

(For students admitted in 2018-19 under the 4-year degree)

## BEng in Mechanical Engineering

In addition to the requirements of their major programs, students are required to complete the University requirements for graduation. For details please refer to the respective section on this website.

Some courses can be used to fulfill both Major and University Common Core Requirements. Students may reuse a maximum of 6 credits of these courses to count towards both Requirements.

Students may use no more than 6 credits earned from courses offered in pure online delivery mode to satisfy the graduation requirements of a degree program. This 6-credit limit does not apply to credits obtained through the credit transfer procedures of the University.

For students graduating with an additional major, they must take all the requirements specified for that major, within which they must complete at least 20 single-counted credits. These 20 credits cannot be used to fulfill any other requirements for graduation except for the 120-credit degree requirement.

### Major Requirements

#### Engineering Fundamental Course(s)

			Credit(s) attained
COMP		Note: COMP 1021 <u>OR</u> COMP 1022P <u>OR</u> COMP 1022Q <u>OR</u> COMP 2011	3-4
	COMP 1021	Introduction to Computer Science	3
	COMP 1022P	Introduction to Computing with Java	3
	COMP 1022Q	Introduction to Computing with Excel VBA	3
	COMP 2011	Introduction to Object-oriented Programming	4
ENGG	1010	Academic Orientation	0
LANG	2030	Technical Communication I	3
MATH		Note: [(MATH 1012 <u>OR</u> MATH 1013 <u>OR</u> MATH 1023) <u>AND</u> (MATH 1014 <u>OR</u> MATH 1024)] <u>OR</u> [MATH 1020]	4-7
	MATH 1012	Calculus IA	4
	MATH 1013	Calculus IB	3
	MATH 1014	Calculus II	3
	MATH 1020	Accelerated Calculus	4
	MATH 1023	Honors Calculus I	3
	MATH 1024	Honors Calculus II	3
MATH	2011	Introduction to Multivariable Calculus	3
MATH		Note: MATH 2111 <u>OR</u> MATH 2350 <u>OR</u> MATH 2351	3
	MATH 2111	Matrix Algebra and Applications	3
	MATH 2350	Applied Linear Algebra and Differential Equations	3
	MATH 2351	Introduction to Differential Equations	3

PHYS		Note: PHYS 1112 <u>OR</u> PHYS 1312	3
PHYS	1112	General Physics I with Calculus	3
PHYS	1312	Honors General Physics I	3
CHEM/LIFS/ PHYS		Science 1000-level course (Any 1 course of the subject and level as specified)	3

### Required Course(s)

			<b>Credit(s) attained</b>
MECH	1990	Industrial Training	0
MECH	2020	Statics and Dynamics	3
MECH	2040	Solid Mechanics I	3
MECH	2210	Fluid Mechanics	3
MECH	2310	Thermodynamics	3
MECH	2410	Engineering Materials I	3
MECH	2520	Design and Manufacturing I	3
MECH	2907	Mechatronic Design and Prototyping	3
MECH	3030	Mechanisms of Machinery	3
MECH		Note: MECH 3300 <u>OR</u> MECH 3420 <u>OR</u> MECH 3520	3
MECH	3300	Energy Conversion	3
MECH	3420	Engineering Materials II	3
MECH	3520	Design and Manufacturing II	3
MECH	3310	Heat Transfer	3
MECH	3610	Control Principles	3
MECH	3630	Electrical Technology	3
MECH	3830	Laboratory	3
MECH	4900	Final Year Design Project	6
ELEC	2420	Basic Electronics	3
ENGG	2010	Engineering Seminar Series	0
LANG	4034	Technical Communication II for Mechanical and Aerospace Engineering	3

Student may opt to graduate with or without an option. Students who take an option **MUST** complete all requirements specified in addition to the major requirements.

## Option(s)

### Energy Option

<i>Elective Course(s)</i>		<b>Minimum credit(s) required</b>
MECH	MECH Electives in Energy (3 courses from the specified elective list. Courses taken as Major Required Courses or Elective Courses of other MECH Options may not be counted towards this elective requirement.)	9
MECH	1902 Energy Systems in a Sustainable World	3
MECH	3110 Materials for Energy Technologies	3
MECH	3300 Energy Conversion	3
MECH	3420 Engineering Materials II	3
MECH	4010 Materials Failure in Mechanical Applications	3
MECH	4340 Air Conditioning Systems	3
MECH	4350 Indoor Air Quality in Buildings	3
MECH	4360 Introduction to Intelligent Building Systems	3
MECH	4430 Materials Characterization	3

### Engineering Design Option

<i>Elective Course(s)</i>		<b>Minimum credit(s) required</b>
MECH	MECH Electives in Engineering Design (3 courses from the specified elective list. Courses taken as Major Required Courses or Elective Courses of other MECH Options may not be counted towards this elective requirement.)	9
MECH	1901 Automotive Engineering	3
MECH	3510 CAD/CAM	3
MECH	3520 Design and Manufacturing II	3
MECH	3710 Manufacturing Processes and Systems	3
MECH	4710 Introduction to Robotics	3
MECH	4720 Introduction to Precision Engineering	3
MECH	4740 Numerical Methods in Engineering	3

### Materials Option

<i>Elective Course(s)</i>		<b>Minimum credit(s) required</b>
MECH	MECH Electives in Materials (3 courses from the specified elective list. Courses taken as Major Required Courses or Elective Courses of other MECH Options may not be counted towards this elective requirement.)	9
MECH	3020 Solid Mechanics II	3

MECH	3110	Materials for Energy Technologies	3
MECH	3400	Introduction to Composite Materials	3
MECH	3420	Engineering Materials II	3
MECH	4010	Materials Failure in Mechanical Applications	3
MECH	4430	Materials Characterization	3
MECH	4450	Introduction to Finite Element Analysis	3
MECH	4750	Mechanical Vibration	3

**Research Option**

*Required Course(s)*

**Credit(s)  
attained**

MECH	4995	Research Project	6
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