Summary of Technical Electives for Mechanical Engineering students that will be in 4th / 5th year in 2024/25

Required Courses in final year:

- ENGINEER 4A03: Eng & Social Responsibility, Term 1 or Term 2
- 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, Term 1
- Complementary studies elective (6 units) from the approved Faculty List
- Technical electives required from the approved list below (make note of your unit requirements)

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, Term 2
- ENGINEER 4EX3: Experiential Engineering Design, both terms
- MATLS 4MS4: Materials Selection in Design and Manufacturing, Term 1
- MATLS 4T03: Properties and Processing of Composites, Term 2
- ME 4B03: Product Development, Term 1 (Dr. Hassan)
- ME 4BB3: Biomechanics, Term 1 (Dr. Wohl)
- ME 4BF3: Biofluid Mechanics Systems, Term 2 (Dr. Motamed) *not offered in 2024/2025*
- ME 4CC3: Experimental and Computational Biomechanics, Term 2 (TBD)
- ME 4H03: Mechatronics, Term 2 (Dr. Bone)
- ME 4I03: Noise Analysis and Control, Term 1 (Prof. Edwards)
- ME 4K03: Robotics, Term 1 (Dr. Yan)
- ME 4N03: NanoBio Engineering, Term 1 (Dr. Didar) *not offered in 2024/2025*
- ME 4T03: Finite Element Applications, Term 1 or Term 2 (Dr. Wu)
- ME 4Y03: Internal Combustion Engines, Term 1 (Dr. Yan)
- ME 4Z03: Computer Aided Design, Term 2 (TBD)
- ME 4X04: Independent Project (instructor by mutual consent with student, full year)

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, Term 2
- MATLS 4MS4: Materials Selection in Design and Manufacturing, Term 1
- CHEM ENG 4X03: Polymer Processing, Term 1
- MATLS 4T03: Properties and Processing of Composites, Term 2
- ME 4B03: Product Development, Term 1 (Dr. Hassan)
- ME 4D03: Manufacturing Processes (Metal Removal), Term 2 (Dr. Koshy)
- ME 4DD3: Introduction to Surface Engineering in Manufacturing, Term 1 (Dr. Aramesh) *not offered in 2024/2025*
- ME 4H03: Mechatronics, Term 2 (Dr. Bone)
- ME 4K03: Robotics, Term 1 (Dr. Yan)
- ME 4N03: NanoBio Engineering, Term 1 (Dr. Didar) *not offered in 2024/2025*
- ME 4T03: Finite Element Applications, Term 1 or Term 2 (Dr. Wu)
- ME 4Z03: Computer Aided Design, Term 2 (TBD)
- ME 4X04: Independent Project (instructor by mutual consent with student, full year)

Thermofluids and Energy Systems (5 tech electives in total)

Required course:

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

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

- CHEM ENG 4X03: Polymer Processing, Term 1
- ENG PHYS electives (see next page for full list)
- ME 4AA3: Aerodynamics, Term 2 (Dr. Tullis)
- ME 4BF3: Biofluid Mechanics Systems, Term 2 (Dr. Motamed) *not offered in 2024/2025*
- ME 4ES3: Energy Storage, Term 2 (Dr. Trowell)
- ME 4FM3: Advanced Instrumentation and Sensing for Fluid Mechanics, Term 2 (Dr. Morton)
- ME 4I03: Noise Analysis and Control, Term 1 (Prof. Edwards)
- ME 4J03: Introduction to Computational Fluid Dynamics and Heat Transfer, Term 2 (Dr. Hamed) *not offered in 2024/2025*
- ME 4O04: Sustainable Energy Systems, Term 2 (Dr. Cotton) *not offered in 2024/2025*
- ME 4T03: Finite Element Applications, Term 1 or Term 2 (Dr. Wu)
- ME 4U03: Compressible Flow and Turbomachinery, Term 1 (Dr. Tullis)
- ME 4W03: Air Conditioning and Refrigeration Systems, Term 1 (Dr. Shankar)
- ME 4Y03: Internal Combustion Engines, Term 1 (Dr. Yan)

• ME 4X04: Independent Project (instructor by mutual consent with student, full year)

Smart Systems (5 tech electives in total)
Choose 3 courses from this list (plus two courses from full list of approved technical electives):
• ME 4AI3: Applied Artificial Intelligence, Term 1 (Dr. Ahmed)
• ME 4FM3: Advanced Instrumentation and Sensing for Fluid Mechanics, Term 2 (Dr. Morton)
• ME 4H03: Mechatronics, Term 2 (Dr. Bone)
• ME 4I03: Noise Analysis and Control, Term 2 (Prof. Edwards)
• ME 4K03: Robotics, Term 1 (Dr. Yan)
• ME 4SS3: Smart Systems, Term 1 (Dr. Gadsden)
• ME 4X04: Independent Research Project (instructor by mutual consent with student, full year)
• SMRTTECH 4ID3: IoT Devices and Networks, Term 1
• SMRTTECH 4AI3: Artificial Intelligence and Machine Learning, Term 1
• PROCTECH 4MH3: Machine Health and Remote Monitoring, Term 1
• 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, Term 2
• CHEM ENG 4X03: Polymer Processing, Term 1
• CIV ENG 3K03: Introduction to Transportation Engineering, Term 1
• COMMERCE 4QA3: Operations Modelling and Analysis, Term 1 or Term 2
• ELECENG 3N03: Electronics and Instrumentation, Term 2
• ENGINEER 4EX3: Experiential Engineering Design, both terms
• MATLS 3MF3: Materials Fabrication, Term 2
• MATLS 4MS4: Materials Selection in Design and Manufacturing Term 1
• MATLS 4T03: Properties and Processing of Composites, Term 2
• ENG PHYS 3D03: Principles of Nuclear Engineering, Term 2
• ENG PHYS 4D03: Nuclear Reactor Analysis,Term 1 (Note: pre-req. is ENG PHYS 3D03)
• ENG PHYS 4NE3: Advanced Nuclear Engineering, Term 2 (Note: pre-req. is ENG PHYS 3D03)
• ENG PHYS 4P03: Nuclear Power Plant Systems & Operations, Term 2
• SMRTTECH 4ID3: IoT Devices and Networks, Term 2
• SMRTTECH 4AI3: Artificial Intelligence and Machine Learning, Term 1
• PROCTECH 4MH3: Machine Health and Remote Monitoring, Term 1
• SFWRTECH 4DA3: Data analytics and Big Data, virtual
• SFWRTECH 4ES3: Real-Time Systems, virtual
• ME 4AA3: Aerodynamics, Term 2 (Dr. Tullis)
• ME 4AI3: Applied Artificial Intelligence, Term 1 (Dr. Ahmed)
• ME 4B03: Topics in Product Development, Term 1 (Dr. Hassan)
• ME 4BB3: Biomechanics, Term 1 (Dr. Wohl)
• ME 4BF3: Biofluid Mechanics Systems, Term 2 (Dr. Motamed) *not offered in 2024/2025*
• ME 4CC3: Experimental and Computational Biomechanics, Term 2 (TBD)
• ME 4D03: Manufacturing Processes (Metal Removal), Term 2 (Dr. Koshy)
• ME 4DD3: Introduction to Surface Engineering in Manufacturing, Term 1 (Dr. Aramesh) *not offered in 2024/2025*
• ME 4ES3: Energy Storage, Term 2 (Dr. Trowell)
• ME 4FM3: Advanced Instrumentation and Sensing for Fluid Mechanics, Term 2 (Dr. Morton)
• ME 4H03: Mechatronics, Term 2 (Dr. Bone)
• ME 4I03: Noise Analysis and Control, Term 1 (Prof. Edwards)
• ME 4J03: Introduction to Computational Fluid Dynamics and Heat Transfer, Term 2 (Dr. Hamed) *not offered in 2024/2025*
• ME 4K03: Robotics, Term 1 (Dr. Yan)
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• ME 4O04: Sustainable Energy Systems, Term 2 (Dr. Cotton) *not offered in 2024/2025*
• ME 4SS3: Smart Systems, Term 1 (Dr. Gadsden)
• ME 4S03: Incompressible flow, Term 1 (Dr. Salaudeen)
• ME 4T03: Finite Element Applications, Term 1 or Term 2 (Dr. Wu)
• ME 4U03: Compressible Flow and Turbomachinery, Term 1 (Dr. Tullis)
• ME 4W03: Air Conditioning and Refrigeration Systems, Term 1 (Dr. Shankar)
• ME 4X04: Independent Research Project (instructor – mutual consent with student, full year)
• ME 4Y03: Internal Combustion Engines, Term 1 (Dr. Yan)
• ME 4Z03: Computer Aided Design, Term 2 (TBD)