

# FOURTH YEAR MECHANICAL ENGINEERING

Fall Session - Year 4		Lect.	Lab.	Tut.	Wgt.
<b>Core Required Course:</b>					
<a href="#">MIE491Y1</a> : Capstone Design	Y	-	-	4	1.00
<b>Stream Courses (two of):</b>					
<b>Manufacturing</b>					
<a href="#">MIE422H1</a> : Automated Manufacturing	F	2	3	-	0.50
<b>Mechatronics</b>					
<a href="#">MIE404H1</a> : Control Systems I	F	3	3	2	0.50
<b>Solid Mechanics &amp; Design</b>					
<a href="#">MIE442H1</a> : Machine Design	F	3	1.50	1	0.50
<b>Energy &amp; Environment</b>					
<a href="#">MIE515H1</a> : Alternative Energy Systems	F	3	-	1	0.50
<b>Bioengineering</b>					
<a href="#">MIE520H1</a> : Biotransport Phenomena	F	3	-	1	0.50
<b>Technical Electives (one of):</b>					
<a href="#">AER307H1</a> : Aerodynamics	F	3	-	1	0.50

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<a href="#">AER525H1</a> : Robotics	F	3	1.50	1	0.50
<a href="#">ECE344H1</a> : Operating Systems	F	3	3	-	0.50
<a href="#">MIE343H1</a> : Industrial Ergonomics and the Workplace	F	3	3	-	0.50
<a href="#">MIE360H1</a> : Systems Modelling and Simulation	F	3	2	1	0.50
<a href="#">MIE407H1</a> : Nuclear Reactor Theory and Design	F	3	-	2	0.50
<a href="#">MIE414H1</a> : * Applied Fluid Mechanics	F	3	3	1	0.50
<a href="#">MIE440H1</a> : * Design of Innovative Products	F	2	2	1	0.50
<a href="#">MIE444H1</a> : * Mechatronics Principles	F	2	3	-	0.50
<a href="#">MIE498H1</a> : Research Thesis	F	-	-	4	0.50
<a href="#">MIE498Y1</a> : Research Thesis	Y	-	-	4	1.00
<a href="#">MIE508H1</a> : Fluids of Biological Systems	F	3	-	1	0.50
<a href="#">MIE516H1</a> : Combustion and Fuels	F	3	-	1	0.50
<a href="#">MIE523H1</a> : Engineering Psychology and Human Performance	F	3	3	-	0.50
<a href="#">MIE563H1</a> : Engineering Analysis II	F	3	-	2	0.50
<a href="#">MSE401H1</a> : Materials Selection in Design	F	2	2	1	0.50
<b>Complementary Studies Elective (one):</b>					
CS Elective	F				0.50

Winter Session - Year 4		Lect.	Lab.	Tut.	Wgt.
<b>Core Required Course:</b>					
<a href="#">MIE491Y1</a> : Capstone Design	Y	-	-	4	1.00
<b>Technical Electives (three of):</b>					
<a href="#">BME520H1</a> : Imaging Case Studies in Clinical Engineering	S	2	2	1	0.50
<a href="#">BME595H1</a> : Medical Imaging	S	2	3	1	0.50
<a href="#">CHE475H1</a> : Biocomposites: Mechanics and Bioinspiration	S	3	-	1	0.50
<a href="#">CIV440H1</a> : Environmental Impact and Risk Assessment	S	3	-	1	0.50
<a href="#">ECE344H1</a> : Operating Systems	S	3	3	-	0.50
<a href="#">FOR424H1</a> : Innovation and Manufacturing of Sustainable Materials	S	2	-	1	0.50
<a href="#">MIE402H1</a> : Vibrations	S	3	1	2	0.50
<a href="#">MIE408H1</a> : * Thermal and Machine Design of Nuclear Power Reactors	S	3	-	2	0.50
<a href="#">MIE533H1</a> : Waves and Their Applications in Non-Destructive Testing and Imaging	S	3	-	-	0.50
<a href="#">MIE438H1</a> : Microcontrollers and Embedded Microprocessors	S	2	3	-	0.50
<a href="#">MIE439H1</a> : Biomechanics I	S	3	2	-	0.50
<a href="#">MIE441H1</a> : * Design Optimization	S	3	2	-	0.50
<a href="#">MIE443H1</a> : * Mechatronics Systems: Design and Integration	S	2	5	-	0.50
<a href="#">MIE469H1</a> : Reliability and Maintainability Engineering	S	3	-	2	0.50
<a href="#">MIE498H1</a> : Research Thesis	S	-	-	4	0.50

Winter Session - Year 4		Lect.	Lab.	Tut.	Wgt.
<a href="#">MIE498Y1</a> : Research Thesis	Y	-	-	4	1.00
<a href="#">MIE504H1</a> : Applied Computational Fluid Dynamics	S	3	-	-	0.50
<a href="#">MIE505H1</a> : Micro/Nano Robotics	S	3	3	-	0.50
<a href="#">MIE506H1</a> : * MEMS Design and Microfabrication	S	3	1.50	1	0.50
<a href="#">MIE507H1</a> : Heating, Ventilating, and Air Conditioning (HVAC) Fundamentals	S	3	-	2	0.50
<a href="#">MIE517H1</a> : Fuel Cell Systems	S	3	-	1	0.50
<a href="#">MIE519H1</a> : * Advanced Manufacturing Technologies	S	3	-	-	0.50
<a href="#">MIE540H1</a> : * Product Design	S	3	-	1	0.50
<a href="#">MIE550H1</a> : Advanced Momentum, Heat and Mass Transfer	S	3	-	-	0.50
<a href="#">MSE443H1</a> : Composite Materials Engineering	S	3	-	-	0.50
<b>Complementary Studies Elective (one):</b>					
CS Elective	S				0.50

1. In 4F, students must take one required course (indicated above) from each of the same two streams followed in 3W.
2. Students are required to include at least one of the engineering design courses marked with an asterisk (\*) during fourth year. It may be taken in either 4F or 4W.
3. In 4F, students may select an additional course from the Stream Courses list (above) to substitute for the technical elective.
4. Students may take only one of [MIE422H1](#) (Automated Manufacturing) or [AER525H1](#) (Robotics). [AER525H1](#) (Robotics) has limited enrolment.
5. The Department is not able to schedule all fourth year courses without conflict. However, students are required to select courses that allow for a conflict-free timetable.
6. Students are permitted to take at most two technical elective substitutes in their fourth year, but are required to obtain formal Departmental approval from the Undergraduate Office.
7. At least two of the four half credit Complementary Studies Electives to be taken between second and fourth year must be Humanities/Social Sciences courses (see the Complementary Studies section at the beginning of this chapter). An equivalent full credit course is also acceptable. Students are responsible for

ensuring that each elective taken is approved. Please consult the electives list available on the Faculty of Engineering's Registrar's Office website.

8. Approval to register for the fourth-year thesis course ( [MIE498H1](#) or [MIE498Y1](#)) must be obtained from the Associate Chair - Undergraduate, and is normally restricted to students with an overall average of at least B in their second and third years.