatomy, bio-mechanical analysis of physical work, work physiology, manual material handling, cumulative trauma disorders, hand tool design, and human factors related to applied job design. Graduate students will create and analyze additional, in-depth job simulations using industry-current software tools. Students may not receive credit for both IME-462 and IME-662.
Lecture: 3, Lab 2, Other 0

IME-663 Safety & Human Factors 4 Credits
Prerequisites: None
An introduction to occupational safety; including injury statistics, mandatory and voluntary specification and performance regulations, standards, and guidelines. Electrical, machine, fire and life safety, confined spaces, and fall hazards (among others) are discussed in the context of traditional safety and human factors engineering. Students apply systems safety analysis methods in real-world hazard analysis and control projects. Graduate students will be required to research and present to the class safety strategy and policy trends related to new technology disruption and how engineers and policy makers will approach safety for these systems in the future. Students may not receive credit for both IME-463 and IME-663.
Lecture: 4, Lab 0, Other 0

IME-665 Human-Computer Interaction and Interface Design 4 Credits
Prerequisites: None
New technology is increasingly being integrated into our minute-to-minute lives. This multidisciplinary course provides theoretical and practical skills that are needed to design, develop, and evaluate human interaction with computer and machine interfaces and virtual environments. Course topics are anchored around fundamentals of physical and cognitive human capabilities and their relationship to product design and testing. Example topics include human psychological and physical capabilities, cognition and models of interaction, heuristic evaluation. Rapid prototyping, usability testing, experimental evaluation of input devices and peripherals, haptics, virtual and augmented reality, and brain interfaces. Topics are reinforced through readings, guest lectures, hands-on experimentation and evaluation, current research trends, and a term design project. Graduate students will supplement course content by investigating and presenting late-breaking research findings and trends in the area of new technology HCI/HMI design. Students may not receive credit for both IME-465 and IME-665.
Lecture: 4, Lab 0, Other 0

IME-671 Quality Control 4 Credits
Prerequisites: None
The basics of modern methods of quality control and improvement that are used in the manufacturing and service industries are covered in this course. It includes quality philosophy and fundamentals, statistical methods of quality improvement, concept of variation and its reduction, control charts, and Statistical Process Control (SPC). Deming's quality and management concepts will also be discussed. Students may not receive credit for both IME-471 and IME-671.
Lecture: 4, Lab 0, Other 0

IME-673 Design of Experiments 4 Credits
Prerequisites: None
The objective of the course is for students to develop the skills necessary to plan an experiment, collect the data, and analyze the results to improve quality, efficiency, and/or performance of working systems/products. Variable selection process, ANOVA, factorial designs, fractional factorial designs, blocking, and response surface methodology are covered. Statistical software such as Minitab is used extensively throughout the course. Graduate students will be required to do additional projects/assignments in the course. Students may not receive credit for both IME-473 and IME-673.
Lecture: 4, Lab 0, Other 0

IME-676 Lean Six Sigma 4 Credits
Prerequisites: None
Techniques to maximize production efficiency and to maintain control over each step in the process are examined in this course. The structured problem-solving methodology DMAIC (Define-Measure-Analyze-Improve-Control) will provide the framework for the course. Graduate students will research additional industry-current Lean Six Sigma methods. Students may not receive credit for both IME-476 and IME-676.
Lecture: 4, Lab 0, Other 0

IME-684 Engineering Ethics 4 Credits
Prerequisites: None
The professional and ethical consideration of an engineer in contemporary society is covered in this course. Discussions include the code of ethics for engineers, case studies on conflict of interest, teamwork, engineering/management responsibilities, government regulations, environmental and societal considerations and professional registration. This class requires live weekly discussion. Graduate students will be required to do additional projects/assignments related to engineering ethics. Students may not receive credit for both IME 484 and IME 684.
Lecture: 4, Lab 0, Other 0

Information Systems (ISYS)

ISYS-669 Enterprise Information System Models 4 Credits
Prerequisites: None
This course is designed to introduce students to several topics relevant to Information Systems. Effective information systems contribute to aiding organizations to achieve strategic objectives, operational excellence, and competitive advantage. Students have the opportunity to gain deeper insight into IS infrastructure, building and securing Information Systems, telecommunications, Internet technology, and social media, as well as the ethical and legal implications of using Information systems. Additional course topics include: Enterprise-wide Information Systems such as Enterprise Resource Planning (ERP), Supply Chain Management (SCM), Customer Relationship Management (CRM), and E-Commerce.
Lecture: 4, Lab 0, Other 0

Mathematics (MATH)

MATH-627 Probability and Stochastic Modeling 4 Credits
Prerequisites: None
This is a calculus-based introduction to probability theory and stochastic modeling. Students will learn fundamentals of probability, discrete and continuous random variables, expectation, independence, Bayes' rule, important distributions and probability models, joint distributions, conditional distributions, distributions of functions of random variables, moment generating functions, central limit theorem, laws of large numbers. Markov chains and Markov Chain Monte Carlo methods will be discussed. Programming language R will be introduced and used throughout the course.
Lecture: 4, Lab 0, Other 0

MATH-630 Statistical Methods for Data Science 4 Credits
Prerequisites: None
This is a course on statistical methods for data science with an emphasis on statistical learning. It provides a set of tools for modeling and understanding big and complex data. This course concentrates on applications and practical execution of the methods rather than on mathematical details. Areas discussed include various regression models, classification methods, resampling, non-linear techniques, tree-based analysis, support vector machines, and unsupervised learning. Programming language R will be introduced and used throughout the course. Students may not receive credit for both MATH-430 and MATH-630.
Lecture: 4, Lab 0, Other 0

MATH-637 Statistical Inference and Modeling 4 Credits
Prerequisites: MATH-627
A study of statistics including point and interval estimation, consistency, efficiency, and sufficiency, Minimum Variance Unbiased Estimators, Uniformly Most Powerful tests, likelihood ratio tests, goodness of fit tests, an introduction to non-parametric methods Linear models, including regression analysis and Analysis of Variance are included. Bayesian methods are introduced. Programming language R will be used throughout the course.
Lecture: 4, Lab 0, Other 0

Mechanical Engineering (MECH)

MECH-523 Applied Computational Fluid Dynamics 4 Credits
Prerequisites: MECH-322 and (MATH-313 or MATH-418 or MATH-423)
This course includes solution methods to the Navier-Stokes equations in a discrete domain. Grid generation, coordinate transformation, discretization, explicit, implicit, semi-implicit, a variety of algorithms, post-processing, and interpretations of results are discussed. Solution techniques for compressible and incompressible flows, their applicability, robustness, and limitations are covered. External and internal flows with and without chemical reactions are also discussed. The learning process involves hands-on experience on grid generation, setting up a CFD code, post-processing, and a thorough discussion on the results. The students will work on a final project that is a practical problem of significant magnitude and importance to industry. This work must be publishable in the student's journal or presentable in a conference.
Lecture: 4, Lab 0, Other 0

MECH-564 Aerodynamics and Wing Theory 4 Credits
Prerequisites: MECH-322 and (MATH-305 or MECH-600)
Discussions on fundamentals of inviscid and viscous incompressible flows. Important topics in fluid mechanics such as potential flow, vortices, point sources, and coupling of inviscid and boundary layer flows are covered. Two and three dimensional wings (or airfoils) and some exact solutions to such flow problems are discussed. Semi-analytical methods for disturbance distribution on wings are introduced by perturbation method. The computational Panel method for two and three dimensional aerodynamics problems is discussed. Commercial computer programs are used to solve realistic problems in a three dimensional space.
Lecture: 4, Lab 0, Other 0

MECH-595 Automotive Seminar I 4 Credits
Prerequisites: None
Kettering has a partnership with the Society of Automotive Engineers (SAE) to offer both a certificate in Automotive Systems, as well as, a graduate degree in either Automotive Systems or the Mechanical Cognate. This seminar course would be comprised of a total of four Continuing Education Units (CEU) from SAE seminars, which have been reviewed and approved by a faculty review committee, consistent with Graduate academic policy. The transfer of credit must be supported by documentation from SAE for each individual applicant seeking such transfer.
Lecture: 4, Lab 0, Other 0

MECH-596 Automotive Seminar II 4 Credits
Prerequisites: None
Kettering has a partnership with the Society of Automotive Engineers (SAE) to offer both a certificate in Automotive Systems, as well as, a graduate degree in either Automotive Systems or the Mechanical Cognate. This seminar course would be comprised of a total of four Continuing Education Units (CEU) from SAE seminars, which have been reviewed and approved by a faculty review committee, consistent with Graduate academic policy. The transfer of credit must be supported by documentation from SAE for each individual applicant seeking such transfer.
Lecture: 4, Lab 0, Other 0

MECH-600 Advanced Engineering Mathematics with Computational Tools 4 Credits
Prerequisites: (MATH-305 or MATH-307) and MECH-420
The objectives of this course are to introduce students to various analytical and numerical methods used in the modeling, analysis, and design of engineering problems. Students will learn the theory and application of these methods, with a focus on practical implementation and real-world applications to mechanical systems. Comparisons between numerical and analytical methods will highlight their strengths, limitations, and the reasons they cannot solve all types of engineering problems. MATLAB will be used extensively for numerical solutions, while commercial software packages will address problems involving finite elements and finite differences, providing a balanced understanding of theory and applications.
Lecture: 3, Lab 0, Other 1

MECH-601 ME Principles for Mobility Systems 4 Credits
Prerequisites: None
This course introduces the basic principles of mechanical engineering that are required for application in mechanical automotive systems. Major topics include machine design, thermodynamics, fluid mechanics, heat transfer, and dynamic systems. Applications include chassis systems, suspension, steering, brakes, aerodynamics, powertrains, climate control, fuel cells, turbines, compressors, transmission systems, HVAC systems, shafts, and safety systems.
Lecture: 4, Lab 0, Other 0

MECH-610 Application of Artificial Intelligence in Mechanical Engineering 4 Credits
Prerequisites: None
This course examines the applications of Artificial Intelligence (AI) in mechanical engineering. Students will learn how AI technologies, such as machine learning, deep learning, and optimization algorithms, alter traditional mechanical engineering practices. Emphasis will be placed on real-world applications, hands-on projects, and using AI tools like Python, MATLAB, and commercial software platforms. Students may not receive credit for both MECH-410 and MECH-610.
Lecture: 4, Lab 0, Other 0

MECH-615 Engineering Optimization 4 Credits
Prerequisites: MECH-600
Introduction to the general model of numerical optimization and its application to engineering design. The formulation and classification of the optimization problems will be discussed. The computational search techniques for solving the different classes of optimization problems will be studied. These techniques include single and multivariable, zero and first order constrained and unconstrained, linear and nonlinear search algorithms. The developed algorithms will be used to find the optimum solutions for a variety of engineering design problems.
Lecture: 3, Lab 0, Other 1

MECH-623 Battery Science and Engineering with Applications 4 Credits
Prerequisites: None
Since battery is the heart of hybrid and full electric vehicles, a complete knowledge and understanding is essential to work as a productive engineer in this electric vehicle area. The purpose of this course is to introduce the fundamental concepts of battery science and engineering principles with applications. Students will learn in detail about batteries as both a power supply source and an energy storage device. Basic battery concepts, battery classification (Primary/Secondary) and standardization, electrochemical principles and reactions, battery electrochemistry, Butler-Volmer reaction kinetics and Nerst equation, factors affecting battery performance, charge/discharge mechanism, state of charge (SOC) equation, state of health (SOH) analysis/calculations, charge/energy balance equation and related calculations, selection of electrodes and electrolytes materials, estimation/calculation of battery power supply and energy storage capacity, battery cell/pack design and power management of battery pack will be discussed. The emphasis will be placed on advanced rechargeable battery cell design, electrochemistry, principles of operation, manufacturing/assembly of battery cell/pack, governing equations of a battery cell/pack, computer modeling of a battery cell/pack and experimental evaluation of battery performance, charge/discharge capacity estimation, state of charge estimation, safety, degradation and cycle-life analysis based on real-world mobility applications of batteries in hybrid/electric vehicles (EV). Industrial applications of rechargeable batteries/packs in electric vehicles, aerospace, consumer electronics and other emerging fields will also be presented. Students are required to complete all assigned battery laboratory experiments (total 5 Lab experiments).
Lecture: 4, Lab 0, Other 0

MECH-626 Hydrogen Generation, Storage and Safety 4 Credits
Prerequisites: None
This various methods of hydrogen production are covered: water electrolysis using photovoltaics, steam reformation and partial oxidation techniques of various types of conventional and alternative fuels. Various methods of hydrogen storage – compressed gas, liquefied gas, metal and chemical hydrides and nanotubes are included. Codes for underground and above ground pressurized hydrogen gas storage systems and safety aspects are covered. A comparison is made between hydrogen properties and known conventional fuels such as, methane (natural gas), gasoline, methanol and ethanol. Infrastructure design studies, dispensing transportation, codes and standards are covered. A hydrogen storage/production/safety laboratory for experimental studies is planned to be a major component of this course.
Lecture: 3, Lab 0, Other 1

MECH-629 Thermal Management Systems 4 Credits
Prerequisites: MECH-320
Fundamentals of thermal-fluid and energy conversion; thermal management of conventional and electrified powertrain and vehicle systems; thermal systems requirements; thermal impact on fuel economy and emissions; thermal management of high-voltage battery systems; heat exchanger design; hybrid and advanced cooling systems; electronics cooling of autonomous vehicles; thermoelectric devices; energy storage; waste heat recovery; thermal management systems simulations tools and design process.
Lecture: 4, Lab 0, Other 0

MECH-633 Multibody Dynamics 4 Credits
Prerequisites: None
The dynamics of two- and three-dimensional multibody systems will be investigated and modeled. Mechanisms consisting of rigid bodies as well as flexible bodies will be studied, including systems with mechanical joints, springs, dampers, and actuators. The kinematic and dynamic equations of motion will be derived, and both closed form and numerical solutions will be obtained. Newtonian and Lagrangian methods in dynamics will be reviewed and expanded in complexity. Linear graph theory will be introduced. Multibody dynamics software that is widely used in industry will be employed, including Adams and MapleSim, with the emphasis on both practical applications and an understanding of how these software packages formulate the governing equations and solve them. Students can expect to acquire advanced knowledge in dynamics and learn about the use of multibody dynamics software in the modeling of mechanisms and robotic manipulators.
Lecture: 4, Lab 0, Other 0

MECH-634 Introduction to MPC 4 Credits
Prerequisites: ECE-610 or MECH-600
The primary purpose of this course is to expose students to the fundamental principles and the application of Model Predictive Control (MPC), a control technique that is frequently used in many industrial applications. Students will learn the basic principles of the control technique as well as how to implement it in MATLAB/Simulink.
Lecture: 4, Lab 0, Other 0

MECH-635 Digital Twins and Model-Based Engineering 4 Credits
Prerequisites: None
This course introduces the concept of digital twins for mechanical systems, focusing on finite element analysis (FEA), multibody dynamic simulations, and experimental testing, including data collection, correlation, and model updating. Students will develop digital twins using commercial software packages such as NX, Abaqus, ADAMS, LabVIEW, and MATLAB to model, simulate, and validate mechanical systems. The course covers the integration of sensor data, real-time monitoring, and predictive modeling to enhance system performance and optimize mechanical designs. Students will learn techniques for data assimilation, machine learning-driven model updates, and uncertainty quantification to create accurate and reliable digital twins. Practical applications will include structural health monitoring, mechanical analysis, and performance optimization in mechanical and automotive systems. Students may not receive credit for both MECH-435 and MECH-635.
Lecture: 4, Lab 0, Other 0

MECH-641 Advanced Auto Power Systems 4 Credits
Prerequisites: MECH-420
Terms Offered: Winter, Spring
This course serves to expand student's knowledge of automotive power systems. Topics covered include, detailed thermodynamic cycle analysis of various power cycles, emerging alternative fuels and power systems for automotive use (current topics include high-blend alcohol/gasoline fuels, gasoline direct injections (GDI) engines, hybrid electronic Powertrains, and fuel-cells). Students are also expected to work on design projects which are determined by the instructor. Students are expected to work on projects leading to the development of presentations and/or technical papers for professional society meetings (i.e. SAE, Global Powertrain Congress, etc.). This course is an advanced version of MECH-441. Students in MECH-641 are required to complete additional propject challenges and a final project in addition to the workload for MECH-441.
Lecture: 4, Lab 0, Other 0

MECH-643 Noise, Vibration & Harshness 4 Credits
Prerequisites: None
An integrated approach to the analysis of Noise, Vibration and Harshness of automotive engineering is presented. Techniques for evaluating the vibration and acoustic characteristics of vehicle systems are discussed. Then the principles of noise and vibrations control are presented through automotive applications.
Lecture: 4, Lab 0, Other 0

MECH-644 Introduction to Automotive Powertrains 4 Credits
Prerequisites: None
Terms Offered: Winter, Spring
An introduction to the performance of motor vehicle and the design of automotive power transmission systems. Topics covered include, loads on the vehicle, evaluation of various engine and vehicle drive ratios on acceleration performance and fuel economy, manual transmission design, and automatic transmission design. This course is an advanced version of MECH-444. Students in MECH-644 are required to complete additional project challenges and a final project in addition to the workload for MECH-444.
Lecture: 4, Lab 0, Other 0

MECH-645 Hybrid Electric Vehicle Propulsion 4 Credits
Prerequisites: None
An introduction to the principles of hybrid electrical vehicle propulsion systems for Mechanical and Electrical Engineering students. A major emphasis of the course will be to broaden the mechanical engineering student's knowledge of electrical engineering so that he/she can understand the fundamentals of electrical motors, electrical motor controls, and electrical energy storage systems. The course is also intended to strengthen the knowledge of electrical engineering students relative to automotive powertrain design. With this background, the integration of these hybrid electric components into the hybrid electric vehicle powertrain system will be studied, including electric energy storage (batteries, flywheels, ultra-capacitors) and electrical energy production-fuel cells. Relevant codes and standards will be emphasized. This course is an advanced version of MECH-445. Students in MECH-645 are required to complete additional project challenges and a final project in addition to the workload for MECH-445.
Lecture: 4, Lab 0, Other 0

MECH-646 Advanced Vehicle Dynamics 4 Credits
Prerequisites: None
Advanced vehicle dynamics is the study of the motion of rubber-tired ground vehicles. Dynamic vehicle responses result from the tire, gravitational, and aerodynamic forces that a vehicle is subjected to. Ride quality, handling characteristics, performance, and safety can be evaluated by examining a vehicle's dynamic responses. This course provides an advanced understanding of vehicle dynamics behavior and the means to model it from a mathematical point of view. Special emphasis is placed on dynamic systems modeling approaches, including the creation and numerical evaluation of state space mathematical models.
Lecture: 4, Lab 0, Other 0

MECH-647 Combustion & Emissions 4 Credits
Prerequisites: None
Introduction to the basic principles of combustion and how to apply them to basic engineering problems. Various technologies of this field will be explored. However, a large portion of the course will cover the fundamentals of combustion. Topics relating to flame speed, flame thickness, flame spread, flame quenching, blow-off, stabilization, ignition energy, flammability limits, and flashback will be presented. Laminar and turbulent premixed and diffusion flames will be discussed. These topics will be related to combustion and emissions in spark-ignition and diesel engines.
Lecture: 3, Lab 0, Other 1

MECH-650 Automotive Bioengineering: Occupant Protection and Safety 4 Credits
Prerequisites: None
Terms Offered: Winter, Spring
A discussion and application of the following fundamental concepts: (1) an overview of Federal Motor Vehicle Safety Standards; (2) basic anatomy and physiology of the overall human body; (3) introduction to injury biomechanics including rate, load, and acceleration dependent injury mechanisms; (4) overview of injury prevention strategies including a variety of air bags, multipoint restraint systems, and occupant sensing methodologies; (5) the basic structure and function of anthropomorphic test devices; (6) introduction to experimental crash simulation; (7) virtual occupant simulation; (8) develop the necessary algorithms to filter crash sensor data using the appropriate CFC per SAEJ211; (9) develop a simulation of a pretensioner; (10) develop a method oto determine the relevant due care criteria from a crash simulation in addition to the mandated criteria.
Lecture: 4, Lab 0, Other 0

MECH-682 Mechanics and Design Simulation of Fiber-Reinforced Composite Materials 4 Credits
Prerequisites: None
The properties, mechanics, and design simulation aspects of fiber-reinforced composite materials are covered in this course. Topics include: constituents and interfacial bonding, microstructure and micromechanics, theory of anisotropy, classical laminate theory, material characterization, failure and damage, manufacturing techniques, composite structure design, and introduction of nanocomposite.
Lecture: 4, Lab 0, Other 0

MECH-697 ME Elective Credit 4 Credits
Prerequisites: None
Lecture: 4, Lab 0, Other 0

Lean/Manufacturing Ops (MFGO)

MFGO-601 Globally Integrated Manufacturing Company 4 Credits
Prerequisites: None
This course is an introduction and integrated overview of contemporary global manufacturing operations. The focus is on the importance of agility and the introduction of lean concepts in business and manufacturing. Instruction will emphasize the application of attitudes, skills, and knowledge required of managers, supervisors, team leaders, and manufacturing professionals in a cross-functional and cross-cultural manufacturing environment. Topics include a brief historical overview of global manufacturing, and a strong emphasis on process re-engineering. Students are required to use the concepts from the class to analyze their own work environment.
Lecture: 3, Lab 0, Other 1

MFGO-610 Foundations of Lean Organizations 4 Credits
Prerequisites: None
Foundations of Lean Organizations is designed to introduce learners to the principles, methodologies, and applications of Lean Thinking and Six Sigma within organizational contexts. Learners explore the origins of Lean through studying its evolution from manufacturing to diverse sectors such as healthcare, information technology, and services. Through reviewing a list of curated resources, actively participating in discussion questions, and completing assignments, learners also deepen their knowledge t of Lean and Six SIgma in an effort to eliminate waste, drive efficiency, ensure quality, initiate continuous improvement, and spark innovation in various organizational settings.
Lecture: 4, Lab 0, Other 0

MFGO-619 Six Sigma: Introduction to DMAIC 4 Credits
Prerequisites: None
Students examine techniques to maximize production efficiency and to maintain control over each step in the production process. DMAIC (Define-Measure-Analyze-Improve-Control), the structured problem-solving methodology, provides the framework for the course.
Lecture: 3, Lab 0, Other 1

MFGO-633 Lean Production Systems 4 Credits
Prerequisites: None
Minimum Class Standing: NA
Terms offered: Fall, Spring
This course begins with an overview of the theory and application of lean production systems. Systems thinking and business dynamics are presented along with contemporary lean thinking principles, lean enterprise development, and value stream mapping. Specific emphasis will be devoted to modern enterprise improvement techniques such as Six Sigma, Theory of Constraints, and Business Process Reengineering.
Lecture: 3, Lab 0, Other 1

MFGO-635 Work Analysis for Lean Production Application 4 Credits
Prerequisites: MFGO-633
This course addresses a critical issue facing organizations in the design of a competitive and low-cost manufacturing operation. The intent of this course is to survey the basic techniques of methods design, work measurement, business process analysis, and ergonomics. The student will be expected to solve complex problems encountered during the design, analysis, or operation of a facility that produces goods or services.
Lecture: 3, Lab 1, Other 0

MFGO-639 Quality Assurance and Reliability 4 Credits
Prerequisites: None
This course covers topics in quality assurance including an introduction to quality and quality philosophy, statistical methods of quality improvement, the concept of variation and its reduction, statistical process control, and acceptance sampling. In this course, students will make extensive use of statistical software.
Lecture: 3, Lab 0, Other 1

MFGO-649 Metrics for Lean Production Improvement 4 Credits
Prerequisites: MFGO-635 or MFGO-639
This course is intended to provide the operations professional with an understanding of the data typically available within a manufacturing or service environment, and how to use information derived from such data employing a lean paradigm to improve operations. The course covers basic financial accounting, activity-based metrics, trend analysis, decision making and linking operational decisions to strategic considerations.
Lecture: 3, Lab 0, Other 1

MFGO-659 Integrative Capstone Project 4 Credits
Prerequisites: MFGO-649
Students should take this course as one of their last two core courses. The focus of this course is on a business-focused, project-oriented perspective applicable to the integrated operating environment. Project Management tools and techniques, recognized as part of the body of knowledge by the Project Management Institute, are examined in detail. The Final Project is designed to enable students to apply project management concepts, and techniques to ensure application of lean principles to a process or service.
Lecture: 3, Lab 0, Other 1

MFGO-669 Lean Systems Capstone Project 4 Credits
Prerequisites: None
The course provides the opportunity to work on a team-based Lean Systems project. This project focuses specifically on an issue in a non-manufacturing organization or business or service process that would benefit from the application of Lean principles, tools and techniques. In addition, solid project management guidelines are employed to plan and implement the project within the timeframe allotted. The goal is the apply the tools, techniques and principle to create a change that reduces waste, maximized customer value or provide an opportunity for continuous improvement. The project should ultimately provide an opportunity for real-world application of Lean to a specific issue or challenge within an organization or business.
Lecture: 4, Lab 0, Other 0

Management (MGMT)

MGMT-510 Foundations of Business 4 Credits
Prerequisites: None
This course provides the prerequisite knowledge necessary for studying management in a graduate program. Students are introduced to both a theoretical understanding, and practical application, of concepts in the disciplines of management, marketing, accounting, finance, economics, and statistics. Through readings, videos, discussion questions, and assignments, students are introduced to basic content from each topic area, as well as APA writing style, in preparation for entry into a graduate management program.
Lecture: 4, Lab 0, Other 0

MGMT-521 Statistical and Quantitative Methods for Managerial Decision 4 Credits
Prerequisites: None
Learn about the principles and techniques for collecting, analyzing, interpreting, and communicating information based on data. Data analysis emphasizes the fundamentals behind designing data collection strategies that lead to useful information for problem solving and process and product improvements. Data analysis techniques include descriptive statistics, basic hypothesis testing, experimental design, and regression analysis. Use of a statistical software will be made to illustrate important data analysis concepts with a focus on understanding the computer output. The project requirement is expected to enable students to apply the data analysis concepts learned in the class. In summary, this course will assist the students to become knowledgeable consumers of data analysis, its applications and limitations.
Lecture: 3, Lab 0, Other 1

MGMT-550 Mgmt Concepts and Applications 2 Credits
Prerequisites: None
Both the art and the science of management will be introduced and examined through multiple perspectives within a global and ethical context. An examination of the functions of a manager builds upon the elements of organizational and behavioral theory. Principles of organizational structure and design will also be discussed. The importance of management in dealing with the complexity of modern organizations will be emphasized throughout.
Lecture: 2, Lab 0, Other 0

MGMT-609 Technology Management 4 Credits
Prerequisites: None
This course is an overview of the management of technology and its impact on contemporary organizational performance. The focus of the course is on the application of skills, and knowledge required of managers and professionals responsible for technology implementation in a product or service development environment. Concepts of cybersecurity and managing technology in the future are considered. Case studies and simulations are used to bring to life the critical challenges confronting managers of technology.
Lecture: 4, Lab 0, Other 0

MGMT-619 Project Management 4 Credits
Prerequisites: ACCT-518 or MGMT-510
This course covers managing projects within an organizational context, including the processes related to initiating, planning, executing, controlling, reporting, and closing a project. Concepts such as project integration, scope, time, cost, quality control, and risk management are highlighted. Identifying project champions, working with user teams, training, and documentation are key concepts of project management that are detailed in the course.
Lecture: 4, Lab 0, Other 0

MGMT-620 Business Communication and Presentation 4 Credits
Prerequisites: None
The ability to listen and craft well-written messages verbally, in writing, and within digital spaces are valued skills among employers regardless of industry. This course is designed to provide opportunities for you to sharpen your writing, improve your editing, hone your critical thinking skills, and create effective persuasive messages. Course content also includes best practices for organizing, revising and presenting information in-person and remotely.
Lecture: 4, Lab 0, Other 0

MGMT-6203 Business Communication and Presentation 3 Credits
Prerequisites: None
The ability to listen and craft well-written messages verbally, in writing, and within digital spaces are valued skills among employers regardless of industry. This course is designed to provide opportunities for students to sharpen writing, improve editing, hone critical thinking skills, and create effective persuasive messages. Course content also includes best practices for organizing, revising and presenting information in-person and remotely. This course is designed for online delivery and available only through Kettering University Online to students in the MS in Engineering: Electrical & Computer Engineering-Advanced Mobility program.
Lecture: 3, Lab 0, Other 0

MGMT-621 Cultural Competency in the Workplace 4 Credits
Prerequisites: None
Leading and managing organizations rich in diversity (race, gender, socioeconomic class, ethnicity, religion, sexual orientation, and life experience) can be both challenging and rewarding. This course is designed to explore the scope of diversity and its impact on building and maintaining productive professional relationships.Personal assessment of cultural competence, as well as identifying strategies for improving cross-cultural communication and harnessing the strength of diverse perspectives in the workplace are highlighted. Increasing the ability to lead diverse teams and departments can enrich individuals personally and provide a distinct competitive advantage for the organizations with whom they work.
Lecture: 4, Lab 0, Other 0

MGMT-622 Organized Labor and Management Relations 4 Credits
Prerequisites: None
Since the Industrial Revolution, unions have been formed in various industries to secure improvements in working conditions and fair wages for their members. This course is designed to offer key details, insights, skills, and techniques for improved working relationships in a union environment. A major focus of this course will include the perspectives of both management working with union members, and union members working with management.
Lecture: 4, Lab 0, Other 0

MGMT-623 Data Analytics 4 Credits
Prerequisites: CS-601
The rise of big data and machine learning has transformed the business world. In fact, these tectonic shifts in the business landscape are labeled as the fourth industrial revolution. Data is the new oil, creating enormous wealth and opportunity for businesses. This course will introduce the strategic importance and applications of these new Artificial Intelligence (AI) technologies. This is a hands-on learning course towards developing skills in using the Python language for data cleaning, exploration and modeling. The overarching aim is to provide a strong start towards developing skills that will eventually lead towards becoming an accomplished data scientist, who understands and is able to apply these skills towards achieving organizational competitive advantage. Students may not receive credit for both MGMT-423 and MGMT-623.
Lecture: 4, Lab 0, Other 0

MGMT-624 Data Visualization 4 Credits
Prerequisites: CS-601
This course encompasses the principles, techniques, aesthetics, and applications of data visualization. Starting with development of the basics of computer programming for visualization, the students learn methods to develop effective univariate, multivariate, and high dimensional data visualizations. The course also covers geographic and text-based visualization techniques. The course uses the highly demanded Python-based packages: Matplotlib, Seaborn, and Plotly. Students will also develop skills in using the grammar of graphics approach encapsulated in ggplot. Students may not receive credit for both MGMT-424 and MGMT-624.
Lecture: 4, Lab 0, Other 0

MGMT-625 Digital Strategy and Competitive Advantage 4 Credits
Prerequisites: None
This course is the intersection of strategic management with data-science. Cases and simulations are used to examine how firms use strategy and data-science to build competitive advantage. The course explores the strategy and dynamics of Artificial Intelligence (AI) based firms. It also brings the perspectives of practicing data-scientists and expand on their roles in reshaping the competitive landscape of their industries. Students may not receive credit for both MGMT-425 and MGMT-625.
Lecture: 4, Lab 0, Other 0

MGMT-629 Management Science 4 Credits
Prerequisites: MATH-258 or MGMT-521 or MGMT-510
This course is intended to develop student facility with a variety of quantitative techniques to facilitate the managerial decision-making process. Simulation approaches are covered along with optimization techniques such as linear programming and stochastic techniques such as queuing models. In this course, students will develop spreadsheet modeling skills, and emphasis will be placed on the application of these quantitative techniques to a variety of managerial areas.
Lecture: 4, Lab 0, Other 0

MGMT-639 Managing People & Organization 4 Credits
Prerequisites: MGMT-550 or MGMT-510
This course is intended to prepare students for management positions in various organizations. Students are introduced to concepts and issues concerning management, and leadership of organizational staff. Subjects include technology-related leadership, organizational communication, change management, lean thinking, human resource issues, decision-making, ethics and persuasion.
Lecture: 4, Lab 0, Other 0

MGMT-649 Ethics and Leadership 4 Credits
Prerequisites: MGMT-639 or MGMT-510
The focus of this course is preparing students for leadership roles in the workplace, and in society, by facilitating knowledge of management and leadership from an ethical perspective. The course includes an overview of the evolution of ethical theories and the role of the leader within the business context. Students use their understanding of business, leadership, team development and the processes of moral reasoning to examine contemporary issues related to organizational leadership and building community partnerships.
Lecture: 3, Lab 0, Other 1

MGMT-659 Strategy 4 Credits
Prerequisites: BUSN-659 and FINC-619 and MGMT-639 and MRKT-679
This course focuses on the formulation, implementation, and evaluation of organizational policy and strategy from the perspective of the senior manager/strategy planner. Additional consideration is given to information technology, global operations, ethics, legal perspectives and the functional level strategies of the organization. The Final Project is an integrative approach designed to have direct application to a current job or future career.
Lecture: 4, Lab 0, Other 0

MGMT-661 Operations Management 4 Credits
Prerequisites: MATH-258 or MATH-408 or MGMT-521 or MFGO-619
This course provides students with an exposure to the core concepts and tools of operations management in both manufacturing and service enterprises. Course content includes an overview of the fundamental importance of coordinated operational activities as students examine how to integrate effective operations across all functional areas of the organization. Emphasis is placed on the importance of adding value, and customer satisfaction, to the long-term viability of both for-profit and not-for-profit firms.
Lecture: 4, Lab 0, Other 0

MGMT-665 Strategic Management 4 Credits
Prerequisites: None
The focus of this course is on strategic investigation, analysis, and planning within organizations. Emphasis is placed on combining analytical and emergent views to produce strategic thinking maps designed to assist leaders in: acknowledging the reality of change, questioning current assumptions and activities, collecting and reviewing data relevant to the industry, and facilitating future organizational development.
Lecture: 4, Lab 0, Other 0

MGMT-669 Supply Chain Management 4 Credits
Prerequisites: None
In this course, students are presented with a conceptual framework for understanding Supply Chain Management (SCM). The course covers concepts, trends, and technologies that enable global SCM. Students consider how customer needs, competitive advantage, operational measures, and financial performance support successful implementation of SCM. Topics covered include aligning information systems, procurement, demand planning and forecasting, inventory management and logistics to support organizational goals.
Lecture: 4, Lab 0, Other 0

MGMT-679 Leadership 4 Credits
Prerequisites: None
A comprehensive examination of different leadership theories and models along with leadership development with emphasis on relevant empirical evidence and application of these constructs to case studies that involve leadership and group functioning. Additionally, process of decision-making in a variety of leadership settings will be introduced, including the processes of leading independently or with direct authority. The distinction between leadership and management, crucial role of leadership when managing groups and teams, and the importance of ethical conduct and persuasion in effective leadership are covered. This course cannot be repeated to earn credits for both MGMT-479 and MGMT-679 and there will be different course requirements for undergraduate and graduate levels.
Lecture: 3, Lab 0, Other 1

MGMT-693 Internship in Management 4 Credits
Prerequisites: None
Guided professional practicum experience for on-campus graduate students serving as an extension of the curriculum that facilitates the development of knowledge and skills in the application of theory to real-world problems in a non-classroom setting. This experiential learning engagement builds upon, applies, and assesses the concepts that are developed through the curriculum and advances the student's professional growth through a meaningful real-world job experience. The internship should be substantial and practical, including analysis, evaluation, and application of management concepts. At least 240 clock hours of on-site work over the term are required for four credit hours. Requires prior approval of the organization in which the internship will be done by the Dean of the School of Management and appropriate review and approval of the specific experience gained. Four-credit hour enrollments in this course will be considered as full-time status. The course can be repeated a second time, however, it will not count toward degree completion once four credit hours are earned. Internships are graded on a Credit/No Credit basis, to be entered by the Dean upon the student's completion of all internship requirements.
Lecture: 0, Lab 0, Other 0

Marketing (MRKT)

MRKT-570 Marketing Concepts and Applications 2 Credits
Corequisites: MGMT-550
Prerequisites: None
An overview of consumer marketing's role in business is provided in this course. Marketing Concepts and Applications are integrated into a marketing discipline that enables students to become effectively engaged in consumer to customer product and service related endeavors.

Lecture: 2, Lab 0, Other 0

MRKT-679 Marketing Management 4 Credits
Prerequisites: MRKT-570 or MGMT-510
In this course, students will gain a managerial perspective on how organizations understand and select target markets, and then how they attract, retain and grow customers within those selected markets. A strategic perspective of how firms create, deliver, and communicate superior customer value for competitive advantage will be emphasized. Students will gain understanding of the analysis, planning, implementation, and control of activities to develop and sustain beneficial exchanges with target buyers.
Lecture: 4, Lab 0, Other 0

Supply Chain Management (SCM)

SCM-610 Foundations Supply Chain Management 4 Credits
Prerequisites: None
Students receive an overview of effective strategies for managing supply chains as well as an introduction to operations within complex networks and logistics. Practical skills to increase service levels and reduce costs are examined. Additional areas of examination include the following: strategic planning and operation of an effective supply chain design, advantages of competitive supply chains and how weaknesses in the chain impact operations, key drivers of supply chain performance, application of analytical methodologies to impact demand planning in supply chains, and an overview of the use of technology in supply chain management.
Lecture: 4, Lab 0, Other 0

SCM-611 Collaboration Supply Chain Management 4 Credits
Prerequisites: None
Students in this course examine traditional approaches to supply chain management as well as electronic commerce and issues related specifically to Internet delivery and evaluate innovative approaches to create efficiencies that enhance collaboration and decision-making. Technology structure for information sharing, team management, as well as issues of leadership and power are also examined.
Lecture: 4, Lab 0, Other 0

SCM-612 Customer Relationship Management 4 Credits
Prerequisites: None
Customer Relationship Management is at the core of all effective supply chains. Students in this course examine the comprehensive set of processes and technologies necessary for managing potential and current customers. Students in this course examine effective ways of managing the customer relationship to ensure an effective supply of materials required for product development. A range of CRM software is examined.
Lecture: 4, Lab 0, Other 0

SCM-613 Supply Chain Logistics 4 Credits
Prerequisites: None
An overview of strategic and tactical elements of logistics management is the focus of this course. Transportation, including multi-model freight operations, high-tech automated warehousing, and order delivery are fundamental. Critical analysis of logistics with an emphasis on effective decision-making and innovation is primary. Students review basic distribution and logistics issues that impact overall business performance with the goal of analyzing and resolving distributions and logistics challenges evident in today's business environment.
Lecture: 4, Lab 0, Other 0

SCM-614 Procurement and Risk Management 4 Credits
Prerequisites: None
This course provides an overview of purchasing and strategic procurement of products and services to gain a competitive advantage. The focus is on contract negotiation and supplier management with the goals of identification, mitigation, and reduction of risks to ensure effective supply chains.
Lecture: 4, Lab 0, Other 0

SCM-615 Supply Chain Planning 4 Credits
Prerequisites: None
This course provides an overview of effective strategies for companies with global operations. These strategies consider the full spectrum of the supply chain from raw material to finished product. Emphasis is placed on planning and integration of supply chain components into a coordinated system. A range of tactics are explored to produce optimal outcomes in supply chains and provide competitive advantage including the appropriate technology, and software solutions applicable to the Final Project. The final capstone project allows for the analysis of a supply chain to provide insight into ways to streamline a current supply chain. Another option, students may choose is to provide an in-depth response to a supply chain challenge in a current or former workplace.
Lecture: 4, Lab 0, Other 0

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