

# Bachelor of Engineering Technology B1408 (Electrical and Renewable Energy Engineering)

Year 1/Advanced standing enquiries:  
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Start Semester  
 Date: 2 2025

Major: Electrical and Renewable Energy Engineering with *Industrial Control and Automation Engineering focus*<sup>1</sup>

| Year 1 – 2025 | Semester 1 Units  | CP | Semester 2 Units                                | CP |
|---------------|---|----|---|----|
|               |   |    | MAS164 Fundamentals of Mathematics <sup>2</sup> | 3  |
|               |   |    | ENG102 Engineering Design for Sustainability    | 3  |
|               |   |    | PEN120 General Physics <sup>3</sup>             | 3  |
|               |   |    | ENG101 Engineering Fundamentals                 | 3  |
|               |   |    | <b>Total</b>                                    | 12 |
| Year 2 – 2026 | Semester 1 Units  | CP | Semester 2 Units                                | CP |
|               | MAS182 Introductory Calculus with Applications                                | 3  | MAS161 Calculus and Matrix Algebra              | 3  |
|               | MAS162 – Discrete Mathematics and Logic <sup>4</sup> (or Specified Elective)  | 3  | ENG336 Finance, Ethics and Law                  | 3  |
|               | ENG109 Engineering Computing Systems  | 3  | ENG209 Fundamentals of AC Circuits              | 3  |
|               | ENG208 Fundamentals of DC Circuits  | 3  | ENG103 Principles of Engineering                | 3  |
|               | <b>Total</b>  | 12 | <b>Total</b>                                    | 12 |
| Year 3 – 2027 | Semester 1 Units  | CP | Semester 2 Units                                | CP |
|               | ENG344 Electromechanical Energy Conversion                                    | 3  | ENG231 Renewable Energy Systems                 | 3  |
|               | ENG215 Systems Engineering  | 3  | ENG381 Electrical Power Systems                 | 3  |
|               | MAS220 Mathematical Methods and Multivariable Calculus                        | 3  | ENG382 Power Electronics                        | 3  |
|               | ENG251 PLC Systems <sup>1</sup> (or Specified Elective)                       | 3  | ENG216 Dynamic Systems and Control              | 3  |
|               | <b>Total</b>  | 12 | <b>Total</b>                                    | 12 |
| Year 4 – 2028 | Semester 1 Units  | CP | Semester 2 Units                                | CP |
|               | ENG360 Engineering Design Project (S1 option)                                 | 6  |   |    |
|               | ENG391 Process Control <sup>1</sup> (or Specified Elective)                   | 3  |   |    |
|               | ENG392 SCADA and Instrumentation Systems <sup>1</sup> (or Specified Elective) | 3  |   |    |
|               | ENG100 Engineering Professional Practice (S1 option)                          | 0  |   |    |
|               | <b>Total</b>  | 12 | <b>Total</b>                                    |    |

**TOTAL CREDIT POINTS 72**

<sup>1</sup> Students in the Electrical and Renewable Energy Engineering Major can align their choice of specified electives with the industrial control and automation engineering area by choosing the following units: ENG251, ENG391 and ENG392. They can also graduate with a double major in Electrical and Renewable Energy Engineering / Industrial Control and Automation Engineering if they complete the four units ENG251, ENG252, ENG391 and ENG392. However, due to unit availability, the completion of the double major will extend the duration of the course for students commencing in S2 to three and a half years. Students who do not wish to specialise in the industrial control and automation engineering area, can choose other specified electives for all or some of these units (see below).

<sup>2</sup> Check the Enrolment Rules for MAS164 in the [Handbook](#). Students ineligible to enrol, should consult their Academic Chair.

<sup>3</sup> Students who meet the criteria for entry into [PEN152 Principles of Physics](#) may not enrol in PEN120 and should consult their Academic Chair.

<sup>4</sup> Recommended for students who wish to align their studies with the industrial control and automation engineering area.



| Specified Electives  |
|--|
| <p>100 level (a maximum of 30 cpts can be completed at 100 level as part of the course)</p> <p>SIK102 - Wandju Boodja (Welcome to Country) (S1, S2, SUM, W)</p> <p>CHE140 - Fundamentals of Chemistry (S1, S2)</p> <p>PEN152 - Principles of Physics (S1, S2)</p> <p>ICT158 - Introduction to Information Systems (S2)</p> <p>MAS162 – Discrete Mathematics and Logic (S1, S2)</p> <p>MAS183 - Statistical Data Analysis (S1, S2)</p> <p>200 level and above (students should carefully review the pre-requisites required for the below units):</p> <p>ENG221 - Pollution and Its Control (S2)</p> <p>ENG251 - PLC Systems (S1)</p> <p>ENG252 - Embedded Systems (S2)</p> <p>ENG300 - Environmental Technology for Sustainability (S2)</p> <p>ENG341 - Water Conservation and Auditing (S1)</p> <p>BUS368 – Cultures of Innovation (S2)</p> <p>ENG391 - Process Control (S1)</p> <p>ENG392 - SCADA and Instrumentation Systems (S1)</p> <p>PEN594 – Energy Auditing and Management (S1)</p> <p>(Any other elective units are subject to approval from the Academic Chair)</p> |
| <p>ENG100 Engineering Professional Practice (0 cpts)</p> <p>Bachelor of Engineering Technology students should complete 300 hours of approved work experience to complete the requirements of the course.</p>  |

**Please note:** This course plan is a sample only and must be read in conjunction with the full course structure, unit prerequisites and enrolment options as outlined in the [Handbook](#). Students should note that due to unit prerequisites, commencing study in Semester 2 may extend the duration of the course. This information is correct as at 17/11/25.