Curriculum
The curriculum in the Master of Engineering Program is structured to provide a foundation of advanced engineering topics while allowing students flexibility to meet their specific educational objectives. The Master of Engineering requires a minimum of 30 semester hours including:

- **Program core courses** taken by all Master of Engineering students
- **Track required courses** from the discipline of interest (number of credit hours required depends upon the discipline)
- **Elective courses** depth or interdisciplinary focus depending on student educational objectives (number of credit hours available depends upon the discipline)
- **Capstone project** demonstrates applications of skills and synthesis of knowledge

Each individual program has flexibility on setting appropriate track requirements. The following pages describe the course requirements for each of the program options provided.

**MEng Program Options**
Aerospace Engineering  Biomedical Engineering  Chemical Engineering
Civil Engineering  Computer Engineering  Computer Science
Chemical Engineering  Environmental Engineering
Material Science Engineering  Mechanical Engineering

**Advisors**
Aerospace Engineering  Shaaban Abdallah
Biomedical Engineering  Jing-Huei Lee  ERC 501E  jing-huei.lee@uc.edu
Civil Engineering  G.A. Rassati  Baldwin 765C  gian.rassati@uc.edu
Chemical Engineering  Stephen Thiel  ERC 501J  stephen.thiel@uc.edu
Computer Science
Electrical and Computer Environmental Eng  Dominic Boccelli  ERC 742  dominic.boccelli@uc.edu
Materials Science  Donglu Shi  Rhodes 493  donglu.shi@uc.edu
Mechanical Eng  Eugene Rutz  Rhodes 635  eugene.rutz@uc.edu
**Core Curriculum**
The core curriculum is required of all Master of Engineering students, regardless of which track they pursue. The core provides skills in the effective practice of engineering recognizing that for experienced practitioners, effectiveness includes technical skills, project and task management skills, and interpersonal skills. Students are required to take 1 course from the Project / Task Management set and 1 course from the Interpersonal set. Additional courses from these areas can be taken as elective courses.

### Project / Task Management Development (1 required)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECH6074</td>
<td>Quality Control</td>
<td>Fall &amp; Spring On Line</td>
</tr>
<tr>
<td>ENGR6014</td>
<td>Eng Project Management</td>
<td>Fall &amp; Spring</td>
</tr>
<tr>
<td>AEEM6067</td>
<td>Entrepreneurship and Tech Law</td>
<td>Spring</td>
</tr>
<tr>
<td>AEEM6099</td>
<td>System Eng &amp; Analysis</td>
<td>Spring</td>
</tr>
<tr>
<td>CVE 6044</td>
<td>Construction Law</td>
<td>Fall</td>
</tr>
<tr>
<td>EECE 6032</td>
<td>Software Test and QA (CS majors)</td>
<td>Fall On-line</td>
</tr>
<tr>
<td>ENGR 6012</td>
<td>Innov. &amp; Design Thinking</td>
<td>Fall</td>
</tr>
<tr>
<td>ENGR 7025</td>
<td>Product &amp; Process QC</td>
<td></td>
</tr>
</tbody>
</table>

### Interpersonal Skill Development (1 required)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR6003</td>
<td>Org Behavior for Tech Prof.</td>
<td>Fall &amp; Spring</td>
</tr>
<tr>
<td>ENGR6050</td>
<td>Fundamentals of Leadership</td>
<td>Fall &amp; Spring</td>
</tr>
<tr>
<td>ENGR6010</td>
<td>Effectiveness in Tech Orgs</td>
<td>Fall &amp; Spring On Line</td>
</tr>
<tr>
<td>OLHR8029</td>
<td>Individual Behavior in the Workplace</td>
<td>Fall</td>
</tr>
<tr>
<td>OLHR6050</td>
<td>Teams</td>
<td>Spring</td>
</tr>
<tr>
<td>OLHR 8090</td>
<td>Strategic Leadership</td>
<td></td>
</tr>
<tr>
<td>MGMT7014</td>
<td>Leadership &amp; Organizations</td>
<td>Fall &amp; Spring with permission</td>
</tr>
<tr>
<td>ENGR 6012</td>
<td>Innov. &amp; Design Thinking</td>
<td></td>
</tr>
</tbody>
</table>

Other courses that fit the core requirements may be available. Check with the MEng advisor in your program to verify if another course fulfills the core course requirements.

### Capstone
Each master's degree student is required to undergo an individual evaluation process at the end of his or her program. For the Master of Engineering program we refer to this as a capstone experience. For the Master of Engineering program this experience is expected to be around the general topic of application of engineering principles since the MEng is focused on the practice of engineering rather than research or the generation of new knowledge. The capstone experience provides a mechanism to demonstrate a synthesis of knowledge and the application of advanced concepts learned in the program.

Each program (track) decides which options to offer students. All programs do not offer the same options. Depending on the program, students can choose: 1) to complete a project, 2) an MEng capstone evaluation, 3) to perform an internship or 4) to prepare a written paper under the supervision of the advisor. If students choose the capstone evaluation, this is a 0 credit hour option and students will need an additional course in order to meet the credit hour requirements for the degree. This MEng capstone evaluation can be written or oral, as deemed appropriate by each Program.
MEng Graduate Program Curriculum
Aerospace Engineering

The Aerospace Engineering and Engineering Mechanics Masters of Engineering degree is meant to be extremely flexible so as to meet the needs of prospective students. The coursework requirements are:

**MEng Core Courses – 2 courses**

Fundamental AEEM Courses - at least 4 courses selected from available graduate courses in the track. The following are typically available:

**FALL**
- AEEM 6001: Adv Strength of Materials
- AEEM 6003: Analytical Dynamics
- AEEM 6011: Combustion
- AEEM6041: Comp Flow and Thermodynamics
- AEEM6076: Modeling Complex Systems
- AEEM 7027: Non-Destructive Test
- AEEM 7035: Physics of Gases
- AEEM 7050: Turbomachinery Flow
- AEEM 7074: Adv Finite Elem Method
- AEEM8030: Advanced Propulsion
- EGFD 7041: Viscous Flow and Heat Transfer
- EGFD 7051: Nu Meth Aero Fluid Mech

**SPRING**
- AEEM6012: TURBINE COMBUSTIION
- AEEM6093: ADV. FLIGHT MECH.
- AEEM6095: ASTRODYNAMICS
- AEEM6096: FUZZY CONTROL SYS
- AEEM6099: SYS ENG ANALYSIS
- AEEM7028: ULTRASONIC NDE
- AEEM7050: TURBOMACHINERY FLOW

Capstone Project – 1 course

*With permission of their advisor, students may select some of their elective credit hours in areas outside of Aerospace Engineering. Independent studies or projects in advanced topics may also be arranged.*
MEng Graduate Program Curriculum
Biomedical Engineering

DRAFT

MEng Core Courses – 2 courses

BME Tracks (12 credits required from either track).

Tissue Engineering and Biomechanics Track Courses:
Joint Biomechanics and Measurement Methods (BME 6024) 3 S
Functional Tissue Engineering (BME 6030) 3 S
Tissue Biomechanics (BME 7021) 3 F
Independent Study in Biomechanics (BME 8020) 3 F,S,U
Independent Study in Tissue Engineering (BME 8030) 3 F,S,U
Molecular and Cellular Biology (GNTD 7001) 3 F
Biomechanical and Physiological Aspects of Muscular Activity (OSE 7044C)

Medical Imaging Track Courses:
MR Imaging and Spectroscopy (BME 6011) 3 F
Biomedical Signal and Image Processing (BME 6012) 3 F
Biomedical Ultrasound (BME 6050) 3 S
Advanced Topics in Magnetic Resonance Imaging (BME 7012) 3
Independent Study in Medical Imaging (20 BME 8010) 3 F,S,U
Diagnostic Radiological Imaging Physics (MP 9050) 3 F

BME MEng Electives (Need at least 6 cr total from the following)

General Medical Sciences Courses:
Human Gross Anatomy (ANAT 8071C ) 4-10 U
Scientific Integrity & Research Ethics (BE 7067) 1 U
Biology of Cancer (CB 8080) 3 S
Molecular and Cellular Biology (GNTD 7001) 3 F
Biochemistry and Cellular Signaling (GNTD 7002) 3 F
Human Physiology (MCP 6000) 4 F
Brain and Behavior I (NS 8041) 4-10 S
Brain and Behavior II (NS 8061) 4-10 F

Mathematics Courses
Biostatistics in Research (BME 7061) 3 F,S
Advanced Statistical Methods in Biomedical Res. (BME 8064) 3
Introduction to Biostatistics (BE 7022) 3 F
Computational Fluid Dynamics (EGFD 6037C) 4 S
Numerical Analysis (MATH 6006) 3 F
Partial Differential Equations and Fourier Analysis (MATH 6007) 3 S
Applied Probability and Stochastic Processes (MATH 6008) 3 F
Mathematical Programming (MATH 6015) 3 S
Applied Ordinary Differential Equations (MATH 6051) 3 S
Scientific Computation (MATH 8011) 3
Mathematical Physics (PHYS 7001) 4 F
In addition to the above courses, these can come from any graduate level engineering, science, medicine, business, or law course that is relevant to the student’s career goals as determined via discussion with the Graduate Program MEng advisor, and approved accordingly by the advisor. All elective choices need approval of the MEng Program Director.

Note: Not all courses are taught every year. Students should use this curriculum sheet as a guide, and check Onestop prior to enrollment every semester to ensure that the course being considered is actually offered in that semester. This requires careful planning and students should start early to develop their program of study with the MEng program advisor.

**Capstone – 1 course**
MEng Graduate Program Curriculum
Civil Engineering

A total of at least 30 semester credit hours are required for an MEng degree in Civil Engineering. Of these, 3 credit hours can be counted for the Capstone Project, if available. Students in the Civil Engineering program can choose between a targeted program that provides significant depth and a program that adds breadth within the practice of Civil Engineering. Students seeking to strengthen their area of expertise can choose either a focus on Infrastructure Design (with emphasis on Structures or Geotechnical) or on Infrastructure Systems (with emphasis on Building Systems, Construction Engineering and Management, Pavement Engineering, or Transportation). Note that some courses are only offered in even years or in odd years, thus in some cases a minimum of three semesters will be necessary to fulfill all requirements.

Students who have taken any of the 6000 level courses listed herein as part of their undergraduate degree at the University of Cincinnati will identify suitable substitutes in consultation with their academic advisor.

The total number of credit hours taken as independent study courses may not exceed six.

MEng Core Courses – 2 courses

Final Comprehensive Examination OR Capstone Project – 1 course
Take a final comprehensive examination (0 semester credit hours) OR, if an advisor is available, work on a Capstone Project (3 semester credit hours) that represents the synthesis of what was learned during the formal classwork. An internship alone is NOT considered a valid Capstone Project, however a Capstone Project that contains a summative analysis of some or all aspects of the internship work, with explicit reflections on the ties to the coursework taken and on how the data and/or information collected could have been used more efficiently or how codes and specification used hindered or contributed to the success of the internship work and how this codes could be improved or changed can be considered a valid Capstone Project. The Capstone Project consists of a written report and an oral presentation to the MEng committee.

An internship does not count for an MEng project. However, students can carefully work with the capstone advisor to develop a project based on the data and observations made during the internship, and prepare a report reflecting on the material learned during your MEng and analyzing and discussing data, methods, codes, and approaches based on work you have done during your internship. A mere internship report will NOT be acceptable as an MEng project

Civil Engineering Depth Options – Required Classes
Option 1 – Structural Engineering

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVE 7011</td>
<td>Structural Mechanics</td>
<td>Fall</td>
</tr>
<tr>
<td>CVE 7012</td>
<td>Finite Element Analysis</td>
<td>Spring</td>
</tr>
<tr>
<td>CVE 7081</td>
<td>Theory and Design of Concrete Structures I</td>
<td>Fall 2017</td>
</tr>
<tr>
<td>CVE 7085</td>
<td>Metal Structures Theory and Design I</td>
<td>Fall 2018</td>
</tr>
<tr>
<td>CVE 7088</td>
<td>Structural Dynamics</td>
<td>Fall</td>
</tr>
</tbody>
</table>
Option 2 – Geotechnical Engineering
CVE 7011 Structural Mechanics Fall
CVE 7061 Consolidation and Settlement TBA
CVE 7062 Soil Shear Strength and Slope Stability TBA

Take two of the following courses:
CVE 6081 Foundation Engineering Fall
CVE 7081 Theory and Design of Concrete Structures I Fall 2017
CVE 7085 Metal Structures Theory Fall 2018

In addition students must complete three of the following
CVE 6082 Reinforced Concrete Design of Shallow Foundations Spring
CVE 6063 Principles of Pavement Engineering TBD
GEOL 7001C Geomorphic Processes TBD
GEOL 6004 Glacial Geology TBD

Option 3. – Building Systems
CVE 6042 Sustainable Construction and LEED Fall
CVE 6047 Energy Efficiency in Buildings and Energy Modeling Spring
CVE 60xx Advanced Lighting and Daylighting TBA


Option 4 – Construction Engineering and Management
CVE 6044 Construction Law Fall
CVE 6042 Sustainable Construction and LEED Fall
CVE 6036 Value Engineering and Constructability Spring

Option 5 – Transportation Engineering
CVE 6022C Traffic Control and Signal System Design Fall 2017
CVE 6010C Advanced Traffic Engineering, or Fall 2018
CVE 6024 Highway Engineering and Traffic Safety Fall 2018
CVE 6012 Travel Demand Forecasting and Environmental Analysis Spring 2018
CVE 6008 Transportation Planning and System Evaluation Fall 2018

Civil Engineering Breadth Option – Required Classes
CVE 7010 Risk and Reliability TBA
Two courses from structures and/or geotechnical areas
Two courses from building systems, construction, and/or transportation area
Elective Courses:
With permission of their advisor and of the college, students may select some of their elective credit hours in areas outside of Civil Engineering and/or outside of the College of Engineering and Applied Science. Independent studies may also be arranged, for a maximum of 6 semester credit hours total. Note that some of the courses listed below have prerequisite courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVE6008</td>
<td>Transportation Planning and System Evaluation</td>
</tr>
<tr>
<td>CVE6010C</td>
<td>Advanced Traffic Engineering</td>
</tr>
<tr>
<td>CVE6011</td>
<td>Advanced Strength of Materials</td>
</tr>
<tr>
<td>CVE6012</td>
<td>Travel Demand Forecasting and Environmental Analysis</td>
</tr>
<tr>
<td>CVE6021</td>
<td>Bridge Engineering</td>
</tr>
<tr>
<td>CVE6022C</td>
<td>Traffic Control and Signal System Design</td>
</tr>
<tr>
<td>CVE6024</td>
<td>Highway Engineering and Traffic Safety</td>
</tr>
<tr>
<td>CVE6036</td>
<td>Value Engineering and Constructability</td>
</tr>
<tr>
<td>CVE6037</td>
<td>Construction Financing &amp; Strategy Planning</td>
</tr>
<tr>
<td>CVE6038</td>
<td>Leadership/Decision Making</td>
</tr>
<tr>
<td>CVE6041</td>
<td>Project Management Functions</td>
</tr>
<tr>
<td>CVE6042</td>
<td>Sustainable Construction and LEED</td>
</tr>
<tr>
<td>CVE6043</td>
<td>Structural Systems for Constructors</td>
</tr>
<tr>
<td>CVE6044</td>
<td>Construction Law</td>
</tr>
<tr>
<td>CVE6045</td>
<td>Heavy Highway Estimating</td>
</tr>
<tr>
<td>CVE6046</td>
<td>MEP systems for Constructors</td>
</tr>
<tr>
<td>CVE6058</td>
<td>Design of Wood and Masonry Structures</td>
</tr>
<tr>
<td>CVE6063</td>
<td>Principles of Pavement Engineering</td>
</tr>
<tr>
<td>CVE6067</td>
<td>Advanced Pavement Engineering</td>
</tr>
<tr>
<td>CVE6079</td>
<td>Data Management and Analysis</td>
</tr>
<tr>
<td>CVE6081</td>
<td>Foundation Engineering</td>
</tr>
<tr>
<td>CVE6082</td>
<td>Reinforced Concrete Design of Shallow Foundations</td>
</tr>
<tr>
<td>CVE6085</td>
<td>Advanced Structural Analysis</td>
</tr>
<tr>
<td>CVE6088</td>
<td>Finite Element Modeling of Civil and Architectural Engineering Structures</td>
</tr>
<tr>
<td>CVE7010</td>
<td>Risk and Reliability</td>
</tr>
<tr>
<td>CVE7011</td>
<td>Structural Mechanics</td>
</tr>
<tr>
<td>CVE7012</td>
<td>Finite Element Analysis</td>
</tr>
<tr>
<td>CVE7013</td>
<td>Advanced Topics in Finite Element Analysis</td>
</tr>
<tr>
<td>CVE7061</td>
<td>Consolidation and Settlement</td>
</tr>
<tr>
<td>CVE7062</td>
<td>Soil Shear Strength and Slope Stability</td>
</tr>
<tr>
<td>CVE7074</td>
<td>Traffic Flow Theory and Network Modeling</td>
</tr>
<tr>
<td>CVE7076</td>
<td>Intelligent Transportation Systems: Integrated Planning and Technologies</td>
</tr>
<tr>
<td>CVE7081</td>
<td>Theory and Design of Concrete Structures I</td>
</tr>
<tr>
<td>CVE7082</td>
<td>Design of Concrete Structures II (CVE7081 prerequisite)</td>
</tr>
<tr>
<td>CVE7085</td>
<td>Metal Structures Theory and Design I</td>
</tr>
<tr>
<td>CVE7086</td>
<td>Metal Structures Theory and Design II (CVE 7085 prerequisite)</td>
</tr>
<tr>
<td>CVE7088</td>
<td>Structural Dynamics</td>
</tr>
<tr>
<td>CVE7089</td>
<td>Earthquake Engineering</td>
</tr>
</tbody>
</table>
**MEng Graduate Program Curriculum**  
**Chemical Engineering**

The Chemical Engineering Masters of Engineering degree is meant to be extremely flexible so as to meet the needs of prospective students. The coursework requirements are:

**MEng Core Courses – 2 courses**

**Track Required Courses – 4 courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 6040</td>
<td>Advanced Thermodynamics</td>
<td>Fall</td>
</tr>
<tr>
<td>CHE 6043</td>
<td>Adv Transport Phenomenon I</td>
<td>Fall</td>
</tr>
<tr>
<td>CHE 6044</td>
<td>Transport Phenomenon II</td>
<td>Spring</td>
</tr>
<tr>
<td>CHE 7077</td>
<td>Chemical Reactor Design</td>
<td>Spring</td>
</tr>
</tbody>
</table>

**Capstone Project – 1 course**

**Elective Courses – courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 6045C</td>
<td>Transp. Phenom Modelling &amp; Anal</td>
<td>Spring</td>
</tr>
<tr>
<td>CHE 6057</td>
<td>Fuel Cells</td>
<td>Spring</td>
</tr>
<tr>
<td>CHE 6059</td>
<td>Inorganic Membranes</td>
<td>Fall</td>
</tr>
<tr>
<td>CHE 6076</td>
<td>Colloid Science</td>
<td>Spring</td>
</tr>
<tr>
<td>CHE 6080</td>
<td>NanoColloids and their Application</td>
<td>Fall</td>
</tr>
<tr>
<td>CHE 6096</td>
<td>Env. Catalysis &amp; Reaction Eng</td>
<td>Fall</td>
</tr>
</tbody>
</table>

With permission of their advisor, students may select some of their elective credit hours in areas outside of Chemical Engineering. Independent studies or projects in advanced topics may also be arranged.
MEng Graduate Program Curriculum
Computer Engineering

The Computer Engineering Masters of Engineering is focused around several distinct tracks. The coursework requirements for the tracks are:

**MEng Core Courses – 2 courses**

**Capstone Project** – Students may complete 6 credits of capstone toward the 30 credit hour requirement. Students are **required to take 3 credits of capstone in the fall** and may choose to take another 3 credits in the spring semester.

**General Computer Engineering**

The General Computer Engineering track is focused on development of foundational competencies in the computer engineering field. Courses in the general computer engineering track are designed to provide a strong foundation in both hardware and software development.

**Required Courses (choose 4 of the 5 courses):**
1. CS 6051 Database Theory 3 Credits (Fall or Spring)
2. EECE 6029 Introduction to Operating systems 3 Credits (Fall or Spring)
3. EECE 6080 Intro to VLSI Design 4 Credits (Fall)
4. EECE 7095 Introduction to Computer Architecture 3 Credits (Fall)

**Elective Courses (Choose 2 from the following List):**
1. CS 6043 Computer Networking 3 Credits (Fall or Spring)
2. EECE 6083 Compiler Theory and Practice 3 Credits (Spring)
3. EECE 6038C Advanced Microsystem Design 4 Credits (Spring)
4. CS 6033 Artificial Intelligence (Fall)
5. CS 7081 Adv Algorithms 3 credits
6. CS 6026 Formal Methods 3 credits

**Embedded Systems**

An embedded system combines customized hardware and software to carry out a specific set of tasks. Every day we benefit from many embedded systems in our cars, in medical devices, in consumer electronics, and in smart home appliances. New applications for embedded systems are constantly being developed. Embedded systems developers must pay particular attention to safety, reliability, and security in the products they design. The Embedded Systems track prepares students to work in this exciting and constantly evolving sub discipline of Computer Engineering.

**Required Courses (choose 4 of the 5 courses):**
1. EECE 6017C, Embedded Systems 4 Credits (Fall)
2. EECE 6029, Operating Systems 3 Credits (Fall and Spring)
3. EECE 6038C, Advanced Microsystem Design 4 Credits (Spring)
4. EECE 7095, Introduction to Computer Architecture 3 Credits (Fall)
5. CS 7092 Sensor Embedded Systems 3 credits (Spring)
Elective Courses (Choose 2 from the following List):
1. EECE 6007, Biomedical Microsystems 3 Credits (Fall)
2. EECE 6015C, Instrumentation & Industrial Control 3 Credits (Spring)
3. EECE 6032, Software Testing and Quality Assurance 3 Credits (Fall)
4. EECE 7017C, Trustworthy Embedded Systems 4 Credits (Spring)
5. CS 6027, Requirements Engineering 3 Credits (Fall)
6. CS 6097, Intro to Wireless and Mobile Networking 3 Credits (Fall)
7. EECE 6080 VLSI Design 4 credits (Fall)
8. EECE 7019 Bio-Inspired Robotics 3 credits (Fall)
9. MECH 6031 Intro to Robotics 3 credits (Fall)
10. EECE 702 Sensor Embedded Systems 3 credits (Spring)
11. EECE 7017C Trustworthy Embedded Systems 4 credits (Spring)
12. EECE 7075 Principles of Modern Networking 3 credits (Spring)
13. EECE 8115 Humans, Machines, Robots 3 credits (Spring)

Computer Engineering - VLSI Design
The VLSI Design track is focused on preparing students for jobs in the integrated circuit design industry. Students take a core set of courses to learn skills associated with VLSI chip design, layout and testing. Students can then supplement this core knowledge with electives in areas related to computer architecture, wireless systems, embedded systems design, signal processing or software development. **NOTE:** This track requires significant background in computer programming. Students must have a demonstrated strength in computer programming using an object-oriented programming language such as C++ in order to be accepted into this track.

Required Courses (Choose 3 of 4):
1. EECE 6080C Introduction to VLSI Design 4 credits (Fall)
2. EECE 6082C VLSI Design for Test and Power 4 credits (Spring)
3. EECE 6086C VLSI Design Automation 4 credits (Spring)
4. EECE 6088 Principles of VLSI Devices 3 credits (Fall)

Elective Courses (Choose 2-3 from the following List):
1. EECE 6017C Embedded Systems 4 credits (Fall)
2. EECE 6024 Introduction to Digital Signal Processing 3 credits (Fall)
3. EECE 6038C Advanced Microsystems 4 credits (Spring)
4. EECE 7095 Introduction to Computer Architecture 3 credits (Fall)
5. CS 7081 Adv Algorithms 3 credits (Fall and Spring)
6. EECE 6083 Compilers 3 credits (Spring)
7. EECE 6078 Biomicrofluidic Systems 3 credits (Spring)
8. EECE 7017C Trustworthy Embedded Systems 4 credits (Spring)
9. CS 6043 Computer Networks 3 credits (Spring)

Computer Engineering - Cyber Security
The Cyber Security track focuses on the development of technical skills necessary to address challenges of securing cyberspace and digital life. This track is designed to address the growing needs of companies, governments and organizations of professionals to manage the challenges of security in the cyberspace.

Required Courses (take all 4):
1. CS-6055 Cyber Defense Overview 3 credits (Fall)
2. CS-6021 Mathematical Logic 3 credits (Spring)
3. CS-6056 Security Vulnerability Assessment 3 credits (Spring)
4. EECE 6032 Software Testing 3 credits (Fall)

Elective Courses (Choose 2 from the following List):
1. CS-6097 Wireless and Mobile Networking 3 credits (Fall)
2. EECE-7095 Introduction to Computer Architecture 3 credits (Fall)
3. EECE-6017C Embedded Systems 4 credits (Fall)
4. CS 6043 Computer Networks 3 credits (Fall and Spring)
5. CS 6053 Network Security 3 credits (Spring)
6. CS 60XX Data Security & Privacy 3 credits (Spring)
7. CS 7038 Malware Analysis 3 credits (Spring)
8. CS 7092 Sensor Embed Sys 3 credits (Spring)
9. EECE 6029 Operating Systems 3 credits (Fall & Spring)
10. EECE 6083 Compilers 3 credits (Spring)
11. EECE 7017C Trustworthy Embedded Sys 4 credits (Spring)
12. EECE 6038C Adv Microsystems 3 credits (Spring)

Computer Engineering - Data Science
The data science track focuses on analytical techniques and algorithms, including data mining, to extract meaningful insights by processing large data sets efficiently. Students acquire hands-on experience with relevant software tools, languages, data models, and environments.

Required Courses Choose 3 of 5):
1. CS 6052 Intelligent Data Analysis 3 credits (Fall and Spring)
2. CS 6054 Information Retrieval 3 credits (Fall)
3. CS 6034 Natural Lang Processing 3 credits (Fall)
4. CS 6035 Learning Probl. Models 3 credits (Fall)
5. CS 6073 Deep Learning 3 credits (Spring)

Elective Courses (Choose 2 from the following List):
CS 6033 Artificial Intelligence 3 credits (Fall)
EECE 6036 Intelligent Systems 3 credits (Fall)
CS 6037 Machine Learning 3 credits (Fall)
CS 6051 Database Theory 3 credits (Fall & Spring)
CS 6068 Parallel Computing 3 credits (Fall)
CS 6072 Network Science 3 credits (Fall)
CS 7054 Readings: Autonomous Agents& Distr. AI 3 credits (Fall)
CS 7081 Adv Algorithms 3 credits (Fall & Spring)
EECE 6017C Embedded Systems 4 credits (Fall)
EECE 6029 Op Systems 3 credits (Fall & Spring)
EECE 7095 Comp Architecture 3 credits (Fall)
CS 6025 Data Encoding (Spring)
CS 6055 Cloud Computing 3 credits (Spring)
CS 60XX Data Security & Privacy 3 credits (Spring)
CS 7051 Adv. Topic: Spatial Temp Data Mining 3 credits (Spring)
CS 7052 Adv Topic: Natural Language Process 3 credits (Spring)
EECE 6038C Adv Microsystems 3 credits (Spring)
EECE 6083 Compilers 3 credits (Spring)

With permission of their advisor, students may select some of their elective credit hours in areas
outside of Computer Engineering. Independent studies or projects in advanced topics may also be arranged.
MEng Graduate Program Curriculum
Computer Science

The Computer Science Masters of Engineering degree is focused around several distinct tracks. The coursework requirements for the tracks are:

MEng Core Courses – 2 courses

Capstone Project – Students may complete 6 credits of capstone toward the 30 credit hour requirement. Students are required to take 3 credits of capstone in the fall and may choose to take another 3 credits in the spring semester.

General Computer Science
The General Computer Science track is focused on development of foundational competencies in the computer science field. Courses in the general computer science track are designed to provide a strong foundation in software development and computer system analysis.

Required Courses (Choose 3 of 5):
1. CS 6037 Machine Learning 3 credits (Fall)
2. CS 6051 Database Theory 3 credits (Fall & Spring)
3. CS 6072 Network Science 3 credits (Fall)
4. CS 7081 Adv Algorithms 3 credits (Fall & Spring)
5. EECE 6029 Op Systems 3 credits (Fall & Spring)

Elective Courses (Choose 3 from the following List):
CS 6027 Requirement Eng 3 credits (Fall)
CS 6033 Artificial Intelligence 3 credits (Fall)
CS 6034 Natural Language Processing 3 credits (Fall)
CS 6035 Learning Probabilistic Models 3 credits (Fall)
CS 6043 Computer Networks 3 credits (Fall)
CS 6052 Intelligent Data Analysis 3 credits (Fall & Spring)
CS 6060 Computer Graphic 3 credits (Fall)
CS 6068 Parallel Computing 3 credits (Fall)
CS 6097 Wireless & Mobile Networks 3 credits (Fall)
CS 7054 Readings: Autonomous Agents& Distr. Al 3 credits (Fall)
EECE 6036 Intelligent Systems 3 credits (Fall)
CS 6021 Math Logic 3 credits (Spring)
CS 6028 Lg Scale SW Eng 3 credits (Spring)
CS 6043 Computer Networks 3 credits (Spring)
CS 6053 Network Security 3 credits (Spring)
CS 6073 Deep Learning 3 credits (Spring)
CS 60XX Data Security & Privacy 3 credits (Spring)
CS 7092 Sensor Embed Sys 3 credits (Spring)
EECE 6031 Interconnection Networks 3 credits (Spring)

Computer Science - Cyber Security
The Cyber Security track focuses on the development of technical skills necessary to address challenges of securing cyberspace and digital life. This track is designed to address the growing
needs of companies, governments and organizations of professionals to manage the challenges of security in the cyberspace.

**Required Courses (take all 4):**
1. **CS-6055 Cyber Defense Overview** 3 credits (Fall)
2. **CS-6021 Mathematical Logic** 3 credits (Spring)
3. **CS-6056 Security Vulnerability Assessment** 3 credits (Spring)
4. **EECE 6032 Software Testing** 3 credits (Fall)

**Elective Courses (Choose 2 from the following List):**
- **CS-6097 Wireless and Mobile Networking** 3 credits (Fall)
- **EECE-7095 Introduction to Computer Architecture** 3 credits (Fall)
- **CS 6043Computer Networks** 3 credits (Fall and Spring)
- **CS 6053 Network Security** 3 credits (Spring)
- **CS 60XX Data Security & Privacy** 3 credits (Spring)
- **CS 7038 Malware Analysis** 3 credits (Spring)
- **CS 7092 Sensor Embed Sys** 3 credits (Spring)
- **EECE 6029 Operating Systems** 3 credits (Fall & Spring)
- **EECE 6083 Compilers** 3 credits (Spring)
- **EECE 7017C Trustworthy Embedded Sys** 4 credits (Spring)
- **CS 7035 Cryptography** 3 credits (Fall)
- **CS 6055 Cloud Computing** 3 credits (Spring)

**Computer Science - Data Science**
The data science track focuses on analytical techniques and algorithms, including data mining, to extract meaningful insights by processing large data sets efficiently. Students acquire hands-on experience with relevant software tools, languages, data models, and environments.

**Required Courses Choose 3 of 5):**
1. **CS 6052 Intelligent Data Analysis** 3 credits (Fall and Spring)
2. **CS 6054 Information Retrieval** 3 credits (Fall)
3. **CS 6034 Natural Lang Processing** 3 credits (Fall)
4. **CS 6035 Learning Probl. Models** 3 credits (Fall)
5. **CS 6073 Deep Learning** 3 credits (Spring)

**Elective Courses (Choose 2 from the following List):**
- **CS 6033 Artificial Intelligence** 3 credits (Fall)
- **CS 6037 Machine Learning** 3 credits (Fall)
- **CS 6051 Database Theory** 3 credits (Fall & Spring)
- **CS 6068 Parallel Computing** 3 credits (Fall)
- **CS 6072 Network Science** 3 credits (Fall)
- **CS 7054 Readings: Autonomous Agents & Distr. AI** 3 credits (Fall)
- **CS 7081 Adv Algorithms** 3 credits (Fall & Spring)
- **CS 6025 Data Encoding** (Spring)
- **CS 6055 Cloud Computing** 3 credits (Spring)
- **CS 60XX Data Security & Privacy** 3 credits (Spring)
- **CS 7051 Adv. Topic: Spatial Temp Data Mining** 3 credits (Spring)
- **CS 7052 Adv Topic: Natural Language Process** 3 credits (Spring)

*With permission of their advisor, students may select some of their elective credit hours in areas outside of Electrical Engineering. Independent studies or projects in advanced topics may also be arranged.*
MEng Graduate Program Curriculum
Electrical Engineering

The Electrical Engineering Masters of Engineering degree is focused around several distinct tracks. The coursework requirements for the tracks are:

MEng Core Courses – 2 courses

Capstone Project – Students may complete 6 credits of capstone toward the 30 credit hour requirement. Students are required to take 3 credits of capstone in the fall and may choose to take another 3 credits in the spring semester.

Advanced Materials, Devices and Microsystems
The Advanced Materials, Devices and Microsystems track aims to prepare students for jobs in industries focused on the advanced materials, nanoelectronic devices, and microelectromechanical systems (MEMS) for health. Students take a core set of courses to learn skills associated semiconductor fabrication, MEMS, and advanced devices. Students can then supplement this core knowledge with electives in areas related to microfabrication, quantum systems, thermoelectric systems, optical systems, or electromagnetic systems.

Required Courses (Choose 4 of 5)
1. EECE6007 Biomedical Microsystems 3 credits (Fall)
2. EECE6008 Fundamentals of MEMS 3 credits (Fall)
3. EECE6018 Microfab of Semiconductor Devices 3 credits (Fall)
4. EECE6041C Microfabrication Lab 3 credits (Spring)
5. EECE 6078 Biomicrofluidic Systems 3 credits (Spring)

Elective Courses (Choose 2 from the following List):
EECE6048C Optics for Engineers 3 credits (Fall)
EECE6088 Principles of VLSI Devices 3 credits
EECE7023 Thermoelectric Energy Conversion Devices 3 credits (Spring)
EECE7011 Electromagnetic Systems 3 credits (Spring)
MTEN 6013 Intro Smart Structures 3 credits (Fall)
EECE 7022 Wireless Communication

Systems Engineering
The Systems Engineering track is focused on preparing students for jobs in modeling, designing, analyzing and optimizing electrical or physical systems with a broad array of applications. Students take a core set of courses to learn skills associated with systems theory, systems design and modeling. Student can then supplement this core knowledge with expertise in areas related to communications, signal and image processing, instrumentations, control, simulations and electric machines and drives etc. NOTE: This track requires students have the necessary breadth and depth of knowledge in mathematics including differential equations, linear algebra, probability and statistics in order to be accepted into this track. Students are also expected to have completed the undergraduate courses in in signal and systems.

Required Courses (Choose 4 of 6):
1. EECE6019 Probability and Random Processes 3 credits (Fall)
2. EECE7033 Linear Systems Theory 3 credits (Spring)
3. EECE6036 Intelligent Systems 3 credits (Spring)
4. EECE 6024 Dig Signal Processing 3 credits (Fall)
5. EECE 6042 Digital Image Processing 3 credits (Fall)
6. AEEM 6099 System Eng Analysis 3 credit (Spring)

Elective Courses (Choose 2 from the following List):
EECE 6011 RF & Microwave Wireless Comm 3 credits (Fall)
EECE 6016C Electric Machines & Drives 3 credits (Fall)
EECE 6017C Embedded Systems 4 credits (Fall)
CS 7054 Readings: Autonomous Agents & Distr. AI 3 credits (Fall)
EECE 6015C Instrumentation & Controls 3 credits (Spring)
EECE 6025 Power Electronic 3 credits (Spring)
EECE 6026 Communication Sys 3 credits (Spring)
EECE 6027 Digital Communication 3 credits (Spring)
EECE 6058 GPS System & Receivers 3 credits (Spring)
EECE 7022 Wireless Communications 3 credits (Spring)
EECE 7065 Complex Systems 3 credits (Spring)
AEEM 6003 Analytical Dynamics 3 credits (Spring)
AEEM 6015 Modern Control 3 credits (Spring)
AEEM 6098 Unmanned Aircraft Systems 3 credits (Spring)

Electrical Engineering - VLSI Design
The VLSI Design track is focused on preparing students for jobs in the integrated circuit design industry. Students take a core set of courses to learn skills associated VLSI chip design, layout and testing. Student can then supplement this core knowledge with electrics in areas related to computer architecture, wireless systems, embedded systems design, signal processing or software development. NOTE: This track requires significant background in computer programming. Students must have a demonstrated strength in computer programming using an object oriented programming language such as C++ in order to be accepted into this track.

Required Courses (Choose 3 of 4):
1. EECE 6080C Introduction to VLSI Design 4 credits (Fall)
2. EECE 6082C VLSI Design for Test and Power 4 credits (Spring)
3. EECE 6086C VLSI Design Automation 4 credits (Spring)
4. EECE 6088 Principles of VLSI Devices 3 credits (Fall)

Elective Courses (Choose 2-3 from the following List):
1. EECE 6017C Embedded Systems 4 credits (Fall)
2. EECE 6024 Introduction to Digital Signal Processing 3 credits (Fall)
3. EECE 6038C Advanced Microsystems 4 credits (Spring)
4. EECE 7095 Introduction to Computer Architecture 3 credits (Fall)
5. CS 7081 Adv Algorithms 3 credits (Fall and Spring)
6. EECE 6083 Compilers 3 credits (Spring)
7. EECE 6078 Biomedical Systems 3 credits (Spring)
8. EECE 7017C Trustworthy Embedded Systems 4 credits (Spring)
9. CS 6043 Computer Networks 3 credits (Spring)

Robotics & Automation
The Robotics and Automation track focuses on developing new sensors and controls to achieve a higher level of performance from electro-mechanical, pneumatic, hydraulic and hybrid robotics
devices. Advanced hybrid hardware-software systems now make it possible to design elegant and sophisticated devices whose capabilities far surpass purely mechanical systems.

**Required Courses (Choose 4 of 6):**
1. MECH 6031 Intro to Robotics 3 credits (Fall)
2. AEEM 6098 Unmanned Aircraft Systems 3 credits (Fall)
3. EECE 7019 Bio-Inspired Robotics 3 credits (Fall)
4. MECH 6032 Robot Control & Design 3 credits (Spring)
5. EECE 6015C Instrumentation & Controls 3 credits (Spring)
6. EECE 8115C Humans, Machines, Robots 3 credits (Spring)

**Elective Courses (Choose 2 from the following List):**
- EECE 6011 RF & Microwave Wireless Comm 3 credits (Fall)
- EECE 6016 Electrics Machines & Drives 3 credits (Fall)
- EECE 6017C Embedded Systems 4 credits (Fall)
- EECE 6019 Probability & Random Process 3 credits (Fall)
- EECE 6036 Intelligent Systems 3 credits (Fall)
- EECE 6042 Digital Image Process 3 credits (Fall)
- AEEM 6003 Analytical Dynamic 3 credits (Fall)
- MECH 6035 Intelligent Systems 3 credits (Fall)
- ENGR 7025 Concurrent Product & Process Design 3 credits (Fall)
- EECE 6025 Power Electronics 3 credits (Spring)
- EECE 6038C Adv Microsystems 34 credits (Spring)
- EECE 7017C Trustworthy Embedded Sys 4 credits (Spring)
- MECH 6036 Robot Vision 3 credits (Spring)
- AEEM 6015 Modern Controls 3 credits (Spring)
- AEEM 7063 Flight Engineering 3 credits (Spring)

*With permission of their advisor, students may select some of their elective credit hours in areas outside of Computer Engineering. Independent studies or projects in advanced topics may also be arranged.*
MEng Graduate Program Curriculum
Environmental Engineering or Environmental Science

In order to graduate with a Master of Engineering degree with specialization in Environmental Engineering, the student has to successfully complete 30 cr hr of courses including at least 2 Fundamental courses and 1 Design course.

MEng Core Courses – two courses

Track Required Courses (10 – 15 cr hr)
Minimum of Two Fundamental courses and
Minimum of One Design course

Capstone Project (1 – 4 cr hr)

Elective Courses (2 – 9 cr hr)

Fundamental Courses - at least 2 courses to be selected from the following

Fall Semester
ENVE 6000/6001 Applied Biology for Engineered Systems (3/2 cr hr)
ENVE 6047 Chemical Principles of Environmental Systems (4 cr hr)
ENVE 6053 Physical Principles of Environmental Systems (3 cr hr)

Spring Semester
ENVE 6046 Biological/Microbiological Principles of Environmental Systems (4 cr hr)

Design Courses - at least 1 course to be selected from the following

Fall Semester
ENVE 6026 Environmental/Hydrologic System Analysis (3 cr hr)

Spring Semester
CVE 6090 Engineering Hydrology (3 cr hr)
ENVE 6054 Physical/Chemical Processes for Water Quality Control (4 cr hr)
ENVE 6055 Biological Processes for Water Quality Control (3 cr hr)
ENVE 6064 Air Resources Management (3 cr hr)

Elective Courses

Fall Semester
ENVE 6014 Solid Waste Management (3 cr hr)
ENVE 6022C Atmospheric Chemistry and Monitoring (3 cr hr)
ENVE 6094 Probability and Estimation Methods for Engineering Systems (3 cr hr)
GEOG 6071C Introduction to Geographic Information Systems (3 cr hr)

Spring Semester
ENVE 6044 Environmentally Conscious Engineering (3 cr hr)
ENVE 6058  Environmental Instrumentation (3 cr hr)
ENVE 6068C  Bioprocess Engineering and Renewable Energy (3 cr hr)

With permission of their advisor, students may select some of their elective credit hours in areas outside of Environmental Engineering; typical courses come from Arts & Science and DAAP. Independent studies or projects in advanced topics may also be arranged.
MEng Graduate Program Curriculum
Materials Science or Metallurgical Engineering

The Master of Engineering consists of two tracks: Materials Science or Metallurgical Engineering. For either track the following general requirements apply:

MEng Core Courses – 2 courses

Fundamental Materials Science Courses - at least 4 courses selected from available graduate courses in the track. The following are typically available:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTEN6012C</td>
<td>Nano Materials Eng</td>
<td>Spring</td>
</tr>
<tr>
<td>MECH6013</td>
<td>Smart Structures</td>
<td>Fall</td>
</tr>
<tr>
<td>MTEN6025C</td>
<td>POLYMER PROCESSING</td>
<td>Spring</td>
</tr>
<tr>
<td>MTEN6042</td>
<td>COMPOSITE MATERIALS</td>
<td>Spring</td>
</tr>
<tr>
<td>MTEN6047</td>
<td>ELEC OPT PROP CER</td>
<td></td>
</tr>
<tr>
<td>MTEN6049</td>
<td>Mag, Diel and Sensor Properties</td>
<td>Spring</td>
</tr>
<tr>
<td>MTEN6052</td>
<td>Physical Metallurgy</td>
<td>Fall</td>
</tr>
<tr>
<td>MTEN 6053</td>
<td>Ceramic Matls Chem &amp; Synthesis</td>
<td>Fall</td>
</tr>
<tr>
<td>MTEN6060</td>
<td>Corrosion</td>
<td>Spring</td>
</tr>
<tr>
<td>MTEN6070</td>
<td>Phase Transitions</td>
<td>Spring</td>
</tr>
<tr>
<td>MTEN6085</td>
<td>Coatings</td>
<td>Spring</td>
</tr>
<tr>
<td>MTEN6090</td>
<td>MOLECULAR MODELING</td>
<td>Spring</td>
</tr>
<tr>
<td>MTEN6097</td>
<td>Mechanical Behavior of Mater.</td>
<td>Fall</td>
</tr>
<tr>
<td>MTEN 7010C</td>
<td>Adv Materials Tech</td>
<td>Fall</td>
</tr>
<tr>
<td>MTEN7032</td>
<td>Polymer Analysis &amp; Char</td>
<td>Fall</td>
</tr>
<tr>
<td>MTEN7035</td>
<td>Advanced Thermodynamics</td>
<td>Fall</td>
</tr>
<tr>
<td>MTEN7048</td>
<td>DIFFRACTION THEORY</td>
<td>Spring</td>
</tr>
<tr>
<td>MTEN7079</td>
<td>DEFECT IN SOLID</td>
<td></td>
</tr>
<tr>
<td>MTEN7094</td>
<td>Fund of Polymer Science</td>
<td>Fall</td>
</tr>
</tbody>
</table>

Capstone Project – 1 course

*With permission of their advisor, students may select some of their elective credit hours in areas outside of Materials Science / Metallurgical Engineering. Independent studies or projects in advanced topics may also be arranged.*
MEng Graduate Program Curriculum
Mechanical Engineering

The Mechanical Engineering Master of Engineering curriculum allows the flexibility for students to choose from a combination of courses to complete the Track & Elective credit hours requirement. For students who wish to specialize in a particular area, suggested courses oriented toward the available areas of specialization are given below. However, students do not need to specialize.

MEng Core Courses – 2 courses

Capstone Project – Students may complete 6 credits of capstone toward the 30 credit hour requirement. Students are required to take 3 credits of capstone in the fall and may choose to take another 3 credits in the spring semester.

Track / Elective Courses – 6 courses

Primary areas of specialization within Mechanical Engineering are:
- Structural Dynamics and Vibro-Acoustics
- Solid Mechanics
- System Dynamics and Controls
- Thermal-Fluids Engineering
- Design and Manufacturing

The following are typically available:

FALL
AEEM6001 Advanced Strength of Materials
MECH6013 Smart Structures
MECH6020 Intro Adv manufacturing Processes
MECH6031 Intro to Robotics
MECH6035 Intelligent Systems
MECH 6043 Momentum & Energy Trnsfr with CFD Appl in Biosystems
MECH6050 Occupational Safety Engineering
MECH6060 Applied Fast Fourier Transforms
MECH6066 Acoustics
MECH6071 Advanced DFM
MECH6074 Quality Control
MECH6075 Production Planning & Control
MECH6077 Micro & Nano Manufacturing
MECH6081 Modeling Materials
MECH6097 HVAC Design I
MECH7002 Reliability Eng and Design
MECH7005 Materials Prop and Selection for Mechanical Eng
MECH7010 Parallel Computing
MECH7011 Math Meth for Decision making in Eng Systems
MECH7012 Elasticity I
MECH7023 Thermoelectric energy Conv
MECH7062 System Dynamic analysis
MECH7067 Roterdynamics
MECH7090 Conduction Heat Transfer
MECH8092 Adv Convection Heat Transfer
EGFD7041 Viscous Flow and Heat Transfer

SPRING (subject to change)
MECH6004 Monte Carlo Methods
MECH6011 Computational Design
MECH6023 CAD for Manufacturing
MECH6032 Robot Control and Design
MECH6035 Intelligent Systems Theory
MECH6036 Robot Vision
MECH6051 Safety Eng & Product Liability
MECH6052 System Safety
MECH6062 Experimental Vibrations
MECH6063 Experimental Analysis of Rotating Systems
MECH6073 Intro to E-Manufacturing
MECH6074 Quality Control
MECH6076 Supply Chain Modeling and Optimization
MECH6094 Fundamentals & Applications of Solar Energy
MECH6095 Thermal Energy Storage
MECH6096 Internal Combustion Engines
MECH7052 Finite Element Method
MECH7055 Fracture Mechanics
MECH7064 Advanced System Dynamics
MECH7070 Advanced Manufacturing Processes
MECH7072 Precision engineering and Computational metrology
MECH7091 Convection Heat Transfer
MECH7094 Boiling Heat Transfer and Two-Phase Flow

With permission of their advisor, students may select some of their elective credit hours in areas outside of Mechanical Engineering or EGFD. Independent studies or projects in advanced topics may also be arranged.
MEng Graduate Program Curriculum
Aero systems and Operations (AESOP)

Collaborative program between the University of Cincinnati and the University of Bordeaux

MEng Core Courses – 2 courses taken in Fall Semester

Track Courses – 6 courses

1st Semester – University of Cincinnati
AEEM 6101 Introduction to Aero Systems & Operations – Required
Choose Technical Specialty:
  • Aeronautical Engineering – two courses (6 credits)
  • Mechanical Engineering – two courses (6 credits)
  • Electrical / Computer Engineering – two courses (6 credits)
  • Computer Science - – two courses (6 credits)

2nd Semester – University of Bordeaux
Airworthiness – required
Maintenance Program Planning – required
Chose one from the following list:
  • Maintenance, Repair and Overhaul
  • Continuous Airworthiness
  • Reliability

Chose one of the three modules and take the courses from that module:

1. Structural Maintenance Module
   Regulations, documentation and maintenance of work site organization
   Maintenance and repair structure
   Non-destructive test (NDT)

2. Avionics Maintenance Module
   Regulations, documentation and maintenance of work site organization
   Avionics maintenance and repair systems
   Avionics Test Bench

3. Propulsion Systems Maintenance
   Regulations, documentation and maintenance of work site organization
   Maintenance of turbomachinery
   Aerofan engine test bench

Capstone Project – Independent research funded at UBx/IMA or summer internship et one of IMA’s industrial partner. 3 credits in the summer semester.