BASIC IN MECHANICAL ENGINEERING

If it moves, a mechanical engineer designed it! Mechanical engineers are responsible for a wide range of mechanical, thermal and biomedical systems and devices, from computer parts to power plants, from manufacturing systems to spacecraft. This is a broad-based area of engineering, and graduates find work in almost every industrial sector, including high tech, aerospace, manufacturing, auto, energy, biomedical and consulting.

This program is offered in English and in French.

French courses are available in first year and almost all of second year. Most third and fourth year courses are offered in English only.

Program Requirements

Co-operative education is available with this program.

Requirements for this program have been modified. Please consult the 2018-2019 calendars (https://catalogue.uottawa.ca/en/archives) for the previous requirements.

Compulsory First-Year Courses:

- **CHM 1311** Principles of Chemistry 3 Units
- **ENG 1112** Technical Report Writing 3 Units
- **GNG 1103** Engineering Design 3 Units
- **GNG 1105** Engineering Mechanics 3 Units
- **GNG 1106** Fundamentals of Engineering Computation 3 Units
- **MCG 1320** Calculus I 3 Units
- **MCG 1322** Calculus II 3 Units
- **MAT 1341** Introduction to Linear Algebra 3 Units
- **MCG 1100** Introduction to Mechanical Engineering 3 Units
- **PHY 1122** Fundamentals of Physics II 3 Units

Compulsory Second-Year Courses:

- **CVG 2140** Mechanics of Materials I 3 Units
- **ELG 2336** Electric Circuits and Machines for Mechanical Engineering 3 Units
- **GNG 2101** Introduction to Product Development and Management for Engineers and Computer Scientists 3 Units
- **MAT 2322** Calculus III for Engineers 3 Units
- **MAT 2377** Probability and Statistics for Engineers 3 Units
- **MAT 2384** Ordinary Differential Equations and Numerical Methods 3 Units
- **MCG 2101** Introduction to Design 3 Units
- **MCG 2108** Mechanics II 3 Units
- **MCG 2130** Thermodynamics I 3 Units
- **MCG 2131** Thermodynamics II 3 Units
- **MCG 2360** Engineering Materials I 3 Units
- **MCG 2361** Engineering Materials II 3 Units

Compulsory Third-Year Courses:

- **ELG 3336** Electronics for Mechanical Engineers 3 Units
- **GNG 4170** Engineering Law 3 Units
- **MAT 3320** Mathematics for Engineers 3 Units

**Compulsory Fourth-Year Courses:**

3 course units from:

- **GNG 4120** Technology Entrepreneurship for Engineers and Computer Scientists 3 Units
- **HIS 2129** Technology, Society and Environment Since 1800 3 Units
- **PHI 2394** Scientific Thought and Social Values 3 Units

9 course units of technical electives from the list of optional courses 9 Units

3 complementary electives course units at the undergraduate level 3 Units

3 course units of science electives 3 Units

Total: 132 Units

1 Les cours au choix complémentaires de premier cycle incluent les cours de GNG 2501, GNG 4570 et GNG 4120 mais excluent tous les cours offerts par la Faculté des sciences et la Faculté de génie ainsi que tous les cours ayant un contenu en science, mathématiques ou génie.

Consultez la liste complète des cours au choix complémentaires (https://engineering.uottawa.ca/undergraduate-programs/courses/complementary-electives) sur le site web de la Faculté de génie

List of Optional Courses

**Stream A: Fluid Mechanics - Heat Transfer:**

- **MCG 4104** Building Energy Systems 3 Units
- **MCG 4110** Fluid Machinistry 3 Units
- **MCG 4111** Internal Combustion Engines 3 Units
- **MCG 4126** Energy Conversion 3 Units
- **MCG 4128** Basic Nuclear Engineering 3 Units
- **MCG 4139** Computational Methods in Fluid and Heat Transfer 3 Units
- **MCG 4325** Gas Dynamics 3 Units
- **MCG 4345** Aerodynamics 3 Units

**Stream B: Solid Mechanics - Design and Synthesis:**

- **MCG 4102** Finite Element Analysis 3 Units
- **MCG 4107** Dynamics II 3 Units
- **MCG 4127** Computational Methods in Mechanical Engineering 3 Units
- **MCG 4155** Advanced Engineering Materials 3 Units

This is a copy of the 2019-2020 catalog.

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<tr>
<td>MCG 4329</td>
<td>Reliability and Maintainability in Engineering Design</td>
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**Stream C: CAD/CAM - Industrial Engineering:**

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<td>MCG 4132</td>
<td>Robot Mechanics</td>
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</tr>
<tr>
<td>MCG 4133</td>
<td>Automation Design and Control</td>
<td>3</td>
</tr>
<tr>
<td>MCG 4134</td>
<td>Robot Design and Control</td>
<td>3</td>
</tr>
<tr>
<td>MCG 4136</td>
<td>Mechatronics</td>
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**Other Technical Electives:**

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<td>MCG 4100</td>
<td>Thesis</td>
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<td>MCG 4142</td>
<td>Corrosion: Principles, Prevention and Control</td>
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<td>MCG 4143</td>
<td>Product Design and Development</td>
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<td>Introduction to Composite Materials</td>
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<td>MCG 4191</td>
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