

Summary of Technical Electives for Mechanical Engineering students that will be in 4th / 5th year in 2023/24

Required Courses in final year:

- ENGINEER 4A03: Eng & Social Responsibility, 1st or 2nd term
- ME 4M06 or MECHBME 5P06: Capstone Design Project, both terms
- ME 4P03: Composite Lab II, both terms
- ME 4V03: Thermo-fluids system design and analysis, 1st term
- Complementary studies elective (6 units) from the approved Faculty List
- Technical electives required from the approved list (below – check unit requirement for your program).

General Stream (5 tech electives in total):

- General stream students take any 5 courses from the full list of approved technical electives (see next page)

Mechanics and Design Stream (5 tech electives in total):

Choose 3 courses from this list (plus two courses from full list of approved technical electives):

- CHEM ENG 4T03: Applications of Chemical Engineering in Medicine, 2nd term
- ENGINEER 4EX3: Experiential Engineering Design, both terms
- MATLS 4MS4: Materials Selection in Design and Manufacturing, 1st term
- MATLS 4T03: Properties and Processing of Composites, 2nd term
- ME 4B03: Product Development, 1st term (Dr. Hassan)
- ME 4BB3: Biomechanics, 1st term (Dr. Wohl)
- ME 4BF3: Biofluid Mechanics Systems, 2nd term (Dr. Motamed)
- ME 4CC3: Experimental and Computational Biomechanics, 2nd term (Dr. Quenneville)
- ME 4H03: Mechatronics, 2nd term (Dr. Bone)
- ME 4I03: Noise Analysis and Control, 1st term (TBD)
- ME 4K03: Robotics, 1st term (Dr. Yan)
- ME 4N03: NanoBio Engineering, 1st term (Dr. Didar) (n/a in 2023-24)
- ME 4T03: Finite Element Applications, 1st term (Dr. Wu)
- ME 4Y03: Internal Combustion Engines, 1st term (Dr. Yan)
- ME 4Z03: Computer Aided Design, 2nd term (TBD)
- ME 4X04: Independent Project, both terms

Manufacturing Stream (5 tech electives in total):

Choose 3 courses from this list (plus two courses from full list of approved technical electives):

- MATLS 3MF3: Materials Fabrication, 2nd term
- MATLS 4MS4: Materials Selection in Design and Manufacturing, 1st term
- CHEM ENG 4X03: Polymer Processing, 1st term
- MATLS 4T03: Properties and Processing of Composites, 2nd term
- ME 4B03: Product Development, 1st term (Dr. Hassan)
- ME 4D03: Manufacturing Processes (Metal Removal), 2nd term (Dr. Koshy)
- ME 4DD3: Introduction to Surface Engineering in Manufacturing, 1st term (Dr. Aramesh) (n/a in 2023-24)
- ME 4H03: Mechatronics, 2nd term (Dr. Bone)
- ME 4K03: Robotics, 1st term (Dr. Yan)
- ME 4N03: NanoBio Engineering, 1st term (Dr. Didar) (n/a in 2023-24)
- ME 4T03: Finite Element Applications, 1st term (Dr. Wu)
- ME 4Z03: Computer Aided Design, 2nd term (TBD)
- ME 4X04: Independent Project, both terms

Thermofluids and Energy Systems (5 tech electives in total)

Required course:

- ME 4S03: Incompressible flow, 1st term (Dr. Salaudeen)

Plus choose 2 courses from this list (plus two courses from full list of approved technical electives):

- CHEM ENG 4X03: Polymer Processing, 1st term
- ENG PHYS electives (see next page for full list)
- ME 4AA3: Aerodynamics, 2nd term (Dr. Tullis)
- ME 4BF3: Biofluid Mechanics Systems, 2nd term (Dr. Motamed)
- ME 4ES3: Energy Storage, 2nd term (Dr. Trowell)
- ME 4FM3: Advanced Instrumentation and Sensing for Fluid Mechanics, 2nd term (Dr. Morton)
- ME 4I03: Noise Analysis and Control, 1st term (TBD)
- ME 4J03: Introduction to Computational Fluid Dynamics and Heat Transfer, 2nd term (Dr. Hamed)
- ME 4O04: Sustainable Energy Systems, 2nd term (Dr. Cotton)
- ME 4T03: Finite Element Applications, 1st term (Dr. Wu)
- ME 4U03: Compressible Flow and Turbomachinery, 1st term (Dr. Tullis)
- ME 4W03: Air Conditioning and Refrigeration Systems, 1st term (Dr. Shankar)
- ME 4Y03: Internal Combustion Engines, 1st term (Dr. Yan)

- ME 4X04: Independent Project, both terms

Smart Systems (5 tech electives in total)

Choose 3 courses from this list (plus two courses from full list of approved technical electives):

- ME 4FM3: Advanced Instrumentation and Sensing for Fluid Mechanics, 2nd term (Dr. Morton)
- ME 4H03: Mechatronics, 2nd term (Dr. Bone)
- ME 4I03: Noise Analysis and Control, 1st term (TBD)
- ME 4K03: Robotics, 1st term (Dr. Yan)
- ME 4SS3: Smart Systems, 1st term (Dr. Gadsden)
- ME 4X04: Independent Research Project (instructor – mutual consent with student, full year)
- SMRTTECH 4ID3: IoT Devices and Networks, 2nd term
- SMRTTECH 4AI3: Artificial Intelligence and Machine Learning, 1st term
- PROCTECH 4MH3: Machine Health and Remote Monitoring, 1st term
- SFWRTECH 4DA3: Data analytics and Big Data, virtual
- SFWRTECH 4ES3: Real-Time Systems, virtual

FULL LIST OF APPROVED TECHNICAL ELECTIVES:

- CHEM ENG 4T03 Applications of Chemical Engineering in Medicine, 2nd term
- CHEM ENG 4X03: Polymer Processing, 1st term
- CIV ENG 3K03: Introduction to Transportation Engineering, 1st term
- COMMERCE 4QA3: Operations Modelling and Analysis, 1st or 2nd term
- ELECENG 3N03: Electronics and Instrumentation, 2nd term
- ENGINEER 4EX3: Experiential Engineering Design, both terms
- MATLS 3MF3: Materials Fabrication, 2nd term
- MATLS 4MS4: Materials Selection in Design and Manufacturing, 1st term
- MATLS 4T03: Properties and Processing of Composites, 2nd term
- ENG PHYS 3D03: Principles of Nuclear Engineering, 2nd term
- ENG PHYS 4D03: Nuclear Reactor Analysis, 1st term (Note: pre-req. is ENG PHYS 3D03)
- ENG PHYS 4NE3: Advanced Nuclear Engineering, 2nd term (Note: pre-req. is ENG PHYS 3D03)
- ENG PHYS 4P03: Nuclear Power Plant Systems & Operations, 2nd term
- SMRTTECH 4ID3: IoT Devices and Networks, 2nd term
- SMRTTECH 4AI3: Artificial Intelligence and Machine Learning, 1st term
- PROCTECH 4MH3: Machine Health and Remote Monitoring, 1st term
- SFWRTECH 4DA3: Data analytics and Big Data, virtual
- SFWRTECH 4ES3: Real-Time Systems, virtual
- ME 4AA3: Aerodynamics, 2nd term (Dr. Tullis)
- ME 4B03: Topics in Product Development, 1st term (Dr. Hassan)
- ME 4BB3: Biomechanics, 1st term (Dr. Wohl)
- ME 4BF3: Biofluid Mechanics Systems, 2nd term (Dr. Motamed)
- ME 4CC3: Experimental and Computational Biomechanics, 2nd term (Dr. Quenneville)
- ME 4D03: Manufacturing Processes (Metal Removal), 2nd term (Dr. Koshy)
- ME 4DD3: Introduction to Surface Engineering in Manufacturing, 1st term (Dr. Aramesh) (n/a in 2023-24)
- ME 4ES3: Energy Storage, 2nd term (Dr. Trowell)
- ME 4FM3: Advanced Instrumentation and Sensing for Fluid Mechanics, 2nd term (Dr. Morton)
- ME 4H03: Mechatronics, 2nd term (Dr. Bone)
- ME 4I03: Noise Analysis and Control, 1st term (TBD)
- ME 4J03: Introduction to Computational Fluid Dynamics and Heat Transfer, 2nd term (Dr. Hamed)
- ME 4K03: Robotics, 1st term (Dr. Yan)
- ME 4N03: NanoBio Engineering, 1st term (Dr. Didar) (n/a in 2023-24)
- ME 4O04: Sustainable Energy Systems, 2nd term (Dr. Cotton)
- ME 4SS3: Smart Systems, 1st term (Dr. Gadsden)
- ME 4S03: Incompressible flow, 1st term (Dr. Saladeen)
- ME 4T03: Finite Element Applications, 2nd term (Dr. Wu)
- ME 4U03: Compressible Flow and Turbomachinery, 1st term (Dr. Tullis)
- ME 4W03: Air Conditioning and Refrigeration Systems, 1st term (Dr. Shankar)
- ME 4X04: Independent Research Project (instructor – mutual consent with student, full year)
- ME 4Y03: Internal Combustion Engines, 1st term (Dr. Yan)
- ME 4Z03: Computer Aided Design, 2nd term (TBD)