**Bachelor of Engineering**

**(Environmental and Sustainability Engineering) (Hons)**

**(from Cohort AY2025/26 onwards)**

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| **NEW CURRICULUM REQUIREMENTS** | **UNITS** |
| **COMMON CURRICULUM REQUIREMENTS – refer to Table 1** | **40** |
| Singapore Studies (GE) - CDE2501 Liveable Cities | 4 |
| Cultures and Connections (GE) | 4 |
| Communities and Engagement (GE) | 4 |
| Critique and Expression (GE) - ES2631 Critical Thinking and Writing | 4 |
| Digital Literacy (GE) - CS1010% Programming Methodology *[CS1010E]* | 4 |
| Data Literacy (GE) *– GEA1000 Quantitative Reasoning with Data* | 4 |
| Design Thinking - DTK1234 Design Thinking | 4 |
| Maker Space – EG1311BE Design and Make | 4 |
| Artificial Intelligence - EE2211 Introduction to Machine Learning | 4 |
| Project Management - PF1101A Project Management and Finance | 4 |
| **MAJOR REQUIREMENTS** | **80** |
| **Engineering Core** | **20** |
| MA1511 Engineering Calculus | 2 |
| MA1512 Differential Equations for Engineering | 2 |
| MA1513 Linear Algebra with Differential Equations | 2 |
| CE2407A Uncertainty analysis for Engineers | 2 |
| EG2401A Engineering Professionalism | 2 |
| EG3611A Industrial Attachment # (or equivalent) | 10 |
| **Discipline Core** | **60** |
| ESE2101 Environmental Engineering Principles & Practices | 4 |
| ESE2102 Principles & Practice in Environmental Monitoring | 4 |
| ESE2000 Chemistry for An Environmentally Sustainable Future | 4 |
| ESE2001 Environmental Challenges in the Anthropocene | 4 |
| CE2134 Fluid Mechanics | 4 |
| ESE3101 Resource Management and Circular Economy | 4 |
| ESE3201 Air Quality in Changing Environment | 4 |
| ESE3301 Microbiology in Natural and Built Environment | 4 |
| ESE3401 Sustainable Urban Water Technology | 4 |
| ESE4501 Design Project | 4 |
| ESE4408 Environmental Impact Assessment | 4 |
| Technical Electives | 8 |
| Integrated Project 2 *– ESE4502R B. Eng. Dissertation* | 8 |
| **UNRESTRICTED ELECTIVES** | **40** |
| **TOTAL** | **160** |

# Engineering students may take up to 20 UNITs of credit-bearing internships, of which up to 10 UNITs can be used to fulfil the major internship requirement and the remaining will be counted towards Unrestricted Electives. This limit does not apply to students enrolled in the co-op degree programme.

**Catalogue of Courses**

|  |  |
| --- | --- |
| **Common Curriculum Pillar** | **Basket of Courses[[1]](#footnote-1)** |
| Singapore Studies | CDE2501 Liveable Cities |
| Cultures and Connections (**GE**C) | Students may read any course from the curated list of courses as approved by the NUS General Education Committee for this pillar (4 Units) |
| Communities and Engagement (**GE**N) | Students may read any course from the curated list of courses as approved by the NUS General Education Committee for this pillar (4 Units) |
| Critique and Expression (GE) | ES2631 Critical Thinking and Writing |
| Digital Literacy (GE) | CS1010% Programming Methodology - CS1010E Programming Methodology is the default course |
| Data Literacy (GE) | Students may read any course from the basket of courses approved by the NUS General Education Committee for this pillar (4 Units) - GEA1000 Quantitative Reasoning with Data is the default course |
| Design Thinking | DTK1234 Design Thinking |
| Maker Space | EG1311BE Design and Make |
| Artificial Intelligence | EE2211 Introduction to Machine Learning |
| Project Management | PF1101A Project Management and Finance |
|  | **Basket of Courses1** |
| Integrated Project 2 | Complete 8 UNIT from the following list of modules:   * AR3102 - Design 6 (8 Units) * LAD3001 - Design 5 (8 Units) * LAD3002 - Design 6 (8 Units) * ID3109 - Design Platforms G ### (4 Units) * ID3110 - Design Platforms H ### (4 Units) * BN4101 - B.Eng. Dissertation (8 Units) * CN4119 - Final Year Design Project (8 Units) * CE4104 - B. Eng. Dissertation (8 Units) * CG4002 - Computer Engineering Capstone Project (8 units) * EE4002D - Design Capstone (8 units) * EE4002R - Research Capstone (8 units) * ESE4502R - B. Eng. Dissertation (8 units) * ESP4901 - Research Project (8 units) * IE3100R - Systems Design Project (8 units) * IPM4101 - Dissertation (8 units) * MLE4101B - B.Eng. Dissertation (8 units) * MLE4102A - Design Project (8 units) * ME4101A - Bachelor of Engineering Dissertation (8 units) * XFE4401 - Integrated Honours Project ## (16 units) * CDE4301 - Innovation & Design Capstone ## (12 units) * CDE4301A - Ideas to Start-up ## (12 units) * RB4101A - B.Eng. Dissertation (8 units) |

**Recommended Semester Schedule for A-level Students**

|  |  |  |  |
| --- | --- | --- | --- |
| **Semester 1** |  | **Semester 2** |  |
| GEA1000 Quantitative Reasoning with Data | 4 | CS1010E Programming Methodology | 4 |
| DTK1234 Design Thinking | 4 | EG1311BE Design and Make | 4 |
| MA1513 Linear Algebra with Differential Equations | 2 | **UE**  (Physics bridging PC1201 for students without A-level Physics) | 4 |
| ESE2101 Environmental Engineering Principles & Practices | 4 | MA1511 Engineering Calculus | 2 |
| PF1101 Fundamentals of Project Management | 4 | MA1512 Differential Equations for Engineering | 2 |
| CE2407A Engineering Uncertainty Analysis | 2 | ESE2102 Principles & Practice in Environmental Monitoring | 4 |
| **Sub-total** | 20 | **Sub-total** | 20 |
| **Semester 3** |  | **Semester 4** |  |
| ~~CDE2501 Liveable Cities (SS GE)~~ CE2134 Fluid Mechanics | 4 | ES2631 Critical Thinking and Writing | 4 |
| EE2211 Introduction to Machine Learning | 4 | ESE3101 Resource Management and Circular Economy | 4 |
| ESE2001 Environmental Challenges in the Anthropocene | 4 | ESE3301 Microbiology in Natural and Built Environment | 4 |
| ESE2000 Chemistry for An Environmentally Sustainable Future | 4 | GE | 4 |
| EG2401A Engineering Professionalism | 2 | GE | 4 |
| **UE** | 4 |  |  |
| **Sub-total** | 22 | **Sub-total** | 20 |
| **Semester 5** |  | **Semester 6** |  |
| ESE3201 Air Quality in Changing Environment | 4 | EG3611A Industrial Attachment | 10 |
| ESE3401 Sustainable Urban Water Technology | 4 | Technical Elective | 4 |
| ~~CE2134 Fluid Mechanics~~ CDE2501 Liveable Cities (SS GE) | 4 | **UE** | 4 |
| **UE** | 4 |  |  |
| **UE** | 4 |  |  |
| **Sub-total** | 20 | **Sub-total** | 18 |
| **Semester 7** |  | **Semester 8** |  |
| ESE4502R B. Eng. Dissertation | 4 | ESE4502R B. Eng. Dissertation  *[continuation]* | 4 |
| ESE4501R Design Project | 4 | ESE4408 Environmental Impact Assessment | 4 |
| Technical Elective | 4 | **UE** | 4 |
| **UE** | 4 | **UE** | 4 |
| **UE** | 4 | **UE** | 4 |
| **Sub-total** | 20 | **Sub-total** | 20 |

Note: UE and GE can be taken in any semester.

**Recommended Semester Schedule for Poly Direct-Entry Students**

Regardless of engineering course, all freshmen with a polytechnic diploma will be granted the following APCs from Admit Year 2025/26 onwards:

*For diplomas: Hotel and Leisure Facilities Management, NP; Real Estate Business, NP; Facilities Management, SP; Hotel and Leisure Facilities Management, SP; Integrated Events and Project Management, SP; Aviation Management, TP; Aviation Management & Services, TP; Integrated Facility Management, TP.*

* Unrestricted Electives: 20 UNITs
* EG3611P Industrial Attachment: 10 UNITs
* PF1101 Fundamentals of Project Management: 4 UNITs

**Total: 34 UNITs**

*For ALL other diplomas.*

* Unrestricted Elective Modules: 20 UNITs
* EG3611P Industrial Attachment: 10 UNITs
* EG1311BE Design and Make: 4 UNITs
* DTK1234 Design Thinking: 4 UNITs

**Total: 38 UNITs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Semester 1** |  | **Semester 2** |  |
| GEA1000 Quantitative Reasoning with Data | 4 | CS1010E Programming Methodology | 4 |
| GE | 4 | GE | 4 |
| MA1301 Introductory Mathematics  - *fulfil UE requirement* | 4 | UE | 4 |
| ESE2101 Environmental Engineering Principles & Practices | 4 | MA1511 Engineering Calculus | 2 |
| PF1101 Fundamentals of Project Management/DTK1234 Design Thinking | 4 | MA1512 Differential Equations for Engineering | 2 |
|  |  | ESE2102 Principles & Practice in Environmental Monitoring | 4 |
|  |  | *EG1311BE Design and Make* | *4* |
| **Sub-total** | 20 | **Sub-total** | 20/ *24* |
| **Semester 3** |  | **Semester 4** |  |
| ~~CDE2501 Liveable Cities (SS GE)~~ CE2134 Fluid Mechanics | 4 | ES2631 Critical Thinking and Writing | 4 |
| MA1513 Linear Algebra with Differential Equations | 2 | ESE3101 Resource Management and Circular Economy | 4 |
| CE2407A Engineering Uncertainty Analysis | 2 | ESE3301 Microbiology in Natural and Built Environment | 4 |
| ESE2001 Environmental Challenges in the Anthropocene | 4 | EE2211 Introduction to Machine Learning | 4 |
| ESE2000 Chemistry for An Environmentally Sustainable Future | 4 | UE | 4 |
| EG2401A Engineering Professionalism | 2 |  |  |
| UE | 4 |  |  |
| **Sub-total** | 22 | **Sub-total** | 20 |
| **Semester 5** |  | **Semester 6** |  |
| ESE4502R B. Eng. Dissertation | 4 | ESE4502R B. Eng. Dissertation  *[continuation]* | 4 |
| ESE3201 Air Quality in Changing Environment | 4 | ESE4408 Environmental Impact Assessment | 4 |
| ESE3401 Sustainable Urban Water Technology | 4 | Technical Elective courses | **8** |
| ~~CE2134 Fluid Mechanics~~ CDE2501 Liveable Cities (SS GE) | 4 | UE | 4 |
| ESE4501 Design Project | 4 |  |  |
| **Sub-total** | 20 | **Sub-total** | 20 |

Note:

UE and GE can be taken in any semester.

If MA1301 been exempted, take CE2407A & MA1513 in Semester 1.

1. The listing of modules is expected to grow and evolve over time, to suit curricular needs.

   ## Students taking this course will fulfil the Integrated Project pillar (8 units) and the remaining will be counted towards Unrestricted Electives.

   ### Students must read both ID3109 and ID3110 to satisfy the Integrated Project pillar. [↑](#footnote-ref-1)