Mechanical Engineering Curriculum - Fall 2022 (Stream B)  
Non-CEGEP Entry

1st Term (Fall)  18 credits  Prerequisites/Co-requisites
CHEM 110  General Chemistry 1  4  P - College level mathematics and physics or permission of instructor
FACC 100  Introduction to the Engineering Profession  1
MATH 133  Linear Algebra and Geometry  3  P - A course in functions
MATH 140  Calculus 1  3  P - High school calculus
PHYS 131  Mechanics and Waves  4  C - Calculus course [MATH 140]
CS  Complementary Studies Group B (HSSML) - 1*

2nd Term (Winter)  18 credits  Prerequisites/Co-requisites
CHEM 120  General Chemistry 2  4  P - College level mathematics and physics or permission of instructor
MATH 141  Calculus 2  4  P - MATH 140
PHYS 142  Electromagnetism and Optics  4  P - PHYS 131 / C - MATH 141
CS  Complementary Studies Group A (Impact)*
CS  Complementary Studies Group B (HSSML) - 2*

3rd Term (Fall)  16 credits  Prerequisites/Co-requisites
COMP 208  Computers in Engineering  3  P - differential and integral calculus [MATH 140 and MATH 141] / C - linear algebra [MATH 133]
FACC 300  Engineering Economy  3
MATH 262  Intermediate Calculus  3  P - MATH 133, MATH 141
MECH 201  Introduction to Mechanical Engineering  2
MECH 210  Mechanics 1  2  P - PHYS 101 or PHYS 131 or equivalent
MECH 290  Design Graphics for Mechanical Engineering  3

4th Term (Winter)  17 credits  Prerequisites/Co-requisites
CIVE 207  Solid Mechanics  4  P - CIVE 205 or MECH 210
FACC 250  Responsibilities of the Professional Engineer  0  P - FACC 100 or BREE 250
MATH 263  Ordinary Differential Equations for Engineers  3  C - MATH 262
MATH 264  Advanced Calculus for Engineers  3  P - MATH 262 / C - MATH 263
MECH 220  Mechanics 2  4  P - MECH 210, MATH 262 / C - MATH 263
MECH 262  Statistics and Measurement Laboratory  3  C - MATH 263

5th Term (Fall)  18 credits  Prerequisites/Co-requisites
MATH 271  Linear Algebra and Partial Differential Equations  3  P - MATH 263, MATH 264
MECH 240  Thermodynamics 1  3
MECH 314  Dynamics of Mechanisms  3  P - MECH 220
MECH 321  Mechanics of Deformable Solids  3  P - CIVE 207
MECH 331  Fluid Mechanics 1  3  P - MECH 210 / P or C - MECH 220, MECH 240, MATH 271
MECH 360  Principles of Manufacturing  3  P - MECH 289 or MECH 290 / P or C - CIVE 207

6th Term (Winter)  18 credits  Prerequisites/Co-requisites
WCOM 206  Communication in Engineering  3
MIME 260  Materials Science and Engineering  3
MECH 292  Design 1: Conceptual Design  3  P - MECH 289 or MECH 290 / P or C - CIVE 207
MECH 309  Numerical Methods in Mechanical Engineering  3  P - MATH 263, MATH 271, COMP 208
MECH 341  Thermodynamics 2  3  P - MATH 264, MECH 240
MECH 393  Design 2: Machine Element Design  3  P - MECH 289 or 290, CIVE 207 / P or C - MECH-360, MECH 292, MECH 314, MIME 260

7th Term (Fall)  19 credits  Prerequisites/Co-requisites
MECH 315  Mechanics 3  4  P - MECH 220, MATH 271 / P or C - CIVE 207
MECH 346  Heat Transfer  3  P - MECH 240, MECH 331, MATH 271
MECH 383  Applied Electronics and Instrumentation  3  P - MECH 262, MATH 263
MECH 430  Fluid Mechanics 2  3  P - MECH 240, MECH 331
MECH 463D1  Design 3: Mechanical Engineering Project  3  P - WCOM 206, MECH 360, MECH 292, MECH 314, MECH 393, MIME 260
MECH xxx  Technical Complementary  3

8th Term (Winter)  18 credits  Prerequisites/Co-requisites
ECSE 461  Electric Machinery  3
FACC 400  Engineering Professional Practice  1  P - FACC 100, FACC 250**, and 60 program credits
MECH 362  Mechanical Laboratory 1  2  P - MECH 262
MECH 412  System Dynamics and Control  3  P - MECH 309, MECH 315 / P or C - MECH 331
MECH 463D2  Design 3: Mechanical Engineering Project  3  P - MECH 463D1
MECH xxx  Technical Complementary  3
MECH xxx  Technical Complementary  3

Technical Complementary courses are selected from an approved list given on the next page.

*The Complementary Studies (CS) courses are Impact of Technology courses (Group A) and Humanities & Social Sciences, Management Studies and Law courses (Group B). Students must take one course (3 credits) from Group A and two courses (6 credits) from Group B. The curriculum above includes suggested terms during which these courses can be taken. These must be chosen from an approved list of course departaments, found in the program list under "Complementary Studies" in the Faculty of Engineering Undergraduate section of the Programs, Courses and University Regulations publication (www.mcgill.ca/study) (see your program listing in the "Browse Academic Units & Programs" section).

**FACC 250 is not yet indicated as a prerequisite in the eCalendar course information (www.mcgill.ca/study) but it will be before FACC 400 is taken.

Students are responsible for satisfying pre-/co-requisites and verifying with their department that they are meeting the requirements of their program.
# Technical Complementary Courses - Mechanical Engineering

6 credits at the 300-level or higher, chosen from Mechanical Engineering courses (subject code MECH). One of these two courses (3 credits) must be chosen from the following Design shortlist:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Prerequisites/Co-requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECH 497</td>
<td>Value Engineering</td>
<td>3</td>
<td>P - MECH 393 and 45 credits completed</td>
</tr>
<tr>
<td>MECH 498</td>
<td>Interdisciplinary Design Project 1</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>MECH 499</td>
<td>Interdisciplinary Design Project 2</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>MECH 513</td>
<td>Control Systems</td>
<td>3</td>
<td>P - MECH 412 or MECH 419</td>
</tr>
<tr>
<td>MECH 530</td>
<td>Mechanics of Composite Materials</td>
<td>3</td>
<td>C - MECH 321 or equivalent or instructor permission</td>
</tr>
<tr>
<td>MECH 532</td>
<td>Aircraft Performance, Stability and Control</td>
<td>3</td>
<td>P - MECH 412 / MECH 419, MECH 533</td>
</tr>
<tr>
<td>MECH 535</td>
<td>Turbomachinery and Propulsion</td>
<td>3</td>
<td>P - MECH 331 / C - MECH 430</td>
</tr>
<tr>
<td>MECH 536</td>
<td>Aerospace Structures</td>
<td>3</td>
<td>P - MECH 321</td>
</tr>
<tr>
<td>MECH 543</td>
<td>Design with Composite Materials</td>
<td>3</td>
<td>P - MECH 530</td>
</tr>
<tr>
<td>MECH 544</td>
<td>Processing of Composite Materials</td>
<td>3</td>
<td>P - MECH 530</td>
</tr>
<tr>
<td>MECH 553</td>
<td>Design and Manufacture of Microdevices</td>
<td>3</td>
<td>P - MECH 309, MECH 321, (MECH 315 or MECH 419)</td>
</tr>
<tr>
<td>MECH 559</td>
<td>Engineering Systems Optimization</td>
<td>3</td>
<td>-</td>
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<tr>
<td>MECH 560</td>
<td>Eco-design and Product Life Cycle Assessment</td>
<td>3</td>
<td>P - MECH 360</td>
</tr>
<tr>
<td>MECH 563</td>
<td>Biofluids and Cardiovascular Mechanics</td>
<td>3</td>
<td>P - CHEE 314 or MECH 331</td>
</tr>
<tr>
<td>or CHEE 563</td>
<td>Biofluids and Cardiovascular Mechanics</td>
<td>3</td>
<td>P - CHEE 314 or MECH 331</td>
</tr>
<tr>
<td>MECH 564</td>
<td>Thermal Radiation and Solar Energy Systems</td>
<td>3</td>
<td>P - MECH 346, COMP 208</td>
</tr>
<tr>
<td>MECH 565</td>
<td>Fluid Flow and Heat Transfer Equipment</td>
<td>3</td>
<td>P - MECH 240, MECH 309 or MATH 317, MECH 331, MECH 341, MECH 346 or instructor permission</td>
</tr>
<tr>
<td>MECH 573</td>
<td>Mechanics of Robotic Systems</td>
<td>3</td>
<td>P - MECH 309 or MATH 317, MECH 572</td>
</tr>
</tbody>
</table>

One course (3 credits) chosen from courses at the 300-level or higher (approved by the Department in the Student Handbook) in the Faculty of Engineering or in the Faculty of Science.

**Last update: Mar. 3, 2022**

For the official program listing, see the *Programs, Courses and University Regulations* publication (www.mcgill.ca/study).