



**UNIVERSITY  
CENTRE**  
SOUTH DEVON



**UNIVERSITY OF  
PLYMOUTH**

# **PROGRAMME QUALITY HANDBOOK 2020-2021**

## **FdSc Civil and Coastal Engineering (Incorporating HNC)**

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## **1. Welcome and Introduction to FdSc Civil and Coastal Engineering.**

Welcome to the Foundation Degree in Civil and Coastal Engineering delivered by University Centre South Devon.

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 Institution & University Student Handbook which contains student support based information on issues such as finance and studying at HE
  - o Available in University News & Information on Moodle.
- Plymouth University's Student Handbook
  - o available at:  
<https://www.plymouth.ac.uk/your-university/governance/student-handbook>

## **1.1. Programme Management**

**Alex Osborne:** Alex has developed several construction and civil engineering HE modules during his 4 years working at UCSD. He is programme manager, HE lead and lecturer for several programmes within the curriculum area. Alex is also an Associate Fellow of the Higher Education Academy. Prior to joining academia Alex was Construction Manager for a regional contractor. He has a MSc (Hons) in Civil Engineering from the University of Southampton and worked in consultancy and contracting for several years across civil engineering and construction projects across the UK.

## **1.2. Personal Tutor**

Personal tutors are designated as a sustained and first point of reference for individual students on personal, domestic or academic matters; detailed information will be available in your teaching, learning and assessment handbooks.

**Dave Worthington:** Dave has developed several construction and civil engineering HE programmes during his eight years working at UCSD. He is lecturer for several programmes within the curriculum area. Dave is also a Fellow of the Higher Education Academy. Prior to joining academia Dave was Construction Director for a national developer. He has a BEng (Hons) in Civil Engineering from the University of Plymouth and worked in contracting for many years across civil engineering and construction projects across the UK. He has recently completed an MSc in Sustainable Building Conservation.

Further information about personal tutoring at UCSD can be found by following this link to the [Student Development](#) policy.

## **1.3. Module Leaders**

Dave Worthington  
Alex Osborne  
Andrew Finch

## **1.4. Course Contact List**

Dave Worthington: [davidworthington@southdevon.ac.uk](mailto:davidworthington@southdevon.ac.uk).  
Phone: 01803 540744

Alex Osborne: [alexosborne@southdevon.ac.uk](mailto:alexosborne@southdevon.ac.uk)  
Phone: 01803 540744

Andrew Finch: [andrewfinch@southdevon.ac.uk](mailto:andrewfinch@southdevon.ac.uk)  
Phone: 01803 540744

## **1.5. Preparing for your programme**

At UCSD, we understand that degree level study is a big step up from previous studies. To help prepare you for the degree we recommend engaging with preparatory activities. Each year UCSD organise step up to HE workshops, with a focus on supporting you to develop your research and writing skills, alongside academic techniques. For more information on the workshops and resources available, please visit our website: <https://www.ucsd.ac.uk/the-first-year-at-university/>.

The Student Support Hub is available throughout the duration of your programme and offers a range of services, acting as a first port of call for academic, study, wellbeing, disability, fees/funding, employability and progression support. When progressing to the next level of study of your higher education, there are also workshops and activities available to support you with progressing your graduate skills.

Preparatory reading is a great way to develop your knowledge and skills to be ready for the next level of study in higher education. Please see below some recommended reading to undertake prior to the start of your course:

### Preparatory Reading

#### Recommended books/ebooks:

**Mathematics for Engineers:** Stroud, KA. (2009) *Foundation Mathematics*. Palgrave Macmillan Ltd.

**Structural Analysis and Design 1:** Gordon, JE. (1978) *Structures, Or Why Things Don't Fall Down*. Da Capo Press

**Coastal Engineering 1:** Reeve, D., Chadwick, A. and Fleming, C. (2004) *Coastal Engineering: processes, theory and design practice*.

## 1.6. COVID19 Programme Planning

Covid 19 programme Planning	
General approach being undertaken	<p>We will follow government advice on social distancing and personal safety to ensure a 'Covid secure' working and learning environment.</p> <p>We know that we all may need to adapt if Covid conditions change. We will continue to provide a high quality learning experience utilising technology solutions as may be required.</p> <p>We will continue to update our dedicated <a href="#">Covid 19 webpage</a> if and when circumstances change. We encourage all new and returning students to review this page to better understand the approach we are taking.</p>
Programme Teaching and Learning changes being undertaken	<p>It is anticipated that scheduled learning activity will be face to face in the classroom.</p>
Programme Assessment changes being undertaken	No changes have been undertaken for the assessment of the programme.

## 2. Programme Specification

<b>Awarding Institution:</b>	University of Plymouth
<b>Partner Institution and delivery site (s):</b>	South Devon College, Vantage Point Campus
<b>Accrediting Body:</b>	N/A
<b>Language of Study:</b>	English <sup>1</sup>
<b>Mode of Study:</b>	Full Time / Part Time
<b>Final Award:</b>	FdSc
<b>Intermediate Award:</b>	HNC

<sup>1</sup> Unless otherwise approved through Plymouth University's Academic Development and Partnerships Committee

<b>Programme Title:</b>	FdSc Civil and Coastal Engineering
<b>UCAS Code:</b>	4H55
<b>JACS Code:</b>	H200
<b>Benchmarks:</b>	The guidance provided by QAA, FDQB and the SEEC Credit Level Descriptors (2010) have been used during the development of this FdSc. In addition the programme has been informed by the following QAA Subject Benchmark statements, Engineering (2010).
<b>Date of Programme Approval:</b>	21/04/2015

## 1. Brief Description of the Programme

The FdSc Civil and Coastal Engineering aims to equip students with knowledge and critical understanding of the principles of civil and coastal engineering. Increasing populations, progressive urbanisation and ongoing economic development, climate change, rising sea levels and the persistent risk of extreme events, present many threats to infrastructure. This programme will prepare civil engineering technicians with the ability to innovate and provide essential and sustainable infrastructure solutions to regional, national and global problems. The programme provides opportunities for students to develop the qualities and transferable skills necessary for employment, personal responsibility and decision-making associated with the civil and coastal engineering profession. Successful completion of the course will enable graduates to explore further education opportunities by progressing to a Civil Engineering degree and seek technician membership of the Joint Board of Moderators (JBM).

## 2. Details of Accreditation by a Professional/Statutory Body (if appropriate)

HNC – ICE EngTech accredited.  
FdSc – ICE IENg accreditation application pending.

## 3. Exceptions to Plymouth University Regulations

(Note: Plymouth University's Academic Regulations are available internally on the intranet: <https://staff.plymouth.ac.uk/extexam/academicregs/intranet.htm>)

None

## 4. Programme Aims

The programme will deliver:

- A1: Students with the knowledge, practical skills, critical thinking and grasp of terminology demanded by their multi-disciplined industry of civil and coastal engineering and seek to make interconnections between the academic and industrial worlds.
- A2: Development for students to appraise and solve technical, financial and organisational problems through critical understanding, theory and hypothesis in the context of civil and coastal engineering; and to adopt and maintain contextual currency of knowledge and information.
- A3: A programme of study that will develop students' transferable skills for entry into the professional environment by the inclusion of a work-based module and to provide a suitable basis for progression and professional development
- A4: Facilitation of academic and professional development in line with employer needs and develop self-managing, reflective and adaptable professionals
- A5: Key engineering skills and proficiencies in a technical and practical environment, providing access, experiences and opportunities for development within industry
- A6: A challenging programme, which is current, relevant and informed by staff professional experience and consultancy

## 5. Programme Intended Learning Outcomes (ILO)

By the end of this programme the student will be able to:

- ILO1: Demonstrate knowledge and understanding of the complexity and multifaceted areas of the civil and coastal engineering sector
- ILO2: Evaluate sustainable engineering methodology and technology and apply strategies to practical problems
- ILO3: Undertake evaluation and critical analysis of a diverse range of civil, coastal and environmental engineering issues and problem solving
- ILO4: Utilise appropriate technologies, instrumentation, techniques and research methods to plan, record and present information in a professional manner within set time frames, autonomously and collaboratively.
- ILO5: Critically evaluate personal experiences, and describe relevant theoretical perspectives that have informed and enhanced their professional practice to underlying principles.
- ILO6: Demonstrate use of ICT and specialised software in a variety of contexts, including project management and CAD
- ILO7: Evaluate the principles and practice of management as applied in the context of civil engineering businesses, including aspects relating to finance, law, and risk

## 6. Distinctive Features

- A broad programme of topics affecting the civil and coastal engineering sector locally, nationally and globally
- Utilisation of Noss Marina and associated watercraft to gain access to the regions coastline

- An emphasis on experiential learning through embedded practical skills and fieldwork for employability
- An inter and multidisciplinary approach to delivery through wide ranging lecturer skills and experience, and external speakers
- Use of live projects to enhance transferable and employability skills
- Features and highlights local industries and outlines relevant career opportunities

## 7. Student Numbers

The following provides information that should be considered nominal, and therefore not absolutely rigid, but is of value to guide assurance of the quality of the student experience, functional issues around enabling progression opportunities to occur and staffing and resource planning:

Minimum student numbers per stage = 8

Target student numbers per stage = 15

Maximum student numbers per stage = 25

## 8. Progression Route(s)

Approved 'progression route(s)' are those where successful achievement in this programme enables direct alignment to join a stage of another programme. This is an approach employed primarily for Foundation Degree students to 'top-up' to complete a Bachelor degree, but may be employed for other award types.

This is in part an automated admissions criterion and therefore progression may be impacted on by availability of a position on the progression award; however progression opportunity, if not available in the first year of application, is guaranteed within 3-years.

Progression arrangements with institutions other than Plymouth University carry an increased element of risk. It is necessary for the delivering partner institution to obtain formal agreement from that institution to guarantee progression for existing students on the programme. For progression to Plymouth University, should there be the need to withdraw the progression route programme(s) then either this will be delayed to provide progression or appropriate solutions will be found. This arrangement is guaranteed for existing students that complete their programme of study with no suspensions or repeat years and who wish to progress immediately to the University.

Successful completion of the FdSc will permit progression to the BSc (Hons) Civil and Coastal Engineering and the BSc (Hons) Civil Engineering – Plymouth University

The contribution of marks from prior levels of study to the progression award is governed by University regulations.

## 9. Admissions Criteria

Qualification(s) Required for Entry to this Programme:	Details:
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<b>Level 2:</b> 1. <b>Key Skills requirement / Higher Level Diploma:</b> and/or 2. <b>GCSEs required at Level 5 or above:</b>	GCSE's at level 5 or above in English and Maths
<b>Level 3: at least one of the following:</b> 3. <b>AS/A Levels</b> 4. <b>Advanced Level Diploma:</b> 5. <b>BTEC National Certificate/Diploma:</b> 6. <b>VDA: AGNVQ, AVCE, AVS:</b> 7. <b>Access to HE or Year 0 provision:</b> 8. <b>International Baccalaureate:</b>	48 UCAS points, including a pass in A level or AS level mathematics, from science, engineering and technology subjects.  18 Unit BTEC National Diploma/QCF Extended Diploma: MPP in a related subject
9. <b>Irish / Scottish Highers / Advanced Highers:</b>	Award should be in a related subject field Pass or above at Level 3  In related subject field  26 points from the International Baccalaureate.  48 points minimum from Higher Certificates
<b>Work Experience:</b>	Considered on individual merit
<b>Other HE qualifications / non-standard awards or experiences:</b>	Students with non-standard qualifications may be asked to complete a written piece of work on a relevant subject and/or learning needs assessment.
<b>APEL / APCL<sup>2</sup> possibilities:</b>	Candidates are encouraged to apply if they feel they can benefit from the programme. Candidates with non-standard entry applications will be considered on the basis of relevant work experience or attainment of skills which demonstrate an ability to study at this level. Given the wide experience of potential applicants to this course applications for Accreditation Prior Learning (APL) and Accreditation of Prior Experiential Learning (APEL) are welcomed in accordance with South Devon

<sup>2</sup> Accredited Prior Experiential Learning and Accredited Prior Certificated Learning

	<p>College and University of Plymouth Admissions Policy.  <a href="http://www.ucas.com/how-it-all-works/mature-students/applying-university-or-college">http://www.ucas.com/how-it-all-works/mature-students/applying-university-or-college</a></p>
<b>Interview / Portfolio requirements:</b>	<p>Interviews may be employed where deemed applicable. The emphasis at interview should be to highlight the level and quantity of maths and physics that form the basis of this foundation degree and required for successful completion.</p> <p>It should also be made clear at interview that certain physical capabilities are required when studying upon the programme. Specific reference should be made to;</p> <ul style="list-style-type: none"> <li>• Boat trips within coastal engineering</li> <li>• Field trips within coastal engineering and geology (trips to coastal and rocky environments)</li> <li>• Use of technical surveying instrumentation in an outdoor environment</li> </ul>
<b>Independent Safeguarding Agency (ISA) / Criminal Record Bureau (CRB) clearance required:</b>	No

## 10. Academic Standards and Quality Enhancement

The Programme Leader/Manager (or other descriptor) leads the Programme Committee in the following of Plymouth University's annual programme monitoring process (APM), as titled at the time of approval. APM culminates in the production, maintenance and employment of a programme level Action Plan, which evidences appropriate management of the programme in terms of quality and standards. Any formally agreed change to this process will continue to be followed by the Programme Leader/Manager (or other descriptor) and their Programme Committee.

Elements of this process include engaging with stakeholders. For this definitive document it is important to define:

**Subject External Examiner(s):** All modules are parented by this programme and therefore covered by this programme's external examiner.

**Additional stakeholders specific to this programme:** Students, graduates, PU – industry

## PS1. Programme Structure

Partner: South Devon College

Academic Year: 2019/20

Programme Code: 5362

Programme Title: FdSc Civil and Coastal Engineering

Full/Part Time: Full Time

Level 4					
Module Code	Module Title	Credits	Year of Delivery*	Semester/Term of Delivery	Core/Optional
SOUD1365	Sustainable Civil Engineering Technology and Site Operations	20	1	All Year	Core
SOUD1366	Structural Analysis & Design 1	20	1	All Year	Core
SOUD1367	Coastal Engineering 1	20	1	All Year	Core
SOUD1484	Mathematics for Engineers	20	1	All Year	Core
SOUD1369	Geology & Soil Mechanics	20	1	All Year	Core
SOUD1370	Setting Out, Surveying & CAD for Construction Engineers	20	1	All Year	Core

\*e.g a foundation degree delivered full-time over two years would have all level 4 modules delivered in year 1. A foundation degree delivered part-time over 3 years would normally have 80 credits of level 4 delivered in year 1 and 40 credits delivered in year 2

Partner: South Devon College

Academic Year: 2019/20

Programme Code: 5362

Programme Title: FdSc Civil and Coastal Engineering

Full/Part Time: Full Time

Level 5					
Module Code	Module Title	Credits	Year of Delivery	Semester/Term of Delivery	Core/Optional
SOUD2312	Construction Project Management	20	2	All Year	Core
SOUD2313	Work Based Research Project	20	2	All Year	Core
SOUD2314	Coastal Engineering 2	20	2	All Year	Core
SOUD2315	Structural Analysis & Design 2	20	2	All Year	Core
SOUD2316	Law and Contracts For Civil Engineers	20	2	All Year	Core
SOUD2317	Environmental Engineering	20	2	All Year	Core

Partner: South Devon College

Academic Year: 2019/20

Programme Code: 5470

Programme Title: FdSc Civil and Coastal Engineering

Full/Part Time: Part time

Level 4					
Module Code	Module Title	Credits	Year of Delivery	Semester/Term of Delivery	Core/Optional
SOUD1365	Sustainable Civil Engineering Technology and Site Operations	20	1	All Year	Core
SOUD1366	Structural Analysis & Design 1	20	1	All Year	Core
SOUD1367	Coastal Engineering 1	20	1	All Year	Core
SOUD1484	Mathematics for Engineers	20	1	All Year	Core
SOUD1369	Geology & Soil Mechanics	20	2	Autumn	Core
SOUD1370	Setting Out, Surveying & CAD for Construction Engineers	20	2	Autumn	Core
Level 5					
SOUD2312	Construction Project Management	20	2	Spring	
SOUD2313	Work Based Research Project	20	3	All Year	Core
SOUD2314	Coastal Engineering 2	20	3	All Year	Core
SOUD2315	Structural Analysis & Design 2	20	3	All Year	Core

SOUD2316	Law and Contracts For Civil Engineers	20	2	Spring	Core
SOUD2317	Environmental Engineering	20	3	All Year	Core

Partner: South Devon College

Academic Year: 2019/20

Programme Code: 5468

Programme Title: HNC Civil and Coastal Engineering

Full/Part Time: Full time

Level 4					
Module Code	Module Title	Credits	Year of Delivery	Semester/Term of Delivery	Core/Optional
SOUD1365	Sustainable Civil Engineering Technology and Site Operations	20	1	All Year	Core
SOUD1366	Structural Analysis & Design 1	20	1	All Year	Core
SOUD1367	Coastal Engineering 1	20	1	All Year	Core
SOUD1484	Mathematics for Engineers	20	1	All Year	Core
SOUD1369	Geology & Soil Mechanics	20	1	Autumn	Core
SOUD1370	Setting Out, Surveying & CAD for Construction Engineers	20	1	Autumn	Core

Partner: South Devon College

Academic Year: 2019/20

Programme Code: 5469

Programme Title: HNC Civil and Coastal Engineering

Full/Part Time: Part time

Level 4					
Module Code	Module Title	Credits	Year of Delivery	Semester/Term of Delivery	Core/Optional
SOUD1365	Sustainable Civil Engineering Technology and Site Operations	20	1	All Year	Core
SOUD1366	Structural Analysis & Design 1	20	2	All Year	Core
SOUD1367	Coastal Engineering 1	20	2	All Year	Core
SOUD1484	Mathematics for Engineers	20	1	All Year	Core
SOUD1369	Geology & Soil Mechanics	20	2	All Year	Core
SOUD1370	Setting Out, Surveying & CAD for Construction Engineers	20	1	Spring	Core

## 11. Explanation and Mapping of Learning Outcomes, Teaching & Learning and Assessment

Developing graduate attributes and skills, at any level of HE, is dependent on the clarity of strategies and methods for identifying the attributes and skills relevant to the programme and where and how these are operationalized. The interrelated factors of Teaching, Learning and Assessment and how

these are inclusive in nature, are fundamentally significant to these strategies and methods, as are where and how these are specifically distributed within the programme.

Ordered by graduate attributes and skills, the following table provides a map of the above, plus an exposition to describe and explain the ideas and strategy of each. Therefore, subsequent to the initial completion for approval, maintenance of this table as and when programme structure changes occur is also important:

FHEQ level: 4					
Definitions of Graduate Attributes and Skills Relevant to this Programme	Teaching and Learning Strategy / Methods	Programme Aims	Programme intended Learning Outcomes	Range of Assessments	Related Core Modules
<p><b>Knowledge / Understanding:</b> The guidance provided by QAA, FDQB and the SEEC Credit Level Descriptors (2010) have been used during the development of this HNC. In addition the programme has been informed by the following QAA Subject Benchmark statements, Engineering (2010). By the end of this level of this programme the students will be able to demonstrate for a threshold pass:</p> <ul style="list-style-type: none"> <li>• The principles of civil, coastal and environmental engineering subjects supported by underpinning mathematics</li> <li>• The principles of design within statutory and regulatory frameworks</li> <li>• Awareness of sustainable, environmental, health, safety and welfare considerations</li> <li>• The principles and practice of site operations, procedures and practice</li> <li>• Knowledge of the professional, social and ethical responsibilities of engineers and the environmental impact of their activity</li> </ul>	<p>Primary:</p> <ul style="list-style-type: none"> <li>• Lectures and tutorials</li> <li>• Directed independent study</li> </ul> <p>Secondary/Supplementary:</p> <ul style="list-style-type: none"> <li>• Case studies</li> <li>• Problem-solving exercises</li> <li>• Evaluation of “real” projects completed and live</li> <li>• Group and individual presentations and peer assessments</li> </ul>	1,2,3,4,5	1,2,3,4,5	<ul style="list-style-type: none"> <li>• Project report</li> <li>• In-class tests</li> <li>• Essay</li> <li>• Scenario report</li> <li>• Case Study Presentation</li> <li>• Exam</li> <li>• Portfolio</li> </ul>	SOUD1365 SOUD1366 SOUD1367 SOUD1368 SOUD1369 SOUD1370

<ul style="list-style-type: none"> <li>• Familiarity in the use of codes of practice and industry standards</li> <li>• Use of ICT applications appropriate to the planning, design and management of engineering projects</li> <li>• The presentation of original ideas and reflections via a range of methods to convey appropriate standards of literacy and the use of numeric data</li> <li>• Knowledge of industry roles, responsibilities, working and contractual interactions and relationships in a professional context</li> </ul>	<ul style="list-style-type: none"> <li>• Site visits</li> <li>• Practical sessions</li> </ul>			
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An explanation for embedding Knowledge and Understanding through Teaching & Learning and Assessment at this level of the programme:

All modules will embed knowledge and understanding to enable students to reach the threshold standards to pass. Various methods of teaching will be used accompanied by a range of different assessments with Learning Outcomes designed to ascertain the level of knowledge and understanding of the students. Knowledge and understanding will be delivered by lectures, presentations, seminars and practical work..

Specifically, the following learning objectives will measure knowledge and understanding:

SOUD1365 - LO1: Identify and assess engineering technology and techniques

SOUD1365 - LO2: Identify how the construction and civil engineering sector impacts upon the environment

SOUD1365 – LO3: Assess design and construction methodology and provide sustainable solutions

SOUD1365 – LO4: Appraise construction site management methodology

SOUD1365 – LO5: Define health and safety legislation, risk management and best working practices applicable to site operation

SOUD1366 – LO1: Analyse statically determinate beams to determine reactions, shear forces and bending moments and appreciate their application in practice

SOUD1366 – LO2: Demonstrate an understanding of resolving forces in members of statically determinate frames

SOUD1366 – LO3: Calculate combined, direct and bending stresses and deflection

SOUD1366 – LO4: Design the structural elements for steel and reinforced concrete structures using standard codes and practices

SOUD1367 – LO1: Define the coastal environment, its geology and diversity and explain coastal behaviour

SOUD1367 – LO2: Explain coastal sediment properties and transport

SOUD1367 – LO3: Be able to apply the theories of waves mechanics

SOUD1367 – LO4: Describe the basic types of coastal defence schemes and their effects on the environment.

SOUD1367 – LO5: Determine sustainable construction technology and methodology for coastal projects

SOUD1368 – LO1: Use basic mathematical techniques to solve engineering problems.

SOUD1368 - LO2: Use determinants and matrices to solve systems of linear equations.

SOUD1368 – LO3: Use complex number theory in practical applications.

SOUD1368 – LO4: Understand the basic techniques of differential and integral calculus and be able to apply them to a variety of practical problems.

SOUD1369 – LO1: Describe the processes by which rocks are formed

SOUD1369 – LO2: Characterise the engineering properties of rocks

SOUD1369 – LO3: Describe and classify soils for engineering purposes

SOUD1369 – LO4: Determine the physical properties and compaction characteristics of soils

SOUD1369 – LO5: Utilise Eurocode 7 for the design of civil engineering works

SOUD1370 – LO1: Use a range of technical instrumentation to establish horizontal and vertical control

SOUD1370 – LO2: Determine the nature of errors in measurement and the need for quality control.

SOUD1370 – LO3: To effectively use and manipulate mapping software and upload/download survey data to produce and edit drawings for plotting or export to CAD packages

SOUD1370 – LO4: Proficiently operate technical instrumentation to successfully set out and survey, and record data in accordance with standard procedures.

SOUD1370 – LO5: Produce CAD drawings from basic principles and mapped survey data

**Cognitive and Intellectual Skills:**

The guidance provided by QAA, FDQB and the SEEC Credit Level Descriptors (2010) have been used during the development of this HNC. In addition the programme has been informed by the following QAA Subject Benchmark statements, Engineering (2010).

By the end of this level of this programme the students will be able to demonstrate for a threshold pass:

- Organise relevant knowledge and ideas in order to interpret, explore and solve

Primary:

- Class exercises
- Presentations
- Tutorial/seminar discussions

1,2,3

1,2,3,4

- Assessed discussions
- Essays
- Projects
- Tests

SOUD1365

SOUD1366

SOUD1367

SOUD1368

SOUD1370

<ul style="list-style-type: none"> <li>problems contextual to civil, coastal and environmental engineering</li> <li>• Demonstrate imagination and creativity in the resolution of problems.</li> <li>• Evaluate the relevance and significance of data collected in identifying and resolving problems.</li> <li>• Apply theory to practice in multi-disciplinary industry sectors, taking into account a range of stakeholders.</li> <li>• Use reflection in the learning process to enhance personal development and refine professional practice.</li> </ul>	<ul style="list-style-type: none"> <li>• Feedback via coursework assessment process (essays etc.)</li> </ul> <p>Secondary/Supplementary:</p> <ul style="list-style-type: none"> <li>• Policy and practice analysis in surgeries</li> <li>• Computer-based practical's on data and measurement problems</li> </ul>			
<p>An explanation for embedding Cognitive and Intellectual Skills through Teaching &amp; Learning and Assessment at this level of the programme:</p> <p>Cognitive and intellectual skills will be underpinning to all modules. Students will be required to access information about engineering from different types of sources and will be encouraged to communicate their findings in different contexts. Cognitive and intellectual skills will be delivered by lectures, presentations, seminars, fieldwork and practical work. Typical assessments will include exams and coursework (e.g. Essays, Reports, and Presentations). Specifically, cognitive and intellectual skills will be measured by the following learning outcomes:</p> <p>SOUD1365 - LO1: Identify and assess engineering technology and techniques</p> <p>SOUD1365 – LO3: Assess design and construction methodology and provide sustainable solutions</p> <p>SOUD1365 – LO4: Appraise construction site management methodology</p> <p>SOUD1366 – LO1: Analyse statically determinate beams to determine reactions, shear forces and bending moments and appreciate their application in practice</p> <p>SOUD1366 – LO3: Calculate combined, direct and bending stresses and deflection</p> <p>SOUD1367 – LO2: Explain coastal sediment properties and transport</p> <p>SOUD1367 – LO3: Be able to apply the theories of waves mechanics</p> <p>SOUD1368 – LO1: Use basic mathematical techniques to solve engineering problems.</p> <p>SOUD1368 - LO2: Use determinants and matrices to solve systems of linear equations.</p> <p>SOUD1368 – LO3: Use complex number theory in practical applications.</p> <p>SOUD1368 – LO4: Understand the basic techniques of differential and integral calculus and be able to apply them to a variety of practical problems.</p> <p>SOUD1369 – LO1: Describe the processes by which rocks are formed</p> <p>SOUD1369 – LO2: Characterise the engineering properties of rocks</p>				

**SOUD1370 – LO2: Determine the nature of errors in measurement and the need for quality control.**

<p><b>Key Transferable Skills:</b>  The guidance provided by QAA, FDQB and the SEEC Credit Level Descriptors (2010) have been used during the development of this HNC. In addition the programme has been informed by the following QAA Subject Benchmark statements, Engineering (2010).  By the end of this level of this programme the students will be able to demonstrate for a threshold pass:</p> <ul style="list-style-type: none"> <li>• Interacting effectively within a group, giving and receiving information, modifying responses where appropriate and respecting the views of others.</li> <li>• Evaluating their performance, developing informed criteria, and devising suitable personal development plans.</li> <li>• Taking responsibility for their own learning, planning and managing their time effectively to achieve objectives and to meet deadlines.</li> <li>• Organising, presenting and defending ideas, theories and concepts confidently in academic and work related situations.</li> <li>• Communicating effectively in a variety of formats (oral and written) and in a manner appropriate to the audience/situation.</li> </ul>	<p><b>Primary:</b></p> <ul style="list-style-type: none"> <li>• Library and other research exercises</li> <li>• Group work awareness and practice</li> <li>• Presentations</li> <li>• Group and individual peer assessment</li> <li>• Computer-based learning and assessment</li> <li>• Tutorials and seminars</li> </ul> <p><b>Secondary/Supplementary:</b></p> <ul style="list-style-type: none"> <li>• Class and seminar interactions and feedback</li> </ul>	1,2,3,5	1,3,4	<ul style="list-style-type: none"> <li>• Presentation</li> <li>• Examination</li> <li>• In-Class tests</li> <li>• Assessed discussions</li> <li>• Group project work</li> </ul>	SOUD1365 SOUD1366 SOUD1367 SOUD1368 SOUD1369 SOUD1370
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- Identifying key elements of problems, applying appropriate methods to address them.
- Transferring skills and knowledge across different settings and work related contexts.

An explanation for embedding Key Transferable Skills through Teaching & Learning and Assessment at this level of the programme:

The programme of study is specifically designed to ensure students will be equipped with skills that will certainly be transferable to the work place. Each module taught will embed transferable skills through teaching, learning and assessment in some measure. For example, students will need to demonstrate that they are able to solve problems, organise themselves, work to deadlines, make decisions, research, communicate effectively and be self-aware. Assessment will be primarily through coursework (e.g. Essays, Reports, Portfolios, Practical and Presentations). Specifically the learning outcomes from the modules below will embed transferable skills:

SOUD1365 - LO1: Identify and assess engineering technology and techniques

SOUD1365 - LO2: Identify how the construction and civil engineering sector impacts upon the environment

SOUD1365 – LO3: Assess design and construction methodology and provide sustainable solutions

SOUD1365 – LO4: Appraise construction site management methodology

SOUD1365 – LO5: Define health and safety legislation, risk management and best working practices applicable to site operation

SOUD1366 – LO2: Demonstrate an understanding of resolving forces in members of statically determinate frames

SOUD1366 – LO3: Calculate combined, direct and bending stresses and deflection

SOUD1366 – LO4: Design the structural elements for steel and reinforced concrete structures using standard codes and practices

SOUD1367 – LO1: Define the coastal environment, its geology and diversity and explain coastal behaviour

SOUD1367 – LO2: Explain coastal sediment properties and transport

SOUD1367 – LO4: Describe the basic types of coastal defence schemes and their effects on the environment.

SOUD1367 – LO5: Determine sustainable construction technology and methodology for coastal projects

SOUD1368 – LO1: Use basic mathematical techniques to solve engineering problems.

SOUD1368 - LO2: Use determinants and matrices to solve systems of linear equations.

SOUD1368 – LO3: Use complex number theory in practical applications.

SOUD1368 – LO4: Understand the basic techniques of differential and integral calculus and be able to apply them to a variety of practical problems.

SOUD1369 – LO1: Describe the processes by which rocks are formed

SOUD1369 – LO2: Characterise the engineering properties of rocks

SOUD1370 – LO1: Use a range of technical instrumentation to establish horizontal and vertical control

SOUD1370 – LO3: To effectively use and manipulate mapping software and upload/download survey data to produce and edit drawings for plotting or export to CAD packages

SOUD1370 – LO4: Proficiently operate technical instrumentation to successfully set out and survey, and record data in accordance with standard procedures.

SOUD1370 – LO5: Produce CAD drawings from basic principles and mapped survey data

<p><b>Employment Related Skills:</b> The guidance provided by QAA, FDQB and the SEEC Credit Level Descriptors (2010) have been used during the development of this HNC. In addition the programme has been informed by the following QAA Subject Benchmark statements, Engineering (2010). By the end of this level of this programme the students will be able to demonstrate for a threshold pass:</p> <ul style="list-style-type: none"><li>• Performance of professional tasks, exercising personal responsibility and demonstrating a capacity to make decisions appropriate to their professional role</li><li>• Skills to Identify appropriate theoretical, professional and/or research based sources and use appropriately in their professional practice.</li><li>• Successfully working as part of and leading a team within set deadlines</li><li>• Efficient communication skills both oral and in writing using a range of medium</li></ul>	<p>Primary:<ul style="list-style-type: none"><li>• Lectures</li><li>• Research Tasks</li><li>• Portfolio Development</li></ul>Secondary/Supplementary:<ul style="list-style-type: none"><li>• Site Visits</li></ul></p>	<p>1,2,3,4,5</p>	<p>1,2,3,4,5</p>	<ul style="list-style-type: none"><li>• Project report</li><li>• Scenario report</li><li>• Case Study</li><li>• Presentation</li></ul>	<p>SOUD1365 SOUD1366 SOUD1367 SOUD1368 SOUD1369 SOUD1370</p>
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An explanation for embedding Employment Related Skills through Teaching & Learning and Assessment at this level of the programme:

The programme is intended embed a variety of employment related skills. Within the context of engineering and construction these skills could include: having a breadth and depth of knowledge about emerging issues and developments across industry sectors, having developed practical

and analytical skills, being able to present information effectively and being able to link all of these elements together coherently to identify relationships. Specifically the learning outcomes from the modules below will embed employment related skills:

SOUD1365 - LO1: Identify and assess engineering technology and techniques

SOUD1365 - LO2: Identify how the construction and civil engineering sector impacts upon the environment

SOUD1365 – LO3: Assess design and construction methodology and provide sustainable solutions

SOUD1365 – LO4: Appraise construction site management methodology

SOUD1365 – LO5: Define health and safety legislation, risk management and best working practices applicable to site operation

SOUD1366 – LO4: Design the structural elements for steel and reinforced concrete structures using standard codes and practices

SOUD1367 – LO1: Define the coastal environment, its geology and diversity and explain coastal behaviour

SOUD1367 – LO2: Explain coastal sediment properties and transport

SOUD1367 – LO3: Be able to apply the theories of waves mechanics

SOUD1367 – LO4: Describe the basic types of coastal defence schemes and their effects on the environment.

SOUD1367 – LO5: Determine sustainable construction technology and methodology for coastal projects

SOUD1368 – LO1: Use basic mathematical techniques to solve engineering problems.

SOUD1369 – LO1: Describe the processes by which rocks are formed

SOUD1369 – LO2: Characterise the engineering properties of rocks

SOUD1369 – LO3: Describe and classify soils for engineering purposes

SOUD1369 – LO4: Determine the physical properties and compaction characteristics of soils

SOUD1369 – LO5: Utilise Eurocode 7 for the design of civil engineering works

SOUD1370 – LO1: Use a range of technical instrumentation to establish horizontal and vertical control

SOUD1370 – LO2: Determine the nature of errors in measurement and the need for quality control.

SOUD1370 – LO3: To effectively use and manipulate mapping software and upload/download survey data to produce and edit drawings for plotting or export to CAD packages

SOUD1370 – LO4: Proficiently operate technical instrumentation to successfully set out and survey, and record data in accordance with standard procedures.

SOUD1370 – LO5: Produce CAD drawings from basic principles and mapped survey data

**Practical Skills:**

The guidance provided by QAA, FDQB and the SEEC Credit Level Descriptors (2010) have been used during the development of this HNC. In addition the programme has been informed by the following QAA

<p>Subject Benchmark statements, Engineering (2010).</p> <p>By the end of this level of this programme the students will be able to demonstrate for a threshold pass:</p> <ul style="list-style-type: none"> <li>• Undertaking of basic measurement procedures and establish vertical control, record date using industry recognised methods and instrumentation</li> <li>• Effective ICT use in the presentation of professional reports, graphical representation, statistical data and technical drawing</li> <li>• Completion of Risk Assessments and associated Health &amp; Safety documentation</li> </ul>	<p><b>Primary:</b></p> <ul style="list-style-type: none"> <li>• Projects</li> <li>• Designated practical tasks</li> <li>• Lectures and tutorials</li> <li>• Learning from work</li> </ul> <p><b>Secondary/Supplementary:</b></p> <ul style="list-style-type: none"> <li>• Tutorials</li> <li>• Site Visits</li> </ul>	1,3,4,5	1,3	<ul style="list-style-type: none"> <li>• Portfolio</li> <li>• Project Report</li> <li>• Case Study</li> <li>• Scenario Report</li> </ul>	SOUD1365 SOUD1366 SOUD1367 SOUD1368 SOUD1370
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An explanation for embedding Practical Skills through Teaching & Learning and Assessment at this level of the programme:

The range of practical techniques that will be taught will include collection of data, analysis and interpretation of results, and skills relevant to effective project management. Teaching methods will include practical demonstrations, field work and management of live projects.

Assessment will be primarily through coursework (e.g. Reports and reflective statements). There are several Learning Outcomes that specifically measure the development of practical skills:

SOUD1365 – LO4: Appraise construction site management methodology

SOUD1365 – LO5: Define health and safety legislation, risk management and best working practices applicable to site operation

SOUD1366 – LO1: Analyse statically determinate beams to determine reactions, shear forces and bending moments and appreciate their application in practice

SOUD1366 – LO4: Design the structural elements for steel and reinforced concrete structures using standard codes and practices

SOUD1369 – LO5: Utilise Eurocode 7 for the design of civil engineering works

SOUD1370 – LO1: Use a range of technical instrumentation to establish horizontal and vertical control

SOUD1370 – LO2: Determine the nature of errors in measurement and the need for quality control.

SOUD1370 – LO3: To effectively use and manipulate mapping software and upload/download survey data to produce and edit drawings for plotting or export to CAD packages

SOUD1370 – LO4: Proficiently operate technical instrumentation to successfully set out and survey, and record data in accordance with standard procedures.

Definitions of Graduate Attributes and Skills Relevant to this Programme	Teaching and Learning Strategy / Methods	Programme Aims	Programme intended Learning Outcomes	Range of Assessments	Related Core Modules
<p><b>Knowledge / Understanding:</b> The guidance provided by QAA, FDQB and the SEEC Credit Level Descriptors (2010) have been used during the development of this FdSc. In addition the programme has been informed by the following QAA Subject Benchmark statements, Engineering (2010). By the end of this level of this programme the students will be able to demonstrate for a threshold pass:</p> <ul style="list-style-type: none"> <li>• The principles of civil, coastal and environmental engineering subjects supported by underpinning mathematics</li> <li>• The principles of design within statutory and regulatory frameworks</li> <li>• Awareness of sustainable, environmental, health, safety and welfare considerations</li> <li>• The principles and practice of site operations, procedures and practice</li> <li>• Knowledge of the professional, social and ethical responsibilities of engineers and the environmental impact of their activity</li> <li>• Awareness of contract law and procedures</li> <li>• Commercial awareness and financial control of engineering projects</li> </ul>	<p>Primary:</p> <ul style="list-style-type: none"> <li>• Lectures and tutorials</li> <li>• Directed independent study</li> </ul> <p>Secondary/Supplementary:</p> <ul style="list-style-type: none"> <li>• Case studies</li> <li>• Problem-solving exercises</li> <li>• Evaluation of “real” projects completed and live</li> <li>• Group and individual presentations and peer assessments</li> <li>• Site visits</li> <li>• Practical sessions</li> </ul>	1,2,3,4,5,6	1,2,3,4,5,6	<ul style="list-style-type: none"> <li>• Project report</li> <li>• In-class tests</li> <li>• Essay</li> <li>• Scenario report</li> <li>• Case Study Presentation</li> <li>• Exam</li> <li>• Portfolio</li> </ul>	SOUD2312 SOUD2313 SOUD2314 SOUD2315 SOUD2316 SOUD2317

<ul style="list-style-type: none"> <li>• Familiarity in the use of codes of practice and industry standards</li> <li>• Use of ICT applications appropriate to the planning, design and management of engineering projects</li> <li>• The presentation of original ideas and reflections via a range of methods to convey appropriate standards of literacy and the use of numeric data</li> <li>• Knowledge of industry roles, responsibilities, working and contractual interactions and relationships in a professional context</li> </ul>				
<p>An explanation for embedding Knowledge and Understanding through Teaching &amp; Learning and Assessment at this level of the programme:</p> <p>All modules will embed knowledge and understanding to enable students to reach the threshold standards to pass. Various methods of teaching will be used accompanied by a range of different assessments with Learning Outcomes designed to ascertain the level of knowledge and understanding of the students. Knowledge and understanding will be delivered by lectures, presentations, seminars and practical work.</p> <p>Specifically, the following learning objectives will measure knowledge and understanding:</p> <p>SOUD2312 – LO1: Define the theories and contexts related to inter-organisational and interpersonal behaviour within the Construction organisations &amp; projects.</p> <p>SOUD2312 – LO2: Define and apply the principals of project management in engineering project.</p> <p>SOUD2312 – LO3: Demonstrate understanding of the economic principles and commercial aspects of construction management and project planning</p> <p>SOUD2312 – LO4: Explain the process and practices of personal and professional development and requirements for attaining and developing membership of professional engineering bodies</p> <p>SOUD2313 – LO1: Demonstrate how to formulate and Implement a research project within agreed procedures and to specification and evaluate the research outcomes.</p> <p>SOUD2313 – LO2: Professionally present the research outcomes.</p> <p>SOUD2313 – LO3: Undertake specified work activities, record, review and evaluate outcomes.</p> <p>SOUD2313 – LO4: Monitor and evaluate own performance and learning.</p>				

SOUD2314 – LO1: Demonstrate knowledge of the design principles for specification of design waves

SOUD2314 – LO2: Explain fundamental principles of coastal management

SOUD2314 – LO3: Explain breakwater types and their functions

SOUD2314 – LO4: Demonstrate an understanding of basic coastal structure design and shore protection

SOUD2315 – LO1: Find diagrams of forces and apply simple methods to resolve statically indeterminate structure

SOUD2315 – LO2: Explain how the basic principles of torsion and apply these to simple problems and determine wind loading and other forms of lateral loads on structures.

SOUD2315 – LO3: Apply engineering knowledge and competence in the solution of problems and the development of design of structures and structural elements

SOUD2315 – LO4: Define the differences between elastic and plastic analysis.

SOUD2315 – LO5: Apply Codes of Practice, British Standards and Building regulations, to the design of structures

SOUD2316 – LO1: Investigate and interpret the law relating to the construction industry

SOUD2316 – LO2: Analyse case studies and the application of legal principles

SOUD2316 – LO3: Evaluate the effectiveness of current law relating to design, construction and management of civil engineering works

SOUD2316 – LO4: Assess the administrative procedures necessary for the successful completion of construction projects

SOUD2829 – LO1: Appraise risk of floods and droughts and select the correct technique to measure and evaluate the amount of water at a given location/time

SOUD2829 – LO2: Produce design solutions to flooding problems

SOUD2829 – LO3: Explain the engineering principles behind methods of water acquisition and treatment for potable supply.

SOUD2829 – LO4: Define the principles behind water and waste water treatment processes.

**Cognitive and Intellectual Skills:**

The guidance provided by QAA, FDQB and the SEEC Credit Level Descriptors (2010) have been used during the development of this FdSc. In addition the programme has been informed by the following QAA Subject Benchmark statements, Engineering (2010).

By the end of this level of this programme the students will be able to demonstrate for a threshold pass:

- Organise relevant knowledge and ideas in order to interpret, explore and solve

Primary:

- Class exercises
- Presentations
- Tutorial/seminar discussions

1,2,3,4,5

1,2,3,4,5

- Assessed discussions
- Essays
- Projects
- Tests

SOUD2312

SOUD2313

SOUD2314

SOUD2315

SOUD2316

<p>problems contextual to civil, coastal and environmental engineering</p> <ul style="list-style-type: none"> <li>• Demonstrate imagination and creativity in the resolution of problems.</li> <li>• Compare and contrast a range of methods for obtaining relevant information to explore areas of study and research.</li> <li>• Evaluate the relevance and significance of data collected in identifying and resolving problems.</li> <li>• Apply theory to practice in multi-disciplinary industry sectors, taking into account a range of stakeholders.</li> <li>• Use reflection in the learning process to enhance personal development and refine professional practice.</li> <li>• Analyse how ethical issues can be addressed within the profession and supportive industry.</li> <li>• Review and critically evaluate policy, trends, practice and theory.</li> </ul>	<ul style="list-style-type: none"> <li>• Feedback via coursework assessment process (essays etc.)</li> </ul> <p>Secondary/Supplementary:</p> <ul style="list-style-type: none"> <li>• Policy and practice analysis in surgeries</li> <li>• Computer-based practicals on data and measurement problems</li> </ul>			SOUD2317
<p>An explanation for embedding Cognitive and Intellectual Skills through Teaching &amp; Learning and Assessment at this level of the programme: Cognitive and intellectual skills will be underpinning to all modules. Students will be required to access information about engineering from different types of sources and will be encouraged to communicate their findings in different contexts. Cognitive and intellectual skills will be delivered by lectures, presentations, seminars, fieldwork and practical work. Typical assessments will include exams and coursework (e.g. Essays, Reports, and Presentations). Specifically, cognitive and intellectual skills will be measured by the following learning outcomes:</p> <p>SOUD2312 – LO1: Define the theories and contexts related to inter-organisational and interpersonal behaviour within the Construction organisations &amp; projects.</p> <p>SOUD2313 – LO1: Demonstrate how to formulate and Implement a research project within agreed procedures and to specification and evaluate the research outcomes.</p> <p>SOUD2313 – LO4: Monitor and evaluate own performance and learning.</p>				

SOUD2314 – LO2: Explain fundamental principles of coastal management

SOUD2314 – LO3: Explain breakwater types and their functions

SOUD2315 – LO2: Explain how the basic principles of torsion and apply these to simple problems and determine wind loading and other forms of lateral loads on structures.

SOUD2316 – LO1: Investigate and interpret the law relating to the construction industry

SOUD2316 – LO2: Analyse case studies and the application of legal principles

SOUD2316 – LO3: Evaluate the effectiveness of current law relating to design, construction and management of civil engineering works

SOUD2316 – LO4: Assess the administrative procedures necessary for the successful completion of construction projects

SOUD2829 – LO1: Appraise risk of floods and droughts and select the correct technique to measure and evaluate the amount of water at a given location/time

SOUD2829 – LO3: Explain the engineering principles behind methods of water acquisition and treatment for potable supply.

SOUD2829 – LO4: Define the principles behind water and waste water treatment processes.

**Key Transferable Skills:**

The guidance provided by QAA, FDQB and the SEEC Credit Level Descriptors (2010) have been used during the development of this FdSc. In addition the programme has been informed by the following QAA Subject Benchmark statements, Engineering (2010).

By the end of this level of this programme the students will be able to demonstrate for a threshold pass:

- Interacting effectively within a group, giving and receiving information, modifying responses where appropriate and respecting the views of others.
- Evaluating their performance, developing informed criteria, and devising suitable personal development plans.
- Taking responsibility for their own learning, planning and managing their

**Primary:**

- Library and other research exercises
- Group work awareness and practice
- Presentations
- Group and individual peer assessment
- Computer-based learning and assessment

1,3,4,5

3,4,5,6

- Presentation
- Examination
- In-Class tests
- Assessed discussions
- Group project work
- Portfolio

SOUD2314

SOUD2315

SOUD2316

SOUD2317

<p>time effectively to achieve objectives and to meet deadlines.</p> <ul style="list-style-type: none"> <li>• Organising, presenting and defending ideas, theories and concepts confidently in academic and work related situations.</li> <li>• Communicating effectively in a variety of formats (oral and written) and in a manner appropriate to the audience/situation.</li> <li>• Identifying key elements of problems, applying appropriate methods to address them.</li> <li>• Transferring skills and knowledge across different settings and work related contexts.</li> </ul>	<ul style="list-style-type: none"> <li>• Tutorials and seminars</li> </ul> <p>Secondary/Supplementary:</p> <ul style="list-style-type: none"> <li>• Class and seminar interactions and feedback</li> </ul>			
<p>An explanation for embedding Key Transferable Skills through Teaching &amp; Learning and Assessment at this level of the programme:</p> <p>The programme of study is specifically designed to ensure students will be equipped with skills that will certainly be transferable to the work place. Each module taught will embed transferable skills through teaching, learning and assessment in some measure. For example, students will need to demonstrate that they are able to solve problems, organise themselves, work to deadlines, make decisions, research, communicate effectively and be self-aware. Assessment will be primarily through coursework (e.g. Essays, Reports, Portfolios, Practical and Presentations). Specifically the learning outcomes from the modules below will embed transferable skills:</p> <p>SOUD2312 – LO1: Define the theories and contexts related to inter-organisational and interpersonal behaviour within the Construction organisations &amp; projects.</p> <p>SOUD2312 – LO2: Define and apply the principals of project management in engineering project.</p> <p>SOUD2312 – LO3: Demonstrate understanding of the economic principles and commercial aspects of construction management and project planning</p> <p>SOUD2312 – LO4: Explain the process and practices of personal and professional development and requirements for attaining and developing membership of professional engineering bodies</p> <p>SOUD2313 – LO1: Demonstrate how to formulate and Implement a research project within agreed procedures and to specification and evaluate the research outcomes.</p> <p>SOUD2313 – LO2: Professionally present the research outcomes.</p> <p>SOUD2313 – LO3: Undertake specified work activities, record, review and evaluate outcomes.</p> <p>SOUD2313 – LO4: Monitor and evaluate own performance and learning.</p>				

SOUD2315 – LO3: Apply engineering knowledge and competence in the solution of problems and the development of design of structures and structural elements

SOUD2315 – LO5: Apply Codes of Practice, British Standards and Building regulations, to the design of structures

SOUD2316 – LO2: Analyse case studies and the application of legal principles

SOUD2316 – LO3: Evaluate the effectiveness of current law relating to design, construction and management of civil engineering works

SOUD2316 – LO4: Assess the administrative procedures necessary for the successful completion of construction projects

SOUD2829 – LO1: Appraise risk of floods and droughts and select the correct technique to measure and evaluate the amount of water at a given location/time

SOUD2829 – LO2: Produce design solutions to flooding problems

SOUD2829 – LO3: Explain the engineering principles behind methods of water acquisition and treatment for potable supply.

**Employment Related Skills:**

The guidance provided by QAA, FDQB and the SEEC Credit Level Descriptors (2010) have been used during the development of this FdSc. In addition the programme has been informed by the following QAA Subject Benchmark statements, Engineering (2010).

By the end of this level of this programme the students will be able to demonstrate for a threshold pass:

- Performance of professional tasks, exercising personal responsibility and demonstrating a capacity to make decisions appropriate to their professional role
- Skills to Identify appropriate theoretical, professional and/or research based sources and use appropriately in their professional practice.
- Plan and execute a variety of small scale inquiries into physiological and psychological interventions in order to

	Primary: <ul style="list-style-type: none"><li>• Lectures</li><li>• Research Tasks</li><li>• Portfolio</li></ul> Development Secondary/Supplementary: <ul style="list-style-type: none"><li>• Site Visits</li></ul>	1,2,3,4,5	1,2,3,4,5,6	<ul style="list-style-type: none"><li>• Project report</li><li>• Scenario report</li><li>• Case Study</li><li>• Presentation</li></ul>	SOUD2312 SOUD2313 SOUD2314 SOUD2315 SOUD2316 SOUD2317
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<p>improve themselves and others in their professional roles.</p> <ul style="list-style-type: none"> <li>• Successfully working as part of and leading a team within set deadlines</li> <li>• Efficient communication skills both oral and in writing using a range of medium</li> </ul>					
<p>An explanation for embedding Employment Related Skills through Teaching &amp; Learning and Assessment at this level of the programme:</p> <p>The programme is intended embed a variety of employment related skills. Within the context of engineering and construction these skills could include: having a breadth and depth of knowledge about emerging issues and developments across industry sectors, having developed practical and analytical skills, being able to present information effectively and being able to link all of these elements together coherently to identify relationships. Specifically the learning outcomes from the modules below will embed employment related skills:</p> <p>SOUD2312 – LO1: Define the theories and contexts related to inter-organisational and interpersonal behaviour within the Construction organisations &amp; projects.</p> <p>SOUD2312 – LO2: Define and apply the principals of project management in engineering project.</p> <p>SOUD2312 – LO3: Demonstrate understanding of the economic principles and commercial aspects of construction management and project planning</p> <p>SOUD2313 – LO2: Professionally present the research outcomes.</p> <p>SOUD2313 – LO3: Undertake specified work activities, record, review and evaluate outcomes.</p> <p>SOUD2313 – LO4: Monitor and evaluate own performance and learning.</p> <p>SOUD2315 – LO5: Apply Codes of Practice, British Standards and Building regulations, to the design of structures</p> <p>SOUD2316 – LO1: Investigate and interpret the law relating to the construction industry</p> <p>SOUD2316 – LO2: Analyse case studies and the application of legal principles</p> <p>SOUD2316 – LO3: Evaluate the effectiveness of current law relating to design, construction and management of civil engineering works</p> <p>SOUD2316 – LO4: Assess the administrative procedures necessary for the successful completion of construction projects</p> <p>SOUD2829 – LO1: Appraise risk of floods and droughts and select the correct technique to measure and evaluate the amount of water at a given location/time</p> <p>SOUD2829 – LO2: Produce design solutions to flooding problems</p> <p>SOUD2829 – LO3: Explain the engineering principles behind methods of water acquisition and treatment for potable supply.</p> <p>SOUD2829 – LO4: Define the principles behind water and waste water treatment processes.</p>					
<p><b>Practical Skills:</b></p> <p>The guidance provided by QAA, FDQB and the SEEC Credit Level Descriptors (2010) have been used during the development of</p>					

<p>this FdSc. In addition the programme has been informed by the following QAA Subject Benchmark statements, Engineering (2010).</p> <p>By the end of this level of this programme the students will be able to demonstrate for a threshold pass:</p> <ul style="list-style-type: none"> <li>• Completion of a work placement meeting industry approved objectives</li> <li>• Preparation and presentation of a work based research project associated with a work based placement</li> </ul>	<p><b>Primary:</b></p> <ul style="list-style-type: none"> <li>• Lectures</li> <li>• Research Tasks</li> <li>• Tutorials</li> </ul> <p><b>Secondary/Supplementary:</b></p> <ul style="list-style-type: none"> <li>• Open group discussion</li> </ul>	1,2,3,4,5	3,4,5	<ul style="list-style-type: none"> <li>• Research Project</li> <li>• Presentation</li> <li>• Portfolio</li> </ul>	SOUD2313
<p>An explanation for embedding Practical Skills through Teaching &amp; Learning and Assessment at this level of the programme:</p> <p>The range of practical techniques that will be taught will include collection of data, analysis and interpretation of results, and skills relevant to effective project management. Teaching methods will include practical demonstrations, field work and management of live projects.</p> <p>Assessment will be primarily through coursework (e.g. Reports and reflective statements). There are several Learning Outcomes that specifically measure the development of practical skills:</p> <p>SOUD2313 – LO1: Demonstrate how to formulate and Implement a research project within agreed procedures and to specification and evaluate the research outcomes.</p> <p>SOUD2313 – LO2: Professionally present the research outcomes.</p> <p>SOUD2313 – LO3: Undertake specified work activities, record, review and evaluate outcomes.</p> <p>SOUD2313 – LO4: Monitor and evaluate own performance and learning.</p>					

## 12. Work Based/Related Learning

WBL is an essential element of Foundation Degrees and therefore needs to be detailed here. However, for all types of HE programmes there should be an element of employability focus through, at least, Work Related Learning, and therefore the following is applicable for all:

FHEQ level: 4					
WBL/WRL Activity:	Logistics	Programme Aim	Programme Intended LO	Range of Assessments	Related Core Module(s)

Field work, Field trips, Site visits	Identify suitable locations and organise off-site activities	1,3,4,5	1,2,4,5	In-class tests, Written report, Essay, Presentation, Exam, Reflective report, Portfolio	SOUD1365 SOUD1367 SOUD1368 SOUD1370
Practical sampling techniques	Identify suitable locations and organise off-site activities	1,2,3,5	1,2,3,4,5	In-class tests, Written report, Essay, Presentation, Practical	SOUD1365 SOUD1367 SOUD1368 SOUD1370
Accredited and non-accredited qualifications/CPD	Work with local industry/employers/charities to deliver relevant training and industry updating	1,2,3,4,5	1,2,3,5	Practical, reflective report	SOUD1365 SOUD1366 SOUD1367 SOUD1368 SOUD1369 SOUD1270
Guest speakers	Continue to develop and maintain links with industry to provide guest speaker opportunities	1,2,3,4,5	1,2,4,5	In-class tests, Written report, Essay, Presentation, Exam	SOUD1365 SOUD1367 SOUD1368 SOUD1369 SOUD1370
Live Projects	Continue to develop and maintain links with industry to provide a range of live projects for student management	1,2,3,4,5	1,2,3,4,5	Written report, Reflective report	SOUD1365 SOUD1367 SOUD1368 SOUD1369 SOUD1370
<p>An explanation of this map:</p> <p>WBL and WRL are very significant to this programme and are embedded into every module. Students will work very closely with industry throughout to ensure that they develop the skills necessary for successful employment in the civil and coastal engineering sector. Each module will focus on developing employer-related skills – both specifically for engineering and also important transferable skills. There will be a focus on developing practical skills in the field and undertaking "real life" projects. Guest speakers and industry visits will be used to enhance modules and enable students to apply their theoretical knowledge to real-life situations as well as gain additional qualifications and training. Where appropriate assignments will be linked to local, national and international topics to ensure they have a real-world emphasis and prepare students for employment.</p>					
<b>FHEQ level: 5</b>					

<b>WBL/WRL Activity:</b>	<b>Logistics</b>	<b>Programme Aim</b>	<b>Programme Intended LO</b>	<b>Range of Assessments</b>	<b>Related Core Module(s)</b>
Work Placement	Work with local industry/employers/charities to deliver suitable & relevant training & research opportunities	1,2,3,4,5	3,4,5,6	Research Project Presentation Portfolio	SOUD2313
Field work, Field trips, Site visits	Identify suitable locations and organise off-site activities	1,3,4,5	1,2,4,5	In-class tests, Written report, Essay, Presentation, Exam, Reflective report, Portfolio	SOUD2312 SOUD2313 SOUD2314 SOUD2315 SOUD2316
Practical sampling techniques	Identify suitable locations and organise off-site activities	1,2,3,5	1,2,3,4,5	In-class tests, Written report, Essay, Presentation, Practical	SOUD2314 SOUD2317
Accredited and non-accredited qualifications/CPD	Work with local industry/employers/charities to deliver relevant training and industry updating	1,2,3,4,5	1,2,3,5	Practical, reflective report	SOUD2312 SOUD2314 SOUD2315 SOUD2312 SOUD2829
Guest speakers	Continue to develop and maintain links with industry to provide guest speaker opportunities	1,2,3,4,5	1,2,4,5	In-class tests, Written report, Essay, Presentation, Exam	SOUD2312 SOUD2313 SOUD2314 SOUD2315 SOUD2316 SOUD2317
Live Projects	Continue to develop and maintain links with industry to provide a range of live projects for student management	1,2,3,4,5	1,2,3,4,5	Written report, Reflective report	SOUD2312 SOUD2313 SOUD2314 SOUD2315

An explanation of this map:

WBL and WRL are very significant to this programme and are embedded into every module. There is also a dedicated work based research module that requires a minimum placement term with a suitable and relevant company/charity and a formal WBL contract. Students will work very closely with industry throughout to ensure that they develop the skills necessary for successful employment in the civil and coastal engineering sector. Each module will focus on developing employer-related skills – both specifically for engineering and also important transferable skills. There will be a focus on developing practical skills in the field and undertaking "real life" projects. Guest speakers and industry visits will be used to enhance modules and enable students to apply their theoretical knowledge to real-life situations as well as gain additional qualifications and training. Where appropriate assignments will be linked to local, national and international topics to ensure they have a real-world emphasis and prepare students for employment.

### 3. Module Records

#### SECTION A: DEFINITIVE MODULE RECORD.

<b>MODULE CODE:</b>	SOUD1365	<b>MODULE TITLE:</b>	Sustainable Civil Engineering Technology and Site Operations
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<b>CREDITS:</b> 20	<b>FHEQ Level:</b> 4	<b>JACS CODE:</b> H200
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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*)

This module was designed to introduce students to major civil engineering operations such as earthworks, sub-structures and superstructures. It aims to identify the construction materials, technologies, methodology and management techniques on engineering projects.

<b>ELEMENTS OF ASSESSMENT</b> <i>Use HESA KIS definitions</i>			
COURSEWORK		PRACTICAL	
<b>C1</b> (Coursework)	100%	P1 (Practical)	Pass/Fail

**SUBJECT ASSESSMENT PANEL** Group to which module should be linked: Civil and Coastal Engineering

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

**MODULE AIMS:**

To raise awareness of a range of civil engineering operations and identify materials, techniques and technology used in civil engineering construction. It also aims to develop awareness of health, safety and management practice and to identify the impact of civil engineering operations on the environment and determine sustainable development solutions.

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

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

1. Explain engineering technology and techniques
2. Demonstrate how the construction and civil engineering sector impacts upon the environment
3. Define design and construction methodology and provide sustainable solutions
4. Appraise construction site management methodology
5. Define health and safety legislation, risk management and best working practices applicable to site operation
6. Work as part of a group to prepare and evaluate a project

<b>DATE OF APPROVAL:</b>	21/04/15	<b>FACULTY/OFFICE:</b>	Academic Partnerships
<b>DATE OF IMPLEMENTATION:</b>	21/09/15.	<b>SCHOOL/PARTNER:</b>	South Devon College
<b>DATE(S) OF APPROVED CHANGE:</b>	Click here to enter a date.	<b>TERM/SEMESTER:</b>	All Year

**Additional notes (for office use only):** For delivering institution's HE Operations or Academic Partnerships use if required

#### SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

ACADEMIC YEAR: 2020-21

NATIONAL COST CENTRE: 118

MODULE LEADER: Dave Worthington

OTHER MODULE STAFF: None

**SUMMARY of MODULE CONTENT**

Civil engineering and its environmental impact; major civil engineering and construction technology including earthwork activities, substructures and superstructures, techniques, operations, materials, plant and machinery; temporary works; sustainable engineering and development; waste management; health, safety and risk management; statutory and regulatory legislation associated with site operations

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

Scheduled Activities	Hours	Comments/Additional Information
Scheduled activities	45	2 hours per week for 25 weeks to include research activities, group discussion, practical exercises, scenario based exercises and presentations.
Seminar	5	2 x 2.5 hour seminars
Site Visits	10	
Tutorial	6	Includes 1 to 1's and scheduled group sessions
Guided Independent Study	134	Directed weekly reading, Moodle based tasks, and assessment development/revision
<b>Total</b>	<b>200</b>	

Category	Element	Component Name	Component Weighting	Comments include links to learning objectives
Coursework	C1	Report Group Project Report	40% 60% <b>Total = 100%</b>	LO1 LO2 LO3 LO4 LO5
Practical	P1	Presentation	Pass/Fail	LO6

Updated by:  
Dave WorthingtonDate:  
25/05/20Approved by:  
Alex OsborneDate:  
27/05/20**Recommended Texts and Sources:**

Chudley, R. and Greeno, R. (2012) *Advanced Construction Technology*. 5<sup>th</sup> ed. New York, USA: Prentice Hall.

Halliday, S. (2008) *Sustainable construction*. Oxford: Butterworth Heinemann

HM Government (2008) *Strategy for Sustainable Construction* [online]. Available from: <http://webarchive.nationalarchives.gov.uk/+/http://www.bis.gov.uk/files/file46535.pdf>

<http://www.ice.org.uk/>

<http://www.istructe.org/>

## SECTION A: DEFINITIVE MODULE RECORD.

<b>MODULE CODE:</b>	Soud1366	<b>MODULE TITLE:</b>	Structural Analysis & Design 1
<b>CREDITS:</b> 20	<b>FHEQ Level:</b> 4	<b>JACS CODE:</b>	H210
<b>PRE-REQUISITES:</b> None	<b>CO-REQUISITES:</b> None	<b>COMPENSATABLE:</b> No	
<b>SHORT MODULE DESCRIPTOR:</b> ( <i>max 425 characters</i> ) This module was designed to provide an introduction to the behaviour of simple structures. It aims to deliver knowledge of structural analysis and the use of industry standards and practices concerned with structural design.			

<b>ELEMENTS OF ASSESSMENT</b> <i>Use HESA KIS definitions]</i>			
WRITTEN EXAMINATION		COURSEWORK	
T1 (Test)	50%	C1 (Coursework)	50%

<b>SUBJECT ASSESSMENT PANEL</b> Group to which module should be linked: Civil and Coastal Engineering
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<b>Professional body minimum pass mark requirement:</b> N/A
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<b>MODULE AIMS:</b> To provide knowledge of structural behaviour and introduce analysis of simple structures and differentiate between statically determinate and indeterminate structures. It also introduces the concepts of equilibrium and the resolution of forces and the determination of loadings on structural elements.
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<b>ASSESSED LEARNING OUTCOMES:</b> (additional guidance below) At the end of the module the learner will be expected to be able to:
1. Solve statically determinate beams to determine reactions, shear forces and bending moments and appreciate their application in practice
2. Demonstrate an understanding of resolving forces in members of statically determinate frames
3. Calculate combined, direct and bending stresses and deflection
4. Design the structural elements for steel and reinforced concrete structures using standard codes and practices

<b>DATE OF APPROVAL:</b>	05/01/15	<b>FACULTY/OFFICE:</b>	Academic Partnerships
<b>DATE OF IMPLEMENTATION:</b>	21/09/15.	<b>SCHOOL/PARTNER:</b>	South Devon College
<b>DATE(S) OF APPROVED CHANGE:</b>	Click here to enter a date.	<b>TERM/SEMESTER:</b>	All Year

<b>Additional notes (for office use only):</b> For delivering institution's HE Operations or Academic Partnerships use if required
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## **SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT**

<b>ACADEMIC YEAR:</b> 2020-21	<b>NATIONAL COST CENTRE:</b> 118
<b>MODULE LEADER:</b> Alex Osborne	<b>OTHER MODULE STAFF:</b> None

### **SUMMARY of MODULE CONTENT**

Statics - the definition of equilibrium, forces, stresses and strains; the concept of elasticity and plasticity; Hooke's law, and the behaviour of simple spring systems; resolution and addition of forces; analysis of pin-jointed frames; bending moments and shear forces (and diagrams thereof); centroids of area; the neutral axis and second moments area; stress and strain in bending beams; deflection of symmetrical section beams; determinate moment frames.

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

<b>Scheduled Activities</b>	<b>Hours</b>	<b>Comments/Additional Information</b>
Scheduled activities	44	2 hours per week for 25 weeks to include research activities, group discussion, practical exercises, scenario based exercises, lab work
Seminar	6	3 x 2 hour seminars
Site Visits	10	
Tutorial	6	Includes 1 to 1's and scheduled group sessions
Guided Independent Study	134	Directed weekly reading, Moodle based tasks, and assessment development/revision
<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>
Test	T1	Timed Test	100%	LO1, LO2
Coursework	C1	Report	100%	LO3, LO4

<b>Updated by:</b> Alex Osborne	<b>Date:</b> 25/05/20	<b>Approved by:</b> Dave Worthington	<b>Date:</b> 27/05/20
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### **Recommended Texts and Sources:**

Hulse, R. and Cain, J. (2000), (2nd edition), *Structural Mechanics*. Basingstoke: Palgrave Macmillan.

Williams, M. S. and Todd, J. D. (2000), *Structures : Theory and Analysis*: Macmillan

Hannah, J. and Hillier, M. J. (1996), (3<sup>rd</sup> edition), *Applied Mechanics*: Longman

**SECTION A: DEFINITIVE MODULE RECORD.**

<b>MODULE CODE:</b>	Soud1367	<b>MODULE TITLE:</b>	Coastal Engineering 1
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<b>CREDITS:</b> 20	<b>FHEQ Level:</b> 4	<b>JACS CODE:</b> H220
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<b>PRE-REQUISITES:</b> None	<b>CO-REQUISITES:</b> None	<b>COMPENSATABLE:</b> No
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**SHORT MODULE DESCRIPTOR: (max 425 characters)**

This module aims to introduce learners to coastal engineering. It provides an overview of the fundamental concepts of coastal systems and the wider context of conceptual design, together with the basic theory of wave and tidal theory.

**ELEMENTS OF ASSESSMENT Use HESA KIS definitions]**

WRITTEN EXAMINATION		COURSEWORK		
T1 (Test)	40%	C1 (Coursework)	60%	

**SUBJECT ASSESSMENT PANEL Group to which module should be linked:** Civil and Coastal Engineering

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

**MODULE AIMS:**

To provide knowledge of coastal engineering design, the theory of waves and tides and the practical considerations related to 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. Define the coastal environment, its geology and diversity and explain coastal behaviour
2. Explain coastal sediment properties and transport
3. Define the theories of wave mechanics
4. Describe the basic types of coastal defence schemes and their effects on the environment.
5. Determine sustainable construction technology and methodology for coastal projects

<b>DATE OF APPROVAL:</b>	05/02/15.	<b>FACULTY/OFFICE:</b>	Academic Partnerships
<b>DATE OF IMPLEMENTATION:</b>	21/09/15.	<b>SCHOOL/PARTNER:</b>	South Devon College
<b>DATE(S) OF APPROVED CHANGE:</b>	Click here to enter a date.	<b>TERM/SEMESTER:</b>	AY

**Additional notes (for office use only):** For delivering institution's HE Operations or Academic Partnerships use if required

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

<b>ACADEMIC YEAR:</b> 2020-21	<b>NATIONAL COST CENTRE:</b> 111
<b>MODULE LEADER:</b> Dave Worthington	<b>OTHER MODULE STAFF:</b> None

### **SUMMARY of MODULE CONTENT**

The history of coastal engineering; coastal environment and diversity; introduction to linear wave theory; basic wave motion; small amplitude wave theory; wave mechanics; water levels and long waves; astronomical tide generation; storm surge; tsunami; wave climate and meteorology; coastal sediment properties and transport

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

<b>Scheduled Activities</b>	<b>Hours</b>	<b>Comments/Additional Information</b>
Scheduled activities	44	2 hours per week for 25 weeks to include research activities, group discussion, practical exercises, scenario based exercises and presentations
Seminar	6	3 x 2 hour seminars
Site Visits	10	
Tutorial	6	Includes 1 to 1's and scheduled group sessions
Guided Independent Study	134	Directed weekly reading, Moodle based tasks, and assessment development/revision
<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>
Test	T1	Timed Test	100%	LO 2 LO 3
Coursework	C1	Report	100%	LO 1 LO 4 LO 5

<b>Updated by:</b> Dave Worthington	<b>Date:</b> 25/05/20	<b>Approved by:</b> Alex Osborne	<b>Date:</b> 27/05/20
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### **Recommended Texts and Sources:**

- Reeve, D., Chadwick, A. and Fleming, C. (2004) *Coastal Engineering: processes, theory and design practice*.  
Shaw, E. M., Beven, K. J., Chappell, N. A. and Lamb, R. (2010), (4th edition), *Hydrology in Practice*. London: Spon Press. [for BEng/MEng Water Management module].  
Sorensen, R. M. (1978, 1997, 2006) (1st /2nd /3rd editions), *Basic Coastal Engineering*.

**UNIVERSITY OF PLYMOUTH MODULE RECORD**

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

**MODULE CODE:** SOUD1484  
**CREDITS:** 20  
**PRE-REQUISITES:** None

**MODULE TITLE:** Mathematics for Engineers  
**FHEQ LEVEL:** 4  
**CO-REQUISITES:** None

**JACS CODE:** H200  
**COMPENSATABLE:** N

**SHORT MODULE DESCRIPTOR:** (*max 425 characters*)

This module was designed to provide students with an understanding of analytical techniques and the mathematical skills needed to solve construction and engineering problems.

ELEMENTS OF ASSESSMENT [Use HESA KIS definitions] – see <a href="#">Definitions of Elements and Components of Assessment</a>			
<b>E1</b> (Examination)		<b>C1</b> (Coursework)	50%
<b>E2</b> (Clinical Examination)		<b>A1</b> (Generic assessment)	
<b>T1</b> (Test)	50%	<b>P1</b> (Practical)	

**SUBJECT ASSESSMENT PANEL to which module should be linked:** Civil and Coastal Engineering

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

**MODULE AIMS:** This module aims to provide students with an opportunity to develop skills in using analytical methods and to solve construction and engineering problems.

**ASSESSED LEARNING OUTCOMES:** At the end of the module the learner will be expected to be able to:

Assessed Module Learning Outcomes	Award/ Programme Learning Outcomes contributed to
1. Use mathematical tools to solve engineering problems	ILO2: Undertake analytical evaluation of a diverse range of civil, coastal and environmental engineering problems.
2. Apply determinants and matrices to solve systems of linear equations.	ILO2
3. Apply Vector methods to solve practical engineering problems	ILO2
4. Understand the fundamentals of differential and integral calculus techniques and be able to apply them to a variety of practical problems.	ILO2

<b>DATE OF APPROVAL:</b> 01/02/2018	<b>FACULTY/OFFICE:</b> Academic Partnerships
<b>DATE OF IMPLEMENTATION:</b> 17/09/2018	<b>SCHOOL/PARTNER:</b> South Devon College
<b>DATE(S) OF APPROVED CHANGE:</b> XX/XX/YYYY	<b>SEMESTER:</b> Semester 1 & 2

Additional notes (for office use only):

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

<b>ACADEMIC YEAR:</b> 2020-21	<b>NATIONAL COST CENTRE:</b> 118
<b>MODULE LEADER:</b> Alex Osborne	<b>OTHER MODULE STAFF:</b> Alex Osborne

### **Summary of Module Content**

Functions, Algebra and Algebraic Manipulation, indices, trigonometry, Co-ordinate Geometry, Differentiation, Vector Algebra, Matrices and Determinants, Matrix Algebra and Linear equations, Integration, Applications of Integration, Solution of 1st Order Ordinary Differential Equations, Complex Numbers

<b>SUMMARY OF TEACHING AND LEARNING</b>		
<b>Scheduled Activities [KIS definitions]</b>	<b>Hours</b>	<b>Comments/Additional Information (briefly explain activities, including formative assessment opportunities)</b>
Scheduled	60	2 hours per week for 30 weeks to include research activities, group discussion, practical exercises, scenario based exercises
Independent	140	Directed weekly reading, Moodle based tasks, and assessment development/revision
<b>Total</b>	<b>200</b>	<b>(NB: 1 credit = 10 hours of learning; 20 credits = 200 hours, etc.)</b>

### **SUMMATIVE ASSESSMENT**

<b>Element Category</b>	<b>Component Name</b>	<b>Component Weighting</b>
In class test	Timed Test LO1;LO3	100%
Coursework	Report LO2;LO4	100%

### **REFERRAL ASSESSMENT**

<b>Element Category</b>	<b>Component Name</b>	<b>Component Weighting</b>
Coursework (in lieu of the original assessment)	Report LO1 & LO3	100%
Coursework	Report LO2 & LO4	100%

**To be completed when presented for Minor Change approval and/or annually updated**

**Updated by:** Alex Osborne  
Date: 23/05/2020

**Updated by:** David Worthington  
Date: 25/05/2020

## SECTION A: DEFINITIVE MODULE RECORD.

<b>MODULE CODE:</b>	SOUD1369	<b>MODULE TITLE:</b>	Geology & Soil Mechanics
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<b>CREDITS:</b> 20	<b>FHEQ Level:</b> 4	<b>JACS CODE:</b> H220
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<b>PRE-REQUISITES:</b> None	<b>CO-REQUISITES:</b> None	<b>COMPENSATABLE:</b> No
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<b>SHORT MODULE DESCRIPTOR:</b> ( <i>max 425 characters</i> ) This module introduces Geology, and the properties/ behaviour of soil as relevant to Civil Engineering projects.
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WRITTEN EXAMINATION		COURSEWORK	
T1 (Test)	50%	C1 (Coursework)	50%

<b>SUBJECT ASSESSMENT PANEL Group to which module should be linked:</b> Civil and Coastal Engineering
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<b>Professional body minimum pass mark requirement:</b> N/A
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<b>MODULE AIMS:</b> This module aims to introduce key aspects for engineering geology for civil engineering and basic concepts of soil mechanics.
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<b>ASSESSED LEARNING OUTCOMES:</b> (additional guidance below) At the end of the module the learner will be expected to be able to:
1. Describe the processes by which rocks are formed 2. Characterise the engineering properties of rocks 3. Describe and classify soils for engineering purposes 4. Determine the physical properties and compaction characteristics of soils 5. Utilise design codes in the design of civil engineering works

<b>DATE OF APPROVAL:</b>	05/02/15.	<b>FACULTY/OFFICE:</b>	Academic Partnerships
<b>DATE OF IMPLEMENTATION:</b>	21/09/15.	<b>SCHOOL/PARTNER:</b>	South Devon College
<b>DATE(S) OF APPROVED CHANGE:</b>	Click here to enter a date.	<b>TERM/SEMESTER:</b>	All Year

<b>Additional notes (for office use only):</b> For delivering institution's HE Operations or Academic Partnerships use if required
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## SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

ACADEMIC YEAR: 2020-21	NATIONAL COST CENTRE: 111
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MODULE LEADER: Andrew Finch	OTHER MODULE STAFF: None
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<b>SUMMARY of MODULE CONTENT</b>	
Earth and plate tectonics; geological time and unconformities; igneous, sedimentary and metamorphic rocks; mineral and rock identification; rock deformation - folding and faulting; engineering behaviour of rocks: rock weathering products, transportation and deposition; reading geological maps; soil mechanics and site investigation; solving problems in geotechnics; geological maps and borehole records; physical composition of soils and clay minerals; classification and description of soils; compaction	

<b>SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions]</b>		
<b>Scheduled Activities</b>	<b>Hours</b>	<b>Comments/Additional Information</b>
Scheduled activities	44	2 hours per week for 25 weeks to include research activities, group discussion, practical exercises, scenario based exercises and presentations Lab work
Seminar	6	3 x 2 hour seminars
Site Visits/Field Trips	10	
Tutorial	6	Includes 1 to 1's and scheduled group sessions
Guided Independent Study	134	Directed weekly reading, Moodle based tasks, and assessment development/revision
<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>
Test	T1	Timed Test	100%	LO4 LO5
Coursework	C1	Report	100%	LO1 LO2 LO3

<b>Updated by:</b> Andrew Finch	<b>Date:</b> 25/05/20	<b>Approved by:</b> Alex Osborne	<b>Date:</b> 27/05/20
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<b>Recommended Texts and Sources:</b>	
Murck, B. W. (2001) <i>Geology: A Self Teaching Guide</i> . John Wiley & Sons, New York	
Azizi, F. (2007) <i>Physical Behaviour in Geotechnics</i> . Published by F. Azizi. ISBN 978-0-9555996-2-0.	
Azizi, F. (2007) <i>Engineering Design in Geotechnics</i> . Published by F. Azizi. ISBN 978-0-9555996-1-.	

## SECTION A: DEFINITIVE MODULE RECORD.

<b>MODULE CODE:</b>	Soud1370	<b>MODULE TITLE:</b>	Setting Out, Surveying & CAD for Construction Engineers
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<b>CREDITS:</b> 20	<b>FHEQ Level:</b> 4	<b>JACS CODE:</b> H210
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<b>PRE-REQUISITES:</b> None	<b>CO-REQUISITES:</b> None	<b>COMPENSATABLE:</b> Yes
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<b>SHORT MODULE DESCRIPTOR:</b> ( <i>max 425 characters</i> ) This module was designed to introduce students to the principles, procedures and techniques of setting out surveying and CAD in relation to construction and civil engineering projects.
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COURSEWORK		PRACTICAL	
C1 (Coursework)	100%	P1 (Practical)	Pass/Fail

<b>SUBJECT ASSESSMENT PANEL Group to which module should be linked:</b> Building Services
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<b>Professional body minimum pass mark requirement:</b> N/A
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<b>MODULE AIMS:</b> To enable students to identify and use setting out instrumentation, techniques and procedures and apply them to set out building, construction and civil engineering projects. This module also enables students to understand the basic theoretical principles in building and land surveying. It will also provide them with knowledge of standard techniques in surveying and practical skills in the use of surveying equipment; it will also provide students with the knowledge and skills on CAD to produce effective drawings.
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<b>ASSESSED LEARNING OUTCOMES:</b> (additional guidance below) At the end of the module the learner will be expected to be able to:
1. Use a range of technical instrumentation to establish horizontal and vertical control 2. Determine the nature of errors in measurement and the need for quality control. 3. To effectively use and manipulate mapping software and upload/download survey data to produce and edit drawings for plotting or export to CAD packages 4. Proficiently operate technical instrumentation to successfully set out and survey, and record data in accordance with standard procedures. 5. Produce CAD drawings from basic principles and mapped survey data

<b>DATE OF APPROVAL:</b>	05/02/15.	<b>FACULTY/OFFICE:</b>	Academic Partnerships
<b>DATE OF IMPLEMENTATION:</b>	21/09/15.	<b>SCHOOL/PARTNER:</b>	South Devon College
<b>DATE(S) OF APPROVED CHANGE:</b>	Click here to enter a date.	<b>TERM/SEMESTER:</b>	All Year
<b>Additional notes (for office use only):</b> For delivering institution's HE Operations or Academic Partnerships use if required			

## SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

<b>ACADEMIC YEAR:</b> 2020-21	<b>NATIONAL COST CENTRE:</b> 118
<b>MODULE LEADER:</b> Dave Worthington	<b>OTHER MODULE STAFF:</b> Alex Osborne

### SUMMARY of MODULE CONTENT

Set up and use optical levels, laser levels, read the level staff, book and reduce levels, understand sources of error in levelling, establish temporary benchmarks, observe, record and calculate the level of existing features, set out given level values, including soffits, calculation of drainage run, set out profiles and calculate traveller lengths, Set up and use modern electronic theodolites, extract setting out data from drawings, calculate bearings and distances from coordinates for setting out, use theodolite for horizontal and vertical alignment, set up and use Total Station/EDM, calculate polar coordinates for setting out, observe, code and record an as-built survey of set out points, basic concepts of setting out of roads/railways, drainage and structures, setting out of curves, calculation of areas and volumes, the basic principles of GPS/GNSS coordinate systems, be aware of and use the different types of GPS receivers, and their applications in the construction Industry, CAD as a data capture, drawing and presentation, field survey techniques and instrumentation including the use of field survey equipment, survey design, planning and observing, total stations, levels and GNSS, data collection and processing techniques, two and three dimensional data collection, data collection, processing, analysis and presentation techniques, error checking and control procedures, mapping survey data and CAD interface,

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

Scheduled Activities	Hours	Comments/Additional Information
Scheduled activities	10	1 hour per week for 10 weeks
CAD	30	1 hour/week 30 weeks
Practical Application	50	Use of Instrumentation
Tutorial	6	
Guided Independent Study	94	Directed weekly reading, Moodle based tasks, and assessment development/revision
<b>Total</b>	<b>200</b>	

Category	Element	Component Name	Component Weighting	Comments include links to learning objectives
Coursework	C1	Portfolio	100%	Setting Out & Surveying LO2 LO3 CAD LO5
Practical	P1	Practical Competencies	Pass/Fail	LO1 & LO4

<b>Updated by:</b> Dave Worthington	<b>Date:</b> 25/05/20	<b>Approved by:</b> Alex Osborne	<b>Date:</b> 27/05/20
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### Recommended Texts and Sources:

Uren, J. and Price, W.F. (2010) *Surveying for Engineers*. 5th edn. Palgrave Macmillan.

## SECTION A: DEFINITIVE MODULE RECORD.

<b>MODULE CODE:</b>	Soud2312	<b>MODULE TITLE:</b>	Construction Project Management
<b>CREDITS:</b> 20	<b>FHEQ Level:</b> 5		<b>JACS CODE:</b> H290
<b>PRE-REQUISITES:</b> None	<b>CO-REQUISITES:</b> None		<b>COMPENSATABLE:</b> No

### **SHORT MODULE DESCRIPTOR:** (*max 425 characters*)

This module was designed to strengthen and develop student's knowledge and understanding of the standard working systems used in project and commercial construction management. It will also develop the ICT used in project planning and help foster the codes of conduct and best working procedures in professional engineering practice

WRITTEN EXAMINATION		COURSEWORK	
T1 (Test)	50%	C1 (Coursework)	50%

**SUBJECT ASSESSMENT PANEL Group to which module should be linked:** Civil and Coastal Engineering

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

### **MODULE AIMS:**

This module aims to provide students with the principles of project management within construction and civil engineering organisations. It also looks to provide knowledge of the economic principles and financial monitoring & control of projects and businesses. It will also provide opportunity for personal and professional development in engineering practice.

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

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

1. Define the theories and contexts related to inter-organisational and interpersonal behaviour within the Construction organisations & projects.
2. Define and apply the principals of project management in engineering project.
3. Critically analyse the economic principles and commercial aspects of construction management and project planning
4. Evaluate the process and practices of personal and professional development and requirements for attaining and developing membership of professional engineering bodies

<b>DATE OF APPROVAL:</b>	05/02/15.	<b>FACULTY/OFFICE:</b>	Academic Partnerships
<b>DATE OF IMPLEMENTATION:</b>	21/09/15.	<b>SCHOOL/PARTNER:</b>	South Devon College
<b>DATE(S) OF APPROVED CHANGE:</b>	Click here to enter a date.	<b>TERM/SEMESTER:</b>	All Year

**Additional notes (for office use only):** For delivering institution's HE Operations or Academic Partnerships use if required

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

<b>ACADEMIC YEAR:</b> 2020-21	<b>NATIONAL COST CENTRE:</b> 118
<b>MODULE LEADER:</b> Andrew Finch	<b>OTHER MODULE STAFF:</b> Dave Worthington

### **SUMMARY of MODULE CONTENT**

The history of management, management vs. leadership, organisational culture, motivation, communication & decision-making, management of change and crisis, the planning process, clients & the briefing process. an Introduction to tendering, site organisation and scheduling gannt charts and critical path analysis, resource allocation & logistics management, risk and quality management, procurements & contract documents: ICE /NEC3/ JCT, environmental issues: supply chain management, interim valuations, payments and cash flow, construction plant acquisition & finance, planning and continuing personal & professional development

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

<b>Scheduled Activities</b>	<b>Hours</b>	<b>Comments/Additional Information</b>
Scheduled activities	22.5	1.5 hours per week for 15 weeks to include research activities, group discussion, practical exercises, scenario based exercises and presentations
Seminar	5	3 x 2 hour seminars
Site Visits	10	
Tutorial	6	Includes 1 to 1's and scheduled group sessions
Guided Independent Study	156.5	Directed weekly reading, Moodle based tasks, and assessment development/revision
<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>
Test	T1	Timed Test	100%	LO1 LO3
Coursework	C1	Assignment	100%	Report (2000 words) LO2 LO4 on MERIT game

<b>Updated by:</b> Dave Worthington	<b>Date:</b> 25/05/20	<b>Approved by:</b> Alex Osborne	<b>Date:</b> 27/05/20
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### **Recommended Texts and Sources:**

Brook, M. (2008), (4th edn.), *Estimating and Tendering for Construction Work*. Oxford: Butterworth Heinemann

Cooke, B. & Williams, P. (2009), (3rd edn.), *Construction Planning, Programming and Control*. Oxford: Wiley Blackwell

## SECTION A: DEFINITIVE MODULE RECORD.

<b>MODULE CODE:</b>	SOUD2313	<b>MODULE TITLE:</b>	Work Based Research Project
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<b>CREDITS:</b> 20	<b>FHEQ Level:</b> 5	<b>JACS CODE:</b> H290
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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*)

This module was designed to develop student's skills of independent enquiry and critical analysis by undertaking a sustained research investigation. Research projects will relate to a work based experience of direct relevance to the programme and the students' academic and professional development.

**ELEMENTS OF ASSESSMENT** *Use HESA KIS definitions]*

COURSEWORK		PRACTICAL	
C1 (Coursework)	100%	P1 (Practical)	Pass/Fail

**SUBJECT ASSESSMENT PANEL** Group to which module should be linked: Civil and Coastal Engineering

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

**MODULE AIMS:**

This module aims to enable students to experience the scope and depth of learning which may take place in a work-based context by planning, monitoring and evaluating the work experience. It also aims to develop students' skills of independent enquiry and to learn about the theories, tools, resources, and ethical issues that scholars and professionals encounter on a daily basis. It aims to prepare students for professional employment by honing independent thinking and creativity, time-management and budget skills, and confidence in academic and career goals.

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

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

1. Demonstrate how to formulate and Implement a research project within agreed procedures and to specification and evaluate the research outcomes.
2. Professionally present the research outcomes.
3. Undertake specified work activities, record, review and evaluate outcomes.
4. Monitor and evaluate own performance and learning.

<b>DATE OF APPROVAL:</b>	05/02/15.	<b>FACULTY/OFFICE:</b>	Academic Partnerships
<b>DATE OF IMPLEMENTATION:</b>	21/09/15.	<b>SCHOOL/PARTNER:</b>	South Devon College
<b>DATE(S) OF APPROVED CHANGE:</b>	Click here to enter a date.	<b>TERM/SEMESTER:</b>	All Year

**Additional notes (for office use only):** For delivering institution's HE Operations or Academic Partnerships use if required

## SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

ACADEMIC YEAR: 2020-21

NATIONAL COST CENTRE: 118

MODULE LEADER: Dave Worthington

OTHER MODULE STAFF: None

**SUMMARY of MODULE CONTENT**

Describe self, work role and setting; carry out initial personal skills audit in relation to work role; identify priority area for improving skills; explore organisation type and context (including the wider competitive environment) and cognitive skills involved; negotiate work-based learning agreement to benefit self and work; establish learning log system; research formulation; action plan; data collection, interpretation and analysis; evaluation of outcomes; future considerations; presentation format and delivery.

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

Scheduled Activities	Hours	Comments/Additional Information
Scheduled activities/Tutorials	10	1 hour per week for 10 weeks to include research activities, group discussion, practical exercises, scenario based exercises and presentations and reflective practice
Work Based Learning	160	Site based activity
Guided Independent Study	30	Directed weekly reading, Moodle based tasks, and assessment development/revision
<b>Total</b>	<b>200</b>	

Category	Element	Component Name	Component Weighting	Comments include links to learning objectives
Coursework	C1	Research Project  Practical Competency Document (Work Based Learning Agreement)	50%  50%  100%	2000 words. LO1, LO2.  LO3, LO4.
Practical	P1	Presentation	Pass/Fail	LO2

Updated by:  
Dave Worthington

Date:  
25/05/20

Approved by:  
Alex Osborne

Date:  
27/05/20

**Recommended Texts and Sources:**

Helyer, R. (2010) *The Work-Based Learning Student Handbook* : Palgrave Macmillan, New York

## SECTION A: DEFINITIVE MODULE RECORD.

<b>MODULE CODE:</b>	Soud2314	<b>MODULE TITLE:</b>	Coastal Engineering 2
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<b>CREDITS:</b> 20	<b>FHEQ Level:</b> 5	<b>JACS CODE:</b> H220
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<b>PRE-REQUISITES:</b> None	<b>CO-REQUISITES:</b> None	<b>COMPENSATABLE:</b> No
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### **SHORT MODULE DESCRIPTOR:** (*max 425 characters*)

This module aims to further student's knowledge of coastal engineering. It will also further develop fundamental concepts of coastal systems and introduces basic design procedures associated with coastal engineering.

### **ELEMENTS OF ASSESSMENT** *[Use HESA KIS definitions]*

WRITTEN EXAMINATION		COURSEWORK	
T1 (Test)	50%	C1 (Coursework)	50%

**SUBJECT ASSESSMENT PANEL** Group to which module should be linked: Civil and Coastal Engineering

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

### **MODULE AIMS:**

To provide basic elements of theory and design practice for the design of coastal engineering schemes and a basic introduction to the necessary calculation procedures

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

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

1. Evaluate the design principles for specification of design waves
2. Evaluate the fundamental principles of coastal management
3. Justify breakwater types and their functions
4. Demonstrate procedures of basic coastal structure design and shore protection

<b>DATE OF APPROVAL:</b>	05/02/15.	<b>FACULTY/OFFICE:</b>	Academic Partnerships
<b>DATE OF IMPLEMENTATION:</b>	21/09/15.	<b>SCHOOL/PARTNER:</b>	South Devon College
<b>DATE(S) OF APPROVED CHANGE:</b>	Click here to enter a date.	<b>TERM/SEMESTER:</b>	AY

**Additional notes (for office use only):** For delivering institution's HE Operations or Academic Partnerships use if required

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

<b>ACADEMIC YEAR:</b> 2020-21	<b>NATIONAL COST CENTRE:</b> 118
<b>MODULE LEADER:</b> Andy Finch	<b>OTHER MODULE STAFF:</b> Alex Osborne

### **SUMMARY of MODULE CONTENT**

Wave generation, wave transformation and breaking, an introduction to wave design, introduction to coastal management, coastal management strategies, management of coastal waters and land; breakwater types, function and their design considerations, introduction to structure design; risk and damage, groins, sea walls, artificial improvements and environmental impact.

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

<b>Scheduled Activities</b>	<b>Hours</b>	<b>Comments/Additional Information</b>
Scheduled activities	44	2 hours per week for 25 weeks to include research activities, group discussion, practical exercises, scenario based exercises and presentations
Seminar	6	3 x 2 hour seminars
Site Visits	10	
Tutorial	6	Includes 1 to 1's and scheduled group sessions
Guided Independent Study	134	Directed weekly reading, Moodle based tasks, and assessment development/revision
<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>
Test	T1	Timed Test	100%	LO1 LO4
Coursework	C1	Report	100%	LO2 LO3

<b>Updated by:</b> Alex Osborne	<b>Date:</b> 25/05/20	<b>Approved by:</b> Dean Bowden	<b>Date:</b> 27/05/20
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### **Recommended Texts and Sources:**

- Reeve, D., Chadwick, A. and Fleming, C. (2004) *Coastal Engineering: processes, theory and design practice*.  
Shaw, E. M., Beven, K. J., Chappell, N. A. and Lamb, R. (2010), (4th edition), *Hydrology in Practice*. London: Spon Press.  
Sorensen, R. M. (1978, 1997, 2006) (1st /2nd /3rd editions), *Basic Coastal Engineering*.

## SECTION A: DEFINITIVE MODULE RECORD.

<b>MODULE CODE:</b>	SOUD2315	<b>MODULE TITLE:</b>	Structural Analysis & Design 2
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<b>CREDITS:</b> 20	<b>FHEQ Level:</b> 5	<b>JACS CODE:</b> H210
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<b>PRE-REQUISITES:</b> None	<b>CO-REQUISITES:</b> None	<b>COMPENSATABLE:</b> No
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### **SHORT MODULE DESCRIPTOR:** (*max 425 characters*)

This module develops on the knowledge and principles established in structural analysis and design 1 and studies the analysis and design of statically indeterminate structures

### **ELEMENTS OF ASSESSMENT** *Use HESA KIS definitions]*

WRITTEN EXAMINATION		COURSEWORK	
T1 (Test)	50%	C1 (Coursework)	50%

### **SUBJECT ASSESSMENT PANEL** Group to which module should be linked: Civil and Coastal Engineering

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

### **MODULE AIMS:**

This module aims to provide the analytical background to develop a good understanding of the analysis of statically indeterminate structures. The module introduces the concept of plastic analysis of structures. The module develops an understanding of Code of Practice design of statically indeterminate structures

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

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

1. Determine diagrams of forces and apply simple methods to resolve statically indeterminate structure
2. Apply the basic principles of torsion to simple problems and determine wind loading and other forms of lateral loads on structures.
3. Apply engineering knowledge and competence in the solution of problems and the development of design of structures and structural elements
4. Analyse the differences between elastic and plastic analysis.
5. Apply Codes of Practice, British Standards and Building regulations, to the design of structures

<b>DATE OF APPROVAL:</b>	05/02/15.	<b>FACULTY/OFFICE:</b>	Academic Partnerships
<b>DATE OF IMPLEMENTATION:</b>	21/09/15.	<b>SCHOOL/PARTNER:</b>	South Devon College
<b>DATE(S) OF APPROVED CHANGE:</b>	Click here to enter a date.	<b>TERM/SEMESTER:</b>	All year

### **Additional notes (for office use only):** For delivering institution's HE Operations or Academic Partnerships use if required

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

<b>ACADEMIC YEAR:</b> 2020-21	<b>NATIONAL COST CENTRE:</b> 118
<b>MODULE LEADER:</b> Alex Osborne	<b>OTHER MODULE STAFF:</b> None
<b>SUMMARY of MODULE CONTENT</b>	
Stiffness method of analysis - beams and simple portal frames; Torsion stresses and rotations in simple structures; 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.	

<b>SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions]</b>		
<b>Scheduled Activities</b>	<b>Hours</b>	<b>Comments/Additional Information</b>
Scheduled activities	44	2 hours per week for 25 weeks to include research activities, group discussion, practical exercises, scenario based exercises and presentations
Seminar	6	3 x 2 hour seminars
Site Visits	10	
Tutorial	6	Includes 1 to 1's and scheduled group sessions
Guided Independent Study	134	Directed weekly reading, Moodle based tasks, and assessment development/revision
<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>
Test	T1	Timed Test	100%	LO1 LO3 LO5
Coursework	C1	Assignment	100%	LO2 LO4

<b>Updated by:</b> Alex Osborne	<b>Date:</b> 25/05/20	<b>Approved by:</b> Dave Worthington	<b>Date:</b> 27/05/20
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<b>Recommended Texts and Sources:</b> Hulse, R. and Cain, J. (2000), (2nd edition), <i>Structural Mechanics</i> . Basingstoke: Palgrave Macmillan. Williams, M. S. and Todd, J. D. (2000), <i>Structures : Theory and Analysis</i> : Macmillan Hannah, J. and Hillier, M. J. (1996), (3 <sup>rd</sup> edition), <i>Applied Mechanics</i> : Longman
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## SECTION A: DEFINITIVE MODULE RECORD.

<b>MODULE CODE:</b>	SOUD2316	<b>MODULE TITLE:</b>	Law and Contracts For Civil Engineers
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<b>CREDITS:</b> 20	<b>FHEQ Level:</b> 5	<b>JACS CODE:</b> H290
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<b>PRE-REQUISITES:</b> None	<b>CO-REQUISITES:</b> None	<b>COMPENSATABLE:</b> No
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### **SHORT MODULE DESCRIPTOR:** (*max 425 characters*)

This module will provide an introduction into the law of contracts and how the law applies to civil engineering and construction overall. The module will examine the contractual aspects of the ICE 5th, 6th and 7th forms of contract, the NEC and also make comparisons with JCT.

### **ELEMENTS OF ASSESSMENT** [Use HESA KIS definitions]

COURSEWORK	
<b>C1</b> (Coursework)	100%

### **SUBJECT ASSESSMENT PANEL** Group to which module should be linked: Civil and Coastal Engineering

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

### **MODULE AIMS:**

This module aims to provide the knowledge of how the legal system works and how the contract will be administered during the execution of a project. It will also address the criteria which will lead to the adoption of a particular form of contract and how problems are addressed in a legal context. It will define the way in which the law of contract is implemented in the standard forms of contract and the significance of statutes and case law.

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

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

1. Investigate and interpret the law relating to the construction industry
2. Analyse case studies and the application of legal principles
3. Evaluate the effectiveness of current law relating to design, construction and management of civil engineering works
4. Analyse the administrative procedures necessary for the successful completion of construction projects

<b>DATE OF APPROVAL:</b>	05/02/15.	<b>FACULTY/OFFICE:</b>	Academic Partnerships
<b>DATE OF IMPLEMENTATION:</b>	21/09/15.	<b>SCHOOL/PARTNER:</b>	South Devon College
<b>DATE(S) OF APPROVED CHANGE:</b>	Click here to enter a date.	<b>TERM/SEMESTER:</b>	All Year

**Additional notes (for office use only):** For delivering institution's HE Operations or Academic Partnerships use if required

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

<b>ACADEMIC YEAR:</b> 2020-21	<b>NATIONAL COST CENTRE:</b> 118
<b>MODULE LEADER:</b> Andrew Finch	<b>OTHER MODULE STAFF:</b> None

### **SUMMARY of MODULE CONTENT**

Classification and requirements of a contract; Acceptance, Consideration, Intention; Terms of the contract; Misrepresentation; Party walls etc. Act; Duty of care and tort; Tort of negligence; Comparison of forms of contract; Employer's design liability; General obligations; Unforeseen conditions; Contract programmes; Insurance; Extensions; Completion certificates; Valuations; Determination of the contract; ICE Conditions of Contract; Tendering Procedures; Disputes Avoidance and Resolution. Adjudication; Arbitration.

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

<b>Scheduled Activities</b>	<b>Hours</b>	<b>Comments/Additional Information</b>
Scheduled activities	44	2 hours per week for 25 weeks to include research activities, group discussion, practical exercises, scenario based exercises and presentations
Seminar	6	3 x 2 hour seminars
Site Visits	10	
Tutorial	6	Includes 1 to 1's and scheduled group sessions
Guided Independent Study	134	Directed weekly reading, Moodle based tasks, and assessment development/revision
<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>
Coursework	C1	Scenario Report	50%	LO1 LO4
		Case Study	50% 100%	LO2 LO3

<b>Updated by:</b> Andrew Finch	<b>Date:</b> 25/05/20	<b>Approved by:</b> Alex Osborne	<b>Date:</b> 27/05/20
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### **Recommended Texts and Sources:**

Murdoch, J. & Hughes W. (2008), (4th edn.), *Construction Contracts*. Abingdon: Spon Press  
Uff, J. (2009), (10th edn.), *Construction Law*. London: Thomson Sweet & Maxwell  
The Law of Contract, Treitel G.M., ISBN 042178850X Winfield and Jolowicz on Tort, Rogers W.V.H., ISBN 0421922907

## **SECTION A: DEFINITIVE MODULE RECORD.**

<b>MODULE CODE:</b>	Soud2317	<b>MODULE TITLE:</b>	Environmental Engineering
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<b>CREDITS:</b> 20	<b>FHEQ Level:</b> 5	<b>JACS CODE:</b> H220
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<b>PRE-REQUISITES:</b> None	<b>CO-REQUISITES:</b> None	<b>COMPENSATABLE:</b> No
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### **SHORT MODULE DESCRIPTOR: (*max 425 characters*)**

This module provides an introduction to the role of the civil and environmental engineer in environmental management. It looks to provide an introduction into flood hydrology, water and wastewater treatment, and waste management.

### **ELEMENTS OF ASSESSMENT [Use HESA KIS definitions]**

COURSEWORK	
<b>C1</b> (Coursework)	100%

### **SUBJECT ASSESSMENT PANEL Group to which module should be linked:** Civil and

Coastal Engineering

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

### **MODULE AIMS:**

This module looks to provide general knowledge of the conventional unit operations employed in water and wastewater treatment, including the scientific engineering principles on which they are based. It also looks to provide students with an understanding of hydrological processes, rainfall runoff models for flood estimation and introduce hydraulic models to evaluate river flows and floodplains. It will also provide an introduction into flood protection and drainage works capable of withstanding extreme events both now and in the future with anticipated climate change.

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

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

1. Appraise risk of floods and droughts and select the correct technique to measure and evaluate the amount of water at a given location/time
2. Produce basic design solutions to flooding problems
3. Explain the engineering principles behind methods of water acquisition and treatment for potable supply.
4. Define the principles behind water and waste water treatment processes.

<b>DATE OF APPROVAL:</b>	05/02/15.	<b>FACULTY/OFFICE:</b>	Academic Partnerships
<b>DATE OF IMPLEMENTATION:</b>	21/09/15.	<b>SCHOOL/PARTNER:</b>	South Devon College
<b>DATE(S) OF APPROVED CHANGE:</b>	Click here to enter a date.	<b>TERM/SEMESTER:</b>	All Year
<b>Additional notes (for office use only):</b> For delivering institution's HE Operations or Academic Partnerships use if required			

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

<b>ACADEMIC YEAR:</b> 2020-21	<b>NATIONAL COST CENTRE:</b> 111
<b>MODULE LEADER:</b> Andrew Finch	<b>OTHER MODULE STAFF:</b> Alex Osborne
<b>SUMMARY of MODULE CONTENT</b>	
<p>Introduction to hydrology and environmental management; hydrological cycle, management of floods and water resources; environmental impacts of land use change; pollutant pathways; climate change, rainfall and flood frequency; water and wastewater treatment; water quality tests/standards; sedimentation; filtration; aerobic biological oxidation, activated sludge, trickling filters; river pollution; environmental impact of major civil engineering works, e.g. modification of hydrology due to the development, introduction to hydrology and environmental management, flood protection structures.</p>	

<b>SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions]</b>		
<b>Scheduled Activities</b>	<b>Hours</b>	<b>Comments/Additional Information</b>
Scheduled activities	44	2 hours per week for 25 weeks to include research activities, group discussion, practical exercises, scenario based exercises and presentations
Seminar	6	3 x 2 hour seminars
Site Visits	10	
Tutorial	6	Includes 1 to 1's and scheduled group sessions
Guided Independent Study	134	Directed weekly reading, Moodle based tasks, and assessment development/revision
<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>
Coursework	C1	Report	50%	LO1 LO2
		Report	50% 100%	LO3 LO4

<b>Updated by:</b> Alex Osborne	<b>Date:</b> 25/05/20	<b>Approved by:</b> Dean Bowden	<b>Date:</b> 27/05/20
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<b>Recommended Texts and Sources:</b>
Mathews, R.A. Vesilind, A.P. and Peirce, J.J. (2003) Environmental Engineering. Edited by Ruth Weiner. 4 <sup>th</sup> edn. Amsterdam: A Butterworth-Heinemann
Chadwick, A., Morfett, J. and Borthwick, M. (2004), (4th edition)., <i>Hydraulics in Civil and Environmental Engineering</i> . London: Spon Press.
Hamill, L. (2001), (2nd edition), <i>Understanding Hydraulics</i> . Basingstoke: Palgrave.