**Bachelor of Engineering (Civil Engineering)**

**(from Cohort AY2021/22 onwards)**

|  |  |
| --- | --- |
| **NEW CURRICULUM REQUIREMENTS** | **Unit** |
| **COMMON CURRICULUM REQUIREMENTS – refer to Table 1** | **60** |
| Singapore Studies (GE) – GESS… | 4 |
| Cultures and Connections (GE) – GEC… | 4 |
| Communities and Engagement (GE) – GEN… | 4 |
| Critique and Expression (GE) - ES2631 Critical Thinking and Writing | 4 |
| Digital Literacy (GE) - CS1010% Programming Methodology | 4 |
| Data Literacy (GE) - GEA1000 Quantitative Reasoning | 4 |
| Design Thinking - DTK1234 Design Thinking | 4 |
| Maker Space - EG1311 Design and Make | 4 |
| Systems Thinking - IE2141 Systems Thinking and Dynamics | 4 |
| Artificial Intelligence - EE2211 Introduction to Machine Learning | 4 |
| Sustainable Futures - EG2501 Liveable Cities | 4 |
| Creating Narratives – CDE2000 Creating Narratives | 4 |
| Project Management - PF1101 Fundamentals of Project Management | 4 |
| Integrated Project – CE4104 B. Eng. Dissertation or CE4103R Design Project | 8 |
| **MAJOR REQUIREMENTS** | **60** |
| **Engineering Core** | **20** |
| MA1511 Engineering Calculus | 2 |
| MA1513 Linear Algebra with Differential Equations | 2 |
| CE2407A Uncertainty Analysis for Engineers | 2 |
| CE2407B Introduction to Numerical Methods for Engineers | 2 |
| EG2401A Engineering Professionalism[[1]](#footnote-1) | 2 |
| EG3611A Industrial Attachment[[2]](#footnote-2) (or equivalent) | 10 |
| **Major Programme** | **40** |
| CE1103 Principles of Structural and Geotechnical Engineering | 4 |
| CE2155 Principles of Structural Mechanics and Materials | 4 |
| CE2134 Fluid Mechanics | 4 |
| CE3115 Stability of Slopes and Earth Retention Systems | 4 |
| CE3116 Foundation Systems for Urban Infrastructure | 4 |
| CE3121 Urban Transportation Engineering | 4 |
| CE3132 Hydrology and Free Surface Flows | 4 |
| CE3155A Structural Behaviour | 2 |
| CE3155B Structural Modelling | 2 |
| CE3165 Concrete Design for Urban Infrastructure | 4 |
| CE3166 Steel Design for Urban Infrastructure | 4 |
| **UNRESTRICTED ELECTIVES \*** | **40** |
| **TOTAL** | **160** |

\* you can take any module that is open to you in ModReg – you may be used to fulfil requirements for Specialisation, Minor or 2nd Major.

|  |
| --- |
|  |

**Catalogue of modules in the Common Curriculum**

Table 1

|  |  |
| --- | --- |
|  | **B.Eng.** |
| **Common Curriculum Pillar** | **Basket of Modules[[3]](#footnote-3)** |
| Singapore Studies  (GE) | Students may read any module from the curated list of modules as approved by the NUS General Education Committee for this pillar. |
| Cultures and Connections  (GE) | Students may read any module from the curated list of modules as approved by the NUS General Education Committee for this pillar. |
| Communities and Engagement (GE) | Students may read any module from the curated list of modules as approved by the NUS General Education Committee for this pillar. |
| Critique and Expression (GE) | ES2631 Critical Thinking and Writing |
| Digital Literacy (GE) | CS1010% Programming Methodology (any variant) |
| Data Literacy (GE) | GEA1000 Quantitative Reasoning |
| Design Thinking | DTK1234 Design Thinking |
| Maker Space | EG1311 Design and Make |
| Systems Thinking | IE2141 Systems Thinking and Dynamics |
| Artificial Intelligence | EE2211 Introduction to Machine Learning |
| Sustainable Futures | EG2501 Liveable Cities |
| Creating Narratives | CDE2000 Creating Narratives |
| Project Management | PF1101 Fundamentals of Project Management |
| Integrated Project | Complete 8 units from the following list of modules:   * CE4103R Design Project * CE4104 B. Eng. Dissertation * XFE4401 Integrated Honours Project * EG4301 DCP Dissertation[[4]](#footnote-4) * EG4301A Ideas to Start-up4 |

|  |
| --- |
| **List of Technical Elective modules:** |
| * CE2102 Principles & Practice in Infrastructure and Environment * CE2183 Construction Project Management * CE2409 Computer Applications in Civil Engineering * CE3201 Civil Engineering Analytics and Data Visualization * CE3202 Data Acquisition for Civil Engineering Applications * CE3203 Optimization Methods for Civil Engineers * CE3204 Digital Management for Civil Engineers * CE3101 Integrated Infrastructure Project * CE3102 Socio-economic Sustainable Developments * CE4257 Linear Finite Element Analysis * CE4258 Structural Stability and Dynamics * CE5805 DfMA & Productivity Analytics * CE5807 Integrated Digital Delivery * CE5808 Digital Design and Construction (BIM and VDC) * CE5209 Transport Data Analytics and Modelling * TP5205 Intelligent Transport System and Simulation * CE5515 Structural Health Monitoring * CE5113 Geotechnical Investigation & Monitoring * CE5310 Hydro-informatics |

***Information correct as July 2021 – update Jan 2023***

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Semester 1** |  | **Semester 2** |  |
| GEA1000 Quantitative Reasoning | 4 | CS1010E Programming Methodology | 4 |
| DTK1234 Design Thinking | 4 | EG1311 Design and Make | 4 |
| MA1513 Linear Algebra with Differential Equations | 2 | UE  (Physics bridging PC1201 for students without A-level Physics \*) | 4 |
| CE1103 Principles of Structural and Geotechnical Engineering | 4 | MA1511 Engineering Calculus | 2 |
| PF1101 Fundamentals of Project Management | 4 | CE2407B Introduction to Numerical Methods for Engineers | 2 |
| CE2407A Engineering Uncertainty Analysis | 2 | CE2155 Principles of Structural Mechanics and Materials | 4 |
| **Sub-total** | 20 | **Sub-total** | 20 |
| **Semester 3** |  | **Semester 4** |  |
| EG2501 Liveable Cities | 4 | ES2631 Critical Thinking and Writing | 4 |
| EE2211 Introduction to Machine Learning | 4 | IE2141 Systems Thinking and Dynamics | 4 |
| CE2134 Fluid Mechanics | 4 | CE3115 Stability of Slopes and Earth Retention Systems | 4 |
| CE3155A Structural Behaviour | 2 | GE | 4 |
| CE3155B Structural Modelling | 2 | GE | 4 |
| GE | 4 |  |  |
| **Sub-total** | 20 | **Sub-total** | 20 |
| **Semester 5** |  | **Semester 6** |  |
| CDE2000 Creating Narratives | 4 | CE3116 Foundation Systems for Urban Infrastructure | 4 |
| CE3121 Urban transportation engineering | 4 | CE3132 Hydrology and Free Surface Flows | 4 |
| CE3165 Concrete Design for Urban Infrastructure | 4 | CE3166 Steel Design for Urban Infrastructure | 4 |
| EG2401A Engineering Professionalism | 2 | Either one:   |  |  |  |  | | --- | --- | --- | --- | | If take FYP | | If take DP next sem. | | | CE4104 B. Eng. Dissertation | 4 | UE | 4 | | UE | 4 | UE | 4 | | |
| UE | 4 |
| UE | 4 |
| **Sub-total** | 22 | **Sub-total** | 20 |
| **Semester 7** |  | **Semester 8** |  |
| |  |  |  |  | | --- | --- | --- | --- | | If take FYP | | If take DP | | | CE4104 B. Eng. Dissertation | 4 | CE4103R Design Project | 8 | | UE | 4 | | UE | 4 | UE | 4 | | UE | 4 | UE | 4 | | UE | 4 | UE | 4 | | | EG3611A Industrial Attachment   * most preferred by the industry | 10 |
| UE | 4 |
| UE | 4 |
|  |  |
| **Sub-total** | 20 | **Sub-total** | 18 |

Note:

* UE and GE can be taken in any semesters.
* You either take CE4104 or CE4103 to fulfil “Integrated Project” pillar and be aware of the starting semester of it.

If you want to take both, then 1 of it will be counted towards UE requirement.

* \*refer to this URL for further details if you need to take, <https://wiki.nus.edu.sg/display/eng/Bridging+Modules>

**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 2021/22:

* Unrestricted Elective Modules: 20 units
* EG3611P Industrial Attachment: 10 units
* EG1311 Design and Make: 4 units
* DTK1234 Design Thinking: 4 units

**Total: 38 units**

# refer to this URL for further details/confirmation <https://cde.nus.edu.sg/undergraduate/curriculum-structure/> *(click to your cohort & main academic plan)*

|  |  |  |  |
| --- | --- | --- | --- |
| **Semester 1** |  | **Semester 2** |  |
| GER1000 Quantitative Reasoning | 4 | CS1010E Programming Methodology | 4 |
| GE | 4 | GE | 4 |
| MA1301 Introductory Mathematics *(fulfil UE requirement)* | 4 | GE | 4 |
| CE1103 Principles of Structural and Geotechnical Engineering | 4 | MA1511 Engineering Calculus | 2 |
| PF1101 Fundamentals of Project Management | 4 | CE2407B Introduction to Numerical Methods for Engineers | 2 |
|  |  | CE2155 Principles of Structural Mechanics and Materials | 4 |
| **Sub-total** | 20 | **Sub-total** | 20 |
| **Semester 3** |  | **Semester 4** |  |
| EG2501 Liveable Cities | 4 | ES2631 Critical Thinking and Writing | 4 |
| MA1513 Linear Algebra with Differential Equations | 2 | IE2141 Systems Thinking and Dynamics | 4 |
| CE2134 Fluid Mechanics | 4 | CE3115 Stability of Slopes and Earth Retention Systems | 4 |
| CE2407A Engineering Uncertainty Analysis | 2 | UE | 4 |
| CE3155A Structural Behaviour | 2 | UE | 4 |
| CE3155B Structural Modelling | 2 |  |  |
| UE | 4 |  |  |
| **Sub-total** | 20 | **Sub-total** | 20 |
| **Semester 5** |  | **Semester 6** |  |
| CDE2000 Creating Narratives | 4 | CE3116 Foundation Systems for Urban Infrastructure | 4 |
| CE3121 Urban transportation engineering | 4 | CE3132 Hydrology and Free Surface Flows | 4 |
| CE3165 Concrete Design for Urban Infrastructure | 4 | CE3166 Steel Design for Urban Infrastructure | 4 |
| EG2401A Engineering Professionalism | 2 | |  |  |  |  | | --- | --- | --- | --- | | If take FYP | | If take DP | | | CE4104 B. Eng. Dissertation | 4 | CE4103R Design Project | 8 | | UE | 4 | | |
| EE2211 Introduction to Machine Learning | 4 |
| Either   |  |  |  |  | | --- | --- | --- | --- | | If take FYP | | If take DP next sem. | | | CE4104 B. Eng. Dissertation | 4 | UE | 4 | | |
| **Sub-total** | 22 | **Sub-total** | 20 |

Note:

* UE (4 excluding MA1301; and if exempted from bridging math, 5 and GE can be taken in any semester)
* You either take CE4104 or CE4103

1. Students enrolled in the Engineering Scholars Programme will read EG2101 Pathways to Engineering Leadership instead. [↑](#footnote-ref-1)
2. 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. [↑](#footnote-ref-2)
3. The listing of modules is expected to grow and evolve over time, to suit curricular needs. [↑](#footnote-ref-3)
4. EG4301 is a 12 units module that forms part of the Innovation and Design Second Major. Students taking this will fulfil the Integrated Project pillar (8 units) and an additional 4 units of Unrestricted Electives. [↑](#footnote-ref-4)