



UNIVERSITY OF  
**PLYMOUTH**

# PROGRAMME QUALITY HANDBOOK

**2023-24**

## HNC Marine Engineering

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# 1. Welcome and Introduction to HNC Marine Engineering

Welcome to HNC Marine Engineering delivered at Kings Road Campus by City College Plymouth.

No environment on Earth is as demanding as the sea. Designing and building vessels and structures that can withstand the wind, waves and salt exposure requires special education and experience. The modern world's global commerce is largely enabled by the ocean-going technological marvels created by Marine Engineers. This programme has been designed to give the student a broad knowledge of marine engineering, covering essential engineering topics such as mathematics, engineering science and materials, as well as essential managerial knowledge and design methodologies. Students will embark on several design projects throughout the course where they will be able to use Computer Aided Design along with other industry based software to showcase their new found knowledge and skills. A work based element is introduced into the course through the Management and design modules where employed part time students will be able to use incorporate work based projects set by their employers and Full time students will have both the chance of placements or industry set work based projects. Throughout the course many of the module's assessments have been arranged to gain essential knowledge that will carry through to other modules. A wide range of assessments have been adopted to ensure student engagement including practical based assessments, reports, exams, portfolios and presentations.

This programme has been designed to equip you with the skills and knowledge base required to work in your chosen specialism or other graduate opportunities. It is also a platform from which you can undertake additional vocational and academic qualifications.

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
  - o available at: <http://hemoodle.cityplym.ac.uk/course/view.php?id=3305>
- Your Module, Teaching, Learning and Assessment Guide
  - o available at: <http://hemoodle.cityplym.ac.uk/course/view.php?id=3560>
- Plymouth University's Student Handbook

- available at:  
<https://www.plymouth.ac.uk/your-university/governance/student-handbook>

## **HNC Marine Engineering**

**Final award title**      **HNC Marine Engineering**

**Level X Intermediate award title(s)**      **N/A**

**Level X Intermediate award title(s)**      **N/A**

**UCAS code** **N/A**

**JACS code** **J610**

**Awarding Institution:**      University of Plymouth

**Teaching institution(s):**      City College Plymouth

### **1. Accrediting body(ies)**

The course is not currently accredited however the intention is to apply for accreditation once we have our first round of graduates in Sept 2019.

The intention is to apply for accreditation of EngTec status through RINA and IMAREst.

### **2. Distinctive Features of the Programme and the Student Experience**

This programme will develop a base knowledge of Marine Engineering theory as well as essential skills required in the field of Marine Engineering. Students will carry out practical design projects using proven theory to solve engineering problems.

Throughout many of the course's modules, you will use a range of industry standard software. This will be supplemented by practical activities to allow for evaluation of industry standard design.

Some modules will be delivered within specialist workshop/ laboratory areas.

Marine Engineering is an exciting and varied sector; Marine Engineers can be responsible for the design, construction and maintenance of sea going vessels or structures within the marine environment. This HNC programme has been designed to develop your skills and knowledge within core subjects related to Marine Engineering such as Mathematics, Science and Materials. Along with these essential subjects included are topics covering the Managerial aspects of Marine Engineering, Naval Architecture and a Computer Aided Design Project. A HNC is an industry recognised qualification which could lead to further study within Higher Education or indeed a promotion within an existing place of work. Delivery of this programme will be at our Kings Road Campus utilising the engineering facilities and the new STEM centre.

### **3. Relevant QAA Subject Benchmark Group(s)**

The subject benchmark statement (2015)<sup>1</sup> 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](http://www.engc.co.uk) Third edition<sup>2</sup>, the QAA Quality Code<sup>3</sup> and the SEEC Higher Education Level Descriptors<sup>4</sup>

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](http://www.engc.org.uk/engcdocuments/internet/Website/UK-SPEC%20third%20edition%20(1).pdf)
3. <http://www.qaa.ac.uk/AssuringStandardsAndQuality/quality-code/Pages/default.aspx>
4. <http://www.seec.org.uk/wp-content/uploads/2016/07/SEEC-descriptors-2016.pdf>

### **4. Programme Structure**

The Programme of study comprises of 120 module credits across level 4. The aim of the programme is to develop skills consistent with Engineering Council and Engineering Subject Benchmarks. Due to our strong links with employers in the city 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 Engineers, as well as provide a solid grounding to our students wishing to further their study.

**8. Programme Structure for the HNC in Marine Engineering (part-time) New Programme Structure**  
**2023-24**

Year 1				Year 2			
Module Code	Module Title	No. of Credits	Core / Optional	Module Code	Module Title	No. of Credits	Core / Optional
CITY1077	Engineering Mathematics	20	Core	CITY1093	Naval Architecture	20	Core
CITY1078	Engineering Science 1	20	Core	CITY1094	Management Techniques in Marine Engineering	20	Core
CITY1091	Engineering Materials	20	Core				
CITY1092	CAD Techniques & Design	20	Core				

All Modules are delivered All Year unless stated otherwise

## **5. Programme Aims**

This programme aims to:

1. Develop engineering knowledge and understanding to apply technical and practical skills.
2. Provide an opportunity to 'contribute towards design' via practical and project based work.
3. Provide an opportunity for 'accepting and exercising personal responsibility.'
4. Provide an opportunity to use effective communication and interpersonal skills.

## **6. Programme Intended Learning Outcomes**

Programme ILOs have been adapted from UK-SPEC  
UK STANDARD FOR PROFESSIONAL  
ENGINEERING COMPETENCE  
Engineering Technician  
[www.engc.org.uk](http://www.engc.org.uk)  
Third edition

### **8.1. Knowledge and understanding**

On successful completion graduates should have developed:

- 1) The ability to review and select appropriate techniques, procedures and methods to undertake tasks.
- 2) The ability to use appropriate scientific, technical or engineering principles.

### **8.2. Cognitive and intellectual skills**

On successful completion graduates should have developed:

- 1) The ability to identify problems and apply appropriate methods to identify causes and achieve satisfactory solutions.
- 2) The ability to identify, organise and use resources effectively to complete tasks, with consideration for cost, quality, safety, security and environmental impact.

### **8.3. Key and transferable skills**

On successful completion graduates should have developed the ability to:



1) Use oral, written and electronic methods for the communication of technical and other information.

#### 8.4. Employment related skills

On successful completion graduates should have developed:

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. Practical skills

On successful completion graduates should have developed:

1) Undertake engineering work in a way that contributes to sustainable development.

### 9. Admissions Criteria, including APCL, APEL and DAS arrangements

All applicants must have GCSE (or equivalent) Maths and English at Grade C or above or Grade 4 and above on the new grading structure.

Entry Requirements for HNC Marine Engineering	
A-level/AS-level	Normal minimum entry requirements are 48 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 48 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 48 UCAS points
Welsh Baccalaureate	Normal minimum entry requirements are an equivalent of 48 on new UCAS Tariff include Maths, Physics or Engineering
Scottish Qualifications Authority	Normal minimum entry requirements are an equivalent of 48 on new UCAS Tariff include Maths, Physics or Engineering
Irish Leaving Certificate	Normal minimum entry requirements are an equivalent of 48 on new UCAS Tariff include Maths, Physics or Engineering
International Baccalaureate	Normal minimum entry requirements are an equivalent of 48 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.

## **10. Progression criteria for Final and Intermediate Awards**

Students who successfully complete the HNC may progress to:

- City College Plymouth's FdSc Marine Engineering or FdSc Naval Architecture.
- Plymouth University's BSc Marine & Composites year 2
- Plymouth University's BEng Marine Tech year 1 (Students must score above 60% overall & 60% in maths)

## **11. Exceptions to Regulations**

N/A

## **12. Transitional Arrangements**

The College is currently delivering both an HNC and FdSc Marine Engineering. It is planned that all students currently enrolled on these programmes will transfer to the new Programme. Transitional Arrangements to ensure all learning outcomes are met are listed below. Students will have all previous relevant module grades APCL'd. All existing students have been consulted to the transitional arrangement and have signed a consent form.

Part time first years will need to study CITY1092 CAD Techniques and Design in 2017 /2018 instead of CITY1094 Management Techniques in Marine Engineering in their second year.

All new students from September 2017 will enrol on the new structure.

## **13. Mapping and Appendices:**

### **13.1. ILO's against Modules Mapping**

Please see appendix 13.1

### **13.2. Assessment against Modules Mapping**

Please see appendix 13.2

### **13.3. Skills against Modules Mapping**

Please see appendix 13.3

Appendix 13.1 – Learning Outcomes map

LEVEL 4				
FHEQ Descriptors	Subject Benchmark(s)	Programme Aims	Programme Outcomes	Core Modules linked to outcomes
<p><b>Students will have demonstrated:</b> Knowledge of the underlying concepts and principles associated with their areas of study;</p> <p>Ability to evaluate and interpret these within the context of that area of study;</p>	A Use engineering knowledge and understanding to apply technical and practical skills.	1. Develop engineering knowledge and understanding to apply technical and practical skills.	8.1.1) The ability to review and select appropriate techniques, procedures and methods to undertake tasks. 8.1.2) The ability to use appropriate scientific, technical or engineering principles.	CITY1077, CITY1078, CITY1091, CITY1092, CITY1093, CITY1094.
	B) Contribute to the design, development, manufacture, construction, commissioning, operation or maintenance of products, equipment, processes, systems or services.	1. Develop engineering knowledge and understanding to apply technical and practical skills. 2. Provide an opportunity to 'contribute towards design' via practical and project based work.	8.1.1) The ability to review and select appropriate techniques, procedures and methods to undertake tasks. 8.1.2) The ability to use appropriate scientific, technical or engineering principles. 8.2.1) The ability to identify problems and apply appropriate methods to identify causes and achieve satisfactory solutions. 8.2.2) The ability to identify, organise and use resources effectively to complete tasks, with consideration for cost, quality, safety, security and environmental impact.	CITY1077, CITY1078, CITY1091, CITY1092, CITY1093, CITY1094.
	D) Use effective communication and interpersonal skills.	1. Develop engineering knowledge and understanding	8.2.2) The ability to identify, organise and use resources effectively to complete tasks,	CITY1077, CITY1078, CITY1091, CITY1093.

LEVEL 4				
FHEQ Descriptors	Subject Benchmark(s)	Programme Aims	Programme Outcomes	Core Modules linked to outcomes
		to apply technical and practical skills. 4. Provide an opportunity to use effective communication and interpersonal skills.	with consideration for cost, quality, safety, security and environmental impact. 8.3.1) Use oral, written and electronic methods for the communication of technical and other information.	
<b>Students will be able to:</b> Evaluate the appropriateness of different approaches to solving problems related to their area of study;	A) Use engineering knowledge and understanding to apply technical and practical skills.  B) Contribute to the design, development, manufacture, construction, commissioning, operation or maintenance of products, equipment, processes, systems or services.	1. Develop engineering knowledge and understanding to apply technical and practical skills. 2. Provide an opportunity to 'contribute towards design' via practical and project based work. 3. Provide an opportunity for 'accepting and exercising personal responsibility.' 4. Provide an opportunity to use effective communication and interpersonal skills.	8.1.1) The ability to review and select appropriate techniques, procedures and methods to undertake tasks. 8.1.2) The ability to use appropriate scientific, technical or engineering principles. 8.2.1) The ability to identify problems and apply appropriate methods to identify causes and achieve satisfactory solutions. 8.2.2) The ability to identify, organise and use resources effectively to complete tasks, with consideration for cost, quality, safety, security and environmental impact.	CITY1077, CITY1078, CITY1091, CITY1093.
Communicate the results of their study accurately and reliably and with structured and coherent argument	D) Use effective communication and interpersonal skills.	4. Provide an opportunity to use effective communication and interpersonal skills.	8.3.1) Communicate ideas and information; through verbal and written forms using appropriate terminology and presentation of data.	CITY1078, CITY1091, CITY1092, CITY1093, CITY1094.
Undertake further training and develop new skills	E) Make a personal commitment to an	3. Provide an opportunity for 'accepting and	8.4.1) Good student centred learning skills which will	

LEVEL 4				
FHEQ Descriptors	Subject Benchmark(s)	Programme Aims	Programme Outcomes	Core Modules linked to outcomes
within a structured and managed environment	appropriate code of professional conduct, recognising obligations to society, the profession and the environment.	exercising personal responsibility.'	promote lifelong learning and a commitment to continuing professional development to achieve flexibility within the work environment.	CITY1077, CITY1078, CITY1091, CITY1092, CITY1093, CITY1094.
<b>Students will also have:</b> The qualities and transferable skills necessary for employment requiring the exercise of some personal responsibility	C) Accept and exercise personal responsibility.	2. Provide an opportunity to 'contribute towards design' via practical and project based work. 3. Provide an opportunity for 'accepting and exercising personal responsibility.'	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) Undertake engineering work in a way that contributes to sustainable development.	CITY1077, CITY1078, CITY1091, CITY1092, CITY1093, CITY1094.

## Appendix 13.2 Assessment against modules Map

	CITY1077 Engineering Mathematics (Core)	CITY1078 Engineering Science 1 (Core)	CITY1091 Engineering Materials (Core)	CITY1092 CAD Techniques and Design (Core)	CITY1093 Naval Architecture (Core)	CITY1094 Management Techniques in Marine Engineering (Core)
Essay			✓			
Report		✓	✓			✓
Engineering Problem Assignment	✓					
Portfolio				✓		
Exam	✓	✓				
In Class Test					✓	
Practical					✓	
Presentation						✓

### Appendix 13.3 Skills against modules Map

	CITY1077 Engineering Mathematics (Core)	CITY1078 Engineering Science 1 (Core)	CITY1091 Engineering Materials (Core)	CITY1092 CAD Techniques and Design (Core)	CITY1093 Naval Architecture (Core)	CITY1094 Management Techniques in Industry (Core)
<b>Essay Writing</b>			✓			
<b>Report Writing</b>			✓	✓		✓
<b>Project Planning / Management</b>						
<b>Research</b>		✓			✓	
<b>IT Skills</b>			✓	✓	✓	✓
<b>Team Work</b>					✓	
<b>Evaluation</b>	✓	✓			✓	✓
<b>Data Analysis</b>	✓	✓	✓	✓	✓	✓



# 1. Module Records

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

<b>MODULE CODE:</b> CITY1077	<b>MODULE TITLE:</b> Engineering Mathematics
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<b>CREDITS:</b> 20	<b>FHEQ LEVEL:</b> 4	<b>JACS CODE:</b> G160
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<b>PRE-REQUISITES:</b> N	<b>CO-REQUISITES:</b> N	<b>COMPENSATABLE:</b> Y
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**SHORT MODULE DESCRIPTOR:**  
To develop the student's mathematical ability, to apply principles to the solution of engineering problems, and to make use of mathematical computer based packages.

ELEMENTS OF ASSESSMENT					
WRITTEN EXAMINATION		COURSEWORK		PRACTICE	
E1 (Formally scheduled)	50%	C1	50%	P1	
E2 (OSCE)		C2		P3	
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. recognise the essential application of mathematical techniques to solve engineering problems

LO2. apply exact mathematical methods to analyse and solve problems of an engineering and scientific nature

LO3. use complex number theory in practical engineering applications

LO4. understand a variety of techniques of differential and integral calculus and their associated applications in engineering

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

Additional notes (for office use only):

**Additional Guidance for Learning Outcomes:**

**To ensure that the module is pitched at the right level check your intended learning outcomes against the following nationally agreed standards**

- Framework for Higher Education Qualifications

<http://www.qaa.ac.uk/Publications/InformationAndGuidance/Documents/FHEQ08.pdf>

- Subject benchmark statements  
<http://www.qaa.ac.uk/ASSURINGSTANDARDSANDQUALITY/SUBJECT-GUIDANCE/Pages/Subject-benchmark-statements.aspx>
- SEEC level descriptors  
<http://www.seec.org.uk/academic-credit/seec-credit-level-descriptors-2010> (scroll to pdf link at bottom of page)
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g. health and social care, medicine, engineering, psychology, architecture, teaching, law)
- QAA Quality Code  
<http://www.qaa.ac.uk/AssuringStandardsAndQuality/quality-code/Pages/default.aspx>

- **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.

<b>ACADEMIC YEAR:</b> 2023-24	<b>NATIONAL COST CENTRE:</b> 122
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<b>MODULE LEADER:</b> Owais Raja	<b>OTHER MODULE STAFF:</b> N/A
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**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.

<b>SUMMARY OF TEACHING AND LEARNING</b>		
<b>Scheduled Activities</b>	<b>Hours</b>	<b>Comments/Additional Information</b>
Lecture	60	30 x 2 hour lectures
Tutorial	15	Group and individual academic tutorials
Independent Study	125	Guided self-study
<b>Total</b>	<b>200</b>	

<b>Category</b>	<b>Element</b>	<b>Component Name</b>	<b>Component weighting</b>	<b>Comments Include links to learning objectives</b>
Written exam	E1	End of Module Examination	100%	LO1-4 (Covering topics not assessed in coursework)
	T			
Coursework	C1	Assignment	100%	LO1-4
Practice	P		N/A	

<b>Updated by:</b> Owais Raja Date: Sept 2023	<b>Approved by:</b> Dr Tamal Barman Date: Sept 2023
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## Recommended Texts and Sources

The recommended texts for the course are:

Kuldeep Singh (2011) *Engineering Mathematics Through Applications* [Paperback] Palgrave Macmillan; 2nd edition edition

Stroud, K.A. and Booth, D.J. (2013) *Engineering mathematics*. 7th edn. Basingstoke: Palgrave Macmillan.

Stroud, K.A. and Booth, D.J. (2011) *Advanced engineering mathematics*. 5th edn. Basingstoke: Palgrave Macmillan.

Bird, J. (2014) *Basic engineering mathematics*. 6th edn. London: Routledge.

Bird, J. (2017) *Higher engineering mathematics*. 7th edn. United Kingdom: Routledge.

*Greater Manchester University* (no date) Available at:

<http://www.cse.salford.ac.uk/physics/gsmcdonald/PPLATO.php>

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

<b>MODULE CODE:</b> CITY1078	<b>MODULE TITLE:</b> Engineering Science
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<b>CREDITS:</b> 20	<b>FHEQ LEVEL:</b> 4	<b>JACS CODE:</b> H100
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<b>PRE-REQUISITES:</b> N	<b>CO-REQUISITES:</b> N	<b>COMPENSATABLE:</b> Y
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**SHORT MODULE DESCRIPTOR:**

An introduction to mechanical principles, energy transfer and AC electrical theory. Mechanical principles including solid mechanics, statics, dynamics and mechanical vibrations. Modes of heat transfer and energy losses. Electrical principles and single phase AC theory.

**ELEMENTS OF ASSESSMENT**

WRITTEN EXAMINATION		COURSEWORK		PRACTICE	
<b>E1</b> (Formally scheduled)	50%	<b>C1</b>	50%	<b>P1</b>	
<b>E2</b> (OSCE)		<b>C2</b>		<b>P3</b>	
<b>T1</b> (in-class test)		<b>A1</b>			

**SUBJECT ASSESSMENT PANEL:** Technology

**Professional body minimum pass mark requirement:** n/a

**MODULE AIMS:**

- To investigate the fundamental scientific principles which underpin the design and operation of engineering systems.
- To give a mechanical and electrical overview which will provide the basis for further study in specialist areas of engineering.

**ASSESSED LEARNING OUTCOMES:** (additional guidance below)

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

- LO1.** Demonstrate an understanding of basic static and dynamic mechanical systems
- LO2.** Investigate energy transfer in thermal and fluid systems
- LO3.** Recognise and recall how DC theory relates to simple electrical machines
- LO4.** Show knowledge and awareness of the fundamental principles of single phase AC theory

<b>DATE OF APPROVAL:</b> May 2017	<b>FACULTY/OFFICE:</b> Academic Partnerships
<b>DATE OF IMPLEMENTATION:</b> Sept 2017	<b>SCHOOL/PARTNER:</b> CCP
<b>DATE(S) OF APPROVED CHANGE:</b>	<b>TERM:</b> All Year

Additional notes (for office use only):

#### **Additional Guidance for Learning Outcomes:**

**To ensure that the module is pitched at the right level check your intended learning outcomes against the following nationally agreed standards**

- Framework for Higher Education Qualifications  
<http://www.qaa.ac.uk/Publications/InformationAndGuidance/Documents/FHEQ08.pdf>
- Subject benchmark statements  
<http://www.qaa.ac.uk/ASSURINGSTANDARDSANDQUALITY/SUBJECT-GUIDANCE/Pages/Subject-benchmark-statements.aspx>
- SEEC level descriptors  
<http://www.seec.org.uk/academic-credit/seec-credit-level-descriptors-2010> (scroll to pdf link at bottom of page)
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g. health and social care, medicine, engineering, psychology, architecture, teaching, law)
- QAA Quality Code  
<http://www.qaa.ac.uk/AssuringStandardsAndQuality/quality-code/Pages/default.aspx>

• **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.*

<b>ACADEMIC YEAR:</b> 2023-24	<b>NATIONAL COST CENTRE:</b> 114
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<b>MODULE LEADER:</b> TBC	<b>OTHER MODULE STAFF:</b>
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<p><b>Summary of Module Content</b></p> <p>Statics and Dynamics: SF and BM, bending stresses. Torsion . Uniform acceleration linear and angular. Newton’s laws of motion, mass moment of inertia, kinetic energy, effects of friction. Vibrations, SHM, forcing and damping. Energy Transfer: Heat transfer: conduction, convection, radiation, thermal conductivity, forced convection, black and grey body radiation. Insulated surfaces. Viscosity: boundary layer formation, laminar and turbulent flow, pressure loss in pipes. Energy losses: dynamic viscosity, power loss in bearings. pipe friction losses.</p> <p>Electrical Principles: Conductors, insulators, voltage and current. Ohm’s law, Kirchhoff’s law. Power: Electro-magnetic induction, transformers, Lenz’s and Faraday’s laws. Generator and motor principles. Single Phase AC theory: Non-resonant circuits: R-C-L circuits; Argand diagrams. Resonant circuits, L-C series and parallel, resonant frequency, Power factor correction, Complex waveforms: graphical analysis, odd and even-harmonics, phase shift, non-linear characteristics.</p>
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<b>SUMMARY OF TEACHING AND LEARNING</b>		
<b>Scheduled Activities</b>	<b>Hours</b>	<b>Comments/Additional Information</b>
Lecture / Lab time	60	30 x 2hr sessions
Tutorial	15	30 x 1hr
Independent Study	125	A mixture of guided study and self-study.
<b>Total</b>	<b>200</b>	

<b>Category</b>	<b>Element</b>	<b>Component Name</b>	<b>Component weighting</b>	<b>Comments Include links to learning objectives</b>
Written exam	E_	End of Module Examination	100%	LO1, LO2
	T_	In Class Test		
Coursework	C_	Assignment (Report on in class experiments)	100%	LO3, LO4
Practice	P		N/A	

<b>Updated by:</b> TBC	<b>Approved by:</b> Dr Tamal Barman
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**The recommended texts for the course are:**

Bolton, W. (2004) Higher engineering science. 2nd edn. Amsterdam, [Pays-Bas]: Newnes (an imprint of Butterworth-Heinemann Ltd ).

Tooley, M.H., Dingle, L., BA, M.T. and Technol., A. (2012) Engineering science: For foundation degree and higher national. New York: Elsevier Science.

Bacon, D H and Stephens, R C (2000) Mechanical technology, Industrial Press, New York



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

<b>MODULE CODE:</b> CITY1091	<b>MODULE TITLE:</b> Engineering Materials
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<b>CREDITS:</b> 20	<b>FHEQ LEVEL:</b> 4	<b>JACS CODE:</b> J500
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<b>PRE-REQUISITES:</b> None	<b>CO-REQUISITES</b> : None	<b>COMPENSATABLE:</b> Yes
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**SHORT MODULE DESCRIPTOR:** (max 425 characters)  
Study of Material structure. Appreciation of material properties. Understanding of manufacturing and design considerations for the use of different materials.

<b>ELEMENTS OF ASSESSMENT [Use HESA KIS definitions]</b>					
WRITTEN EXAMINATION		COURSEWORK		PRACTICE	
<b>E1</b> (Formally scheduled)		<b>C1</b>	100%	<b>P1</b>	
<b>E2</b> (OSCE)		<b>C2</b>		<b>P3</b>	
<b>T1</b> (in-class test)		<b>A1</b>			

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

**Professional body minimum pass mark requirement:** N/A

**MODULE AIMS:**  
To develop students' understanding and knowledge of basic manufacturing and materials technology, enabling them to appreciate why an understanding of the relationships between processing, structure, and properties is a key element in engineering.

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

LO1. Understand the effects of material structure on material properties.  
LO2. Appreciate the effect of material choice on manufacturing procedures.  
**LO3.** Describe the effects of processing on structure and properties of engineering materials.  
**LO4.** Carry out tensile testing and interpret the results.

<b>DATE OF APPROVAL:</b> May 2017	<b>Academic Partnerships</b>
<b>DATE OF IMPLEMENTATION:</b> September 2017	<b>City College Plymouth</b>
<b>DATE(S) OF APPROVED CHANGE:</b>	<b>TERM:</b> All year

Additional notes (for office use only):

**Additional Guidance for Learning Outcomes:**

**To ensure that the module is pitched at the right level check your intended learning outcomes against the following nationally agreed standards**

- Framework for Higher Education Qualifications  
<http://www.qaa.ac.uk/Publications/InformationAndGuidance/Documents/FHEQ08.pdf>
- Subject benchmark statements  
<http://www.qaa.ac.uk/ASSURINGSTANDARDSANDQUALITY/SUBJECT-GUIDANCE/Pages/Subject-benchmark-statements.aspx>
- SEEC level descriptors  
<http://www.seec.org.uk/academic-credit/seec-credit-level-descriptors-2010> (scroll to pdf link at bottom of page)
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g. health and social care, medicine, engineering, psychology, architecture, teaching, law)
- QAA Quality Code  
<http://www.qaa.ac.uk/AssuringStandardsAndQuality/quality-code/Pages/default.aspx>

● **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.*

<b>ACADEMIC YEAR: 2023-24</b>	<b>NATIONAL COST CENTRE: 117</b>
<b>MODULE LEADER:</b> Owais Raja	<b>OTHER MODULE STAFF:</b>

<p><b>Summary of Module Content</b></p> <p>Shaping processes (solidification processes): mechanics, engineering analysis and practice of metal casting, and plastic moulding.          Shaping processes (bulk deformation processes): mechanics, engineering analysis and practice of rolling, forging, extrusion, bar and wire drawing          Basic engineering metrology including measuring instruments and gauges for linear and angular dimensions, Investigate the feasibility of replacing metal with composite substitutes, Investigate the properties of different composite structures and layup processes.          Properties of materials. Interpretation of stress-strain curves.          Practical measurement of mechanical properties.          Qualitative description of major differences between generic classes of materials in terms of their microstructure. Influence of atomic bonding on properties. Cast structures and defects in metals.          Types of polymers and additives. Polymer glass transition temperature and melting point.          Property modification techniques; relationship between structure, processing, heat treatment, and properties. Metals: plastic deformation; hot and cold working; micro defects and their influence.          Polymers: drawing and moulding; directionality of properties; influence of strain rate. Alloying: use of phase equilibrium diagrams in heat treatment; types of alloy. Properties, structure, and uses of the plain carbon steels and the major non-ferrous alloys.</p>
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<b>SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions]</b>		
<b>Scheduled Activities</b>	<b>Hours</b>	<b>Comments/Additional Information</b>
Lecture	26	26x1hr lectures
Supported Study	16	16x1hr supported engineering problems and lab reporting
Workshop activities	10	Hands on practical activities
Directed Independent Study	20	Identified independent study
Self-Study	105	Coursework and individual reading
Lab Session	8	4x2hr lab sessions
Tutorial	15	A mix of individual and group tutorials
<b>Total</b>	<b>200</b>	<b>(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc)</b>

<b>Category</b>	<b>Element</b>	<b>Component Name</b>	<b>Component weighting</b>	<b>Comments</b> <i>Include links to learning objectives</i>
Written exam	E1			
	T1			
Coursework	C1	Lab report	50%	LO1, LO2
		Essay	50%	LO3, LO4
Practice	P1			

**Updated by:** Owais Raja  
Date: Sept 2023

**Approved by:** Dr Tamal Barman  
Date: Sept 2023

Essential Reading List;

Askeland, D and Phule, P (2002) *The science and engineering of materials*, Thomson Learning, London

Ashby, M, F. and Johns D,R,H. (2005) *Engineering Materials 1; An introduction to Properties, Applications and Design 3<sup>rd</sup> ed.*, Elsevier, Oxford.

De Graff, M and McHenry, M,E. (2007) *Structure of Materials; An introduction to crystallography, Diffraction, and Symmetry*, Cambridge University Press, Cambridge.

Bolton, W (2002) *Technology of engineering materials*, Elsevier, Oxford

Ashby, M,F. (2005) *Materials Selection and Mechanical Design 3<sup>rd</sup> Ed.* Elsevier, Oxford.

Web sites

[www.azom.com](http://www.azom.com)

[www.SME.com](http://www.SME.com)

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

<b>MODULE CODE:</b> CITY 1092	<b>MODULE TITLE:</b> CAD Techniques and Design
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<b>CREDITS:</b> 20	<b>FHEQ LEVEL:</b> 4	<b>JACS CODE:</b> H130
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<b>PRE-REQUISITES:</b> None	<b>CO-REQUISITES</b> : None	<b>COMPENSATABLE:</b> Yes
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**SHORT MODULE DESCRIPTOR:** *(max 425 characters)*  
 An Introduction into CAD in the Design Process, progressing swiftly through 2D draughting to explore 3D conceptual design and visualisation. During this module students will take part in a relevant work based design project.

<b>ELEMENTS OF ASSESSMENT [Use HESA KIS definitions]</b>					
WRITTEN EXAMINATION		COURSEWORK		PRACTICE	
<b>E1</b> (Formally scheduled)		<b>C1</b>	100%	<b>P1</b>	
<b>E2</b> (OSCE)		<b>C2</b>		<b>P3</b>	
<b>T1</b> (in-class test)		<b>A1</b>			

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

**Professional body minimum pass mark requirement:** N/A

- MODULE AIMS:**
- Investigation of how formal draughting forms a corner stone of the design process
  - Practice of the skills necessary to produce and interpret drawings and computer models to British Standards
  - Experimentation in to the use of 3D visualisation as an engineering tool
  - Introduce Design techniques and carry out a work based design project.

**ASSESSED LEARNING OUTCOMES:** (additional guidance below)

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

- LO1.** Produce 2D detail and assembly drawings and 3D wireframe, surface and solid models using an industry standard CAD package to British Standards.
- LO2.** Produce rendered and animated visualisations to present to employers
- LO3.** Formulate, implement, evaluate and present a work based design project
- LO4.** Report to employers on the sustainability and ecology in design and the product life cycle

<b>DATE OF APPROVAL:</b> May 2017	<b>Academic Partnerships</b>
<b>DATE OF IMPLEMENTATION:</b> Sept 2017	<b>City College Plymouth</b>
<b>DATE(S) OF APPROVED CHANGE:</b>	<b>TERM: All year</b>

Additional notes (for office use only):

**Additional Guidance for Learning Outcomes:**

**To ensure that the module is pitched at the right level check your intended learning outcomes against the following nationally agreed standards**

- Framework for Higher Education Qualifications  
<http://www.qaa.ac.uk/Publications/InformationAndGuidance/Documents/FHEQ08.pdf>
- Subject benchmark statements  
<http://www.qaa.ac.uk/ASSURINGSTANDARDSANDQUALITY/SUBJECT-GUIDANCE/Pages/Subject-benchmark-statements.aspx>
- SEEC level descriptors  
<http://www.seec.org.uk/academic-credit/seec-credit-level-descriptors-2010> (scroll to pdf link at bottom of page)
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g. health and social care, medicine, engineering, psychology, architecture, teaching, law)
- QAA Quality Code  
<http://www.qaa.ac.uk/AssuringStandardsAndQuality/quality-code/Pages/default.aspx>

● **SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT**

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<b>ACADEMIC YEAR:</b> 2023-24	<b>NATIONAL COST CENTRE:</b> 143
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<b>MODULE LEADER:</b> Martin Boulter	<b>OTHER MODULE STAFF:</b>
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<p><b>Summary of Module Content</b></p> <p>CAD &amp; Drawings in the design process          Drawing standards and formats          The use of 2D CAD drawing and editing commands          Conceptual Design and 3D CAD          3D Wireframe, Surface and Solid Modelling commands          3D Visualisation          Sustainability and ecology in design and the product life cycle.          Material and process selection tools. Functionality, component simulation (free body diagrams, etc.) Design calculation tools - spread sheets. The design process - specifying, creating and evaluating ideas, developing and documenting. Working in a team. System design - team working.</p>
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<b>SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions]</b>		
<b>Scheduled Activities</b>	<b>Hours</b>	<b>Comments/Additional Information</b>
Lecture	20	10 x 2 hr lectures
Practical Sessions	40	Application of techniques and methods learnt
Tutorial	15	A mixture of group and personal tutorials
Directed Independent Study	125	Working in groups and independently on their Projects
<b>Total</b>	<b>200</b>	<b>(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc)</b>

<b>Category</b>	<b>Element</b>	<b>Component Name</b>	<b>Component weighting</b>	<b>Comments</b> <i>Include links to learning objectives</i>
Written exam	E1			
	T1			
Coursework	C1	<b>Portfolio of Evidence Report</b>	100%	LO1, LO2, LO3  LO4
Practice	P1			

## Essential Reading List;

BS8888: 2013 Technical product documentation specification (31 December 2013), London: British Standards Institute

PP8888-1:2007 A guide for schools and colleges to BS 8888:2006, Technical Product Specification (06 September 2007), London: British Standards Institute

Yarwood, Alf (2013) Introduction to AutoCAD 2013 2D & 3D Design, Oxford: Elsevier

McFarlane, B (2004) Modelling with AutoCAD 2004, Elsevier, Oxford

McFarlane, B (2001) *Advancing with AutoCAD 2000*, Elsevier, Oxford

Simmons, C and Maguire, D (2004) *Manual of engineering drawing: to British and International standards*, Elsevier, Oxford

Holtzapfel, M, T. and Reece, W,D. (2008) *Concepts in Engineering 2<sup>nd</sup> Ed.*, McGraw Hill, New York.



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

<b>MODULE CODE: CITY 1093</b>		<b>MODULE TITLE: Naval Architecture</b>	
<b>CREDITS: 20</b>	<b>FHEQ LEVEL: 4</b>	<b>JACS CODE: H500</b>	
<b>PRE-REQUISITES:</b> None	<b>CO-REQUISITES:</b> : None	<b>COMPENSATABLE:</b> Yes	

**SHORT MODULE DESCRIPTOR:** *(max 425 characters)*  
The module introduces the theory of ship stability and the interaction between a vessel, its cargo and counteracting the effects

<b>ELEMENTS OF ASSESSMENT [Use HESA KIS definitions]</b>					
WRITTEN EXAMINATION		COURSEWORK		PRACTICE	
<b>E1</b> (Formally scheduled)		<b>C1</b>		<b>P1</b>	30%
<b>E2</b> (OSCE)		<b>C2</b>		<b>P3</b>	
<b>T1</b> (in-class test)	70%	<b>A1</b>			

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

**Professional body minimum pass mark requirement:** N/A

- MODULE AIMS:**
- To stimulate and widen the student’s knowledge of Naval Architecture
  - To provide the student with the knowledge and abilities to research the effects of ship stability to safely operate.

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

**LO5.** Explain and calculate trim and stability at small and large angles of heel.  
**LO6.** Analyse and calculate the effects of flooding on a ships trim and stability including countermeasures  
**LO7.** Explain the principles of dry docking and slipping  
**LO8.** Demonstrate the theory and practical application of a ship inclining experiment

<b>DATE OF APPROVAL:</b> 10 May 2017	<b>Academic Partnerships</b> <b>City College Plymouth</b>
<b>DATE OF IMPLEMENTATION:</b> September 2017	
<b>DATE(S) OF APPROVED CHANGE:</b>	<b>TERM: All year</b>

Additional notes (for office use only):

**Additional Guidance for Learning Outcomes:**

**To ensure that the module is pitched at the right level check your intended learning outcomes against the following nationally agreed standards**

- Framework for Higher Education Qualifications  
<http://www.qaa.ac.uk/Publications/InformationAndGuidance/Documents/FHEQ08.pdf>
- Subject benchmark statements  
<http://www.qaa.ac.uk/ASSURINGSTANDARDSANDQUALITY/SUBJECT-GUIDANCE/Pages/Subject-benchmark-statements.aspx>
- SEEC level descriptors  
<http://www.seec.org.uk/academic-credit/seec-credit-level-descriptors-2010> (scroll to pdf link at bottom of page)
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g. health and social care, medicine, engineering, psychology, architecture, teaching, law)
- QAA Quality Code  
<http://www.qaa.ac.uk/AssuringStandardsAndQuality/quality-code/Pages/default.aspx>

● **SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT**

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<b>ACADEMIC YEAR:</b> 2023-24	<b>NATIONAL COST CENTRE:</b> 115
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<b>MODULE LEADER:</b> Martin Boulter	<b>OTHER MODULE STAFF:</b>
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**Summary of Module Content**

Ship stability terminology, distribution of volume, weight and buoyancy and associated coefficients, the use of data and calculations to identify a ships stability, changes of trim longitudinal and transversely due to loading and unloading. Calculate changes in draft and trim due to bilging and compartment flooding and the effect on a vessels stability  
The theory of dry docking and slipping and the standard practices, the theory and practical applications of the inclining experiment and the associated calculations

**SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions]**

Scheduled Activities	Hours	Comments/Additional Information
Lecture	60	30 x 2hr Lectures
Tutorial	15	a mix of group and individual tutorials
Directed Independent Study	35	Research tasks
Self-Study	80	Assignment and reading
Workshop time	10	
<b>Total</b>	<b>200</b>	<b>(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc)</b>

Category	Element	Component Name	Component weighting	Comments Include links to learning objectives
Written exam	E1			
	T1	Open book test	100%	LO1; LO2; LO3
Coursework	C1			
Practice	P1	LAB	100%	LO4

**Updated by:** Martin Boulter  
Date: Sept 2023

**Approved by:** Dr Tamal Barman  
Date: Sept 2023

Essential Reading List;

Derrett, D R and Barrass, B (2012) *Ship stability for masters and mates*, Elsevier, Oxford, 7<sup>th</sup> edition

Rawson, K J and Tupper, E C (2001) *Basic ship theory: combined volume*, Elsevier, Oxford

Barrass, B (2001) *Ship stability: notes and examples*, Elsevier, Oxford

Tupper, E C (2013) *Introduction to naval architecture*, Elsevier, Oxford, 5 Edition

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

<b>MODULE CODE: CITY1094</b>	<b>MODULE TITLE: Management Techniques in Marine Engineering</b>
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<b>CREDITS: 20</b>	<b>FHEQ LEVEL: 4</b>	<b>JACS CODE: N210</b>
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<b>PRE-REQUISITES:</b> None	<b>CO-REQUISITES:</b> : None	<b>COMPENSATABLE: Yes</b>
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**SHORT MODULE DESCRIPTOR:** On completion of this unit to appraise the main techniques that improve organisations' operations.

<b>ELEMENTS OF ASSESSMENT [Use HESA KIS definitions]</b>					
WRITTEN EXAMINATION		COURSEWORK		PRACTICE	
<b>E1</b> (Formally scheduled)		<b>C1</b>	60%	<b>P1</b>	40%
<b>E2</b> (OSCE)		<b>C2</b>		<b>P3</b>	
<b>T1</b> (in-class test)		<b>A1</b>			

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

**Professional body minimum pass mark requirement:** N/A

**MODULE AIMS:**  
Students will be able to explain how application of management techniques can improve the plans, designs, processes or systems for the optimisation of operational activity within an organisation and throughout the supply chain.

**ASSESSED LEARNING OUTCOMES:** (additional guidance below)  
At the end of the module the learner will be expected to be able to:  
LO1 – Discuss contemporary management techniques used to improve and optimise operational activity, including the associated supply chains, within the field of marine engineering  
LO2 – Apply financial analysis and planning control methods to marine engineering scenarios.  
LO3 – Analyse the role of modern quality and performance management methods for delivering service excellence and value to the customer.  
LO4 – Investigate the management challenges presented within the field of marine engineering as a result of increasing competitiveness, globalisation and environmental issues.  
LO5 – Evaluate and communicate lean enterprise concepts applied to the marine engineering sector.

<b>DATE OF APPROVAL:</b> May 2017	<b>Academic Partnerships</b>
<b>DATE OF IMPLEMENTATION</b> September 2017	<b>City College Plymouth</b>
<b>DATE(S) OF APPROVED CHANGE:</b>	<b>TERM: All Year</b>

Additional notes (for office use only):

### **Additional Guidance for Learning Outcomes:**

**To ensure that the module is pitched at the right level check your intended learning outcomes against the following nationally agreed standards**

- Framework for Higher Education Qualifications  
<http://www.qaa.ac.uk/Publications/InformationAndGuidance/Documents/FHEQ08.pdf>
- Subject benchmark statements  
<http://www.qaa.ac.uk/ASSURINGSTANDARDSANDQUALITY/SUBJECT-GUIDANCE/Pages/Subject-benchmark-statements.aspx>
- SEEC level descriptors  
<http://www.seec.org.uk/academic-credit/seec-credit-level-descriptors-2010> (scroll to pdf link at bottom of page)
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g. health and social care, medicine, engineering, psychology, architecture, teaching, law)
- QAA Quality Code  
<http://www.qaa.ac.uk/AssuringStandardsAndQuality/quality-code/Pages/default.aspx>

● **SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT**

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<b>ACADEMIC YEAR: 2023-24</b>	<b>NATIONAL COST CENTRE: 133</b>
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<b>MODULE LEADER: TBC</b>	<b>OTHER MODULE STAFF:</b>
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**Summary of Module Content**

Operations management functions; input-transformation-output model; operations management within corporate strategic framework; functional relationship of operations management; challenges facing operations management – globalisation, environmental issues, knowledge management, technology; key performance objectives; design process; differing processes; process technologies; job design; work measurement; quality control; facility location; operations planning & control – scheduling, forecasting demand, JIT; project management; TQM.

<b>SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions]</b>		
<b>Scheduled Activities</b>	<b>Hours</b>	<b>Comments/Additional Information</b>
Lectures	30	30 x 1hr lectures
Seminars	30	30 x 1hr seminars
Self study	120	Reading, research, Sim Venture activities
External Visit	3	Visit to manufacturer production line
External Speakers	4	2 guest lectures
Tutorials	13	Group and individual tutorials
<b>Total</b>	<b>200</b>	

<b>Category</b>	<b>Element</b>	<b>Component Name</b>	<b>Component weighting</b>	<b>Comments Include links to learning objectives</b>
Written exam	E			
	T			
Coursework	C	Report	100%	LO1, LO2, LO3
Practice	P	Presentation	100%	LO4, LO5

<b>Updated by: TBC</b> Date: <b>Sept 2023</b>	<b>Approved by: Dr Tamal Barman</b> Date: <b>Sept 2023</b>
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Slack N, Brandon-Jones A & Johnston R (2016) *Operations Management* 8<sup>th</sup> Edn  
Harlow: Pearson Education

Supplementary Texts and Websites

Greasley A (2013) *Operations Management* 3<sup>rd</sup> Edn  
Chichester: Wiley

Slack N, Brandon-Jones A, Johnston R & Betts A (2015) *Operations and Process Management*  
4<sup>th</sup> Edn  
Harlow: Pearson Education

Daily Telegraph website

BBC News (Business) website

Journal

International Journal of Operations and Production Management



## COVID AMMENDMENTS

The current situation with the COVID-19 pandemic means the College is having to constantly review how it operates with regards to its curriculum delivery. The health and wellbeing of staff, students and the general public is of the utmost importance to the College. While the College is planning for all students to be able to spend time at the Kings Road site, this will only happen in line with the most up-to-date guidance from the Government, Public Health England and the Health and Safety Executive. With this in mind, there will be some aspects of your course delivered using online methods and some in person. Our incredible teaching staff have adapted brilliantly to the virtual delivery of their courses and the majority of students have found it easy to adapt to this new way of working.

This Programme Quality Handbook outlines the details of your course including delivery hours and assessment methods. The details within this handbook outline our ‘best case scenario’ plans, however, these will be subject to change in line with guidance.

We assure you that in-light of the current situation, we have made all reasonable efforts to enable students to complete their studies, for achievement to be reliably assessed and for qualifications to be awarded securely. We will continue to provide a high-quality learning experience utilising technology as required to accommodate a blended learning approach.

Please see the table below for an outline of how we intend to adapt teaching, learning and assessment for the Marine Engineering depending on the circumstances which arise.

<b>Teaching and Learning</b>	<b>Model 1 - Social distancing restrictions as of August 2020</b>	<b>Model 2 - Increased social distancing, national or local lockdown imposed</b>	<b>Model 3 - All social distancing restrictions removed</b>
<ul style="list-style-type: none"> <li>Lectures</li> </ul>	<p>A mixture of remote on-line synchronous delivery recorded for future access via DLE along with in-person delivery with a restricted number of students in a ‘student bubble’ based on need and support requirements.</p>	<p>Remote on-line synchronous delivery recorded for future access via DLE.</p>	<p>In - person and simultaneous (depending of the availability of technology) on-line synchronous delivery (web-cast) and recorded for future access via DLE.</p>
<ul style="list-style-type: none"> <li>Seminars</li> </ul>	<p>On-site, in person, synchronous delivery to a restricted number of students in a ‘student bubble’ During the off-site week students will be expected to engage in directed on-line activities and discussions of substantive module content to develop understanding and application of</p>	<p>As with the social distancing restrictions model except that the on-site element will become on-line. However the small groups, weekly rotations and directed study elements will remain.</p>	<p>The on-site group sizes will be increased, the weekly rotations will be reduced or removed and the number of on-line directed activities will be reduced or removed.</p>

	learning. Participation in these activities will be monitored and reviewed by the Module Leader.		
<ul style="list-style-type: none"> <li>1:1 Tutorials &amp; Supervisions</li> </ul>	In-person either on-line or on-site as requested by the student.	In-person, on-line following government guidelines at the time of the meeting.	In-person either on-line or on-site as requested by the student.
<ul style="list-style-type: none"> <li>Practicals</li> </ul>	Practical assessments such as presentations, seminars or group discussions will take place either on-site or on-line depending on requirements and group size. How-to guides specifically relating to the assessments will be published on the DLE.	Practical assessments such as presentations, seminars or group discussions will take place via on-line platforms such as Zoom or Google Meet. How-to guides specifically relating to the assessments will be published on the DLE.	Practical assessments such as presentations, seminars or group discussions will take place during on-site seminars. How-to guides specifically relating to the assessments will be published on the DLE.
<ul style="list-style-type: none"> <li>Workshops</li> </ul>	Specialist workshops will be offered on-site to a restricted number of students in a 'student bubble'. If numbers exceed those allowed under current restrictions multiple sessions will be put on. On-line tutorials or how-to videos will be accessible via the DLE.	Specialist workshops will be offered on-line. On-line tutorials or how-to videos will be accessible via the DLE.	Specialist workshops will be offered on-site. On-line tutorials or how-to videos will be accessible via the DLE.
<ul style="list-style-type: none"> <li>Laboratories</li> </ul>	N/A	N/A	N/A
<ul style="list-style-type: none"> <li>Assessment</li> </ul>	<p>Coursework - all coursework assessments are submitted, marked and feedback provided on-line via Google Classroom or Moodle</p> <p>Practical - Seminars, presentations, group presentations and group discussions - a mixture of on-site,</p>	<p>Coursework - all coursework assessments are submitted, marked and feedback provided on-line via Google Classroom or Moodle</p> <p>Practical - Seminars, presentations, group presentations and group discussions - a mixture of on-site,</p>	<p>Coursework - all coursework assessments are submitted, marked and feedback provided on-line via Google Classroom or Moodle</p> <p>Practical - Seminars, presentations, group presentations and</p>

	<p>on-line, live and recorded practical assessments demonstrating a range of communication and digital skills will be undertaken depending on group size and requirement.</p> <p>Assessment briefings specifically relating to each assessment will be published on the DLE.</p>	<p>on-line, live and recorded practical assessments demonstrating a range of communication and digital skills will be undertaken depending on group size and requirement.</p> <p>Assessment briefings specifically relating to each assessment will be published on the DLE.</p>	<p>group discussions - a mixture of on-site, on-line, live and recorded practical assessments demonstrating a range of communication and digital skills will be undertaken depending on group size and requirement.</p> <p>Assessment briefings specifically relating to each assessment will be published on the DLE.</p>
<p><b>Access to specialist equipment and physical environments outside of timetabled sessions</b></p>	<p><b>Model 1 - Social distancing restrictions as of August 2020</b></p>	<p><b>Model 2 - Increased social distancing, national or local lockdown imposed</b></p>	<p><b>Model 3 - All social distancing restrictions removed</b></p>
<ul style="list-style-type: none"> <li>PC/laptop, internet access, webcam and microphone</li> </ul>	<p>Off-site - all students will need personal access to a PC/laptop with a webcam and microphone (internal/external or through a smartphone) and reliable access to the internet. If this is problematic there are hardship funds available for the purchase of IT equipment via the HE Office.</p> <p><b>Computer/Laptop Specification Recommendation</b> The Higher Technology Skills programme leads recommend the following minimum computer/laptop</p>	<p>Off-site -all students will need personal access to a PC/laptop with a webcam and microphone (internal/external or through a smartphone) and reliable access to the internet. If this is problematic there are hardship funds available for the purchase of IT equipment via the HE office.</p> <p><b>Computer/Laptop Specification Recommendation</b> The Higher Technology Skills programme leads recommend the following minimum computer/laptop</p>	<p>Off-site - students will need personal access to a PC/laptop with a webcam and microphone (internal/external or through a smartphone) and reliable access to the internet. If this is problematic there are hardship funds available for the purchase of IT equipment which can be applied for via the HE office.</p> <p><b>Computer/Laptop Specification Recommendation</b> The Higher Technology Skills programme leads recommend the following minimum computer/laptop</p>

	<p>specification to assist you in reaching your full potential whilst at City College Plymouth.</p> <p>This recommendation is due to the unique industry-standard free software that is offered to students for their studies, which will allow you to access the relevant material required to complete the various online submissions throughout the year.</p> <p>Staff at the college are happy to support with further information prior to any purchase if required.</p> <p><b>Minimum Specification</b> Intel I5 or AMD Ryzen 5 CPU 8GB Ram Discrete/separate GPU 2GB VRAM</p> <p><b>Recommended Specification</b> Intel I7 or AMD Ryzen 7 or higher 16Gb Ram Discrete/Separate GPU 4GB VRAM</p> <p>We do not recommend apple products due to compatibility issues with some of the software offered, this can be overcome but has a requirement for Bootcamp, Parallels or dual operating systems. We also recommend that you do not purchase a laptop/computer that does not have a discrete/separate GPU.</p>	<p>specification to assist you in reaching your full potential whilst at City College Plymouth.</p> <p>This recommendation is due to the unique industry-standard free software that is offered to students for their studies, which will allow you to access the relevant material required to complete the various online submissions throughout the year.</p> <p>Staff at the college are happy to support with further information prior to any purchase if required.</p> <p><b>Minimum Specification</b> Intel I5 or AMD Ryzen 5 CPU 8GB Ram Discrete/separate GPU 2GB VRAM</p> <p><b>Recommended Specification</b> Intel I7 or AMD Ryzen 7 or higher 16Gb Ram Discrete/Separate GPU 4GB VRAM</p> <p>We do not recommend apple products due to compatibility issues with some of the software offered, this can be overcome but has a requirement for Bootcamp, Parallels or dual operating systems. We also recommend that you do not purchase a laptop/computer that does not have a discrete/separate GPU.</p>	<p>specification to assist you in reaching your full potential whilst at City College Plymouth.</p> <p>This recommendation is due to the unique industry-standard free software that is offered to students for their studies, which will allow you to access the relevant material required to complete the various online submissions throughout the year.</p> <p>Staff at the college are happy to support with further information prior to any purchase if required.</p> <p><b>Minimum Specification</b> Intel I5 or AMD Ryzen 5 CPU 8GB Ram Discrete/separate GPU 2GB VRAM</p> <p><b>Recommended Specification</b> Intel I7 or AMD Ryzen 7 or higher 16Gb Ram Discrete/Separate GPU 4GB VRAM</p> <p>We do not recommend apple products due to compatibility issues with some of the software offered, this can be overcome but has a requirement for Bootcamp, Parallels or dual operating systems. We also recommend that you do not purchase a laptop/computer that does not have a discrete/separate GPU.</p>
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	<p>The college provides all students with a computer of similar specification whilst on site both in classrooms and self-study areas, however, with current COVID issues we cannot guarantee access to this equipment at all times.</p>	<p>The college provides all students with a computer of similar specification whilst on site both in classrooms and self-study areas, however, with current COVID issues we cannot guarantee access to this equipment at all times.</p>	<p>The college provides all students with a computer of similar specification whilst on site both in classrooms and self-study areas, however, with current COVID issues we cannot guarantee access to this equipment at all times.</p>
<ul style="list-style-type: none"> <li>Specialist hardware/software i.e. for IT / engineering /CAD / creative media /</li> </ul>	<p>Student licensed software such as AutoCAD is available to download as 'work at home software'. For further details, please contact your module lead.</p>	<p>Student licensed software such as AutoCAD is available to download as 'work at home software'. For further details, please contact your module lead.</p>	<p>Student licensed software such as AutoCAD is available to download as 'work at home software'. For further details, please contact your module lead.</p>
<ul style="list-style-type: none"> <li>Specialist environments i.e.: dance studios / theatre space/ sports clinic / laboratories / make-up salon/ PL1 restaurant</li> </ul>	<p>A mixture of remote on-line synchronous delivery recorded for future access via DLE along with in-person delivery with a restricted number of students in a 'student bubble' based on need and support requirements.</p>	<p>Workshops will be delivered by the course lecturer, with a mixture of remote on-line synchronous delivery recordings for future access via DLE.</p>	<p>On-site workshops to develop programme and industry required techniques.</p>
<p><b>Employability and work experience</b></p>	<p><b>Model 1 - Social distancing restrictions as of August 2020</b></p>	<p><b>Model 2 - Increased social distancing, national or local lockdown imposed</b></p>	<p><b>Model 3 - All social distancing restrictions removed</b></p>
<ul style="list-style-type: none"> <li>Visiting Speakers &amp; industry experts</li> </ul>	<p>Sector specialists and academic speakers may be</p>	<p>Sector specialists and academic speakers may be</p>	<p>In person visits to industry partner organisations may be</p>

	<p>organised, both on-line and in-person with number restrictions depending on the venue and government guidance at the time.</p> <p>Virtual or on-site work experience opportunities may be available depending on need and opportunity.</p>	<p>organised on-line.</p>	<p>arranged. Sector specialists and academic speakers may be organised both on-line and in-person.</p> <p>Virtual or on-site work experience opportunities may be available depending on need and opportunity.</p>
<ul style="list-style-type: none"> <li>• Placement/ work experience hours</li> </ul>	<p>There are no work placement hours requirements for this course.</p>		