**Commencing Semester 2, 2021**

\*\* Offered in Both Semesters

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| *Semester 2, 2021* | **MATH1011**\*\*  Multivariable Calculus  ***Prereq: Math Specialist ATAR or MATH1722*** | **CHEM1003\*\*** Intro Chemistry  **Or**  **PHYS1030\*\*** Physics Bridging | **CITS1001\*\***  Software Engineering with Java | **ENSC1003**\*\*  Intro to Professional Engineering |
| *Semester 1, 2022* | **MATH1012**\*\*  Mathematical Theory & Methods  ***Prereq: Math Specialist ATAR or MATH1722*** | **ENSC1004**\*\*  Engineering Materials  ***Prereq: (Chem ATAR or CHEM1003) & (Phys ATAR or PHYS1030)*** | **ENSC2004\*\***  Engineering Mechanics  ***Prereq: (Physics ATAR or PHYS1030) & MATH1011***  ***APS: PHYS1001*** | **ENSC2003\*\***  Eng. Electrical Fundamentals  ***Prereq: (Phys ATAR or PHYS1030) & MATH1011***  ***Co-req: MATH1012***  ***APS: PHYS1001*** |
| *Semester 2, 2022* | **CITS2002**  Systems Programming  ***APS: CITS1001 or CITS1401 or CITS2401*** | **ENSC3001**  Mechanisms and Machines  ***Prereq: (CITS1001 or CITS2401), ENSC2004, & MATH1011 APS: PHYS1001*** | **ENSC3020**  Digital Embedded Systems  ***Prereq: CITS1001 or CITS2401*** | **# ELECTIVE** |
| *Semester 1, 2023* | **ENSC3002**  Materials & Manufacturing  ***Prereq: ENSC1004*** | **ENSC3021**  Circuits and Electronics  ***Prereq: ENSC2003 & MATH1011*** | **CITS2200**  Data Structures & Algorithms  ***Prereq: CITS1001***  ***APS:*** *An additional programming unit* | **# ELECTIVE** |
| *Semester 2, 2023* | **MECH4424**  Measurement and Noise  ***Prereq: (CITS1001 or CITS2401) & ENSC3001***  (ADVANCED UNIT) | **ENSC3016**  Power and Machines  ***Prereq:*** ***ENSC2003 & MATH1012;***  ***APS: PHYS1001*** | **GENG5508**  Robotics  ***Prereq: CITS1001***  (ADVANCED UNIT) | **# ELECTIVE** |
| *Semester 1, 2024* | **GENG3002**  Mechatronics  ***Prereq: CITS2200, ENSC3001 & ENSC3020*** | **GENG4404**  Automation & Control  ***Prereq: (CITS1001 or CITS2401) & ENSC2003***  (ADVANCED UNIT) | **Elective** | **# ELECTIVE** |

**Note: #** Students intending to progress into the Master of Professional Engineering (Electrical, Mechanical or Software Engineering) should refer to the Electrical Systems stream, Mechanical Systems stream and Software Systems stream tables overleaf (students take 24 pts of stream units in place of four elective units).   
  
Alternatively, electives may be used to complete a minor, noting that any four units taken outside the double major in Automation and Robotics meets broadening requirements.

**Students intending to progress into the Master of Professional Engineering choose four units (24 pts) in place of electives, from one of the streams below:**

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| **Electrical Systems Stream:** *Students intending to progress into the Master of Professional Engineering (Electrical and Electronic) take 24 pts:* | |
| ENSC3014 Electronic Materials and Devices (S1)  ***Prereq:*** *ENSC2003, MATH1012 & PHYS1001* | MATH3023 Advanced Mathematics Applications (S2)  ***Prereq****:**MATH1011;* ***Coreq:*** *MATH1012* |
| ENSC3015 Signals & Systems (S2)  ***Prereq:*** *(CITS1001), ENSC2003 & MATH1012* | PHYS1001 Physics for Scientists and Engineers (S1,S2) ***Prereq****:**(Physics ATAR or PHYS1030) & (Math Specialist ATAR or MATH1722)* |

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| **Mechanical Systems Stream:** *Students intending to progress into the Master of Professional Engineering (Mechanical) take 24 pts:* | |
| ENSC3003 Fluid Mechanics (S1)  ***Prereq:*** *ENSC2004 & MATH1012* | ENSC3024 Engineering Thermodynamics (S2)  ***Prereq****: CITS1001, ENSC2004, MATH1011 & (PHYS1030 or Physics ATAR);* ***APS:*** *PHYS1001* |
| ENSC3004 Solid Mechanics (S1)  ***Prereq:*** *ENSC2004, MATH1011 & MATH1012* | MATH3023 Advanced Mathematics Applications (S2)  ***Prereq****:**MATH1011;* ***Coreq:*** *MATH1012* |

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| **Software Systems Stream:** *Students intending to progress into the Master of Professional Engineering (Software) take 24 pts:* | |
| CITS3001 Algorithms, Agents and Artificial Intelligence (S2) ***Prereq:***  *CITS2200* | CITS3004 Cybersecurity (S2)  ***Prereq****: Completion of 12 pts from: CITS1001, CITS2002, CITS2200 or CITS2401* |
| CITS3002 Computer Networks (S1) ***Prereq:*** *CITS2002* | CITS3403 Agile Web development (S1)  ***Prereq****:**CITS1001 or CITS2002* |

**Students not intending to progress into the Master of Professional Engineering may choose electives to the value of 30 pts in the BAR (and which may be used to complete a Minor)**