

# Bachelor of Engineering Honours H1287 (Electrical and Renewable Energy Engineering)

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Start Date: Semester 2 2023

Suggested Industrial Control & Automation Focus

| Year                                     | Semester 1 Units   | CP        | Semester 2 Units                                       | CP  |
|--|--|-----------|--|---|
|  | Year 1 – 2023  |           |  | MAS164 Fundamentals of Mathematics <sup>1</sup> |
|  |  |           | ENG102 Engineering Design for Sustainability           | 3   |
|  |  |           | PEN120 General Physics <sup>2</sup>                    | 3   |
|  |  |           | ENG101 Engineering Fundamentals                        | 3   |
|  |  |           | <b>Total</b>   | <b>12</b>                                       |
| Year 2 - 2024                            | Semester 1 Units   | CP        | Semester 2 Units                                       | CP  |
|  | MAS182 Applied Mathematics   | 3         | MAS161 Calculus and Matrix Algebra                     | 3   |
|  | ENG103 Principles of Engineering                                       | 3         | ENG214 Electrical and Electronic Circuits              | 3   |
|  | ENG109 Engineering Computing Systems                                   | 3         | ENG252 Embedded Systems (Engineering Elective)         | 3   |
|  | Engineering Elective   | 3         | BUS368 Cultures of Innovation                          | 3   |
|  | <b>Total</b>   | <b>12</b> | <b>Total</b>   | <b>12</b>                                       |
| Year 3 – 2025                            | Semester 1 Units   | CP        | Semester 2 Units                                       | CP  |
|  | ENG344 Electromechanical Energy Conversion                             | 3         | ENG382 Power Electronics                               | 3   |
|  | ENG215 Systems Engineering   | 3         | ENG381 Electrical Power Systems                        | 3   |
|  | Engineering Elective   | 3         | ENG231 Renewable Energy Systems                        | 3   |
|  | ENG251 PLC Systems (Engineering Elective)                              | 3         | ENG216 Dynamic Systems and Control                     | 3   |
|  | <b>Total</b>   | <b>12</b> | <b>Total</b>   | <b>12</b>                                       |
| Year 4 - 2026                            | Semester 1 Units   | CP        | Semester 2 Units                                       | CP  |
|  | ENG537 Power System Modelling and Analysis                             | 3         | ENG534 Power Systems Operation, Control and Protection | 3   |
|  | MAS220 Mathematical Methods  | 3         | ENG336 Finance, Ethics and Law                         | 3   |
|  | ENG391 Process Control (Engineering Elective)                          | 3         | ENG470 Engineering Thesis                              | 6   |
|  | ENG392 SCADA and Instrumentation Systems (Engineering Elective)        | 3         |  |   |
|  | <b>Total</b>   | <b>12</b> | <b>Total</b>   | <b>12</b>                                       |
| Year 4 - 2027                            | Semester 1 Units   | CP        | Semester 2 Units                                       | CP  |
|  | ENG535 Power Electronic Converters and Applications                    | 3         |  |   |
|  | ENG532 Renewable Energy Resources and Technologies                     |           |  |   |
|  | OR   | 3         |  |   |
|  | ENG631 Distributed Power System and Microgrid Planning and Reliability |           |  |   |
|  | ENG470 Engineering Thesis  | 6         |  |   |
| ENG100 Engineering Professional Practice | 0  |           |  |   |
|  | <b>Total</b>   | <b>12</b> | <b>Total</b>   |   |

**TOTAL CREDIT POINTS 96**

<sup>1</sup> Students who have achieved a final scaled score of 55% or more in ATAR Mathematics Specialist, WACE Mathematics Specialist 3C/3D or TEE Calculus may not enrol in this unit and should consult their Academic Chair.

<sup>2</sup> Students who have achieved a final scaled score of 60% or more in ATAR Physics or WACE Physics 3A/3B may not enrol in this unit and should consult their Academic Chair.

## Elective Units

KAC102 - Wandju Boodja (Welcome to Country)  
CHE140 - Fundamentals of Chemistry  
ENV102 - Foundations of the Environment  
ENG300 - Environmental Technology for Sustainability  
ENG221 - Pollution & its Control  
ENG341 - Water Conservation & Auditing  
ENV243 - Water and Earth Science  
ENV242 - Atmospheric and Climate Science  
ENV303 - GIS for Environmental Management and Planning  
ENV331 - Environmental Management  
ENG391 - Process Control  
ENG251 - PLC Systems  
ENG392 - SCADA and Instrumentation Systems  
ENG252 - Embedded Systems  
PEN152 - Principles of Physics  
ICT158 - Introduction to Information Systems  
MAS183 - Statistical Data Analysis

Spine - ENG100 Engineering Professional Practice (0 CP)

Bachelor of Engineering Honours students should complete 450 hours of approved work experience to complete the requirements of the course.

**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 pre-requisites, commencing study in Semester 2 may extend the duration of the course. This information is correct as at 10/06/24.