

TO: All MEng Students

DATE: 28 July 2021

SUBJECT: MEng Student Course Selection

Please follow these instructions while selecting courses:

1. Consult the [list of graduate courses posted on the UTIAS website](#) to select courses for your entire MEng program, breaking down course selection by term.
2. Complete [the fillable form](#) with your course selections and email the form to the [UTIAS MEng Office](#)
3. You may enrol using ACORN as soon as you have selected your courses; you need not wait for approval from the UTIAS MEng Office. Changes to course selection can be made up to the add / drop dates for the relevant term.

Selecting MEng Courses

Course requirements

All MEng students are required to take five Full-Course Equivalents (FCEs). As most graduate courses are considered to be half-courses (0.5 FCEs), this means ten courses. Students may take courses from UTIAS (AER and ROB courses), other UofT engineering departments (MIE, CIV, CSC, etc), or from the Faculty of Applied Science and Engineering (APS). There are restrictions on which courses may be taken:

1. At least half of the courses must be AER or ROB.
2. At least seven courses must be technical. Note that AER 1601H is the only non-technical AER course. Most courses offered by other engineering departments are technical; most APS courses are non-technical. If you are unsure whether a course is technical or non-technical, **contact the UTIAS MEng Office for advice before the course starts.**
3. At most three courses may be 500-level.
4. All MEng students may take a maximum of 10 (ten) half courses (5.0 FCEs). The only exception is for MEng students wishing to qualify for the [ELITE certificate](#), who may take seven technical courses and four non-technical courses, or 5.5 FCEs. AER 1601 is considered a non-technical course.
5. Students wishing to take the ELITE certificate, and hence take eleven courses, must take at least six AER/ROB courses to satisfy the requirement that at least half of their courses are AER/ROB.
6. Students will be recommended for graduation at the conclusion of the term in which they complete their tenth course (eleventh course if pursuing the ELITE certificate).

Course load limitations by program

MEng students are registered in one of three options: full-time, extended full-time or part-time. The maximum course load per term or academic year are determined by the MEng option. Course load limitations for each status are as follows:

1. Full-time: Full-time MEng students are not restricted in the number of courses they may take per academic term or per academic year.
2. Extended full-time: Extended full-time MEng students may take a maximum of 3 (three) courses per term, and a maximum of 6 (six) courses per academic year. This means that it will take at least five terms from the start of the program to complete the course requirements.
3. Part-time: Part-time MEng students may take a maximum of 2 (two) courses per term and 4 (four) courses per academic year.

Course Timing

All AER and ROB courses except AER 1810 MEng Project and AER 1820 Directed Reading are taught in either the Fall term or the Winter term. When selecting courses please consult the [timetable](#) to ensure that you are spreading your courses through appropriate terms. During the Summer term there are very few technical courses available. Some MEng students elect to take AER 1810 during the Summer term. There are, however, [non-technical APS courses related to the ELITE program](#), which many students elect to take.

Post-graduation work authorization

Many international students wish to apply for a Canadian work visa following graduation. To apply prior to convocation requires a Confirmation of Degree Requirements from the School of Graduate Studies stating that all the degree requirements are complete. Before issuing this letter, UTIAS must send a Master's Degree Recommendation to the School of Graduate Studies. **UTIAS cannot under any circumstances send this recommendation before ALL course grades are posted on ROSI.** This applies even if a missing grade is for a course that is surplus to the degree requirements. As a consequence, if you wish to apply for a work authorization as early as possible, it is advisable to avoid selecting courses in the second half of the summer term to ensure that all grades are available as early as possible.

Thematic course selections

Many students want to take a selection of courses that follow a particular theme. The following groups of courses are related to the various research themes pursued at UTIAS. They will form only part of the required total of ten courses. It is not necessary to select courses from one of these themes. Students may select any courses from the UofT calendar that satisfy the MEng requirements, but some students find these lists helpful. It is also possible to qualify for an Emphasis, which is recorded on the transcript. The Emphases available to UTIAS students are listed in the [School of Graduate Studies calendar](#). Note that the themes listed below are **NOT** Emphases.

Theme: Fluid Mechanics and Aerodynamics

AER 1303	Advanced Fluid Mechanics	
AER 1308	Introduction to Modern Flow Control	not offered 2021/22
AER 1310	Turbulence Modelling	
AER 1311	Unsteady Gasdynamics	
AER1324	Introduction to Turbulence	
MIE 1201	Advanced Fluid Mechanics	

Theme: Propulsion and Combustion

AER 510	Aerospace Propulsion	
AER 1301	Kinetic Theory of Gases	
AER 1304	Fundamentals of Combustion	
AER 1311	Unsteady Gasdynamics	
AER1324	Introduction to Turbulence	
MIE 1222	Multiphase Flows	

Theme: Robotics

ROB 501	Computer Vision for Robotics	
AER 1217	Development of Autonomous UAS	

AER 1513	State Estimation for Aerospace Vehicles	
AER 1515	Perception for Robotics	not offered 2021/22
AER 1516	Robotic Motion Planning	
AER 1517	Control for Robotics	
CSC 2503	Foundations of Computer Vision	
CSC 2515	Introduction to Machine Learning	
CSC 2516	Neural Networks and Deep Learning	

Theme: Computational Engineering

AER 1316	Fundamentals of Computational Fluid Mechanics	
AER 1319	Finite Volume Methods for CFD	
AER 1410	Topology Optimization	
AER 1415	Computational Optimization	not offered 2021/22
AER 1416	Numerical Methods for Uncertainty Quantification	not offered 2021/22
AER 1418	Variational Methods for Partial Differential Equations	
MIE 1621	Nonlinear Optimization	

Theme: Structures and Materials

AER 501	Computational Structural Mechanics and Design Optimization	
AER 503	Aeroelasticity	
AER 1403	Advanced Aerospace Structures	
AER 1410	Topology Optimization	
AER 1415	Computational Optimization	not offered 2021/22

**MEng Courses 2021-2022
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MIE 1804 Finite Element Method in Mechanical Engineering

MIE 1621 Nonlinear Optimization

Theme: UAVs and Drones

ROB 501 Computer Vision for Robotics

AER 1202 Advanced Flight Dynamics

AER 1216 Fundamentals of UAVs

AER 1217 Development of Autonomous UAS

AER 1513 State Estimation for Aerospace Vehicles

CSC 2503 Foundations of Computer Vision

Theme: Propulsion and Combustion

AER 510 Aerospace Propulsion

AER 1301 Kinetic Theory of Gases

AER 1304 Fundamentals of Combustion

AER 1311 Unsteady Gasdynamics

AER1324 Introduction to Turbulence

MIE 1222 Multiphase Flows

Theme: Space Systems

AER 506 Spacecraft Dynamics and Control I

AER 510 Aerospace Propulsion

AER 1503 Spacecraft Dynamics and Control II

AER 1512 Multibody Dynamics not offered 2021/22

AER 1513 State Estimation for Aerospace Vehicles