Université Concordia University — GINA CODY SCHOOL OF ENGINEERING AND COMPUTER SCIENCE

# Recommended Course Sequence
## Mechanical Engineering (September Entry)
## 2026-2027 Academic Year

| | SUMMER /1 | FALL /2 | WINTER /4 |
|---|---|---|---|
| YEAR 1 | | **ENGR 213 Applied Ord. Differential Eq. (3.00)**<br>The following course must be completed previously or concurrently: MATH 204 (Cegep Mathematics 105). The following course must be completed previously: MATH 205 (Cegep Mathematics 203). | **ENCS 282 Technical Writing & Comm. (3.00)**<br>Students must have satisfied the requirements in Section 71.20.7 Writing Skills Requirement, by passing the Engineering Writing Test (EWT) or by passing ENCS 272 with a grade of C- or higher, prior to enrolling. |
| | | **ENGR 242 Statics (3.00)**<br>The following course must be completed previously or concurrently: ENGR 213. The following courses must be completed previously PHYS 204; MATH 204. | **ENGR 233 Applied Advanced Calculus (3.00)**<br>The following course must be completed previously: MATH 204 (Cegep Mathematics 105); MATH 205 (Cegep Mathematics 203). |
| | | **MIAE 211 Mech. Engineering Drawing (3.50)**<br>Prerequisites: none. | **ENGR 243 Dynamics (3.00)**<br>The following courses must be completed previously: ENGR 213, ENGR 242. |
| | | **MIAE 215 Programming for Mech & Indu Eng. (3.50)**<br>The following course must be completed previously: MATH 204 (Cegep mathematics 105). | **ENGR 244 Mechanics of Materials (3.75)**<br>The following courses must be completed previously: ENGR 213; ENGR 242 or ENGR 245. The following courses must be completed previously or concurrently: ENGR 233. |
| | | **MIAE 221 Materials Science (3.00)**<br>The following course must be completed previously: CHEM 205 (Cegep Chemistry 101). | **MIAE 313 Machine Drawing and Design (3.50)**<br>The following course must be completed previously: MECH 211 or MIAE 211. |
| YEAR 2 | | **ENGR 201 Professional Practice & Resp. (1.50)**<br>Prerequisites: none. | **ENGR 361 Fluid Mechanics I (3.00)**<br>The following courses must be completed previously: ENGR 213, ENGR 233, ENGR 251 or AERO 253. |
| | | **ENGR 202 Sust. Dev. Enviro. Stewardship (1.50)**<br>Prerequisites: none. | **ENGR 371 Probability & Stats in Eng. (3.00)**<br>The following courses must be completed previously: ENGR 213, ENGR 233. |
| | | **ENGR 251 Thermodynamics I (3.00)**<br>The following course must be completed previously: MATH 203 (Cegep Mathematics 103). | **MECH 343 Theory of Machines (3.50)**<br>The following courses must be completed previously: ENGR 213, ENGR 233, ENGR 243. |
| | | **ENGR 311 Transform Calc. & Partial Diff. Eq. (3.00)**<br>The following courses must be completed previously: ENGR 213, ENGR 233. | **MECH 371 Analysis & Design Ctrl Sys. (3.75)**<br>The following courses must be completed previously: PHYS 205; ENGR 243, ENGR 311. |
| | | **MIAE 311 Manufacturing Processes (3.00)**<br>The following course must be completed previously: MECH 313 or MIAE 313. | **MIAE 380 Product Design & Development (3.00)**<br>The following course must be completed previously: ENCS 282; MECH 211 or MIAE 211. |
| | | **MIAE 312 EDML Lab (1.00)**<br>The following course must be completed previously or concurrently: MIAE 311. | |
| YEAR 3 | | **MECH 344 Machine Element Design (3.00)**<br>The following courses must be completed previously: ENGR 244; MECH 313 or MIAE 313. The following courses must be completed previously or concurrently: MECH 343. | **ENGR 301 Engr. Manage. Principles Econ (3.00)**<br>Prerequisites: none. |
| | | **MECH 352 Heat Transfer I (3.50)**<br>The following courses must be completed previously: ENGR 311, ENGR 361. | **MECH 321 Properties & Failure of Material (3.50)**<br>The following course must be completed previously: MECH 221 or MIAE 221. |
| | | **MECH 361 Fluid Mechanics II (3.50)**<br>The following course must be completed previously: ENGR 361. | **MECH 351 Thermodynamics II (3.50)**<br>The following course must be completed previously: ENGR 251. |
| | | **MECH 373 Instrumentation & Measurements (3.50)**<br>The following courses must be completed previously: ENGR 311; AERO 371 or MECH 370 or MECH 371. | **MECH 368 Electronics for Mech. Engineers (3.50)**<br>The following courses must be completed previously: PHYS 205; MIAE 215. |
| | | **MECH 390 Mech Engr. Design Project (3.50)**<br>The following courses must be completed previously: MECH 311 or MIAE 311; MECH 343; MIAE 380. The following course must be completed previously or concurrently: MECH 344. | **MIAE 383 Applied Machine Learning MIAE (3.50)**<br>The following courses must be completed previously: ENGR 371; MIAE 215. |
| YEAR 4 | | **ENGR 391 Numerical Methods in Engr. (3.00)**<br>The following courses must be completed previously: ENGR 213, ENGR 233; COMP 248 or COEN 243 or MECH 215 or MIAE 215 or BCEE 231. | **ENGR 392 Impact of Technology on Society (3.00)**<br>The following courses must be completed previously: ENCS 282; ENGR 201, ENGR 202. |
| | | **MECH 375 Mechanical Vibrations (3.50)**<br>The following course must be completed previously: AERO 371 or MECH 370 or MECH 371. | **General Studies (3.00)**<br>(Undergraduate Calendar, Sec. 71.110) |
| | | **Technical Electives (Undergraduate Calendar, Sec. 71.40.1)**<br>Review your advisement report for the number of credits required.<br>Speak with your Undergraduate Program Assistant if you have any further questions. | |
| | | **MECH 490 Capstone Mechanical Engineering Design Project (6.00)**<br>The following courses must be completed previously: ENGR 301; MECH 344, MECH 390; MIAE 312.<br>Students must complete 75 credits in the program prior to enrolling. | |

Course schedules are based on the recommended sequence; however, you may choose to follow a reduced load. Step-by-step instructions on re-sequencing are available on our website.

# DETAILED COURSE INFORMATION
## Mechanical Engineering 2026-27

| COURSE | TITLE | CREDIT | PRE-REQUISITE | CO-REQUISITE | SUM 1 | SUM 2 | FALL | WIN |
|---|---|---|---|---|---|---|---|---|
| **AERO 417*** | Standards, Regulations and Certification | 3.00 | ENGR 201 | | X* | | X | |
| **AERO 431** | Principles of Aeroelasticity | 3.50 | ENGR 361; MECH 375 | | | | X | |
| **AERO 446** | Aerospace Vehicle Performance | 3.00 | MECH 361 | | | | | X |
| **AERO 455** | Computational Fluid Dynamics for Aerospace Applications | 3.75 | ENGR 311, ENGR 391; MECH 361 | | | | | X |
| **AERO 462** | Turbomachinery and Propulsion | 3.00 | MECH 351, MECH 361 | | | | X | |
| **AERO 464** | Aerodynamics | 3.00 | MECH 361 | | | | X | X |
| **AERO 465** | Gas Turbine Design | 3.50 | AERO 462 | | | | | X |
| **AERO 480** | Flight Control Systems | 3.50 | AERO 371 or ELEC 372 or MECH 371 or SOEN 385 | | | | X | |
| **AERO 482** | Avionic Navigation Systems | 3.00 | ENGR 371 or COMP 233; AERO 371 or ELEC 372 or MECH 371 or SOEN 385 | | | | X | |
| **AERO 485** | Introduction to Space Systems | 3.00 | MECH 351, MECH 361 | | | | | X |
| **AERO 486** | Aircraft Stress Analysis | 3.00 | ENGR 243, ENGR 244 | | | | X | |
| **AERO 487** | Design of Aircraft Structures | 3.00 | AERO 486 | | | | | X |
| **ENCS 282** | Technical Writing and Communication | 3.00 | Passing the Engineering Writing Test (EWT) or ENCS 272 with a grade of C- or higher. | | X | X | X | X |
| **ENGR 201** | Professional Practice and Responsibility | 1.50 | | | X | | X | X |
| **ENGR 202** | Sustainable Development and Environmental Stewardship | 1.50 | | | X | | X | X |
| **ENGR 213** | Applied Ordinary Differential Equations | 3.00 | MATH 205 (Cegep Mathematics 203) | MATH 204 (Cegep Mathematics 105) | X | | X | X |
| **ENGR 233** | Applied Advanced Calculus | 3.00 | MATH 204 (Cegep Mathematics 105); MATH 205 (Cegep Mathematics 203) | | X | X | X | X |
| **ENGR 242** | Statics | 3.00 | PHYS 204; MATH 204 | ENGR 213 | X | | X | X |
| **ENGR 243** | Dynamics | 3.00 | ENGR 213, ENGR 242 | | X | | X | X |
| **ENGR 244** | Mechanics of Materials | 3.75 | ENGR 213; ENGR 242 or ENGR 245 | ENGR 233 | X | | X | X |
| **ENGR 251** | Thermodynamics I | 3.00 | MATH 203 | | X | X | X | X |
| **ENGR 301** | Engineering Management Principles and Economics | 3.00 | | | X | X | X | X |
| **ENGR 311** | Transform Calculus and Partial Differential Equations | 3.00 | ENGR 213, ENGR 233 | | X | X | X | X |
| **ENGR 361** | Fluid Mechanics I | 3.00 | ENGR 213, ENGR 233, ENGR 251 or AERO 253 | | X | | X | X |
| **ENGR 371** | Probability and Statistics in Engineering | 3.00 | ENGR 213, ENGR 233 | | X | X | X | X |
| **ENGR 391** | Numerical Methods in Engineering | 3.00 | ENGR 213, ENGR 233; COMP 248 or COEN 243 or MECH 215 or MIAE 215 or BCEE 231 | | | X | X | X |
| **ENGR 392** | Impact of Technology on Society | 3.00 | ENCS 282; ENGR 201, ENGR 202 | | X | X | X | X |
| **ENGR 411** | Special Technical Report | 1.00 | ENCS 282. Permission of the Department is required. | | X | | X | X |
| **ENGR 412** | Honours Research Project | 3.00 | ENCS 282; 75cr in the BEng program, a CGPA of 3.00 or better. Permission of the Dept. | | X | | X | X |
| **Gen. Ed.** | General Education Elective | 3.00 | See section 71.7110 of the Undergraduate Calendar | | X | X | X | X |
| **INDU 372** | Quality Control and Reliability | 3.00 | ENGR 371 | | | | | X |
| **INDU 410** | Safety Engineering | 3.00 | MECH 311 or MIAE 311 | | | | X | |
| **INDU 411** | Computer Integrated Manufacturing | 3.50 | MECH 311 or MIAE 311 | MIAE 312 | n/a | n/a | n/a | n/a |
| **INDU 412** | Human Factors Engineering | 3.50 | ENGR 371 | | | | X | |
| **MECH 321** | Properties and Failure of Materials | 3.50 | MECH 221 or MIAE 221 | | | | | X |
| **MECH 343** | Theory of Machines | 3.50 | ENGR 213, ENGR 233, ENGR 243 | | | | X | X |
| **MECH 344** | Machine Element Design | 3.00 | ENGR 244; MECH 313 or MIAE 313 | MECH 343 | | | X | X |
| **MECH 351** | Thermodynamics II | 3.50 | ENGR 251 | | | | X | X |
| **MECH 352** | Heat Transfer I | 3.50 | ENGR 311, ENGR 361 | | | | X | X |
| **MECH 361** | Fluid Mechanics II | 3.50 | ENGR 361 | | | | X | X |
| **MECH 368** | Electronics for Mechanical Engineers | 3.50 | PHYS 205; MIAE 215 | | | | X | X |
| **MECH 371** | Analysis and Design of Control Systems | 3.75 | PHYS 205; ENGR 243, ENGR 311 | | | X | X | X |
| **MECH 373** | Instrumentation and Measurements | 3.50 | ENGR 311; AERO 371 or MECH 370 or MECH 371 | | | | X | |
| **MECH 375** | Mechanical Vibrations | 3.50 | AERO 371 or MECH 370 or MECH 371 | | | X | X | X |
| **MECH 390** | Mechanical Engineering Design Project | 3.50 | MECH 311 or MIAE 311; MECH 343; MIAE 380 | MECH 344 | | | X | X |
| **MECH 412** | Computer-Aided Mechanical Design | 3.50 | MIAE 311 | | | | X | |
| **MECH 414** | Computer Numerically Controlled Machining | 3.50 | MECH 311 or MIAE 311 | MIAE 312 | | | | X |
| **MECH 415** | Advanced Programming for Mechanical and Industrial Engineers | 3.00 | MECH 215 or MIAE 215 | | n/a | n/a | n/a | n/a |
| **MECH 421** | Mechanical Shaping of Metals and Plastics | 3.50 | MECH 221 or MIAE 221 | | | | | X |
| **MECH 422** | Mechanical Behaviour of Polymer Composite Materials | 3.00 | ENGR 233, ENGR 244; MECH 221 or MIAE 221 | | | | X | |
| **MECH 423** | Casting, Welding, Heat Treating and Non-Destructive Testing | 3.50 | MECH 221 or MIAE 221 | | n/a | n/a | n/a | n/a |
| **MECH 424** | MEMS – Design and Fabrication | 3.50 | MECH 311 or MIAE 311; MECH 343 | MIAE 312 | n/a | n/a | n/a | n/a |
| **MECH 425** | Manufacturing of Composites | 3.50 | MECH 311 or MIAE 311 | MIAE 312 | | | X | |
| **MECH 426** | Stress and Failure Analysis of Machinery | 3.00 | ENGR 233, ENGR 244; AERO 481 or MECH 321 | | | | X | |
| **MECH 428** | Failure Analysis of Machine Systems | 3.00 | MECH 344 | | n/a | n/a | n/a | n/a |
| **MECH 444** | Guided Vehicle Systems | 3.00 | MECH 375 | | n/a | n/a | n/a | n/a |
| **MECH 447** | Fundamentals of Vehicle System Design | 3.00 | MECH 343 | MECH 375 | n/a | n/a | n/a | n/a |
| **MECH 451** | Renewable Energy: Fundamentals and Applications | 3.00 | MECH 351, MECH 352, MECH 361 | | | | | X |
| **MECH 452** | Heat Transfer II | 3.50 | MECH 351, MECH 352, MECH 361 | | n/a | n/a | n/a | n/a |
| **MECH 453** | Heating, Ventilation and Air Conditioning Systems | 3.00 | MECH 352 | | | | | X |
| **MECH 454** | Vehicular Internal Combustion Engines | 3.00 | MECH 351, MECH 361 | | | | | X |
| **MECH 460** | Finite Element Analysis | 3.75 | ENGR 244, ENGR 391 | | | | | X |
| **MECH 461** | Gas Dynamics | 3.50 | MECH 361 | | | | X | |
| **MECH 463** | Fluid Power Control | 3.50 | ENGR 361; MECH 371 | | n/a | n/a | n/a | n/a |
| **MECH 468** | Wind Turbine Engineering | 3.00 | MECH 343, MECH 361 | | | | | X |
| **MECH 471** | Microcontrollers for Mechatronics | 3.50 | ENGR 311; MECH 368 | | | | | X |
| **MECH 472** | Mechatronics and Automation | 3.50 | MECH 215 or MIAE 215 | MECH 371 | | | | X |
| **MECH 473** | Control System Design | 3.50 | ELEC 372 or MECH 371 | | | | X | |
| **MECH 474** | Mechatronics | 3.75 | ELEC 372 or MECH 371 | | | | | X |
| **MECH 476** | Generative Design and Manufacturing in Engineering | 3.00 | MECH 313 or MIAE 313 | AERO 390 or MECH 390 | n/a | n/a | n/a | n/a |
| **MECH 490** | Capstone Mechanical Engineering Design Project | 6.00 | ENGR 301; MECH 344, MECH 390; MIAE 312. Students must complete 75cr in the program prior to enrolling. | | | | X | |
| **MECH 498** | Topics in Mechanical Engineering | 3.00 | Permission of the Department is required. | | n/a | n/a | n/a | n/a |
| **MIAE 211** | Mechanical Engineering Drawing | 3.50 | | | X | | X | X |
| **MIAE 215** | Programming for Mechanical, Industrial and Aerospace Engineers | 3.50 | MATH 204 (Cegep mathematics 105) | | | X | X | X |
| **MIAE 221** | Materials Science | 3.00 | CHEM 205 (Cegep Chemistry 101) | | | | X | X |
| **MIAE 311** | Manufacturing Processes | 3.00 | MECH 313 or MIAE 313 | | X | | X | |
| **MIAE 312**** | Engineering Design and Manufacturing Processes Lab | 1.00 | | | X** | | X | |
| **MIAE 313** | Machine Drawing and Design | 3.50 | MECH 211 or MIAE 211 | | | X | X | X |
| **MIAE 380** | Product Design and Development | 3.00 | ENCS 282; MECH 211 or MIAE 211 | | | | X | X |
| **MIAE 383** | Machine Learning for MIAE | 3.50 | ENGR 371; MIAE 215 or COEN 243 | | | | X | X |

*AERO 417 reserved for AERO students in summer

**MIAE 312 reserved for Co-op students in summer

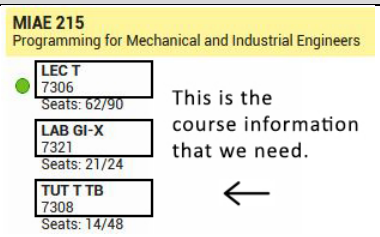
Note: In the case of discrepancies between this and the current Undergraduate Calendar, please contact your Undergraduate Program Assistant for clarification.

This information was compiled April 2026.

# Registration Essentials

**How do I register for classes?**
Student registration is accessible within the Student Centre or the My CU Account page of the Student Hub. Detailed information and how-to guides can be found here Course registration - Concordia University.

If you need assistance for any particular reason, please email your Undergraduate Program Assistant and include your Student ID as well as detailed course information (i.e. term, lecture, lab and tutorial), as follows:

| Information we need: | Where to find the information | Example: |
|---|---|---|
| **Summer/Fall/Winter YEAR**<br>Lec ABCD 123-CC (2964)<br>Tut ABCD 123-CCF (2969)<br>Lab ABCD 123- CI-X (2966) | <br>Sample taken from the Visual Schedule Builder | **Fall 2026**<br>LEC MIAE 215 T (7306*)<br>Tut MIAE 215 TB (7308*)<br>Lab MIAE 215 GI-X (7321*)<br><br>*Code is optional |

**Registration Regulation: The 'C -' Rule**
All **200-level courses** within the program [including admission/ECP/MEP requirements] which are prerequisites for other courses must be completed with a C- or higher. A 200-level course in which a student has obtained a D+ or lower must be repeated before attempting a course for which it is a prerequisite (Undergraduate Calendar, Section 71.10.4). **This does not apply to 300 or 400 level courses.**

**Registration Regulation: The '200-level before 400-level' Rule**
Students must complete (with a posted final grade) all 200-level courses required for their program before registering for any 400-level courses (Undergraduate Calendar, Section 71.10.4).

**Why can't I enroll for ENCS 282?**
Before enrolling in ENCS 282, students must meet the Writing Skills Requirement (Undergraduate Calendar, Section 71.20.7) by either passing the Engineering Writing Test (EWT) or ENCS 272 with a grade of C or higher. **This is faculty policy, no exceptions.** More details about the EWT, including registration and contact info, can be found here: Engineering Writing Test.

**Where can I find the list of General Studies courses?**
You can find the list of available courses here: Section 71.110 Complementary Studies for Engineering and Computer Science Students. Please note the Exclusion List, as these courses may not be taken to fulfill this requirement.

**Do you need to re-sequence?**
Please use our website's re-sequencing guide, planning tools, and sequence template to draft your course plan through to graduation. On page 2 of your recommended sequence, you'll find a table outlining all prerequisites, co-requisites, and course offerings by term—this will help with your planning. You can send a draft to your Program Assistant for review.

**Registration: 3rd Time Repeat**
A student may repeat a failed course only once. A student who fails a required course twice must request permission to take the course a third time. To submit a request, please go to: GCS Student requests & forms

**How do I register for Capstone?**
Online registration for Capstone opens June 1, after the annual assessment of GPA is performed by the Registrar's Office. For those taking prerequisite courses in either summer term, you can only register once the grades are available.

**How do I know if I am on track for graduation?**
The best way to assess what is required for your program is to look at your Academic Requirements Report. The report outlines the courses and credits required for your program(s), including majors, minors, and electives. It helps you monitor completed and outstanding requirements, track total credits, and note any deficiencies or transfer credits. *This is a reference tool only—consult your program advisor for official guidance.*

**All of the information above, and more, can be found on our Quick Tips and FAQ (MIAE)**

For more information, or clarification, please do not hesitate to contact your Undergraduate Program Assistant or Student Academic Services