# MATRICES 2019

## ENGINEERING DEGREES MATRIX

Listed below are over 30 engineering degrees offered at most universities in Victoria. Students should note that unless otherwise indicated* all engineering degrees require at the very least *English or EAL, and Maths: Mathematical Methods (CAS).* Courses with an * also require *Chemistry or Physics.*

**For a comprehensive list of all courses, their prerequisites and double degrees on offer, visit VTAC**

| INSTITUTION | COURSE | MAJOR STUDIES IN 2019 | ATAR 2019 |
|---|---|---|---|
| **DEAKIN**<br>M – Melbourne<br>G – Waurn Ponds | **Civil** | Civil engineering management, Computer-aided design (CAD), Construction, Engineering (civil), Engineering (fluid), Engineering design, Geotechnical engineering, Materials engineering, Structural engineering, Transportation, Water resources engineering. | 71.90 (M)<br>63.40 (G) |
| | **Electrical & Electronics** | Circuits and electronics, Computer-aided design (CAD), Control systems, Data communications, Electrical and electronic engineering and technology, Electrical engineering, Electronic engineering, Energy efficiency and demand management, PLC and SCADA, Power system protection, Power systems, Renewable energy, Smart distributions and transmission systems, Smart grid. | 74.30 (M)<br>71.70 (G) |
| | **Environmental** | Environmental engineering, Environmental protection and management, Hydrology, Marine ecosystems, Sustainable infrastructure engineering, Waste management, Water engineering. | 70.25 (G) |
| | **Mechanical** | Computer-aided design (CAD), Control systems, Engineering (fluid), Engineering (mechanical), Materials engineering, Mechanical design, Systems design. | 70.80 (M)<br>67.20 (G) |
| | **Mechatronics** | 3D printing, Advanced manufacturing, Artificial intelligence, Circuits and electronics, Computer-aided design (CAD), Control systems, Data communications, Electrical and electronic engineering and technology, Electrical engineering, Electronic engineering, Engineering (mechanical), Engineering (mechatronic), Mechanical design, Mechatronics design, Robotics, Virtual and augmented reality. | 70.55 (M)<br>65.15 (G) |
| | **Software** | Artificial intelligence, Computer software, Cyber security, Cyber-physical systems, Data analytics, Data capturing technologies, Data structures and algorithms, Database programming, Embedded systems development, Internet-of-Things, Object-oriented programming, Programming, Robotics Applications, Robotics software, Software architecture, Software design, Software engineering, Software testing, Usability and user experience engineering, Web application development. | 64.35 (M) |
| **FEDERATION**<br>G – Gippsland<br>B –Ballarat | **Civil** | Civil Engineering, Construction Management, Environmental Engineering, Geotechnical Engineering, Structural Engineering, Transport Engineering, Water Resources Engineering. | n/a (G)<br>n/a (B) |
| | **Mechanical** | Automotive and Energy Efficiency, Design Engineering, Manufacturing Engineering, Mechanical Engineering, Mechanical and Industrial Engineering Technology, Mechanics, Robotics, Vibration and Machine Dynamics. | n/a (B) |
| | **Mechatronic Systems** | Computing Engineering, Electronics Engineering, Engineering Management, Manufacturing, Mechanical Engineering, Mechatronics, Robotics, Sensing and Artificial Intelligence, Systems Control. | n/a (G) |
| | **Mining** | Drilling and Blasting, Mine Power and Services, Mine Ventilation, Mineral Deposit Evaluation and Processing, Mining Engineering, Rock Fragmentation, Rock Mechanics, Surface Mining Operations and Equipment, Underground Production Systems. | n/a (B) |
| **LA TROBE**<br>M – Melbourne<br>B – Bendigo | **Civil** | Civil engineering. | 67.95 (M)<br>67.30 (B) |
| | **Industrial Engineering** | Engineering (industrial), Engineering design, Engineering enterprise, Engineering industry 4.0, Engineering innovation, Project management, Systems engineering. | 66.10 (M)<br>71.05 (B) |
| **MONASH**<br>Cl – Clayton | **Aerospace *** | Aerodynamics, Aeronautical, Aerospace Engineering, Avionics, Engineering. | 91.90 (Cl) |
| | **Engineering *** | Aerospace engineering, Chemical engineering, Civil engineering, Electrical and computer systems engineering, Engineering, Environmental engineering, Materials engineering, Mechanical engineering, Mechatronics engineering, Resources engineering, Software engineering. | 91.80 (Cl) |
| | **Software *** | Engineering, Software engineering. | 92.00 (Cl) |
| **RMIT**<br>C – City<br>C/B – City &<br>Bundoora | **Advanced Manufacturing & Mechatronics** | Advanced manufacturing processes, Advanced robotics, Automatic control systems, Autonomous systems, Design for assembly and automation, Embedded systems, Engineering computing, Engineering mechanics, Manufacturing systems, Manufacturing systems modelling, Mechatronic design. | 80.00 (C/B) |
| | **Aerospace** | Aerodynamics, Aerospace engineering, Aerospace maintenance, Aerospace science and spacecraft, Aircraft design, Aircraft systems, Aviation, Computer modelling, Mechanics (applied), Mechanics (flight), Mechanics (fluid), Mechanics (solids), Mechanics (structural). | 81.70 (C/B) |
| | **Automotive** | Computer-aided engineering and design, Dynamics and control, Energy conservation and renewable energy, Engineering mathematics, Fluid mechanics, Industrial aerodynamics and computational fluid dynamics, Mechanics of machines, Mechatronics, Solid mechanics and materials, Thermodynamics, Vehicle handling and control, Vehicle noise and vibration, Vehicle power system and vehicle body design. | 80.95 (C/B) |
| | **Biomedical**<br>*Any maths* | Bioinformatics, Biomedical Signal and Image processing, Biomedical instrumentation, Cell Biology, Chemistry, Circuit Theory, Engineering biomechanics and biomaterials, Human physiology, Implant and Rehab Engineering, Physics, Programming. | 80.80 (C) |
| | **Chemical *** | Chemical sciences, Environmental, Food science and biotechnology, Metallurgical, Petroleum, Rheology. | 80.25 (C) |
| | **Civil & Infrastructure** | Civil engineering management, Computer modelling, Construction management, Engineering (civil), Engineering (environmental), Engineering (geoengineering), Engineering (structural analysis and design), Engineering (transport engineering), Irrigation and water management, Mechanics (structural), Project management, Risk analysis and management, Roads and road design, Software applications, Water quality management, Water resources engineering. | 85.05 (C/B) |
| | **Computer & Network** | Computer and network security, Computer engineering, Computer networks, Embedded systems, | 84.50 (C) |

**Compiled JB**

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|---|---|---|---|
| **RMIT**<br>C – City<br>C/B – City &<br>Bundoora | | Internet communications, Microprocessor, Microprocessor control systems, Mobile and cloud networks and computing, Multimedia engineering (audio), Multimedia engineering (image), Multimedia engineering (speech), Multimedia engineering (video signal processing), Network engineering, Network infrastructure design and performance, Network management and software-defined networking, Reconfigurable processors and devices, Signal and systems, Telecommunications (systems and networks), Wireless technologies. | |
| | **Electrical** | Control systems, Electrical distribution, Electrical energy conversion, Electrical engineering, Electrical transmission, Industrial automation, Microprocessor control systems. | **80.65 (C)** |
| | **Electrical & Electronic** | Circuits and electronics, Communication systems, Computer engineering, Computer networks, Control systems, Digital and analogue electronics, Electrical systems, Electronic systems, Photonics, Signal processing, Wireless technologies. | **80.75 (C)** |
| | **Environmental** | Chemical engineering, Civil engineering, Environmental analysis, Environmental engineering, Geology, Hydrogeology, Hydrology, Infrastructure management, Land contamination, Pollution control, Process engineering, Sustainability, Transport engineering, Urban systems, Waste water treatment, Water engineering, Water management. | **80.00 (C/B)** |
| | **Mechanical** | Computer-aided engineering and design, Dynamics and control, Energy conservation and renewable energy, Engineering and society, Engineering mathematics, Fluid mechanics, Industrial aerodynamics and computational fluid dynamics, Manufacturing, Mechanical design, Mechanics of machines, Mechatronics, Professional research project, Solid mechanics and materials, Thermodynamics. | **80.00 (C/B)** |
| | **Software Engineering** | Algorithms and data structures, Artificial intelligence, Computer architecture, Computer operating systems, Database systems, Industrial collaboration and experience, Networks and data communications, Object-oriented design, Object-oriented modelling, Object-oriented programming, Object-oriented software engineering, Operating systems, Problem solving, Programming, Programming (C), Programming (Java), Project management, Software development, Software engineering, Software engineering practices. | **85.15 (C)** |
| | **Sustainable Systems** | Chemistry fundamentals, Computer-aided design, Electrical energy systems, Intelligent transport systems, Engineering Capstone Project, Engineering computing, Engineering design for sustainability, Fluid mechanics, Humanitarian Experiential Learning Project, Life cycle and systems assessment, Mathematics, Mechanics and materials, Professional Engineering Experience, Renewable energy systems, Statistics, Sustainable engineering logistics systems, Sustainable engineering materials, Sustainable system design, Sustainable transport systems, Systems engineering principles, Thermodynamics. | **83.85 (C/B)** |
| | **Telecommunications** | Antennas, Circuits and electronics, Communication systems and theories, Digital signal processing, Electronic systems, Electronics, Engineering (communication), Engineering (electronics), Engineering (telecommunications), Engineering design, Fibre optical technology, Industrial and Defence radar technologies, Internet Engineering, Modern network engineering, Network security, Optoelectronics and Photonics, Satellite communications, Telecommunications (transmission systems), Wireless and Mobile communications, Wireless technologies. | **n/a (C)** |
| **SWINBURNE**<br>H – Hawthorn<br><br>* Professional Degree<br><br># Any maths required<br><br>R.C. – Range of Criteria used for selection | **Engineering** | Architectural engineering, Biomedical engineering, Civil engineering, Construction engineering, Electrical and electronic engineering, Mechanical engineering, Product design engineering, Robotics and mechatronics, Software engineering, Telecommunications engineering. | **75.20 (H)**<br>**83.55 (H) \*** |
| | **Engineering Practice #** | Industry 4.0, Internet of Things and People, Products Designed for People, Smart Cities. | **R.C. (H)** |
| **VICTORIA**<br>FP – Footscray Park | **Architectural #** | Architectural Engineering, Architecture. | **n/a (FP)** |
| | **Civil #** | Engineering (Civil engineering). | **n/a (FP)** |
| | **Electrical & Electronic #** | Engineering (Electrical and Electronic Engineering). | **n/a (FP)** |
| | **Mechanical #** | Engineering (Mechanical Engineering). | **n/a (FP)** |
| # Engineering degrees at VU require <u>any maths</u> | | | |