PROGRAMME QUALITY HANDBOOK 2025-26

FdSc Civil Engineering

- **Welcome and Introduction to FdSc Civil Engineering**

Welcome to FdSc Civil Engineering at City College Plymouth. This course has been designed to provide the base knowledge of Civil Engineering theory as well as essential skills required in the industry. Students will carry out practical design projects using proven theory to solve Civil Engineering problems.

The programme has been designed to develop skills and knowledge within core subjects related to Civil Engineering such as Mathematics, Structural Analysis and Materials. Along with these essential subjects included are topics covering the managerial aspects of Civil Engineering and a Computer Aided Design Project.

Alongside gaining, the essential knowledge students will undertake practical activities to allow for evaluation of industry standard design concepts.

This Programme Quality handbook contains important information including:

- The approved programme specification
- Module records

Note: The information in this handbook should be read in conjunction with the current edition of:

- Your Programme Institution & University Student Handbook which contains student support based information on issues such as finance and studying at HE
    - available in your Google Classroom
  - Your Module, Teaching, Learning and Assessment Guide
    - available in your Google Classroom
- University of plymouth's Student Handbook
  - available at: https://www.plymouth.ac.uk/your-university/governance/student-handbook

Programme Specification

Programme Title:	FdSc Civil Engineering
Final Award Title:	FdSc Civil Engineering
Intermediate Award Title:	N/A
UCAS Code:	H204
JACs Code:	H200
Date of Approval:	2017
Awarding Institution:	University of Plymouth
Teaching Institution:	City College Plymouth

Distinctive Features of the FdSc Programme and the Student Experience

Modern Society relies heavily on infrastructure. Designing and building highways, structures, bridges and dams that can withstand the elements requires special education and experience. This programme has been designed to equip students with the essential skills and knowledge in order to be able to perform a variety of roles across the Civil Engineering sector, covering essential engineering topics such as mathematics, materials and structural analysis, as well as core managerial knowledge and design methodologies.

Design projects have been included at both levels of the course, allowing students to gain hands-on experience of using Computer Aided Design along with other industry based software to develop and showcase their newfound knowledge and skills.

Employability is a distinctive feature of this programme. All the modules use a range of sector related teaching, learning and assessment practices which are relevant to prospective employers across the sector, with employer-led projects ensuring currency of topics and approach. The

programme has been designed to facilitate a close working relationship with a network of employers to support the student engagement in the wider community of Civil Engineering professionals.
A wide range of work related assessments have been adopted to ensure student engagement, including practical based assessments, reports, exams, portfolios and presentations.
The curriculum has been designed to enable part time students to incorporate work based projects set by their employers, and full time students to have the opportunity to gain work place experience as well as undertake industry set work based projects.
The programme has been designed to provide high levels of flexibility for both full and part time students. The design model allows full time students to manage part time employment around their studies, and provides part time students with a day-release model of delivery.

Relevant QAA Subject Benchmark Group(s)

The subject benchmark statement (2015)1 defines the academic standard expected of graduates with an engineering degree. The defined learning outcomes are those published by the Engineering Council in the UK-SPEC UK standard for professional engineering competence www.engc.co.uk Third edition[2]
The QAA foundation benchmarks[3]

1. http://www.qaa.ac.uk/en/Publications/Documents/SBS-engineering-15.pdf
2. http://www.engc.org.uk/engcdocuments/internet/Website/UK-SPEC%20third%20edition%20(1).pdf
3. http://www.qaa.ac.uk/en/Publications/Documents/Foundation-Degree-qualification-benchmark-May-2010.pdf

Programme Structure

The Programme of study comprises of 240 module credits across level 4 and level 5 with 120 credits per level. The aim of the programme is to develop skills consistent with Engineering Council and Engineering Subject Benchmarks. Due to our strong links with employers and high number of part time learners who are already employed in industry, our programme has been developed to provide for the varied roles across the city as Civil Engineers. In addition, we have planned to provide a solid grounding to our full time students wishing to further their study or enter employment.

Work based learning as a part of the Foundation Degree will be incorporated into the final year project, this project will be either based in their workplace, set by local employers or students will work with local employers gaining essential skills, experience and knowledge for their project.

Programme Structure

FdSc FT Stage 1			
Module Code	**Module Title**	**No. of Credits**	**Core / Optional**
CITY1077	Engineering Mathematics	20	**Core**
CITY1085	Materials	20	**Core**
CITY1086	ICT and Design	20	**Core**
CITY1088	Construction and Civil Engineering Management	20	**Core**
CITY1089	Structural Analysis and Design 1	20	**Core**
CITY1090	Civil Engineering Construction	20	**Core**
FdSc FT Stage 2			
Module Code	**Module Title**	**No. of Credits**	**Core / Optional**
CITY2083	Site Surveying	20	**Core**
CITY2087	Project	20	**Core**
CITY2088	Strength of Materials	20	**Core**
CITY2089	Structural Analysis and Design 2	20	**Core**
CITY2090	Hydraulics	20	**Core**
CITY2091	Geotechnics	20	**Core**

Part Time FdSc Stage 1			
Module Code	**Module Title**	**No. of Credits**	**Core / Optional**
CITY1077	Engineering Mathematics	20	**Core**
CITY1085	Materials	20	**Core**
CITY1089	Structural Analysis & Design 1	20	**Core**
CITY1090	Civil Engineering Construction	20	**Core**
Part Time FdSc Stage 2			
CITY1086	ICT and Design	20	**Core**
CITY1088	Construction and Civil Engineering Management	20	**Core**
CITY2083	Site Surveying	20	**Core**
CITY2089	Structural Analysis and Design 2	20	**Core**
Part Time FdSc Stage 3			
CITY2088	Strength of Materials	20	**Core**
CITY2087	Project	20	**Core**
CITY2090	Hydraulics	20	**Core**
CITY2091	Geotechnics	20	**Core**

FdSc Programme Aims

This programme aims to:

1. Establish broad foundation knowledge on which to develop further skills as technology advances and to enable students to apply engineering principles to the analysis and design of civil engineering structures.
2. Provide the opportunity to 'learn through design' via practical and project based work, particularly within the context of structural design.
3. Provide an awareness of the business implications of engineering decisions and a knowledge of the inter-relationship between the market, engineering activities and the management structures.
4. Provide the opportunity to develop communication, data collection and analysis, ingenuity, problem solving, application and diagnostic skills.

Programme Intended Learning Outcomes

Programme ILOs have been adapted from UK-SPEC
UK STANDARD FOR PROFESSIONAL
ENGINEERING COMPETENCE
Engineering Technician
www.engc.org.uk
Third edition

Progression criteria for Final and Intermediate Awards

FdSc - Upon successful completion of this programme, the progression route is Level 6 BSc (Hons) Construction and Civil Engineering (Top Up) programme at City College Plymouth.

Admissions Criteria, including APCL, APEL and DAS arrangements

NB The following table is a draft exemplar for an undergraduate programme

All applicants must have GCSE (or equivalent) Maths and English at Grade C or above.

Entry Requirements for FdSc Civil Engineering	
A-level/AS-level	Normal minimum entry requirements are 56 on new UCAS Tariff at A-level to include Grade D in Maths or Physics
BTEC National Diploma/QCF Extended Diploma	Candidates are interviewed before an offer is made. But an equivalent of 56 UCAS points in an Engineering Subject
Access to Higher Education at level 3	Candidates are interviewed before an offer is made. Pass an Access to HE Diploma in Science with an equivalent of 56 UCAS points

Welsh Baccalaureate	Normal minimum entry requirements are an equivalent of 56 on new UCAS Tariff include Maths, Physics or Engineering
Scottish Qualifications Authority	Normal minimum entry requirements are an equivalent of 56 on new UCAS Tariff include Maths, Physics or Engineering.
Irish Leaving Certificate	Normal minimum entry requirements are an equivalent of 56 on new UCAS Tariff include Maths, Physics or Engineering.
International Baccalaureate	Normal minimum entry requirements are an equivalent of 56 on new UCAS Tariff include Maths, Physics or Engineering.
Non Standard Qualifications with experience	All non-standard applicants are interviewed by the tutor and screened centrally to ensure impartial oversight.

Level 5 entry:

Students may enter at level 5 with a relevant HNC and 120 module credits at Level 4 subject to University of Plymouth Regulations for Accredited Prior Learning.
As approved by Academic Regulations Sub Committee (ARSC) it is also possible to enter onto level 5 of the part time programme with 120 credits at level 4 and 40 credits at level 5 if students have successfully completed the City College Plymouth HNC Construction award (approved to commence from September 2017) with the required 40 CPD credits at Level 5.

FdSc Exceptions to Regulations

The Academic Regulations Sub-Committee (ARSC) have approved a non-standard regulation relating to Accredited Prior Learning (APL) for part-time students.

Part-time students are exceptionally permitted to use 160 credits as Accredited Prior Learning to complete the remaining FdSc credits at Level 5 where all of the following apply:

- The student has successfully achieved the HNC Civil Engineering at City College Plymouth (September 2017 enrolment onwards)
- The student has successfully achieved 40 credits Continuing Professional Development modules at Level 5 (as specified by City College Plymouth)
- All the modules studied and achieved are identical to the modules on the FdSc.

Learning Outcomes map

	LEVEL 4			
FHEQ Descriptors	Subject Benchmark(s)	Programme Aims	Programme Outcomes	Core Modules linked to outcomes
Students will have demonstrated: Knowledge of the underlying concepts and principles associated with their areas of study;	A2, Use appropriate scientific, technical or engineering principles.	1. Establish broad foundation knowledge on which to develop further skills as technology advances and to enable students to apply engineering principles to the analysis and design of civil engineering structures.	8.1.1) A sound theoretical approach to the application of technology in civil engineering practice. 8.1.2) The ability to identify, review and select techniques, procedures and methods to undertake engineering tasks. 8.2.1) The ability to Identify, review and select techniques, procedures and methods to undertake civil engineering tasks.	CITY1077; ALO1, ALO4 CITY1085; ALO1, ALO2 CITY1086; ALO1 CITY1088; ALO4 CITY1089; ALO3 CITY1090; ALO2, ALO3
Ability to evaluate and interpret these within the context of that area of study;	A1, Review and select appropriate techniques, procedures and methods to undertake tasks. B1, Identify problems and apply appropriate methods to identify causes and achieve satisfactory solutions. B2, Identify, organise and use resources	1. Establish broad foundation knowledge on which to develop further skills as technology advances and to enable students to apply engineering principles to the analysis and design of civil engineering structures.	8.1.2) The ability to identify, review and select techniques, procedures and methods to undertake engineering tasks. 8.1.3) A sound evidence-based approach to problem-solving and contribute to continuous improvement. 8.2.2) The ability to use results of analysis to solve civil engineering problems, apply	CITY1077; ALO1, ALO4 CITY1089; ALO1, ALO2, ALO3, ALO4 CITY1090; ALO3

Ability to present, evaluate and interpret qualitative and quantitative data;	effectively to complete tasks, with consideration for cost, quality, safety, security and environmental impact. D1, Use oral, written and electronic methods for the communication in English1 of technical and other information.	2. Provide the opportunity to 'learn through design' via practical and project based work, particularly within the context of structural design. 4. Provide the opportunity to develop communication, data collection and analysis, ingenuity, problem solving, application and diagnostic skills. 5. Provide the opportunity to develop communication, data collection and analysis, ingenuity, problem solving, application and diagnostic skills.	technology and implement solutions. 8.4.2) The communication, planning and management skills to successfully complete and present a relevant work based project, through liaison with industrial links 8.2.2) The ability to use results of analysis to solve civil engineering problems, apply technology and implement solutions. 8.3.1) Communicate ideas and information; through verbal and written forms using appropriate terminology and presentation of data. 8.4.2) The communication, planning and management skills to successfully complete and present a relevant work based project, through liaison with industrial links	CITY1085; ALO2, ALO4 CITY1088; ALO1, ALO2
Students will be able to:	A1, Review and select appropriate techniques,	6. Provide the opportunity to develop communication, data	8.1.2) The ability to identify, review and select techniques,	CITY1077; ALO1, ALO3, ALO4 CITY1085; ALO2 CITY1086; ALO4

Evaluate the appropriateness of different approaches to solving problems related to their area of study; Communicate the results of their study accurately and reliably and with structured and coherent argument	procedures and methods to undertake tasks. A2, Use appropriate scientific, technical or engineering principles. B1, Identify problems and apply appropriate methods to identify causes and achieve satisfactory solutions. D1, Use oral, written and electronic methods for the communication in English1 of technical and other information.	collection and analysis, ingenuity, problem solving, application and diagnostic skills. 4. Provide the opportunity to develop communication, data collection and analysis, ingenuity, problem solving, application and diagnostic skills.	procedures and methods to undertake engineering tasks. 8.1.3) A sound evidence-based approach to problem-solving and contribute to continuous improvement. 8.2.2) The ability to use results of analysis to solve civil engineering problems, apply technology and implement solutions. 8.3.1) Communicate ideas and information; through verbal and written forms using appropriate terminology and presentation of data. 8.4.2) The communication, planning and management skills to successfully complete and present a relevant work based project, through liaison with industrial links	CITY1088; ALO4 CITY1089; ALO1, ALO2 CITY1085; ALO4, ALO5 CITY1086; ALO4 CITY1088: ALO2, ALO3 CITY1089; ALO3, ALO4.
Undertake further training and develop new skills within a structured and managed environment	E4, Carry out and record CPD necessary to maintain and enhance competence in own area of practice including:	1. Establish broad foundation knowledge on which to develop further skills as technology advances and to enable students to apply engineering principles to the analysis and design	8.4.1) Good student centred learning skills, which will promote lifelong learning and a commitment to continuing professional development to achieve flexibility within the work environment.	All level 4 modules base the assessments on this Intended learning outcome

	• Undertake reviews of own development needs • Plan how to meet personal and organisational objectives • Carry out planned (and unplanned) CPD activities • Maintain evidence of competence development • Evaluate CPD outcomes against any plans made • Assist others with their own CPD.	of civil engineering structures. 2. Provide the opportunity to 'learn through design' via practical and project-based work, particularly within the context of structural design. 3. Provide an awareness of the business implications of engineering decisions and a knowledge of the inter-relationship between the market, engineering activities and the management structures. 4. Provide the opportunity to develop communication, data collection and analysis, ingenuity, problem solving, application and diagnostic skills.			
Students will also have: The qualities and transferable skills necessary for	C1, Work reliably and effectively without close supervision, to the appropriate codes of	1. Establish broad foundation knowledge on which to develop further skills as technology advances and to enable students to apply engineering principles to	8.4.1) Good student centred learning skills which will promote lifelong learning and a commitment to continuing professional development to	CITY1086; ALO4 CITY1088; ALO3 CITY1089; ALO3 CITY1090; ALO1, ALO3	

employment requiring the exercise of some personal responsibility	practice. E1, Comply with the Code of Conduct of your institution. E2, Manage and apply safe systems of work.	the analysis and design of civil engineering structures. 3. Provide an awareness of the business implications of engineering decisions and a knowledge of the inter-relationship between the market, engineering activities and the management structures. 4. Provide the opportunity to develop communication, data collection and analysis, ingenuity, problem solving, application and diagnostic skills.	achieve flexibility within the work environment. 8.4.2) The communication, planning and management skills to successfully complete and present a relevant work based project, through liaison with industrial links	

LEVEL 5				
FHEQ Descriptors	Subject Benchmark(s)	Programme Aims	Programme Outcomes	Core Modules linked to outcomes
Students will have demonstrated: Knowledge and critical understanding of the well-established principles of their area of study and the way in which those principles have developed;	A1, Maintain and extend a sound theoretical approach to the application of technology in engineering practice. B2, Contribute to the design and development of	1. Establish broad foundation knowledge on which to develop further skills as technology advances and to enable students to apply engineering principles to the analysis and design of civil engineering structures.	8.1.1) A sound theoretical approach to the application of technology in civil engineering practice. 8.1.2) The ability to identify, review and select techniques, procedures and methods to undertake engineering tasks. 8.1.3) A sound evidence-based approach to problem-solving and contribute to continuous improvement.	CITY2083; ALO1, ALO2 CITY2088; ALO1, ALO2 CITY2089; ALO1 CITY2090; ALO5 CITY2091, ALO1

Ability to apply underlying concepts and principles outside the context in which they were first studied, including where appropriate, the application of those principles in an employment context;	engineering solutions. B3, Implement design solutions and contribute to their evaluation. A2, Use a sound evidence-based approach to problem-solving and contribute to continuous improvement. B1, Identify, review and select techniques, procedures and methods to undertake engineering tasks. B2, Contribute to the design and development of engineering solutions. B3, Implement design solutions and contribute to their evaluation.	2. Provide the opportunity to 'learn through design' via practical and project based work, particularly within the context of structural design. 1.Establish broad foundation knowledge on which to develop further skills as technology advances and to enable students to apply engineering principles to the analysis and design of civil engineering structures. 2.Provide the opportunity to 'learn through design' via practical and project based work, particularly within the context of structural design. 4.Provide the opportunity to develop communication, data collection and analysis, ingenuity, problem solving, application and diagnostic skills.	8.1.3) A sound evidence-based approach to problem-solving and contribute to continuous improvement. 8.2.1) The ability to Identify, review and select techniques, procedures and methods to undertake civil engineering tasks. 8.2.2) The ability to identify, review and select techniques, procedures and methods to undertake engineering tasks. 8.3.1) Communicate ideas and information; through verbal and written forms using appropriate terminology and presentation of data. 8.4.1) Good student centred learning skills which will promote lifelong learning and a commitment to continuing professional development to achieve flexibility within the work environment. 8.5.1) The ability to select and use appropriate equipment to perform engineering tasks. 8.5.2) The ability to monitor, analyse and evaluate engineering systems. 8.4.2) The communication, planning and management skills to successfully complete and present a relevant work based project, through liaison with industrial links	CITY2088, CITY2083, CITY2083, ALO1, ALO2 CITY2088; ALO1, ALO2 CITY2089, ALO1, ALO2, ALO3, ALO4 CITY2090; ALO1, ALO2, ALO3, ALO4, ALO5 CITY2091; ALO3

Knowledge of the main methods of enquiry in the subject relevant to the named award, and ability to evaluate critically the appropriateness of different approaches to solving problems in the field of study; An understanding of the limits of the knowledge, and how this influences analyses and interpretations based on that knowledge	A1, Maintain and extend a sound theoretical approach to the application of technology in engineering practice. A2, Use a sound evidence-based approach to problem-solving and contribute to continuous improvement. B2, Contribute to the design and development of engineering solutions. B3, Implement design solutions and contribute to their evaluation.	1. Establish broad foundation knowledge on which to develop further skills as technology advances and to enable students to apply engineering principles to the analysis and design of civil engineering structures. 2. Provide the opportunity to 'learn through design' via practical and project based work, particularly within the context of structural design. 4. Provide the opportunity to develop communication, data collection and analysis, ingenuity, problem solving, application and diagnostic skills. 1. Establish broad foundation knowledge on which to develop further skills as technology advances and to enable	8.1.3) A sound evidence-based approach to problem-solving and contribute to continuous improvement. 8.2.1) The ability to Identify, review and select techniques, procedures and methods to undertake civil engineering tasks. 8.2.2) The ability to use results of analysis to solve civil engineering problems, apply technology and implement solutions. 8.2.3) The ability to Implement design solutions and contribute to their evaluation. 8.5.1) The ability to select and use appropriate equipment to perform engineering tasks. 8.5.2) The ability to monitor, analyse and evaluate engineering systems. 8.1.1) A sound theoretical approach to the application of technology in civil engineering practice. 8.1.3) A sound evidence-based approach to problem-solving and contribute to continuous improvement. 8.4.1) Good student centred learning skills which will promote lifelong learning and a commitment to continuing professional development to achieve flexibility within the work environment.	CITY2083, ALO1, ALO2 CITY2088; ALO1, ALO2 CITY2089, ALO1, ALO2, ALO3, ALO4 CITY2090; ALO1, ALO2, ALO3, ALO4, ALO5 CITY2091; ALO3

	C1, Plan for effective project implementation. A2, Use a sound evidence-based approach to problem-solving and contribute to continuous improvement.	students to apply engineering principles to the analysis and design of civil engineering structures. 4.Provide the opportunity to develop communication, data collection and analysis, ingenuity, problem solving, application and diagnostic skills.		
Students will be able to: Use a range of established techniques to initiate and undertake critical analysis of information, and to propose solutions to problems arising from that analysis;	A2, Use a sound evidence-based approach to problem-solving and contribute to continuous improvement. B1, Identify, review and select techniques, procedures and methods to undertake engineering tasks. B3, Implement design solutions and contribute to their evaluation.	1.Establish broad foundation knowledge on which to develop further skills as technology advances and to enable students to apply engineering principles to the analysis and design of civil engineering structures. 4.Provide the opportunity to develop communication, data collection and analysis, ingenuity, problem solving, application and diagnostic skills.	8.1.1) A sound theoretical approach to the application of technology in civil engineering practice. 8.1.2) The ability to identify, review and select techniques, procedures and methods to undertake engineering tasks. 8.1.3) A sound evidence-based approach to problem-solving and contribute to continuous improvement. 8.2.1) The ability to Identify, review and select techniques, procedures and methods to undertake civil engineering tasks. 8.2.2) The ability to use results of analysis to solve civil engineering problems, apply technology and implement solutions. 8.2.3) The ability to Implement design solutions and contribute to their evaluation. 8.4.2) The communication, planning and management skills to successfully	CITY2083, ALO1, ALO2 CITY2088; ALO1, ALO2, ALO3, ALO4 CITY2089, ALO1, ALO2, ALO3, ALO4 CITY2090; ALO1, ALO2, ALO3, ALO4, ALO5 CITY2091; ALO2, ALO3

			complete and present a relevant work based project, through liaison with industrial links 8.5.1) The ability to select and use appropriate equipment to perform engineering tasks. 8.5.2) The ability to monitor, analyse and evaluate engineering systems 8.3.1) Communicate ideas and information; through verbal and written forms using appropriate terminology and presentation of data.	
Effectively communicate information, arguments and analysis in a variety of forms to specialist and non-specialist audiences, and deploy key techniques of the discipline effectively; Undertake further training, develop existing skills and acquire new competences that will enable them to assume significant responsibility within organisations.	D1, Communicate in English2 with others at all levels. D2, Present and discuss proposals. D3, Demonstrate personal and social skills. E4, Carry out and record CPD necessary to maintain and enhance	4. Provide the opportunity to develop communication, data collection and analysis, ingenuity, problem solving, application and diagnostic skills. 1. Establish broad foundation knowledge on which to develop further skills as technology advances and to enable students to apply engineering principles to the analysis and design	8.4.1) Good student centred learning skills which will promote lifelong learning and a commitment to continuing professional development to achieve flexibility within the work environment. 8.4.2) The communication, planning and management skills to successfully complete and present a relevant work based project, through liaison with industrial links	CITY2083; ALO3 CITY2087; ALO1, ALO2, ALO3, ALO4 All level 5 modules base the assessments on this Intended learning outcome

	competence in own area of practice.	of civil engineering structures. 2. Provide the opportunity to 'learn through design' via practical and project based work, particularly within the context of structural design.		
Students will also have: The qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and decision-making	E4, Carry out and record CPD necessary to maintain and enhance competence in own area of practice. E5, Exercise responsibilities in an ethical manner.	1. Establish broad foundation knowledge on which to develop further skills as technology advances and to enable students to apply engineering principles to the analysis and design of civil engineering structures. 2. Provide the opportunity to 'learn through design' via practical and project based work, particularly within the context of structural design. 3. Provide an awareness of the business implications of engineering decisions and a knowledge of the inter-relationship between the market, engineering	8.1.1) A sound theoretical approach to the application of technology in civil engineering practice. 8.1.2) The ability to identify, review and select techniques, procedures and methods to undertake engineering tasks. 8.1.3) A sound evidence-based approach to problem-solving and contribute to continuous improvement. 8.2.1) The ability to Identify, review and select techniques, procedures and methods to undertake civil engineering tasks. 8.2.2) The ability to use results of analysis to solve civil engineering problems, apply technology and implement solutions. 8.2.3) The ability to Implement design solutions and contribute to their evaluation. 8.3.1) Communicate ideas and information; through verbal and written forms using appropriate terminology and presentation of data. 8.3.2) Work independently and as a member of a team. 8.4.1) Good student centred learning skills which will promote lifelong learning and a commitment to	CITY2083; ALO3 CITY2087; ALO1, ALO2, ALO3, ALO4 CITY2089; ALO2 CITY2090; ALO5

		activities and the management structures. 4. Provide the opportunity to develop communication, data collection and analysis, ingenuity, problem solving, application and diagnostic skills.	continuing professional development to achieve flexibility within the work environment. 8.4.2) The communication, planning and management skills to successfully complete and present a relevant work based project, through liaison with industrial links 8.5.1) The ability to select and use appropriate equipment to perform engineering tasks. 8.5.2) The ability to monitor, analyse and evaluate engineering systems.	

SECTION A: DEFINITIVE MODULE RECORD. Proposed changes must be submitted via Faculty Quality Procedures for approval and issue of new module code.

MODULE CODE: CITY1077	**MODULE TITLE**: Engineering Mathematics

CREDITS: 20	**FHEQ LEVEL**: 4	**JACS CODE**: G160

PRE-REQUISITES: N	**CO-REQUISITES**: N	**COMPENSATABLE**: Y

SHORT MODULE DESCRIPTOR:
To develop the student's mathematical ability and to apply principles to the solution of engineering problems and to make use of mathematical computer based packages.

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ELEMENTS OF ASSESSMENT					
WRITTEN EXAMINATION		**COURSEWORK**		**PRACTICE**	
E1 (Formally scheduled)	50%	**C1**	50%	**P1**	
E2 (OSCE)					
T1 (in-class test)		**A1**			

SUBJECT ASSESSMENT PANEL Technology

Professional body minimum pass mark requirement: n/a

MODULE AIMS:

- To gain a solid foundation in algebra, trigonometry, functions and calculus in order to associate and recognise the importance of mathematics in the analysis of engineering problems
- To develop mathematical problem solving simultaneously with other science and engineering modules.

ASSESSED LEARNING OUTCOMES: (additional guidance below)
At the end of a module the learner **will be expected to be able to:**

LO1. use basic mathematical techniques to solve engineering problems of an electrical, mechanical or civil engineering nature.
LO2. recognise and solve first and second order ordinary differential equations
LO3. understand the use of complex number and matrix theory in practical engineering applications
LO4. understand a variety of techniques of differential and integral calculus to calculate various functions in their associated applications in engineering

DATE OF APPROVAL: April 2017	**FACULTY/OFFICE: Academic Partnerships**
DATE OF IMPLEMENTATION: Sept 2017	**SCHOOL/PARTNER: City College Plymouth**
DATE(S) OF APPROVED CHANGE:	**TERM: All Year**

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

Items in this section must be considered annually and amended as appropriate, in conjunction with the Module Review Process.

ACADEMIC YEAR: 2025/26	**NATIONAL COST CENTRE: 119**

MODULE LEADER: Owais Raja	**OTHER MODULE STAFF: N/A**

Summary of Module Content
Revision of Algebra and Arithmetic: Basic number and arithmetic operations, algebraic techniques including evaluation of formula, rearranging formula, solving simple equations, laws of logarithms, laws of indices, etc. These skills will be built upon throughout the delivery of each individual topic in this module.
Trigonometric functions and graphs: Simple trigonometric functions of sine, cosine, tangent and hyperbolic functions of $\sinh^{-1}$, $\cosh^{-1}$ and $\tanh^{-1}$. The applications of these functions in engineering including vectors and waveform combination.
Complex numbers: Addition, subtraction, multiplication and division of complex numbers in Polar and Cartesian form. The Argand diagram. The modulus and argument. Applications in engineering.
Differential Calculus: Basic differentiation techniques of polynomial, trigonometric, exponential and logarithmic functions. Further techniques including the product, quotient and chain rules. Engineering applications to optimisation and higher order differentials.
Integral calculus: Basic integration techniques of polynomial, trigonometric and exponential functions. Further techniques including integration by parts and substitution. The methodical applications of definite and indefinite integration with and without engineering scenarios including the interpretation of areas under a curve.
Matrices: General arithmetic operations on matrices. Solve equations by using the inverse matrix method and apply to engineering problems. Understand the different types of solutions: no, unique and infinite solutions. Diagonalisation to find eigenvalues and corresponding eigenvectors.

SUMMARY OF TEACHING AND LEARNING		
Scheduled Activities	**Hours**	Comments/Additional Information
Lecture	60	30 x 2 hour lectures
Tutorial	15	Academic Support (Contact and VLE)
Independent Study	125	Guided self-study
Total	**200**	

Category	***Element***	***Component Name***	***Component weighting***	***Comments*** *Include links to learning objectives*
Written exam	E1	Module Examination	100%	LO1 - 2 End of Semester 1 Exam
Coursework	C1	Assignment	100%	LO3 – 4 Engineering Problems relevant to discipline

Updated by: Owais Raja Date: August 2025	**Approved by**: Hollie Galpin-Mitchell Date: August 2025

SECTION A: MODULE RECORD. ***Proposed changes must be submitted via Faculty Quality Procedures for approval and issue of new module code.***

MODULE CODE: CITY1089		**MODULE TITLE: Structural Analysis & Design 1**
CREDITS: 20	**FHEQ LEVEL: 4**	**JACS CODE: H210**

PRE-REQUISITES: **None**	**CO-REQUISITES:** **None**	**COMPENSATABLE:** **Yes**

SHORT MODULE DESCRIPTOR:
The purpose of this module is to enable learners to evaluate structural concepts and develop the ability to analyse structures and produce designs of structural elements in accordance with relevant British and European Codes of Practice

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ELEMENTS OF ASSESSMENT					
WRITTEN EXAMINATION		COURSEWORK		PRACTICE	
E1 (Formally scheduled)		**C1**	40%	**P1**	
E2 (OSCE)					
T1 (in-class test)	60%	**C3**			

SUBJECT ASSESSMENT PANEL Group to which module should be linked:
Technology

Professional body minimum pass mark requirement: None

MODULE AIMS:
- To introduce the differences between statically determinate and statically indeterminate structures and to apply knowledge of behaviour to analytical solutions.
- To apply concepts of equilibrium and compatibility and their use to statically determinate beams and frameworks.
- Introduce methods of determining loadings on structural elements.
- Understand methods of design elements in structural steelwork & reinforced concrete.

ASSESSED LEARNING OUTCOMES:
At the end of the module the learner will be expected to be able to:
LO1. Investigate statically determinate beams to determine reactions, shear forces and bending moments and produce designs for beams in accordance with current codes of practice.
LO2. Determine the forces in members of statically determinate frameworks.
LO3. Demonstrate the ability to transfer the skills of analysis to actual design.
LO4.Evaluate, Determine and Produce designs for members in tension/compression.

DATE OF APPROVAL: April 2017	**FACULTY/OFFICE**: Academic Partnerships

DATE OF IMPLEMENTATION: September 2017	**SCHOOL/PARTNER**: City College Plymouth
DATE(S) OF APPROVED CHANGE:	**TERM:** All Year

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

Items in this section must be considered annually and amended as appropriate, in conjunction with the Module Review Process.

ACADEMIC YEAR: 2025/26	**NATIONAL COST CENTRE: 118**
MODULE LEADER: Dan Burnard	**OTHER MODULE STAFF:**

Summary of Module Content
Structural Behaviour - elements, structures, equilibrium, compatibility, determinacy and indeterminacy, loads, restraints and reactive forces, shear force, bending moment, deflected forms, stresses.
Beams - dead, imposed and total loads, reactions, bending moments and shear forces diagrams. Principle of superposition. Bending theory. **Frames** - analysis of statically determinate plane frames. **Introduction to design -** British Standard Codes of Practice, Eurocodes, design handbooks, design charts, the use of AutoCAD. **Steelwork** - design of simple structural steelwork elements; restrained beams and axially loaded universal columns for given heights and end conditions. **Reinforced Concrete** - design of simple solid reinforced concrete sections and RC slabs, rectangular beams, short axially and eccentrically loaded columns; mass concrete and reinforced strip and pad foundations.

SUMMARY OF TEACHING AND LEARNING		
Scheduled Activities	**Hours**	**Comments/Additional Information**
Lectures	52	26 x 2hrs lectures
Lab	8	4 x 2hrs lab sessions
Academic Support	15	Group and individual tutorials
Independent Study	125	Self-study and guided reading
Total	**200**	

Category	***Element***	***Component Name***	***Component weighting***	***Comments*** *Include links to learning objectives*
Coursework	C1	Assignment	100 %	LO1, LO2 Structural Analysis Engineering Problem assignment
In Class Test	T1	Test	100 %	LO3, LO4 2 hr in class test on design and analysis

Updated by: Dan Burnard Date: August 2025	**Approved by**: Hollie Galpin-Mitchell Date: August 2025

SECTION A: MODULE RECORD. ***Proposed changes must be submitted via Faculty Quality Procedures for approval and issue of new module code.***

MODULE CODE: CITY1085	**MODULE TITLE: Materials**

CREDITS: 20	**FHEQ LEVEL:4**	**JACS CODE: K200**

PRE-REQUISITES: None	**CO-REQUISITES: None**	**COMPENSATABLE: Yes**

SHORT MODULE DESCRIPTOR: *(max 425 characters)*
This module explores the principles and properties of a range of construction materials. Learners are to select and promote materials for a specific construction related task, considering manufacturing , performance, appearance, sustainability and health & safety.

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ELEMENTS OF ASSESSMENT ***[Use HESA KIS definitions}***

WRITTEN EXAMINATION		COURSEWORK		PRACTICE	
E1 (Formally scheduled)		**C1**	50%	**P1**	50%
E2 (OSCE)					
T1 (in-class test)		**A1**			

SUBJECT ASSESSMENT PANEL Group to which module should be linked: **Technology**

Professional body minimum pass mark requirement: None

MODULE AIMS:

- To introduce the learner to a range of materials used in the construction industry.
- To investigate the major factors affecting the performance of construction materials with particular regard to strength, thermal and acoustic resistance, aesthetics and sustainability.
- to enable competence in producing COSHH and Risk assessments in line with current Health and Safety regulations.

ASSESSED LEARNING OUTCOMES: (additional guidance below)
At the end of the module the learner will be expected to be able to:

1. Compare the methods of manufacture and physical properties of a range of materials used in construction and civil engineering.
2. Rank appropriate materials for a range of construction applications.
3. Select sustainable concepts relating to material usage considering product lifecycle.
4. Compile a COSHH assessment reviewing the safe use of specific construction materials
5. Devise a risk assessment and identify the requirements of monitoring and reviewing.

DATE OF APPROVAL: April 2017	**FACULTY/OFFICE:** Academic Partnerships

DATE OF IMPLEMENTATION: September 2017	**SCHOOL/PARTNER:** City College Plymouth
DATE(S) OF APPROVED CHANGE:	**TERM:** All Year

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

Items in this section must be considered annually and amended as appropriate, in conjunction with the Module Review Process.

ACADEMIC YEAR: 2025/26	**NATIONAL COST CENTRE: 118/ 123**
MODULE LEADER: Dan Burnard	**OTHER MODULE STAFF:**

Summary of Module Content

Introduction – range of materials, codes of practice and health and safety materials
Cements – manufacture, types, chemical composition properties and performance
Aggregates – lightweight, normal, heavy, natural and artificial types, sources, properties, production, testing and impurities.
Timber – types, structure, stress grading, structural properties, attacks by fungi, insects and marine borers, prevention and treatment.
Bitumens – origin, blown and cutback bitumens. Classification, penetration, softening point, uses, asphalts, failures.
Metals – ferrous and non-ferrous, steel properties and uses
Masonry – manufacture of bricks and blocks, strengths and serviceability properties, uses.
Concrete – properties of concrete, production, transporting, placing, compacting, curing, formwork.
Health and Safety- Production of COSHH assessment

SUMMARY OF TEACHING AND LEARNING ***[Use HESA KIS definitions}***		
Scheduled Activities	**Hours**	**Comments/Additional Information**
Lectures	50	25x2hr lectures
Workshops	6	3x2hr workshop sessions
Fieldwork	4	1x4hr on site feasibility study
Academic Support	15	A mix of group and individual tutorials
Independent Study	125	
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc)**

Category	***Element***	***Component Name***	***Component weighting***	***Comments***
Coursework	C1	Report	100%	LO1, LO3, LO5 200 word Report on Sustainability
Practice	P1	Presentation	100%	LO2, LO4 10 minute Presentation on Materials

Updated by Dan Burnard Date: August 2025	**Approved by**: Hollie Galpin-Mitchell Date: August 2025

SECTION A: MODULE RECORD. ***Proposed changes must be submitted via Faculty Quality Procedures for approval and issue of new module code.***

MODULE CODE: CITY1086	**MODULE TITLE: ICT and Design**

CREDITS: 20	**FHEQ LEVEL: 4**	**JACS CODE: H200**

PRE-REQUISITES: None	**CO-REQUISITES: None**	**COMPENSATABLE: Yes**

SHORT MODULE DESCRIPTOR:
The module is based around a project where BIM, LUSAS, Autodesk products or similar software and ICT skills relevant to construction and civil engineering are brought together through formulating and implementing a design project.

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ELEMENTS OF ASSESSMENT ***[Use HESA KIS definitions}***

WRITTEN EXAMINATION		COURSEWORK		PRACTICE	
E1 (Formally scheduled)		**C1**	100%	**P1**	
E2 (OSCE)					
T1 (in-class test)		**A1**			

SUBJECT ASSESSMENT PANEL Group to which module should be linked: **Technology**

Professional body minimum pass mark requirement: None

MODULE AIMS:

- Introduce student to BIM and other industry standard ICT
- To introduce students to the latest software and technology used within the construction industry, on a focussed project.
- To introduce formal draughting as part of the design process.
- Practice skills necessary to produce 2D drawings to British Standards
- Practice skills of transferring and moving drawing files between various drawing, presentation and office packages.

ASSESSED LEARNING OUTCOMES: (additional guidance below)
At the end of the module the learner will be expected to be able to:
LO1. Generate detailed 2 dimensional drawings to British Standards.
LO2. Analyse the effectiveness of transferring 2D files to a 3D package and integrating ICT and other modelling software within the design project.
LO3 Work as a member of a team to Formulate a design project
LO4. Implement, evaluate and present a design project

DATE OF APPROVAL: April 2017	**FACULTY/OFFICE**: Academic Partnerships

DATE OF IMPLEMENTATION: September 2017	**SCHOOL/PARTNER**: City College Plymouth
DATE(S) OF APPROVED CHANGE:	**TERM**: All Year

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

Items in this section must be considered annually and amended as appropriate, in conjunction with the Module Review Process.

ACADEMIC YEAR: 2025/26	**NATIONAL COST CENTRE: 115**
MODULE LEADER: Ian Jenkin	**OTHER MODULE STAFF:**

Summary of Module Content

- Use and integrate ICT within a focused project – BIM and other industry standard modelling software and technologies
- CAD & Drawings in the design process
- Drawing standards and formats
- The use of 2D CAD drawing and editing commands
- Transfer & Simple 3D manipulation of learner generated 2D CAD files
- Transfer and manipulation of learner generated 2D CAD files in industry standard business software
- Investigate the theories and principles of design.

SUMMARY OF TEACHING AND LEARNING		
Scheduled Activities	**Hours**	**Comments/Additional Information**
Lectures	20	10x2hr lectures
Practice sessions	40	Application of techniques and methods learnt
Academic Support	15	A mixture of group and personal tutorials
Independent Study	125	Working on own projects and directed self-study
Total	**200**	

Category	***Element***	***Component Name***	***Component weighting***	***Comments*** *Include links to learning objectives*
Coursework	C1	Portfolio of Work	100%	LO1, LO2 – CAD drawing portfolio: A professionally presented portfolio of 2D and 3D drawings LO3, LO4 - Project report: 2500 word report of a design and evaluation of the project

Updated by: Dan Burnard Date: August 2025	**Approved by**: Hollie Galpin-Mitchell Date: August 2025

SECTION A: MODULE RECORD. ***Proposed changes must be submitted via Faculty Quality Procedures for approval and issue of new module code.***

MODULE CODE: CITY1088	**MODULE TITLE : Construction and Civil Engineering Management**

CREDITS: 20	**FHEQ LEVEL: 4**	**JACS CODE: K220**

PRE-REQUISITES: **None**	**CO-REQUISITES:** **None**	**COMPENSATABLE:** **Yes**

SHORT MODULE DESCRIPTOR: *(max 425 characters)*
This module investigates the processes of management, the methods of procuring construction works and introduces the learners to the management processes used in the construction industry.

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ELEMENTS OF ASSESSMENT ***[Use HESA KIS definitions}***					
WRITTEN EXAMINATION		COURSEWORK		PRACTICE	
E1 (Formally scheduled)		**C1**	60%	**P1**	40%
E2 (OSCE)					
T1 (in-class test)					

SUBJECT ASSESSMENT PANEL Group to which module should be linked: **Technology**
Professional body minimum pass mark requirement: None

MODULE AIMS:

- To develop an understanding of the principles and processes of management
- To develop an understanding of the methods of procuring construction and civil engineering works
- Investigate some of the techniques used in the management of construction and civil engineering projects
- Research the organisation and structure of the construction and civil engineering industry.
- Understand the implications of regulations and legislation within management.

ASSESSED LEARNING OUTCOMES: (additional guidance below)
At the end of the module the learner will be expected to be able to:

1. Distinguish current trends and opportunities within the construction or civil engineering industry
2. Compare a range of principles and processes of management within the construction or civil engineering industry, reviewing legislative constraints and their management.
3. Identify the main methods used to procure construction or civil engineering works.
4. Analyse the methods used to plan the sequence of activities and control of the costs of construction or civil engineering projects.

DATE OF APPROVAL: April 2017	**FACULTY/OFFICE:** Academic Partnerships

DATE OF IMPLEMENTATION: September 2017	**SCHOOL/PARTNER:** City College Plymouth
DATE(S) OF APPROVED CHANGE:	**TERM:** All Year

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

Items in this section must be considered annually and amended as appropriate, in conjunction with the Module Review Process..

ACADEMIC YEAR: 2025/26	**NATIONAL COST CENTRE: 118 / 123**

MODULE LEADER: Dan Burnard	**OTHER MODULE STAFF:**

Summary of Module Content

- **Principles and processes of management -** management concepts, Organisations, Communications, Planning, Programming, Teamwork, Leadership and Motivation.
- **Planning Techniques** – Programming and bar charts.
- **Methods of procurement** - strategies, Conditions of Contract; contract documents, contractor selection, partnering, Government Initiatives.
- **Construction costs -** Estimates, Cost Control, Value Engineering, Measurement
- **Markets and activities -** Business environment, organisation and structure of the construction industry

SUMMARY OF TEACHING AND LEARNING ***[Use HESA KIS definitions}***		
Scheduled Activities	**Hours**	**Comments/Additional Information**
Lectures	58	29 x 2hr lectures
Fieldwork	2	A trip to site to investigate project management techniques
Academic Support	15	A mix of group and individual tutorials
Independent Study	125	
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc)**

Category	***Element***	***Component Name***	***Component weighting***	***Comments*** *Include links to learning objectives*
Coursework	C1	Essay	100%	LO3, LO4 2000 word essay
Practice	P1	Presentation	100%	LO1, LO2 10 minute presentation

Updated by: Dan Burnard Date: August 2025	**Approved by**: Hollie Galpin-Mitchell Date: August 2025

SECTION A: MODULE RECORD. ***Proposed changes must be submitted via Faculty Quality Procedures for approval and issue of new module code.***

MODULE CODE: CITY1090	MODULE TITLE: Civil Engineering Construction

CREDITS: 20	FHEQ LEVEL: 4	JACS CODE: H200

PRE-REQUISITES: None	CO-REQUISITES: None	COMPENSATABLE: Yes

SHORT MODULE DESCRIPTOR:
To develop learners understanding of the processes used in a range of civil engineering activities. This will include legislation, regulations, safety procedures and systems of work in a variety of Civil Engineering works.

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ELEMENTS OF ASSESSMENT					
WRITTEN EXAMINATION		COURSEWORK		PRACTICE	
E1 (Formally scheduled)		**C1**	100%	**P1**	
E2 (OSCE)					
T1 (in-class test)		**A1**			

SUBJECT ASSESSMENT PANEL Group to which module should be linked: **Technology**

Professional body minimum pass mark requirement: None

MODULE AIMS:
- To develop an awareness of the type of work undertaken by civil engineers, the structure of the industry and the impact of civil engineering activities on society and the environment.
- Provide an understanding of the processes involved in a range of civil engineering activities
- Research and analyse case studies.
- To be able to recognise the importance of Health and Safety

ASSESSED LEARNING OUTCOMES: (additional guidance below)
At the end of the module the learner will be expected to be able to:

LO1: Understand the organisations involved in the delivery of civil engineering activities and the responsibilities of the parties in accordance with current Health & Safety Legislation.
LO2: Describe the methods and resources used in a range of civil engineering activities.
LO3: Develop a logical and rational approach to civil engineering problems by developing appropriate methods of working which satisfy requirements for safe systems of work and sustainability.
LO4: Investigate the effect of construction activities upon the environment, the need for sustainable development and the implications of quality, programme and cost.

DATE OF APPROVAL: April 2017	**FACULTY/OFFICE:** Academic Partnerships

DATE OF IMPLEMENTATION: September 2017	**SCHOOL/PARTNER**: City College Plymouth
DATE(S) OF APPROVED CHANGE:	**TERM:** All Year

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

Items in this section must be considered annually and amended as appropriate, in conjunction with the Module Review Process. Some parts of this page may be used in the KIS return and published on the extranet as a guide for prospective students. Further details for current students should be provided in module guidance notes.

ACADEMIC YEAR: 2025/26	**NATIONAL COST CENTRE: 118**

MODULE LEADER: Dan Burnard	**OTHER MODULE STAFF:**

Summary of Module Content

Introduction to the Civil Engineering Industry – nature of work undertaken, sustainability and environmental issues. **Organisational Structures -** Organisation, functions, responsibilities and interaction of Consultants, Contractors and Clients. **Health, safety and welfare legislation** in the construction sector and the implications of noncompliance: **Environmental Law :Construction (Design & Management) Regulations Earthworks** - Categorisation of materials. Ease of excavation. Cut and fill. Borrow pits. Surplus disposal. Imported fill. Suitable fill. Mechanical plant. Compaction. Soil stabilisation. Slope stability. Land drainage. Safety procedures. Groundwater control. **Foundations -** Type of foundations. Vidro-replacement. Underpinning. Piling. Pile behaviour. Piling plant. Pile caps. Pile testing. Safety procedures. Waterproofing basements. Basement buoyancy. Diaphragm walling. Caissons. **Work below ground -** Cofferdams. Retaining walls, Shaft sinking. Tunnels. Culverts. Outfalls. Cut and cover. Sewers. Pipelines. Trench support. Manholes. Access Chambers. Safety procedures. Gabions. Crib walls, Trenchless technology. **Temporary works –** false work and formwork, methods of placing concrete **Superstructures –** Bridges, commercial and industrial buildings, structural steelwork, precast and in-situ concrete, structural timber, flooring and cladding systems

SUMMARY OF TEACHING AND LEARNING		
Scheduled Activities	**Hours**	**Comments/Additional Information**
Lectures	60	30 x 2hr lectures
Academic Support	15	Group and individual tutorials
Independent Study	125	Guided self-study and reading list material
Total	**200**	

Category	***Element***	***Component Name***	***Component weighting***	***Comments*** *Include links to learning objectives*
Coursework	C1	Report Assignment	35% 65%	2000 words Sustainability Report LO4 Engineering Problem Assignment LO1,LO2,LO3

Updated by: Dan Burnard **Date:** August 2025	**Approved by**: Hollie Galpin-Mitchell **Date:** August 2025

SECTION A: MODULE RECORD. ***Proposed changes must be submitted via Faculty Quality Procedures for approval and issue of new module code.***

MODULE CODE: CITY 2083		**MODULE TITLE: Site Surveying**
CREDITS: 20	**FHEQ LEVEL: 5**	**JACS CODE: H240**

PRE-REQUISITES: None	**CO-REQUISITES: None**	**COMPENSATABLE: yes**

SHORT MODULE DESCRIPTOR:
This module provides a basic introduction to surveying techniques and methods used to set out and control construction works. The module will introduce you to various methods of documenting features on a site for new works or documenting existing site characteristics. Part of the module will be based upon real work based environment in collaboration with a site surveying company.

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ELEMENTS OF ASSESSMENT ***[Use HESA KIS definitions}***

WRITTEN EXAMINATION		COURSEWORK		PRACTICE	
E1 (Formally scheduled)		**C1**	40%	**P1**	60%
E2 (OSCE)					
T1 (in-class test)		**A1**			

SUBJECT ASSESSMENT PANEL: Technology

Professional body minimum pass mark requirement: N/A

MODULE AIMS:
* To develop the ability to use a range of surveying instruments.
* To develop a detailed understanding of basic site surveying and setting out procedures.
* To develop an ability to carry out relevant survey calculations.
* Ability to carry out setting out exercises.
* To develop an understanding of the types and depth of surveys required.

ASSESSED LEARNING OUTCOMES: (additional guidance below)
At the end of the module the learner will be expected to be able to:
LO1 Demonstrate an ability to select and use appropriate surveying instruments and survey a given area for a range of tasks.
LO2 Assess a variety of methods to set out and control a range of construction activities.
LO3 Work in a team to produce a contour plan of an area and carry out earthwork calculations.

DATE OF APPROVAL: April 2017	**FACULTY/OFFICE: Academic Partnerships**
DATE OF IMPLEMENTATION: September 2017	**SCHOOL/PARTNER: CCP**

DATE(S) OF APPROVED CHANGE:	TERM: All year

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

Items in this section must be considered annually and amended as appropriate, in conjunction with the Module Review Process.

ACADEMIC YEAR: 2025/26	**NATIONAL COST CENTRE: 118/123**

MODULE LEADER: Dr Gursewak S Aulakh	**OTHER MODULE STAFF:**

Summary of Module Content
Surveying Principles and Conventions - -Commensurate accuracy, co-ordinate systems, National Grid and OS datum, errors - classifications and detection.
Surveying Instruments – Linear measurement, Levels (automatic level, laser), Angular measurement (theodolites, Total Station), Vertical alignment. Method of construction, adjustment and calibration of instruments. Surveying errors.
Levelling - Definition of level datums, standard field and booking procedures.
Traversing - Open and closed traversing; reduction and adjustment of traverse data.
Detail Survey - Type and reasons for surveying: Trilateration, Triangulation, Total Station, GPS & GIS.
Setting out of line and level for building and construction works - Profiles and batter rails; radial positioning/rectangular co-ordinates; accuracy of setting out and the specification. Setting out horizontal circular curves, drainage and roads.

SUMMARY OF TEACHING AND LEARNING		
Scheduled Activities	**Hours**	**Comments/Additional Information**
Lecture	30	15x2 hour lectures / workshops
Practical sessions	32	8x4 hour practical sessions
Academic Support	15	A mix of individual and group tutorials
Independent Study	123	Coursework and individual reading/project work
Total	**200**	

Category	***Element***	***Component Name***	***Component weighting***	***Comments*** *Include links to learning objectives*
Coursework	C1	Portfolio	100%	LO1 - Portfolio of work including contour plans earthwork calculations
Practice	P1	Practical Assessment 1 Practical Assessment - 2	50% 50% 100%	LO3 - Practical Assessment 1 – Levelling and measuring heights at a given site and production of contour map as a team LO2 Practical Assessment 2 - Traversing & setting out exercise
Updated by: Dan Burnard August 2025			**Approved by**: Hollie Galpin-Mitchell August 2025	

SECTION A: MODULE RECORD. ***Proposed changes must be submitted via Faculty Quality Procedures for approval and issue of new module code.***

MODULE CODE: CITY2087	**MODULE TITLE: Project**

CREDITS: 20	**FHEQ LEVEL: 5**	**JACS CODE: H200**

PRE-REQUISITES: None	**CO-REQUISITES: None**	**COMPENSATABLE: Yes**

SHORT MODULE DESCRIPTOR:
To develop research skills into the design, construction and analysis of construction or civil engineering activities and the presentation of an account of work in written and oral form. The project topic will be 'work based learning' orientated and it will either be set by an enterprise or the students could bring a project from an enterprise.

ELEMENTS OF ASSESSMENT ***[Use HESA KIS definitions}***

WRITTEN EXAMINATION		COURSEWORK		PRACTICE	
E1 (Formally scheduled)		**C1**	80%	**P1**	20%
E2 (OSCE)					
T1 (in-class test)		**A1**			

SUBJECT ASSESSMENT PANEL Group to which module should be linked: **Technology**

Professional body minimum pass mark requirement: None

MODULE AIMS:
The aim of this module is to enable students to design, develop, test and / or evaluate a research project in a construction or civil engineering discipline

ASSESSED LEARNING OUTCOMES: (additional guidance below)
At the end of the module the learner will be expected to be able to:
LO1 Design and develop an appropriate work based project proposal related to the construction or civil engineering industries with direct liaison from an employer.
LO2 Demonstrate and evaluate the factors which impact on the design, development and evaluation of an employer set project in an area relating to construction or civil engineering.
LO3 Analyse and reflect on the process of project research, design, development and / or product evaluation.
LO4. Reflect on the success of the project and the feedback from the employer

DATE OF APPROVAL: April 2017	**FACULTY/OFFICE:** Academic Partnerships
DATE OF IMPLEMENTATION: September 2017	**SCHOOL/PARTNER:** City College Plymouth

DATE(S) OF APPROVED CHANGE:	TERM: All Year

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

Items in this section must be considered annually and amended as appropriate, in conjunction with the Module Review Process.

ACADEMIC YEAR: 2025-26	**NATIONAL COST CENTRE: 118 / 123**

MODULE LEADER: Dr Gursewak S Aulakh	**OTHER MODULE STAFF:**

Summary of Module Content

- Project research techniques, research cycle and managing a literature review
- Project management techniques
- Managing information and data collection, analysis techniques, validity and ethics
- Evaluating potential barriers and possible restrictions in design, development and project construction
- Preparing a research project proposal
- Integrating the use of software into project design, development and evaluation
- Research project design and / or build and testing
- Evaluation of process

SUMMARY OF TEACHING AND LEARNING		
Scheduled Activities	**Hours**	**Comments/Additional Information**
Lectures	12	6 x 2hrs Lectures, methods of research
Research workshops	20	10 x 2hrs workshops on research
Presentations	8	4 x 2hrs of proposal presentations
Academic Support	15	Support develop research proposal
Independent Study	145	Working on research project, collection analysis of data, writing report
Total	**200**	

Category	***Element***	***Component Name***	***Component weighting***	***Comments*** *Include links to learning objectives*
Coursework	C1	Project (Full report)	100%	LO2, LO3 LO4 – written project report – 5000 words
Practice	P1	Proposal & Methodology - presentation	100%	LO1 – 10 minute presentation (powerpoint or similar)

Updated by: Dr Gursewak S Aulakh August 2025	**Approved by**: Hollie Galpin-Mitchell August 2025

SECTION A: MODULE RECORD. ***Proposed changes must be submitted via Faculty Quality Procedures for approval and issue of new module code.***

MODULE CODE: CITY2088	**MODULE TITLE: Strength of Materials**

CREDITS: 20	**FHEQ LEVEL:5**	**JACS CODE: J500**

PRE-REQUISITES: None	**CO-REQUISITES:** None	**COMPENSATABLE:** **Yes**

SHORT MODULE DESCRIPTOR: *(max 425 characters)*
This module will enable students to develop an understanding of the differences and properties of materials as used in industry. Students will be engaged in the practical testing of materials in order to judge their relative strengths and weaknesses.

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ELEMENTS OF ASSESSMENT ***[Use HESA KIS definitions}***					
WRITTEN EXAMINATION		COURSEWORK		PRACTICE	
E1 (Formally scheduled)	Exam 60%	**C1**	Report 40%	**P1**	
E2 (OSCE)					
T1 (In class Test)		**A1**			

SUBJECT ASSESSMENT PANEL Group to which module should be linked: Technology

Professional body minimum pass mark requirement:

MODULE AIMS:
This module will enable students to develop an understanding of the differences and properties of materials commonly used by the civil engineering industry. Furthermore, it will provide students with the ability to assess the material properties required and select appropriate materials for different civil engineering applications. Students will also investigate commonly used material's behaviour.

ASSESSED LEARNING OUTCOMES: (additional guidance below)
At the end of the module the learner will be expected to be able to:
LO1: Assess the structural use of construction materials within the context of construction and detailed design.
LO2: Apply proven theory for the analysis of the strength of materials from given data.
LO3: Evaluate collected data from a range of materials.
LO4: Rank the characteristics and applications of a range of materials used in Civil Engineering.

DATE OF APPROVAL: April 2017	**FACULTY/OFFICE:** Academic Partnerships
DATE OF IMPLEMENTATION: September 2017	**SCHOOL/PARTNER:** City College Plymouth

DATE(S) OF APPROVED CHANGE:	TERM: All Year

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

Items in this section must be considered annually and amended as appropriate, in conjunction with the Module Review Process.

ACADEMIC YEAR: 2025/26	NATIONAL COST CENTRE: 115

MODULE LEADER: Dan Burnard	OTHER MODULE STAFF: None

Summary of Module Content

- Tension and compression definitions
- Stress and strain relationship leading to Hooke's law
- Poisson's ratio.
- Axial and shear stress and strain
- Elastic and shear modulus
- Static based problems in strength of materials

SUMMARY OF TEACHING AND LEARNING *[Use HESA KIS definitions}*		
Scheduled Activities	**Hours**	**Comments/Additional Information**
Lecture	54	27 x 2hr lectures
Lab sessions	6	3 x 2hr lab sessions
Academic Support	15	A mix of group and individual tutorial time
Directed Independent Study	125	Identified independent study prior to seminars
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc)**

Category	***Element***	***Component Name***	***Component weighting***	***Comments*** *Include links to learning objectives*
Written Exam	E1	Formal Exam	100%	LO1,LO2 2 hour formal exam
Coursework	C1	Lab Report	100%	LO3,LO4(1500 word count required)

Updated by: Dan Burnard Date: August 2025	**Approved by**: Hollie Galpin-Mitchell Date: August 2025

SECTION A: MODULE RECORD. ***Proposed changes must be submitted via Faculty Quality Procedures for approval and issue of new module code.***

MODULE CODE: CITY2089	MODULE TITLE: Structural Analysis & Design 2

CREDITS: 20	FHEQ LEVEL: 5	JACS CODE: H210

PRE-REQUISITES: None	CO-REQUISITES: None	COMPENSATABLE: Yes

SHORT MODULE DESCRIPTOR: *(max 425 characters)*

The module identifies the behaviour of statically indeterminate structures and the application of different methods of analysis. It introduces the basic principles of torsion and the plastic hinge mechanism collapse of a beam.

It will develop a wider understanding of loading applications and design procedures, applying these to more complex structures.

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ELEMENTS OF ASSESSMENT ***[Use HESA KIS definitions}***					
WRITTEN EXAMINATION		COURSEWORK		PRACTICE	
E1 (Formally scheduled)	60%	**C1**	40%	**P1**	
E2 (OSCE)					
T1 (in-class test)		**A1**			

SUBJECT ASSESSMENT PANEL Group to which module should be linked: **Technology**

Professional body minimum pass mark requirement: None

MODULE AIMS:

- Develop an understanding of the behaviour of statically indeterminate structures and to develop an ability to analyse structures.
- To investigate modes of failure of structures..
- To develop further an understanding of the loading on structures and the effects of continuity and non-uniform load pattern have on structures.
- To develop an ability to produce competent and economic designs using Codes of Practice, Building Regulations and to take account of Health & Safety issues.

ASSESSED LEARNING OUTCOMES: (additional guidance below)

At the end of the module the learner will be expected to be able to:

1. Apply analytical methods to the analysis of structures, including indeterminate structures.
2. Evaluate the differences between elastic and plastic analysis and be able to apply Codes of Practice, British Standards and Building Regulations, to the design of structures.
3. Apply and critique the methods used to analyse frames and trace different forms of structures e.g. multi-storey buildings, lattice and portal structures.
4. Evaluate and determine wind loading and other forms of lateral loads on structures.

DATE OF APPROVAL: April 2017	**FACULTY/OFFICE:** Academic Partnerships
DATE OF IMPLEMENTATION: September 2017	**SCHOOL/PARTNER:** City College Plymouth
DATE(S) OF APPROVED CHANGE:	**TERM:** All Year

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

Items in this section must be considered annually and amended as appropriate, in conjunction with the Module Review Process. Some parts of this page may be used in the KIS return and published on the extranet as a guide for prospective students. Further details for current students should be provided in module guidance notes.

ACADEMIC YEAR: 2025/26	**NATIONAL COST CENTRE: 118**

MODULE LEADER: Dan Burnard	**OTHER MODULE STAFF:**

Summary of Module Content

Stiffness Method - illustrate and apply the stiffness method of analysis of continuous beams and simple portal frames. Apply method to parametric studies of frames to develop appreciation of stiffness application in structural design. **Torsion** - calculation of stresses and rotations in simple structures with circular cross section **Plastic Analysis** - idealised stress - strain relationship and development of the plastic moment in a beam section. Comparison with elastic analysis. The plastic collapse mechanism of beam and simple portal frames. Calculation of plastic moments of resistance and design bending moments. **Approximate Analysis** - Use of approximate method of analysis to obtain initial sizing of members for statically indeterminate frames **Computer Applications** - extract the necessary information from a structural problem, prepare input data for a standard computer program. Interpret the output data and relevant diagrams **Introduction** - examine the effects of jointing, continuity and load transfer within an overall structures on the design of discrete elements **Steelwork -** design- typical plate girders (without tension effect) ; laterally unrestrained beams, eccentrically loaded and continuous columns, a variety of connections, splices, explain the design of composite construction **Reinforced Concrete -** design - a variety of one way and two way slabs (simple and continuous), continuous beams, stair flights(including landings), slender and braced columns carrying axial load and bending moments, cantilever and propped retaining walls **Masonry -** design - walls subjected to lateral load, free-standing, infill, retaining **Health and safety** - consider the application to the design process, temporary construction **Economics** - consider relevant aspects

SUMMARY OF TEACHING AND LEARNING ***[Use HESA KIS definitions}***		
Scheduled Activities	**Hours**	**Comments/Additional Information**
Lectures	52	26 x 2hr Lectures
Practical Sessions	8	4 x 2hr practical sessions
Academic Support	15	15 x 2hr Group and individual tutorials
Independent Study	125	Self-guided and directed independent study
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)**

Category	***Element***	***Component Name***	***Component weighting***	***Comments*** *Include links to learning objectives*
Written exam	E1	Exam	100%	LO1, LO2 2 hours formal exam
Coursework	C1	Assignment	100%	LO3, LO4 ‘Methods and Form Used for Lateral loads’ (2000 word count required)

Updated by: Dan Burnard **Date:** August 2025	**Approved by**: Hollie Galpin-Mitchell **Date: August 2025**

SECTION A: MODULE RECORD. ***Proposed changes must be submitted via Faculty Quality Procedures for approval and issue of new module code.***

MODULE CODE: CITY2090	**MODULE TITLE: Hydraulics**

CREDITS: 20	**FHEQ LEVEL: 5**	**JACS CODE: H141**

PRE-REQUISITES: **None**	**CO-REQUISITES:** **None**	**COMPENSATABLE:** **Yes**

SHORT MODULE DESCRIPTOR:
It will introduce the basic principles of hydraulics; the continuity, momentum and energy equations and their applications; waves and water-level variations. It will combine the knowledge of hydraulics in practical solutions

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ELEMENTS OF ASSESSMENT					
WRITTEN EXAMINATION		COURSEWORK		PRACTICE	
E1 (Formally scheduled)	60%	**C1**	40%	**P1**	
E2 (OSCE)					
T1 (in-class test)		**A1**			

SUBJECT ASSESSMENT PANEL Group to which module should be linked: **Technology**

Professional body minimum pass mark requirement: None

MODULE AIMS:
- To develop a knowledge and understanding of hydrostatic principles in relation to civil engineering projects
- To explore fluid kinetics with subsequent analysis and presentation of results
- To analyse fluid flow in pipelines to determine required pipe size for a given flow

ASSESSED LEARNING OUTCOMES: (additional guidance below)
At the end of the module the learner will be expected to be able to:
LO1: Evaluate the hydrostatic principles in relation to civil engineering projects.
LO2: Research experimental procedures in fluid kinetics with subsequent analysis and presentation of results.
LO3: Analyse fluid flow in pipelines and channels to determine required pipe or channel size for a given flow using both manual and automated methods.
LO4: Analyse hydraulic structures characteristics to determine channel flow.
LO5: Apply engineering principles to the critical analysis of problems in order to create innovative design solutions.

DATE OF APPROVAL: April 2017	**FACULTY/OFFICE:** Academic Partnerships

DATE OF IMPLEMENTATION: September 2017	**SCHOOL/PARTNER:** City College Plymouth
DATE(S) OF APPROVED CHANGE:	**TERM:** All Year

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

Items in this section must be considered annually and amended as appropriate, in conjunction with the Module Review Process. Some parts of this page may be used in the KIS return and published on the extranet as a guide for prospective students. Further details for current students should be provided in module guidance notes.

ACADEMIC YEAR: 2025/26	**NATIONAL COST CENTRE: 118**
MODULE LEADER: Dan Burnard	**OTHER MODULE STAFF:**

Summary of Module Content

Introduction – The scope of Civil Engineering Hydraulics. Physical properties of fluids: definitions and units. **Hydrostatics** – Definition of pressure. Hydrostatic pressure distribution. Centre of pressure. Hydrostatic forces on submerged surfaces such as water retaining structures and gates. Buoyancy and applications to upthrust on structures below water table. Stability of floating bodies. Absolute and gauge pressures. Pressure measurement: piezometers and manometers. **Types of Flow** – Definition of discharge; steady and unsteady flow; uniform and non-uniform flow; laminar and turbulent flow (including Reynolds Number); streamlines; control volumes; ideal fluids. **Energy equation**: the Bernoulli equation and applications to steady flow through orifices and pipelines. Limitations of Bernoulli equation. **Flow Measurement** – Pitot and Pitot static tubes; Venturi meter; sharp crested weirs; small and large orifices. Modular and drowned flow. **Pipe Flow** – Laminar, transitional and turbulent flow in pipes and significance of the friction factor and Reynolds Number. Darcy-Weisbach equation. Colebrook-White equation. The Moody diagram. Application of the Wallingford charts and tables. Evaluation of local head losses. Hydraulic design of single, branched and parallel pipelines. Pipe network analysis. **Open Channel Flow** – Flow classification. Steady uniform flow equations (Chezy, Manning) – applications to channel design. Steady non-uniform flow characteristics. Application of specific energy and momentum principles to steady rapidly varied flow, including the hydraulic jump and flow control structures. The Froude Number. **Laboratory Work** – Selected from hydrostatic force on a submerged body; stability of a floating body; impact of a jet; calibration of orifices, weirs, and Venturi meter; pipe friction; sluice gate and hydraulic jump.

SUMMARY OF TEACHING AND LEARNING		
Scheduled Activities	**Hours**	**Comments/Additional Information**
Lectures	56	28 x 2hr lectures
Practical sessions	4	2 x 2hr lab sessions
Academic Support	15	A mix of Group and individual Tutorials
Independent Study	125	A mix of directed and self-guided independent study
Total	**200**	

Category	***Element***	***Component Name***	***Component weighting***	***Comments*** *Include links to learning objectives*

Written Exam	E1	Exam	100%	LO1, LO3, LO4,LO5 2 hour formal exam
Coursework	C1	Laboratory report	100%	LO2 (2000 word count required)

Updated by: Dan Burnard Date: August 2025	**Approved by**: Hollie Galpin-Mitchell **Date:** August 2025

SECTION A: MODULE RECORD. ***Proposed changes must be submitted via Faculty Quality Procedures for approval and issue of new module code.***

MODULE CODE: CITY2091	**MODULE TITLE: Geotechnics**

CREDITS: 20	**FHEQ LEVEL: 5**	**JACS CODE: H250**

PRE-REQUISITES: None	**CO-REQUISITES:None**	**COMPENSATABLE: Yes**

SHORT MODULE DESCRIPTOR:
The module introduces students to the range of sub surface materials, their formation, description, basic properties and provides the opportunity to develop a deeper understanding and appreciation of the applications of soil mechanics to design and construction. The emphasis of the course is on the geotechnical design.

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ELEMENTS OF ASSESSMENT					
WRITTEN EXAMINATION		COURSEWORK		PRACTICE	
E1 (Formally scheduled)	60%	**C1**	40%	**P1**	
E2 (OSCE)					
T1 (in-class test)					

SUBJECT ASSESSMENT PANEL Group to which module should be linked: **Technology**

Professional body minimum pass mark requirement: None

MODULE AIMS:
- To analyse a range of sub surface materials, their formation, description, basic properties and their effects on construction works.
- Develop knowledge about the behaviour of different materials in relation to engineering works
- Develop a critical understanding of the behaviour of soils under different loading in the design of foundations, slopes and retaining walls.
- To introduce relevant environment, health and safety aspects to be considered in geotechnical design and construction

ASSESSED LEARNING OUTCOMES: (additional guidance below)
At the end of the module the learner will be expected to be able to:
1. Assess geotechnical processes and the properties of soils through testing procedures.
2. Rank geotechnical processes for the development of land including environmental aspects
3. Analyse the geotechnical design process and produce design solutions for foundations, slopes and retaining structures.

DATE OF APPROVAL: April 2017	FACULTY/OFFICE: AP
DATE OF IMPLEMENTATION: September 2017	SCHOOL/PARTNER: CCP
DATE(S) OF APPROVED CHANGE:	TERM: All Year

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

Items in this section must be considered annually and amended as appropriate, in conjunction with the Module Review Process.

ACADEMIC YEAR: 2025/26	**NATIONAL COST CENTRE: 118**

MODULE LEADER: Dan Burnard	**OTHER MODULE STAFF:**

Summary of Module Content
Geological Processes of Structures, introduction to Rock mechanics, introduction to soil mechanics, physical properties of soils, groundwater, soil compaction, site Investigation, pressure distribution, consolidation settlement; shear strength, slope stability, bearing capacity of shallow foundations; deep foundation design, lateral earth pressure , retaining structures and laboratory work.

SUMMARY OF TEACHING AND LEARNING		
Scheduled Activities	**Hours**	**Comments/Additional Information**
Lectures	56	28 x 2hr lectures
Practical sessions	4	2 x 2hr lab sessions
Academic Support	15	A mix of Group and individual Tutorials
Independent Study	125	A mix of directed and self-guided independent study
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)**

Category	***Element***	***Component Name***	***Component weighting***	***Comments*** *Include links to learning objectives*
Exam	E1	Formal Exam	100%	LO2, LO3 2 hour formal exam
Coursework	C1	Lab Report	100%	LO1 (2000 word count required)

Updated by: Dan Burnard **Date:** August 2025	**Approved by**: Hollie Galpin-Mitchell **Date:** August 2025