(For students admitted in 2022-23 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.

Students may use no more than 6 credits earned from courses offered in self-paced 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.

Under the new 30-credit Common Core Program which is applicable to students admitted to the University in 2022-23 and thereafter, courses that have been counted towards Major Requirements are not allowed to be reused for fulfilment of the University Common Core Requirements. Students should look up the details of the Common Core Program including the general and School-/program-specific distributional requirements posted on the Common Core website where the link to it is available on this website.

## Major Requirements

## Engineering Fundamental Course(s)

|  |  |  | Credit(s) attained |
| :---: | :---: | :---: | :---: |
| COMP |  | Note: COMP 1021 OR COMP 1022P OR COMP 2011 OR COMP 2012H | 3-5 |
| COMP | 1021 | Introduction to Computer Science | 3 |
| COMP | 1022P | Introduction to Computing with Java | 3 |
| COMP | 2011 | Programming with $\mathrm{C}_{++}$ | 4 |
| COMP | 2012H | Honors Object-Oriented Programming and Data Structures | 5 |
| LANG | 2030 | Technical Communication I | 3 |
| MATH |  | Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [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 OR MATH 2350 OR 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 OR PHYS 1312 | 3 |
| PHYS | 1112 | General Physics I with Calculus | 3 |
| PHYS | 1312 | Honors General Physics I | 3 |

$\left.\begin{array}{lll}\text { CHEM/LIFS/ } & & \text { Science 1000-level course (1 course from the specified course } \\ \text { PHYS } & & \text { list) }\end{array}\right]-4$

## Required Course(s)

|  |  |  | Credit(s) attained |
| :---: | :---: | :---: | :---: |
| MECH | 1906 | Mechanical Engineering for Modern Life | 3 |
| 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 | 3030 | Mechanisms of Machinery | 3 |
| MECH |  | Note: MECH 3300 OR MECH 3420 OR MECH 3520 OR MECH 3710 | 3 |
| MECH | 3300 | Energy Conversion | 3 |
| MECH | 3420 | Engineering Materials II | 3 |
| MECH | 3520 | Design and Manufacturing II | 3 |
| MECH | 3710 | Manufacturing Processes and Systems | 3 |
| MECH | 3310 | Heat Transfer | 3 |
| MECH | 3610 | Control Principles | 3 |
| MECH | 3630 | Electrical Technology | 3 |
| MECH | 3830 | Laboratory | 3 |
| MECH | 3907 | Mechatronic Design and Prototyping | 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 |

Students 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) <br> Energy Option

\(\left.$$
\begin{array}{lll}\text { Elective Course(s) } & \begin{array}{c}\text { Minimum } \\
\text { credit(s) } \\
\text { required }\end{array} \\
\text { MECH } & & \begin{array}{l}\text { MECH Electives in Energy (3 courses from the specified elective } \\
\text { list. Courses taken as Major Required Courses or Elective } \\
\text { Courses of other MECH Options may not be counted towards } \\
\text { this elective requirement.) }\end{array}
$$ <br>

\hline \& \& Energy Systems in a Sustainable World\end{array}\right]\)| 9 |
| :--- |
| MECH |

## Engineering Design Option

\(\left.$$
\begin{array}{lll}\text { Elective Course(s) } & \begin{array}{c}\text { Minimum } \\
\text { credit(s) } \\
\text { required }\end{array} \\
\text { MECH } & & \begin{array}{l}\text { MECH Electives in Engineering Design (3 courses from the } \\
\text { specified elective list. Courses taken as Major Required } \\
\text { Courses or Elective Courses of other MECH Options may not be } \\
\text { counted towards this elective requirement.) }\end{array}
$$ <br>

MECH \& 3510 \& CAD/CAM\end{array}\right]\)| 9 |
| :---: |
| MECH |

## Materials Option

| Elective Course(s) |  |  | Minimum credit(s) required |
| :---: | :---: | :---: | :---: |
| 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 | Vibration, Control and Programming | 3 |
| Research Option |  | Credit(s) <br> attained |  |
| Required Course(s) |  | 6 |  |

**Remarks on course(s):

- MECH 3020: The course was last offered in 2018-19 and was deleted subsequently.

