B.Eng. (Civil Engineering) Degree Requirement

- matriculating August 2020

In order to graduate with the B.Eng. (Civil) degree, students are required to:

- ➤ Complete a minimum of 160 Modular Credits (MCs) with a CAP ≥ 2.0
- > Pass the modules in accordance with Table A
- > Students should NOT read more than 60 MCs of Level-1000 modules towards their degree requirements (excluding CFG1010 Roots and Wings Personal and Interpersonal Effectiveness 1.0 (2 MCs), ES1103 English for Academic Purposes (4 MCs)) and Modules under the Design-Your-Own-Module (DYOM) initiative.
- > Satisfy all other requirements as prescribed by the Faculty or the University

| General Education (GE) (5 Modules, each of 4MCs) Human and Cultures (GEH) Quantitative Reasoning (GER) Singapore Studies (GES) Asking Questions (GEQ) Faculty Requirements EG2401A Engineering Professionalism 2 ES2531 Critical Thinking and Writing Common Core Requirements 32 CE1101A Civil Engineering Principles & Practice CE2101 Principles & Practice in Infrastructure and Environment 4 MA1511 Engineering Calculus MA1511 Engineering Calculus MA1511 Engineering Calculus CS1010F Programming Methodology 4 EG2211 Introduction to Machine Learning EG3311 Design & Make (CE version) MIE1010 Materials Engineering Principles and Practice 1E2141 Systems Thinking and Dynamics CEC Core Modules CE2125 Structural Mechanics and Materials CE2138 Hydraulics CE2138 Hydraulics CE2155 Structural Mechanics and Materials CE2138 Construction Project Management CE2407 Engineering and Uncertainty Analyses ES3001 Water Quality Engineering CE3115 Geotechnical Engineering CE3115 Foundation Engineering CE3115 Foundation Engineering CE3115 Geotechnical Engineering CE3115 Foundation Engineering CE3116 Foundation Engineering CE3115 Foundation Engineering CE3116 | B.Eng. (Civil Engineering) Degree Requirements for AY2020/20 | 21 | |
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| General Education (GE) (5 Modules, each of 4MCs) Human and Cultures (GEH) Quantitative Reasoning (GER) Thinking and Expression (GET) Singapore Studies (GES) Asking Questions (GEQ) Faculty Requirements EG2401A Engineering Professionalism 2 ES2531 Critical Thinking and Writing 4 Common Core Requirements 32 CE1101A Civil Engineering Principles & Practice CE2101 Principles & Practice in Infrastructure and Environment 4 MA1511 Engineering Calculus 2 MA1513 Linear Algebra with Differential Equations 2 S1010E Programming Methodology 4 EG2211 Introduction to Machine Learning 4 EG3311 Design & Make (CE version) 4 EE11010 Materials Engineering Principles and Practice 4 IE2141 Systems Thinking and Dynamics 4 IE2141 Systems Thinking and Dynamics 4 CE2125 Structural Mechanics 4 CE2134 Hydraulics CE2135 Structural Mechanics and Materials CE2134 Ce2135 Structural Mechanics and Materials CE2136 Construction Project Management CE2407 Engineering and Uncertainty Analyses 4 ESS3001 Water Quality Engineering CE3116 Foundation Engineering CE3115 Geotechnical Engineering CE3115 Geotechnical Engineering CE3135 Structural Analysis CE3136 Structural Design and System 4 CE Project & Internship Modules CE4103 Design Project CE4103 Design Project CE4103 Design Project CE4104 B.Eng. Dissertation EG36311A Industrial Attachment 10 Unrestricted Elective Modules (UEM) | University Requirements | | 20 |
| Human and Cultures (GEH) Quantitative Reasoning (GER) Thinking and Expression (GET) Singapore Studies (GES) Asking Questions (GEQ) Faculty Requirements EG2401A Engineering Professionalism 2 ES2531 Critical Thinking and Writing 4 Common Core Requirements 5 CE1101A Civil Engineering Principles & Practice CE1101 Frinciples & Practice in Infrastructure and Environment MA1511 Engineering Calculus MA1511 Linear Algebra with Differential Equations 2 S1010E Programming Methodology 4 EG2211 Introduction to Machine Learning 4 EG1311 Design & Make (CE version) MLE1010 Materials Engineering Principles and Practice IE2141 Systems Thinking and Dynamics CE Core Modules CE2112 Soil Mechanics 4 CE2112 Soil Mechanics 4 CE2133 Construction Project Management 4 CE2136 Construction Project Management CE21316 Foundation Engineering 4 CE3155 Structural Mechanics and Materials CE3116 Foundation Engineering CE3112 Transportation Engineering CE3121 Transportation Engineering CE3155 Structural Analysis CE3155 Structural Analysis CE3155 Structural Analysis CE3155 Structural Analysis CE3165 Structural Analysis CE3166 Structural Analysis CE3166 Structural Analysis CE3166 Structural Analysis C | · | | |
| ■ Thinking and Expression (GET) ■ Singapore Studies (GES) ■ Asking Questions (GEQ) ■ Asking Questions (GEQ) Faculty Requirements ■ GE2401A Engineering Professionalism □ ES2531 Critical Thinking and Writing ■ 4 □ Common Core Requirements □ Singapore Studies (GES) | | | |
| Singapore Studies (GES) Asking Questions (GEQ) EG2401A Engineering Professionalism ES2531 Critical Thinking and Writing Common Core Requirements CE1101A Civil Engineering Principles & Practice CE2101 Principles & Practice in Infrastructure and Environment MA1511 Engineering Calculus MA1513 Linear Algebra with Differential Equations CS1010E Programming Methodology 4 EG2211 Introduction to Machine Learning EG1311 Design & Make (CE version) ME211 Systems Thinking and Dynamics CE2124 Systems Thinking and Dynamics CE2125 Sil Mechanics CE2134 Hydraulics CE2134 Hydraulics CE2135 Structural Mechanics and Materials CE2136 Construction Project Management CE2407 Engineering and Uncertainty Analyses ES83001 Water Quality Engineering CE3115 Geotechnical Engineering CE3115 Foundation Engineering CE3115 Foundation Engineering CE3115 Toundation Engineering CE3115 Transportation Engineering CE3115 Structural Analysis CE3132 Water Resources Engineering CE3135 Structural Analysis CE3165 Structural Analysis CE3165 Structural Steel Design and System CE3165 Internship Modules CE3165 Internship Modules CE4004 B.Eing. Dissertation Eg36114 Industrial Attachment Unrestricted Elective Modules (UEM) 28 | Quantitative Reasoning (GER) | | |
| ● Asking Questions (GEQ) Faculty Requirements 6 EG2401A Engineering Professionalism 2 ES2531 Critical Thinking and Writing 4 Common Core Requirements 32 CE1101A Civil Engineering Principles & Practice 4 CE2101 Principles & Practice in Infrastructure and Environment 4 MA1511 Engineering Calculus 2 MA1513 Linear Algebra with Differential Equations 2 CS1010E Programming Methodology 4 EG2211 Introduction to Machine Learning 4 EG1311 Design & Make (CE version) 4 MLE1010 Materials Engineering Principles and Practice 4 IE2141 Systems Thinking and Dynamics 4 CE Core Modules 52 CE2112 Soil Mechanics 4 CE2112 Soil Mechanics 4 CE2112 Soil Mechanics 4 CE2133 Construction Project Management 4 CE2183 Construction Project Management 4 CE2183 Construction Engineering 4 CE3116 Foundation Engineering 4 CE3116 Foundation Engineering 4 CE3121 Transportation Engineering 4 | Thinking and Expression (GET) | | |
| Faculty Requirements EG2401A Engineering Professionalism ES2531 Critical Thinking and Writing COmmon Core Requirements CE1101A Civil Engineering Principles & Practice CE2101 Principles & Practice in Infrastructure and Environment MA1511 Engineering Calculus MA1513 Linear Algebra with Differential Equations CS1010E Programming Methodology EG2211 Introduction to Machine Learning EG1311 Design & Make (CE version) MLE1010 Materials Engineering Principles and Practice IE2141 Systems Thinking and Dynamics CE2123 Finchians CE2123 Soil Mechanics CE2112 Soil Mechanics CE2113 Soil Mechanics CE2113 Constructural Mechanics and Materials CE2134 Hydraulics CE2135 Structural Mechanics and Materials CE2136 CE3115 Geotechnical Engineering CE3115 Foundation Engineering CE3115 Foundation Engineering CE3115 Foundation Engineering CE3115 Transportation Engineering CE3115 Structural Analysis CE3132 Water Resources Engineering CE3155 Structural Analysis CE3165 Structural Analysis CE3165 Structural Analysis CE3165 Structural Steel Design and System CE4103 Design Project CE4104 B.Eng. Dissertation EG3611A Industrial Attachment 10 Unrestricted Elective Modules (UEM) | <u>S</u> ingapore Studies (GES) | | |
| EG2401A Engineering Professionalism ES2531 Critical Thinking and Writing Common Core Requirements CE1101A Civil Engineering Principles & Practice CE1101A Civil Engineering Principles & Practice CE1101A Civil Engineering Principles & Practice CE1101A Civil Engineering Calculus MA1511 Engineering Calculus MA1513 Linear Algebra with Differential Equations CS1010E Programming Methodology 4 EG2211 Introduction to Machine Learning EG2211 Introduction to Machine Learning HEG1311 Design & Make (CE version) MLE1010 Materials Engineering Principles and Practice IE2141 Systems Thinking and Dynamics 4 CE Core Modules CE CORE Modules CE 2112 Soil Mechanics 4 CE2112 Soil Mechanics 4 CE2113 Construction Project Management 4 CE2407 Engineering and Uncertainty Analyses 4 CE3301 Water Quality Engineering CE3116 Foundation Engineering CE3116 Foundation Engineering CE3117 Foundation Engineering CE3117 Transportation Engineering CE3121 Transportation Engineering CE3132 Water Resources Engineering CE3132 Water Resources Engineering CE3155 Structural Analysis CE3165 Structural Analysis CE3165 Structural Steel Design and System CE Project & Internship Modules CE CE4103 Design Project CE4104 B.Eng. Dissertation EG3611A Industrial Attachment 10 Unrestricted Elective Modules (UEM) | Asking Questions (GEQ) | | |
| ES2531 Critical Thinking and Writing Common Core Requirements CE1101A Civil Engineering Principles & Practice CE2101 Principles & Practice in Infrastructure and Environment MA1511 Engineering Calculus MA1513 Linear Algebra with Differential Equations CS1010E Programming Methodology 4 EG2211 Introduction to Machine Learning EG1311 Design & Make (CE version) MLE1010 Materials Engineering Principles and Practice IE2141 Systems Thinking and Dynamics CE Core Modules CE Core Modules CE 2112 Soil Mechanics CE 2112 Soil Mechanics CE 2134 Hydraulics 4 CE2155 Structural Mechanics and Materials CE2138 Construction Project Management CE 2316 Foundation Engineering CE 3116 Foundation Engineering CE 3116 Foundation Engineering CE 3117 Foundation Engineering CE 3117 Ensportation Engineering CE 3121 Transportation Engineering CE 3121 Transportation Engineering CE 3155 Structural Analysis CE 3166 Structural Steel Design and System CE 407 Engineering Nodules CE 2103 Design Project CE 4103 Design Project CE 4104 B.Eng. Dissertation EG3611A Industrial Attachment 10 Unrestricted Elective Modules (UEM) | Faculty Requirements | | 6 |
| Common Core Requirements32CE1101A Civil Engineering Principles & Practice4CE2101 Principles & Practice in Infrastructure and Environment4MA1511 Engineering Calculus2MA1531 Linear Algebra with Differential Equations2CS1010E Programming Methodology4EG2211 Introduction to Machine Learning4EG1311 Design & Make (EF version)4MLE1010 Materials Engineering Principles and Practice4IE2141 Systems Thinking and Dynamics4CE Core Modules52CE2112 Soil Mechanics4CE2134 Hydraulics4CE2135 Structural Mechanics and Materials4CE2136 Construction Project Management4CE2130 Undering and Uncertainty Analyses4ESS3001 Water Quality Engineering4CE3115 Geotechnical Engineering4CE3116 Foundation Engineering4CE3112 Transportation Engineering4CE3132 Water Resources Engineering4CE3135 Structural Analysis4CE3165 Structural Steel Design and System4CE706ct & Internship Modules22CE4103 Design Project4CE4104 B.Eng. Dissertation8EG3611A Industrial Attachment10Unrestricted Elective Modules (UEM)28 | EG2401A Engineering Professionalism | 2 | |
| CE1101A Civil Engineering Principles & Practice CE2101 Principles & Practice in Infrastructure and Environment MA1511 Engineering Calculus MA1513 Linear Algebra with Differential Equations CS1010E Programming Methodology 4 EG2211 Introduction to Machine Learning 4 EG1311 Design & Make (CE version) 4 MLE1010 Materials Engineering Principles and Practice IE2141 Systems Thinking and Dynamics 4 CE Core Modules CE Core Modules CE 2112 Soil Mechanics CE 2113 Hydraulics 4 CE2134 Hydraulics 4 CE2135 Structural Mechanics and Materials CE21407 Engineering and Uncertainty Analyses ESE3001 Water Quality Engineering CE3115 Geotechnical Engineering CE3116 Foundation Engineering CE3116 Foundation Engineering CE3121 Transportation Engineering CE3132 Water Resources Engineering CE3135 Structural Analysis CE3165 Structural Steel Design CE3165 Structural Steel Design CE3166 Structural Steel Design CE3166 Structural Steel Design Age CE4104 B.Eng. Dissertation EG4104 B.Eng. Dissertation 8 EG3611A Industrial Attachment 10 Unrestricted Elective Modules (UEM) | ES2531 Critical Thinking and Writing | 4 | |
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| MA1513 Linear Algebra with Differential Equations CS1010E Programming Methodology EG2211 Introduction to Machine Learning EG1311 Design & Make (EE version) MLE1010 Materials Engineering Principles and Practice IE2141 Systems Thinking and Dynamics CE Core Modules CE2112 Soil Mechanics CE2112 Soil Mechanics CE2134 Hydraulics CE2135 Structural Mechanics and Materials CE2183 Construction Project Management CE2407 Engineering and Uncertainty Analyses ES3001 Water Quality Engineering CE3116 Foundation Engineering CE3116 Foundation Engineering CE3121 Transportation Engineering CE3122 Water Resources Engineering CE3135 Structural Analysis CE3165 Structural Concrete Design CE3166 Structural Concrete Design and System CE Project & Internship Modules CE4103 Design Project CE4103 Design Project CE4104 B.Eng. Dissertation EG3611A Industrial Attachment 10 Unrestricted Elective Modules (UEM) | CE2101 Principles & Practice in Infrastructure and Environment | 4 | |
| CS1010E Programming Methodology EG2211 Introduction to Machine Learning EG1311 Design & Make (CE version) MLE1010 Materials Engineering Principles and Practice IE2141 Systems Thinking and Dynamics 4 CE Core Modules CE2112 Soil Mechanics CE2134 Hydraulics CE2134 Hydraulics CE2135 Structural Mechanics and Materials CE2135 Construction Project Management CE2407 Engineering and Uncertainty Analyses ESE3001 Water Quality Engineering CE3115 Geotechnical Engineering CE3116 Foundation Engineering CE3121 Transportation Engineering CE3122 Water Resources Engineering CE3155 Structural Analysis CE3165 Structural Concrete Design CE3165 Structural Steel Design and System CE4103 Design Project CE4103 Design Project CE4103 Design Project CE4104 B.Eng. Dissertation EG3611A Industrial Attachment 10 Unrestricted Elective Modules (UEM) | MA1511 Engineering Calculus | 2 | |
| EG2211 Introduction to Machine Learning EG1311 Design & Make (CE version) MLE1010 Materials Engineering Principles and Practice IE2141 Systems Thinking and Dynamics CE Core Modules CE2112 Soil Mechanics CE2112 Soil Mechanics CE2134 Hydraulics CE2155 Structural Mechanics and Materials CE2155 Structural Mechanics and Materials CE2156 CE2112 Soil Mechanics and Materials CE2157 Structural Mechanics and Materials CE2158 CE2113 Genstruction Project Management CE2407 Engineering and Uncertainty Analyses ESE3001 Water Quality Engineering CE3115 Geotechnical Engineering CE3115 Geotechnical Engineering CE3116 Foundation Engineering CE3121 Transportation Engineering CE3132 Water Resources Engineering CE3155 Structural Analysis CE3165 Structural Concrete Design CE3165 Structural Steel Design and System CE Project & Internship Modules CE4103 Design Project 4 CE4104 B.Eng. Dissertation 8 EG3611A Industrial Attachment 10 Unrestricted Elective Modules (UEM) | MA1513 Linear Algebra with Differential Equations | 2 | |
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| CE2112 Soil Mechanics4CE2134 Hydraulics4CE2155 Structural Mechanics and Materials4CE2183 Construction Project Management4CE2407 Engineering and Uncertainty Analyses4ESE3001 Water Quality Engineering4CE3115 Geotechnical Engineering4CE3116 Foundation Engineering4CE3121 Transportation Engineering4CE3132 Water Resources Engineering4CE3135 Structural Analysis4CE3165 Structural Concrete Design4CE3166 Structural Steel Design and System4CE Project & Internship Modules22CE4103 Design Project4CE4104 B.Eng. Dissertation8EG3611A Industrial Attachment10Unrestricted Elective Modules (UEM)28 | IE2141 Systems Thinking and Dynamics | 4 | |
| CE2134 Hydraulics4CE2155 Structural Mechanics and Materials4CE2183 Construction Project Management4CE2407 Engineering and Uncertainty Analyses4ESE3001 Water Quality Engineering4CE3115 Geotechnical Engineering4CE3116 Foundation Engineering4CE3121 Transportation Engineering4CE3132 Water Resources Engineering4CE3155 Structural Analysis4CE3165 Structural Concrete Design4CE3166 Structural Steel Design and System4CE Project & Internship Modules22CE4103 Design Project4CE4104 B.Eng. Dissertation8EG3611A Industrial Attachment10Unrestricted Elective Modules (UEM)28 | CE Core Modules | | 52 |
| CE2155 Structural Mechanics and Materials4CE2183 Construction Project Management4CE2407 Engineering and Uncertainty Analyses4ESE3001 Water Quality Engineering4CE3115 Geotechnical Engineering4CE3116 Foundation Engineering4CE3121 Transportation Engineering4CE3132 Water Resources Engineering4CE3155 Structural Analysis4CE3165 Structural Concrete Design4CE3166 Structural Steel Design and System4CE Project & Internship Modules22CE4103 Design Project4CE4104 B.Eng. Dissertation8EG3611A Industrial Attachment10Unrestricted Elective Modules (UEM)28 | CE2112 Soil Mechanics | 4 | |
| CE2183 Construction Project Management4CE2407 Engineering and Uncertainty Analyses4ESE3001 Water Quality Engineering4CE3115 Geotechnical Engineering4CE3116 Foundation Engineering4CE3121 Transportation Engineering4CE3132 Water Resources Engineering4CE3155 Structural Analysis4CE3165 Structural Concrete Design4CE3166 Structural Steel Design and System4CE Project & Internship Modules22CE4103 Design Project4CE4104 B.Eng. Dissertation8EG3611A Industrial Attachment10Unrestricted Elective Modules (UEM)28 | CE2134 Hydraulics | 4 | |
| CE2407 Engineering and Uncertainty Analyses4ESE3001 Water Quality Engineering4CE3115 Geotechnical Engineering4CE3116 Foundation Engineering4CE3121 Transportation Engineering4CE3132 Water Resources Engineering4CE3155 Structural Analysis4CE3165 Structural Concrete Design4CE3166 Structural Steel Design and System4CE Project & Internship Modules22CE4103 Design Project4CE4104 B.Eng. Dissertation8EG3611A Industrial Attachment10Unrestricted Elective Modules (UEM)28 | CE2155 Structural Mechanics and Materials | 4 | |
| ESE3001 Water Quality Engineering CE3115 Geotechnical Engineering CE3116 Foundation Engineering CE3121 Transportation Engineering CE3132 Water Resources Engineering CE3155 Structural Analysis CE3165 Structural Concrete Design CE3166 Structural Steel Design and System CE4103 Design Project CE4103 Design Project CE4104 B.Eng. Dissertation EG3611A Industrial Attachment Unrestricted Elective Modules (UEM) | CE2183 Construction Project Management | 4 | |
| CE3115 Geotechnical Engineering CE3116 Foundation Engineering CE3121 Transportation Engineering CE3132 Water Resources Engineering CE3155 Structural Analysis CE3165 Structural Concrete Design CE3166 Structural Steel Design and System CE3166 Structural Steel Design and System CE4103 Design Project CE4104 B.Eng. Dissertation EG3611A Industrial Attachment Unrestricted Elective Modules (UEM) 28 | CE2407 Engineering and Uncertainty Analyses | 4 | |
| CE3116 Foundation Engineering CE3121 Transportation Engineering CE3132 Water Resources Engineering CE3155 Structural Analysis CE3165 Structural Concrete Design CE3166 Structural Steel Design and System CE Project & Internship Modules CE4103 Design Project CE4104 B.Eng. Dissertation EG3611A Industrial Attachment Unrestricted Elective Modules (UEM) | ESE3001 Water Quality Engineering | 4 | |
| CE3121 Transportation Engineering 4 CE3132 Water Resources Engineering 4 CE3155 Structural Analysis 4 CE3165 Structural Concrete Design 4 CE3166 Structural Steel Design and System 4 CE Project & Internship Modules 22 CE4103 Design Project 4 CE4104 B.Eng. Dissertation 8 EG3611A Industrial Attachment 10 Unrestricted Elective Modules (UEM) 28 | CE3115 Geotechnical Engineering | 4 | |
| CE3132 Water Resources Engineering 4 CE3155 Structural Analysis 4 CE3165 Structural Concrete Design 4 CE3166 Structural Steel Design and System 4 CE Project & Internship Modules 22 CE4103 Design Project 4 CE4104 B.Eng. Dissertation 8 EG3611A Industrial Attachment 10 Unrestricted Elective Modules (UEM) 28 | CE3116 Foundation Engineering | 4 | |
| CE3155 Structural Analysis CE3165 Structural Concrete Design CE3166 Structural Steel Design and System 4 CE Project & Internship Modules CE4103 Design Project CE4104 B.Eng. Dissertation EG3611A Industrial Attachment Unrestricted Elective Modules (UEM) 4 CE3165 Structural Analysis 4 4 CE4104 B.Eng. Design and System 4 CE4104 B.Eng. Dissertation 8 EG3611A Industrial Attachment 10 | CE3121 Transportation Engineering | 4 | |
| CE3165 Structural Concrete Design CE3166 Structural Steel Design and System 4 CE Project & Internship Modules CE4103 Design Project CE4104 B.Eng. Dissertation EG3611A Industrial Attachment Unrestricted Elective Modules (UEM) 4 CE3166 Structural Concrete Design 4 CE4104 B.Eng. Design Project 8 EG3611A Industrial Attachment 10 | CE3132 Water Resources Engineering | 4 | |
| CE3166 Structural Steel Design and System CE Project & Internship Modules CE4103 Design Project CE4104 B.Eng. Dissertation EG3611A Industrial Attachment Unrestricted Elective Modules (UEM) 4 22 22 23 24 25 26 27 28 | CE3155 Structural Analysis | 4 | |
| CE Project & Internship Modules22CE4103 Design Project4CE4104 B.Eng. Dissertation8EG3611A Industrial Attachment10Unrestricted Elective Modules (UEM)28 | CE3165 Structural Concrete Design | 4 | |
| CE4103 Design Project 4 CE4104 B.Eng. Dissertation 8 EG3611A Industrial Attachment 10 Unrestricted Elective Modules (UEM) 28 | CE3166 Structural Steel Design and System | 4 | |
| CE4104 B.Eng. Dissertation 8 EG3611A Industrial Attachment 10 Unrestricted Elective Modules (UEM) 28 | CE Project & Internship Modules | | 22 |
| CE4104 B.Eng. Dissertation 8 EG3611A Industrial Attachment 10 Unrestricted Elective Modules (UEM) 28 | CE4103 Design Project | 4 | |
| EG3611A Industrial Attachment 10 Unrestricted Elective Modules (UEM) 28 | | 8 | |
| Unrestricted Elective Modules (UEM) 28 | | 10 | |
| | | | 28 |
| | | | 160 |

¹ <u>BEng students are required to read ES2531 Critical Thinking & Writing</u>. Alternatively, students can read ES1501X Academic Expository Writing. USP/UTRP/RVRC students should refer to their respective programmes for USP/UTRP/RVRC modules to be read in place of ES2531.

Please visit CEE website for more details https://www.eng.nus.edu.sg/cee/undergraduate/beng-civil/curriculum/ for details.

² Students who have not passed or been exempted from the Qualifying English Test at the time of admission to the Faculty will have to read ES1000 and/or ES1103. This will be decided by CELC. ES1000 carries zero (0) MCs but students will have to pass in order to graduate while ES1103 carries 4 MCs which can be used to fulfil their UEMs.

³ For BEng students who are from direct poly intake OR in the following special programmes: DDPs, CDPs, E-Scholar & CSP, industrial attachment is optional and <u>in-lieu of the 10 MCs of Industrial Attachment, students will have an additional 10 modular credits of "Free Electives"</u>. The "Free Electives" can be treated the same as unrestricted elective modules (UEM).

<u>Technical Elective Modules [can be used to fulfil UEM requirements]</u>

| Geotechr | nical Engineering Modules (G) |
|------------|---|
| CE5101 | Seepage and Consolidation of Soils |
| CE5104 | Underground Space |
| CE5105 | Anal. & Num. Meth. in Foundation Engineering |
| CE5106 | Ground Improvement |
| CE5107 | Pile Foundations |
| CE5108 | Earth Retaining Structures |
| CE5881 | Topics in Geotechnical Engineering † |
| Structura | Il Engineering Modules (S) |
| CE4257 | Linear Finite Element Analysis |
| CE4258 | Structural Stability and Dynamics |
| CE5509 | Advanced Structural Steel Design |
| CE5510 | Advanced Structural Concrete Design |
| CE5513 | Plastic Analysis of Structures |
| CE5604 | Advanced Concrete Technology |
| CE5610 | Assessment and Retrofit of Concrete Structures |
| CE5611 | Precast Concrete Technology |
| ME5103 | Plates and Shells |
| CE5885 | Topics in Structural Engineering [†] |
| CE5886 | Topics in Concrete Engineering [†] |
| Infrastruc | cture Systems Modules (C and T) |
| CE4221 | Design of Land Transport Infrastructure |
| CE5204 | Pavement Design and Rehabilitation |
| CE5205 | Transportation Planning |
| CE5206 | Urban Public Transportation Systems |
| CE5208 | Transport Infrastructure Asset Management |
| CE5209 | Transportation Data Analytics and Modelling |
| CE5603 | Engineering Economics and Project Evaluation |
| CE5804 | Global Infrastructure Project Management |
| CE5805 | DfMA & Productivity Analytics in Construction |
| CE5806 | Advanced Project Management with Lean Construction |
| CE5807 | Integrated Digital Delivery (IDD) |
| CE5808 | Virtual Design and Construction with BIM Technologies |
| CE5880 | Topics in Project Management Engineering [†] |
| CE5882 | Topics in Transportation Engineering [†] |
| TP5025 | Intelligent Transportation Systems |
| TP5028 | Intermodal Transportation Operations |
| | : Modules (H) |
| | Treatment Plant Hydraulic |
| | Ocean Waves (2 MCs) |
| | Finite Amplitude Wave Theories & Their Applications (2 MCs) |
| CE5308 | · |
| | River Mechanics |
| | Climate Science for Engineers |
| | Water Resources for Smart and Liveable Cities: Introduction (2 MCs) |
| CE5316B | Water Resources Modelling for Urban Catchments (2 MCs) |

CE5316C Eco-hydrology (2 MCs)

CE5883 Topics in Hydraulic & Water Resources †

Environmental Engineering Modules (E)

ESE3101 Solid and Hazardous Waste Management

ESE4401 Water & Wastewater Engineering 2

ESE4405 Urban Water Engineering & Management

ESE5205 Sludge & Solid Waste Management

ESE5402 Industrial Water Control

Offshore Modules (O)

| OT5101 E | Exploration and | Production | of Petroleum |
|----------|-----------------|------------|--------------|
|----------|-----------------|------------|--------------|

OT5202 Analysis & Design of Offshore Structures

OT5203 Design of Floating Structures

OT5204 Moorings & Risers

OT5205 Offshore Pipelines

OT5206 Offshore Foundations

OT5207 Arctic Engineering

CE5307A Ocean Waves (2 MCs)

CE5307B Hydrodynamic Loads on Offshore Structures (2 MCs)

OT5881 Topics in Offshore Engineering †

OT5882 Topics in Subsea Engineering †

CE Technical Modules

CE3101 Integrated Infrastructure Project

CE3102 Socio-economic sustainable developments

CE5701 Special Topics in Civil Engineering

CE5702 CE Reliability Analysis and Design

[†]depending on the topics covered

Practicing Professional Pathway (PPP)

Updated on July 2020

Sample Semester Schedule for A-Level & Equivalent CE students

| Semester 1 | MC | Semester 2 | MC |
|---|----|--|----|
| MA1511 Engineering Calculus | 2 | CE2155 Structural Mechanics and Materials | 4 |
| CS1010E Programming Methodology | 4 | CE2102 Principles & Practice in Infra. & Environment | 4 |
| CE1101A Civil Engineering Principles & Practice | 4 | MLE1010 Materials Engrg Principles & Practice | 4 |
| EG1311 Design & Make (CE version) | 4 | GE 3 (GER1000) | 4 |
| GE 1 | 4 | GE 4 (GEQ1000) | 4 |
| GE 2 | 4 | MA1513 Linear Algebra with Differential Equations | 2 |
| Sub-total | 22 | Sub-total Sub-total | 22 |

Modules are on 100% e-Learning

| Semester 3 | МС | Semester 4 | MC |
|---|----|---|----|
| CE2112 Soil Mechanics | 4 | CE3115 Geotechnical Engineering | 4 |
| CE2134 Hydraulics | 4 | CE3166 Structural Steel Design and System | 4 |
| CE2407 Engineering and Uncertainty Analyses | 4 | CE3132 Water Resources Engineering | 4 |
| CE3155 Structural Analysis | 4 | EE2211 Introduction to Machine Learning | 4 |
| IE2141 Systems Thinking and Dynamics | 4 | ESE3001 Water Quality Engineering | 4 |
| GE 5 | 4 | | |
| Sub-total | 24 | Sub-total Sub-total | 20 |

| Semester 5 | MC | Semester 6 | MC |
|--|----|-------------------------------------|----|
| CE3116 Foundation Engineering | 4 | EG3611A Industrial Attachment | 10 |
| CE3121 Transportation Engineering | 4 | EG2401A Engineering Professionalism | 2 |
| CE3165 Structural Concrete Design | 4 | | |
| CE2183 Construction Project Management | 4 | | |
| ES2531 Critical Thinking and Writing | 4 | | |
| Sub-total | 20 | Sub-total | 12 |

| Semester 7 | MC | Semester 8 | MC |
|----------------------------|----|----------------------------|-----|
| CE4104 B.Eng. Dissertation | 4 | CE4104 B.Eng. Dissertation | 4 |
| CE4103 Design Project | 4 | UEM 4 | 4 |
| UEM 1 | 4 | UEM 5 | 4 |
| UEM 2 | 4 | UEM 6 | 4 |
| UEM 3 | 4 | UEM 7 | 4 |
| Sub-total | 20 | Sub-total | 20 |
| TOTAL | | | 160 |

Note

The highlighted modules are pre-allocated to students

UEM can be read in any semester. They do not have to be taken in Sem 7 and 8.

UEM can be used to take modules to fulfil Specialization / Second Major / Minor requirements or any modules as long as the total number of MCs for level-1000 at graduation does not exceed 60.

Innovation & Design Centric Programme (iDCP)

Recommended schedule to check with iDCP

Accredited Poly Direct Entry CE Students as of AY2020/2021

Updated on July 2020

Exemptions for Accredited Poly Direct Entry

Polytechnic diploma holders may be granted advanced placement credits (APC) in relevant modules for up to a maximum of 40 MCs as shown in the table below. Students from Ngee Ann Poly's Diploma in Sustainable Urban Design & Engineering must refer to Note 5.

| EXEMPTED | MODULES | MCs |
|----------|---|-----|
| | Unrestricted Elective Module 1 | 4 |
| | Unrestricted Elective Module 2 | 4 |
| | Unrestricted Elective Module 3 | 4 |
| | Unrestricted Elective Module 4 | 4 |
| | Unrestricted Elective Module 5 | 4 |
| CE1101A | Civil Engineering Principles & Practice | 4 |
| CE2102 | Principles & Practice in Infrastructure and Environment | 4 |
| MLE1010 | Materials Engineering Principles and Practice | 4 |
| EG1311 | Design and Make | 4 |
| ES2531 | Critical Thinking and Writing | 4 |
| | Total | 40 |

Note:

- Students with Diploma related to Environmental and Water Technology from Singapore Polytechnic or Ngee Ann Polytechnic will be exempted from ESE3001 Water Quality Engineering (4 MCs) but will be required to take CE1101A Civil Engineering Principles & Practice (4 MCs).
- 2. Polytechnic graduates will have <u>10 MCs of 'Free Elective' modules in lieu of the 10 MCs Industrial Attachment</u>. Students <u>may</u> want to consider using 6 MCs to take the 3-month internship (EG3602).
- 3. <u>Polytechnic graduates have to read MA1301</u> except those who have successfully completed all modules/courses in special Math programmes (such as the "Certificate in Engineering Mathematics", "Diploma Plus Programme in Advanced Engineering Mathematics" & etc) offered by their respective Polytechnics. Students can send their certificates to FoE Undergraduate Office before registration of modules to check if they are exempted from MA1301.
- 4. Students should not read more than 60 MCs of Level-1000 modules towards their degree requirements (minimum of 160 MCs for graduation), excluding CFG1010 Roots and Wings Personal and Interpersonal Effectiveness 1.0 (2 MCs), ES1103 English for Academic Purposes (4 MCs), Modules under the Design-Your-Own-Module (DYOM) initiative. For Polytechnic graduates, 20 MCs of the exempted UE modules will not count towards the 60 MCs limit on level-1000 modules.
- 5. Polytechnic graduates from Ngee Ann poly with a diploma in Sustainable Urban Design & Engineering will be exempted 20 MCs of Unrestricted Elective Module and ES2531 Critical Thinking Writing. The exemption from CE1101A, CE2102, MLE1010 and EG1311 will be determined after the department receives your transcript.

Sample Semester Schedule for Accredited Direct Poly Entry CE students

(for students who MUST take Maths Bridging Module MA1301)

| Semester 3 | МС | Semester 4 | MC |
|---|----|--|----|
| MA1301 Introductory Mathematics ¹ (fulfil UEM) | 4 | CE2155 Structural Mechanics and Materials | 4 |
| CS1010E Programming Methodology | 4 | CE3115 Geotechnical Engineering | 4 |
| CE2112 Soil Mechanics | 4 | MA1511 Engineering Calculus | 2 |
| CE2134 Hydraulics | 4 | MA1513 Linear Algebra with Differential Eqns | 2 |
| CE2183 Construction Project Management (CE1101A for Water Tech diploma) | 4 | GER1000 ⁴ GE 1 | 4 |
| | | GEQ1000 ⁴ GE 2 | 4 |
| Sub-total Sub-total | 20 | Sub-total | 20 |

Modules are on 100% e-Learning

| Semester 5 | МС | Semester 6 | MC |
|---|----|---|----|
| CE2407 Engineering & Uncertainty Analyses | 4 | CE3166 Structural Steel Design and System | 4 |
| CE3121 Transportation Engineering | 4 | ESE3001 Water Quality Engineering | 4 |
| CES121 Transportation Engineering | 4 | (GE5, for Water Tech diploma) | 4 |
| CE3116 Foundation Engineering | 4 | CE3132 Water Resources Engineering | 4 |
| CE3155 Structural Analysis | 4 | EE2211 Introduction to Machine Learning | 4 |
| CE3165 Structural Concrete Design | 4 | GE 3 ⁴ | 4 |
| Sub-total Sub-total | 20 | Sub-total | 20 |

| SPECIAL TERM (SUMMER HOLIDAYS) | | | | |
|--|---|--|--|--|
| OPTIONAL Vacation Internship (VIP) {Students can choose to take VIP to fulfil 6 MCs of Free Elective ² } | 6 | | | |

| Semester 7 | МС | Semester 8 | MC |
|--|----|------------------------------|-----|
| CE4104 B.Eng. Dissertation | 4 | CE4104 B.Eng. Dissertation | 4 |
| CE4103 Design Project | 4 | Free Elective ^{2,3} | 4 |
| IE2141 Systems Thinking and Dynamics | 4 | GE 5 ⁴ | 4 |
| EG2401A Engineering Professionalism | 2 | UEM ³ | 4 |
| GE 4 ⁴ (CE2183, for Water Tech diploma) | 4 | | |
| Sub-total | 18 | Sub-total | 16 |
| TOTAL | | | 120 |

Total 120 + 40 APCs = 160 MCs

The highlighted modules are pre-allocated to students.

¹MA1301 can be counted towards UEM. Students with the relevant Diploma Plus Certificate or Advanced Modules in Mathematics from Singapore Polytechnic or Ngee Ann Polytechnic could be waived from the requirement of taking MA1301.

²Direct poly entry students are not required to take EG3611A Industrial Attachment. In-lieu of the Industrial Attachment, students have <u>10MCs of "Free Electives"</u>.

³<u>UEM and Free Electives can be read in any semester</u> and can be any modules within or outside of your major requirements. It can also be used to fulfil the requirements of minor/specialization.

⁴GE too can be read in any semester, except GER and GEQ which are pre-allocated in Sem 2.

Sample Semester Schedule for Accredited Direct Poly Entry CE students

(for students who are **WAIVED** the Maths Bridging Module MA1301)

| Semester 3 | MC | Semester 4 | MC |
|---|----|--|----|
| MA1511 Engineering Calculus | 2 | CE2155 Structural Mechanics and Materials | 4 |
| CS1010E Programming Methodology | 4 | CE3115 Geotechnical Engineering | 4 |
| CE2112 Soil Mechanics | 4 | MA1513 Linear Algebra with Differential Eqns | 2 |
| CE2134 Hydraulics | 4 | GER1000 ⁴ GE 1 | 4 |
| CE2183 Construction Project Management (CE1101A for Water Tech diploma) | 4 | GEQ1000 ⁴ GE 2 | 4 |
| GE 4 ⁴ | 4 | GE 3 ⁴ | 4 |
| Sub-total | 22 | Sub-total Sub-total | 22 |

Modules are on 100% e-Learning

| Semester 5 | МС | Semester 6 | MC |
|---|----|---|----|
| CE2407 Engineering & Uncertainty Analyses | 4 | CE3166 Structural Steel Design and System | 4 |
| CE3121 Transportation Engineering | 4 | ESE3001 Water Quality Engineering (GE5, for Water Tech diploma) | 4 |
| CE3116 Foundation Engineering | 4 | CE3132 Water Resources Engineering | 4 |
| CE3155 Structural Analysis | 4 | EE2211 Introduction to Machine Learning | 4 |
| CE3165 Structural Concrete Design | 4 | | |
| Sub-total Sub-total | 20 | Sub-total | 16 |

| SPECIAL TERM (SUMMER HOLIDAYS) | | | |
|--|---|--|--|
| OPTIONAL Vacation Internship (VIP) {Students can choose to take VIP to fulfil 6 MCs of Free Elective ² } | 6 | | |

| Semester 7 | MC | Semester 8 | MC |
|---|----|------------------------------|-----|
| CE4104 B.Eng. Dissertation | 4 | CE4104 B.Eng. Dissertation | 4 |
| CE4103 Design Project | 4 | Free Elective ^{2,3} | 4 |
| IE2141 Systems Thinking and Dynamics | 4 | GE 5⁴ | 4 |
| EG2401A Engineering Professionalism | 2 | UEM ³ | 4 |
| UEM (CE2183, for Water Tech diploma) | 4 | | |
| Sub-total | 18 | Sub-total Sub-total | 16 |
| TOTAL | | | 120 |

Total 120 + 40 APCs = 160 MCs

The highlighted modules are pre-allocated to students.

¹MA1301 can be counted towards UEM. Students with the relevant Diploma Plus Certificate or Advanced Modules in Mathematics from Singapore Polytechnic or Ngee Ann Polytechnic could be waived from the requirement of taking MA1301.

²Direct poly entry students are not required to take EG3611A Industrial Attachment. In-lieu of the Industrial Attachment, students have <u>10MCs of "Free Electives"</u>.

³<u>UEM and Free Electives can be read in any semester</u> and can be any modules within or outside of your major requirements. It can also be used to fulfil the requirements of minor/specialization.

 $^{^4}$ GE too can be read in any semester, except GER and GEQ which are pre-allocated in Sem 2.