PROGRAMME QUALITY HANDBOOK 2022-2023

FdSc Engineering (Marine Technologies)

Contents

1. Welcome and Introduction to FdSc Engineering (Marine Technologies).

1.1 Welcome statement

Welcome to your Programme Quality Handbook (PQH), this PQH is designed to provide you with programme related information both for before and during your studies. In addition to this PQH our UCSD interactive website contains our online Handbook to support you which studying at UCSD. A link is available here Student Handbook | University Centre South Devon (ucsd.ac.uk). It can also be navigated by going to www.ucsd.ac.uk and searching for student handbook.

This engineering programme has been designed in partnership with employers. Therefore, successful completion of the programme will help you develop the knowledge, skills and behaviours that employers are looking for.

By studying at the UCSD you will be attending an academic institution that has national recognition as a leading provider of higher education.

All the curriculum staff are both academic and engineering sector professionals. Therefore, they are able to ensure that your experience is both academically challenging and engineering sector relevant.

All the UCSD and wider South Devon College staff are dedicated to ensuring that you receive the support you need to achieve.

Your voice is important, and we pride ourselves on our ability to listen and thus enable you to influence your higher education experience.

We look forward to welcoming you to this engineering programme and ultimately celebrating your potential achievements.

1.2 Programme Management

Role	Person	Email address
Personal Tutor and/or HE Lead	Matt Prowse	matthewprowse@southdevon.ac.uk
Programme Coordinator	Ben Bryant	benbryant@southdevon.ac.uk
Higher Education Coordinator	Andrew Faulkner	andrewfaulkner@southdevon.ac.uk
Curriculum Head	Adrian Bevin	Abevin@southdevon.ac.uk
Assistant Principal	Steve Caunter	stevecaunter@southdevon.ac.uk

1.3 Personal Tutor

Your personal tutor's role is to support your personal and professional development, develop your academic skills, manage student expectations, achieve positive student-staff communications, provide pastoral support and signposting, and monitor your wellbeing. They should be your first port of call for advice and/or direction for further support on academic or pastoral matters.

Matthew Prowse is the personal tutor for this programme. He studied HNC/HND Boat Design and Production in Falmouth, followed by a BSc (Hons) Marine and Composites Technology at Plymouth University, graduating in 2006. Accumulated 10 Years of industry experience in Boat Design and Composites Engineering, including companies such as Princess Yachts PLC, Pipex PX and Babcock. Now a lecturer at South Devon Marine Academy in Boat Building and Marine Technologies since 2011. Matthew is studying towards PhD/M.Phil in Mechanical Engineering with Plymouth University based on "Automation and Fishing" which commenced in October 2018 and will complete in approximately 2024.

1.4 Tutoring at UCSD

UCSD's aim is to facilitate and promote positive student engagement in learning, wellbeing, academic success, and progression. This is coordinated through an integrated tutorial model:

1. Personal and pastoral tutoring to monitor students' wellbeing and support their personal development
2. An academic tutoring curriculum to support in the development of academic and employability skills and monitor your academic and professional progress
3. Professional services including the Student Support Hub team, library services, employability, academic standards and quality, and the University of Plymouth Student's Union for students on UoP programmes.

The integrated tutorial model ensures all students have a personal tutor and scheduled weekly group and/or one-to-one Tutorials, and are able to access professional study skills, wellbeing, disability and employability guidance from the HE Student Support Hub.

The tutorial curriculum and Personal Development is tailored for your programme including consideration of the size of programme, the hours that you are studying and the level of your programme. Details will be provided by your personal tutor

Your personal tutor's role is to support your personal and professional development, develop your academic skills, manage student expectations, achieve positive student-staff communications, provide pastoral support and signposting, and monitor your wellbeing. They should be your first port of call for advice and/or direction for further support on academic or pastoral matters. However, your tutor may refer you to members of the Student Support Hub to provide specialist advice and information. See section Student Support Hub below for more information.

1.5 Course Contact List

Details of your module's leaders and how and when they can be contacted are below. You can also view the profile of the teaching team within the curriculum area that your programme is based via this link - https://www.ucsd.ac.uk/research-and-expertise/technology/

If you have questions about a module, please contact the appropriate module leader.

If you have any questions about the programme or your pastoral needs, please contact your personal tutor.

If you have any questions about fees, funding or support from the university please contact university@southdevon.ac.uk

Module Leader	Modules	Contact	If part time days/hours that are worked
Mr Ben Bryant	SOUD2490 Engineering Business, Quality and Project Management SOUD2491 Independent Research Project	benbryant@southdevon.ac.uk	
Mr Robert Smith	SOUD2489 Engineering Build	robsmith@southdevon.ac.uk	
Mr Daniel Shuffell	SOUD2486 Computer Aided Engineering	danielsuffell@southdevon.ac.uk	
Mr Matthew Prowse	SOUD2499 Composite Materials and Manufacture SOUD2500 Marine Engineering Systems	matthewprowse@southdevon.ac.uk	

1.6 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 Stepping 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 activities and reading

- Eliasson, R. Larsson, L. Orych, M. (2014) 'Principles of Yacht Design'. 4th Edition, Cambridge: Bloomsbury
- Rawson, K J and Tupper, E C (2001) Basic ship theory: combined volume, Elsevier, Oxford
- Stokoe, E A (1999) Reed's ship construction for marine students, Adlard Coles Nautical, London
- Bird, J. (2021) - Bird's Basic Engineering Mathematics, ISBN-10: 0367643677
- Bird, J. (2015) - Science for Engineering, ISBN-10: 113882688X

Recommend purchase of a Casio FX-991EX Calculator

1.7 Curriculum design principles

Programme Rationale (summary)

The design of this programme has been influenced by input from the following stakeholders:

Identified Stakeholders:

- South West LEP
- Torbay Development Agency & Torbay Council
- Pearson Edexcel
- EAL & City and Guilds, Development knowledge and T-Levels
- Industry Sector, (employer network and wider sector business).
- Progressing L3 Students
- University of Plymouth
- PSRB's
- South West Institute of Technology (SWIoT)

Current Degree Apprenticeship standards released in this sector show that learners should be evidencing knowledge in Materials, Manufacturing, CAD/CAE, Practical, Analytical, Business, Management, Lean and Problem-solving skills and demonstrate professional practice. These key elements are embedded within this programme.

Students on FdSc programmes will develop skills in adopting a systems approach to multidiscipline issues and, through extensive practical and group work, will understand how to apply core knowledge to more advanced and complex industrial challenges how these can be solved. Students will explore and experience the entire lifecycle of an engineering product – from concept and design to material selection, project managing and development strategies.

This engineering programme is aimed at aspiring Engineers who have completed the HNC Engineering (Marine Technologies) programme.

This programme provides the essential underpinning mathematical, scientific, and sustainable knowledge and understanding required by aspiring Engineers and industries wishing to up-skill their existing workforce.

Context

The degree programme has been designed alongside employers in order to ensure that on successful completion all graduates display knowledge and skills which allow them to enhance and further their practice. Input has been taken from current and past progressing full-time learners on engineering courses to ensure that the program has content that will allow learners to study a subject which is becoming a focus of the industrial sectors. The Section has strong links with a range of employers and continuing employer liaison will be possible throughout the programme.

Content

The programme has a strong practical focus, providing ample opportunity for knowledge gained to be strengthened with practical activity based around the ample engineering laboratory equipment.

There are five FdSc engineering programmes. At Level 5, students on all programmes will study two core engineering modules that will develop business management and project skills and management. The other modules at Level 5, are designed to allow the student to develop knowledge, understanding and skill that is focused towards their specific programme.

Teaching and Learning Strategy

In 2017, UCSD was awarded ‘Gold’, the highest level possible, by the Teaching Excellence Framework, which recognises outstanding teaching within our university-level curriculum.

Lectures, seminars, tutorials, practical’s, guest speakers and workplace visits will be designed to facilitate students understanding and application of the causality of engineering theory and practice. Students will be supported in their studies with a personal tutor programme and access to the Higher Education study support services provided by the University Centre South Devon.

Formative learning, draft and summative assessments and feedback will support students to achieve the programme and module outcomes. In accordance with the College Teaching and Learning framework, informal assessment and feedback will also be used within all scheduled teaching and learning activities. Students will be encouraged to provide regular feedback on their learning experience using both informal and College wide planned feedback mechanisms.

Students will be supported at all stages of their studies to connect and engage with local companies and thus remain focused on developing the knowledge, understanding and skill that will support employability.

There are two proposed modes of delivery for this programme, full and part-time delivery. Regardless of the mode of study, all students will have a personal tutor with scheduled and additional time available for tutorial support.

Modes of delivery will include:

Scheduled Activities	Comments/Additional Information (briefly explain activities, including formative assessment opportunities)
Lectures	Lectures will be used to introduce the key concepts and issues using interactive teaching and learning methods. Dedicated lectures are also used to brief students on the two assignments.

Seminars	Seminars will be used to provide the opportunity for students to engage in deeper discussion and exploration of a particular topic following a lecture
Tutorials	Dedicated tutorials are used for workshops on the assignments, including the provision of formative feedback.
Laboratory Work	To develop practical skill, students will take part in laboratory sessions. The laboratory they use will depend on the programme that they are studying.
Guided independent study	Students are provided with a comprehensive reading list and other resources via the VLE to support independent learning

Students can access their timetables on OnTrack and SDConnect. Notification of amendments will be issued via Moodle/email/MS Teams.

Resources

You will be provided with Reading lists in your Module Guide.

You will have access to the following across our campuses:

- 1,200 computers
- 25,000 books
- Campus-wide wireless network
- A comprehensive catalogue of e-books, journals, newspapers and electronic resources
- A virtual learning portal
- A student email address

The new and innovative £17 million Hi Tech & Digital Centre provides a visionary facility for higher education, towards ever-expanding hi tech, manufacturing, digital and creative sectors across Torbay, South Devon and wider regions. Many of your teaching will take place in the Hi Tech and Digital Centre which has specialist facilities including:

- Manufacturing, 3D printing and precision machining workshops.
- Materials testing suite.
- Programming logical controls (PLC) and electrical suite.
- Computer-aided design (CAD) suite.

You will have access to the South Devon Marine Academy facilities which include:

- Composites and traditional boat building workshops with CNC routing and laser capability.
- Marine engineering workshops including hydrid engine technology
- Design software suite including Maxsurf, AutoCad, Inventor
- A range of training vessels for practical on the water training

- 2 x Fully Autonomous Unmanned Surface Vessels (USV) including REAV-16 ‘USV Dart’ - Dynautics prototype; complete with two (2) Torqeedo outboards and two (2) Torqeedo 915Wh propulsion batteries, a Dynautics Spectre autopilot complete with and Remote Control Workstation (RCW) Licence, UHF model, RF handset, batteries and chargers. REAV-10 ‘USV Exe’; 1m x 0.7m USV with four (4) Blue Robotics T200 thrusters with a novel propulsion system using vectored thrust to manoeuvre the craft, a Dynautics Spectre autopilot complete with a Remote Control Workstation (RCW) licence, UHF modem, RF handset, batteries and chargers, etc.

1.8 Knowledge, skills and behaviours developed on the programme

Product Design and Development Engineer L6 Degree Standard		
	Knowledge, Skills and Behaviours	
K1	Mathematics and science for engineers	SOUD1540 & SOUD1533
K2	Materials and manufacture	SOUD1536
K3	Mechanical. electrical and electronic principles and applications	SOUD1533 & SOUD2487
K4	Statics and dynamics	SOUD1533 & SOUD1541
K5	How to run and manage business led projects	SOUD1538, SOUD2489, SOUD2490 & SOUD2491
K6	Engineering operations and business management	SOUD2490
K7	Applying advanced technology techniques	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489
S1	Comply with statutory and organisational safety requirements and demonstrate a responsible and disciplined approach to risk mitigation, avoidance and management.	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489
S2	Effectively use, interpret and evaluate a range of engineering data sources and documentation	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489
S3	Organise work efficiently and effectively by managing engineering resources when completing tasks	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489
S4	Use computer software packages to assist with engineering activities	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489
S5	Carry out Project Management activities	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489
S6	Establish design briefs, presenting and discussing technical proposals	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489
S7	Manage and control product design changes	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489
S8	Support team feasibility design reviews	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489
S9	Demonstrate technical and commercial management by planning and managing tasks & resources	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489
B1	*Safety mindset:* This occupation sits within an industry with a high level of safety critical activities. There has to be strict compliance and a disciplined and responsible approach to manage, mitigate and avoid risk.	All modules
B2	*Strong work ethic:* Positive attitude, motivated by engineering; dependable, ethical, responsible and reliable.	All modules
B3	*Logical approach:* Able to structure a plan and develop activities following a logical thought process, but also able to quickly “think on feet” when working through them.	All modules

B4	*Problem solving orientation*: Identifies issues quickly, enjoys solving complex problems and applies appropriate solutions. Has a strong desire to push to ensure the true root cause of any problem is found and a solution identified which prevents further recurrence.	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489
B5	*Quality focus:* Follows rules, procedures and principles in ensuring work completed is fit for purpose and pays attention to detail / error checks throughout activities.	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489
B6	*Personal responsibility and resilience*: Motivated to succeed accountable and persistent to complete task.	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489
B7	*Clear communicator:* Use a variety of appropriate communication methods to give/receive information accurately, and in a timely and positive manner.	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489
B8	*Team player:* Not only plays own part but able to work and communicate clearly and effectively within a team and interacts/ helps others when required. In doing so applies these skills in a respectful professional manner.	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489
B9	*Applies Lean Manufacturing Principles*: Continuous improvement in driving effectiveness and efficiency	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489
B10	*Adaptability*: Able to adjust to different conditions, technologies, situations and environments.	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489
B11	*Self-Motivation:* A 'self-starter', who always wants to give their best, sets themselves challenging targets, can make their own decisions.	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489
B12	*Willingness to learn*: wants to drive their continuous professional development	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489
B13	*Commitment:* Able to commit to the beliefs, goals and standards of their own employer and to the wider industry and its professional standards.	SOUD 1538, SOUD1541, SOUD1536, SOUD2499, SOUD2500, SOUD2489

1.9 Assessment and feedback strategy

Assessment of your learning is an essential part of attaining your qualification. Your assessments will be design in accordance with the UCSD Assessment Policy https://www.ucsd.ac.uk/student-life/essential-information/academic-regulations-and-procedures-and-policies/ and the assessment guidance on the UCSD website https://www.ucsd.ac.uk/student-life/support/assessment-guidance/

Your module leaders will support you to develop the skills to succeed in your assessments. But you can also use the self-directed guidance on https://www.ucsd.ac.uk/student-life/support/assessment-guidance/ and receive one-to-one support from the HE Study team by contacting HEstudy@southdevon.ac.uk

Your assessment timetable will be available on Moodle at the start of your course.

Assessments are design to enable students to meet the learning outcomes of modules. Assessment of learning outcomes is guided by the University of Plymouth and UCSD assessment policies and affords students the opportunity to undertake a range of different summative tasks including written reports, practical activity and facilitation of workshops, design of promotional material, critical reviews, presentations, tests, literature reviews and research reports throughout their programme of study. All modules require an overall pass mark of 40%. Assessment briefs are published as part of the module guides ahead of the commencement of module teaching. Each assessment brief outlines how students can meet the learning outcomes through the assessment task, including a breakdown of what is expected, the marking criteria for the assessment task and the generic grading criteria.

There is a diverse mix of assessment methods which ensure that specific students are not disadvantaged by specific forms of assessment, varying assessment activities has also helped develop a broader range of personal and employability skills. Student engagement is improved by using real life contexts in assessments which include case studies and/or linking to local industry to solve a problem. Staff will provide exemplar assessments, where appropriate, that allow students to visualise what the task is and independently or under direction to practise equivalent assessment tasks in advance of ‘the real thing’ and/or utilise these as formative tasks and discuss openly in taught sessions.

A range of formative learning activities are included throughout the learning materials to enable students to assess their progress, areas of strength and further development needs. Draft submissions and tutorials are planned into the scheme of learning to discuss assessments in a full and detailed approach. Students typically receive written feedback on their draft submission, verbal feedback during their draft tutorial, and generic feedback of common themes identified during the draft tutorial period.

Summative coursework submissions are via Turnitin. This allows students the opportunity to submit their assessment and receive similarity report feedback, thereby enabling them to develop the integrity of their academic writing for final summative submission. Students are offered a range of practical assessment modes, potentially including the development of promotional materials and workshop resources. Practical assessments are marked in the moment, but a Turnitin submission

of a reference list or presentation slides enables all feedback to be given via Turnitin for a consistent assessment feedback experience.

A variety of assessment types will be utilised in both formative learning and summative assessments. Graduates are expected to have interpersonal, leadership, and analytical skills, alongside basic business acumen, problem-solving ability, and a depth of specific subject knowledge and practical experience.

The range of formative learning and summative assessment methods to be used will address the needs of students, employers, professional bodies, and progression programmes. Actual assessment methods will vary by module content and purpose but are designed to cover the stated needs above.

All assessment briefs are internally moderated and available to External Examiners before they are distributed to students, and all assessment marking is internally moderated in line with the UCSD policy before summative feedback is released to students. The annual programme monitoring alongside early/end of module reviews allow staff to monitor the success of assessment type against learning outcomes. Student involvement in programme and assessment reviews, helps monitor inclusive practice. Assessment audits enable the team to carry out and share good practice. All assessments will be subject to a rigorous moderation process both internally, and where required by University regulations, externally. Assessments will be reviewed annually through Cluster Programme Meetings with input from students via module reviews and programme level student data.

1.10 Student Support Hub

The University Centre South Devon (UCSD) is committed to an ethos of equality and inclusivity. How we will support you is set out in the Student Development Policy, available on the UCSD website https://www.ucsd.ac.uk/student-life/essential-information/academic-regulations-and-procedures-and-policies/ By becoming a UCSD student you enter a partnership with us, committing yourself to positively engaging and actively taking part in scheduled learning activities, self-directed learning and alerting your teaching team and/or the Student Support Hub to any additional needs you have. In return we commit to support you to achieve your potential. This relationship is set out in our Student Charter https://www.ucsd.ac.uk/student-life/essential-information/academic-regulations-and-procedures-and-policies/

The UCSD Student Support Hub https://www.ucsd.ac.uk/student-life/support/ is based on the ground floor of the University Centre. Many students think that the Support Hub is only for when they have exhausted all other avenues of support. But we encourage you to seek us out as soon as you think that you are struggling, because it is much easier to solve issues when they emerge. Also, students may feel that they are expected or should be able to manage any difficulty, but it is better to contact us to discuss what we can support, rather than make that decision yourself. Therefore, all students are encouraged to contact the Hub team early in their student journey, the service is available year-round except for closure days (normally around Christmas, so that you can be supported to thrive:

- **HE Study Team**
  The HE Study Team's role is to support you to develop your study and academic skills. You may have just progressed from a Level 3 course such as A' Levels, Access to HE, BTEC, or a Level 3 Diploma, or not have studied for many years, but everyone will find the step up to Higher Education learning a challenge and for some it will be more challenging we are here to support everyone. The team are here to support you to enjoy and make the most of your academic studies, that includes students who are doing well and want to do better and those for whom learning is more challenging. There is a wealth of resources on the UCSD website https://www.ucsd.ac.uk/student-life/support/study-skills/ and you can book one-to-one sessions by emailing HEstudy@southdevon.ac.uk sessions can be held face to face or on MS Teams.

- **HE Disability Team**
  If you have a disability or difficulty, whether that is physical, mental health or a learning difficulty, rest assured you will receive the support and assistance you need to study. You can contact us even if you are unsure that you might have a disability or difficulty as we are happy to have a chat about how you feel. Our team will guide and assist you from the initial enquiry, through the application and assessment process, and signpost you to additional resources and services where required. Find out more information on our website https://www.ucsd.ac.uk/student-life/support/disability-support/ or visit the Government's website about Disabled Students' Allowance https://www.gov.uk/disabled-students-allowance-dsa If you are an apprentice student, you are entitled to the same support, but the application process is slightly different. The earlier you contact the team, the quicker the support can be in

place, please contact HEdisability@southdevon.ac.uk

- **HE Wellbeing Team**
  The Wellbeing team can provide support to students experiencing wellbeing challenges that impact on their studies we understand that studies can face many difficulties so, don't be afraid to speak to us. The team offers urgent and regular support to help you adjust to and manage student life, stay positive and motivated, encourage you to continue with your studies, and manage the unexpected. Students who have mental health difficulties can apply for disability support to provide regular and specialist support. For more information see https://www.ucsd.ac.uk/student-life/support/wellbeing-support/ or contact HEwellbeing@southdevon.ac.uk

- **HE Employability**
  The Employability team are available to support you as your career plans develop. They can offer placement opportunities and help you to find appropriate work while you are studying. You can discuss your ideas, gain support researching opportunities, have feedback on your CV, personal statement or job application, and practice your interview skills. For more information see https://www.ucsd.ac.uk/employability-and-next-steps/ or contact HEemploy@southdevon.ac.uk

Before you start your programme, you should engage with the Stepping up to Higher Education resources on our website https://www.ucsd.ac.uk/stepping-up-to-higher-education/ and attend the workshops held by the HE Study team as these provide a detailed and useful introduction to your new academic life. There will also be a course induction by the programme team a week before teaching starts.

UCSD encourages all students to actively engage with their tutor and the HE Student Support Hub to access study skills, wellbeing, disability, and employability support throughout their studies. Make the most of the support available to you, so that you can gain the best degree.

1.11 Preparation for Employment, further academic study and personal development

Preparation for employment and personal development are central to the programme. It is delivered as part of the module teaching and assessment, weekly tutorial, employability and enrichment activities, and UCSD opportunities. As much as practicable, these activities will be organised to enable students to work with students from across the University Centre, widening their social and professional network, and fostering a sense of belonging to UCSD and the University of Plymouth.

Module teaching and assessments contextualise professional, personal and employability development throughout the schemes of learning. The Engineering project with integrated research skills module with work-related research will enable students to work with local employers on real-life research projects, enabling them to focus their experimental design on a particular area of interest and use to an organisation. The module Independent Research Project, will allow students to work with local employers and organisations on 'live projects', acting as trouble-shooters. Students studying this programme as a full-time or stand-alone qualification will benefit from the links made with apprenticeship students.

The employability of graduates is a significant driving force in the design of this programme cluster. Modules will develop skills in areas that employers have identified, as necessary. Strong partnerships with employers will also provide visits and guest lectures to advance the student experience.

Students utilising this programme as the technical qualification for a Higher Apprenticeship Standard or as the technical qualification in the Degree Apprenticeship Standard will benefit from a dedicated industry mentor to help develop the skills set out as essential by the employers in the working groups. It is also hoped that the programme has been designed robustly enough to ensure it can be used as a gateway or APL (Accreditation of Prior Learning) qualification for the Degree Apprenticeship standard once these are in place.

Work-based learning (WBL) and engagement with employers is central to the programme concept, and this is supported through sector focus groups, information leaflets and guidance. Engagement with employers will allow students to manage any work commitments alongside learning. This ongoing relationship with the industry supports the knowledge and consideration of student workloads regarding the assessment calendar. This will allow students who are already in a professional placement to consolidate and further develop essential skills whilst supporting others to achieve these practice-based skills on a Work-Based Learning basis in preparation for employment.

Students studying this programme as the technical qualification tied to the Higher Apprenticeship in Advanced Manufacturing Engineering benefit from support from in-work mentors and dedicated workplace training officers who can help ensure consolidation and skills development.

Weekly tutorials take place following the UCSD Tutorial Curriculum for students, with a focus on academic skills, personal development and employability. All students have a personal tutor who

leads weekly tutorials, supports the pastoral and academic development of students one-to-one, and facilitates employability and enrichment opportunities. The personal tutor and teaching team will deliver a package of employability and enrichment activities for students. This may include exchange visits to different students' workplace settings; guest speakers; local, national and/or international visits to explore module and/or employability relevant sites; research dissemination opportunities; vocational training courses, e.g. workshop and laboratory skills, CAD technical certificates, electronics training; and acting as an advocate for the programme at open events, with employers or with students on other levels of study. As much as possible these activities will be co-ordinated to enable students to work with their peers from other UCSD or UoP courses.

UCSD also organises a range of professional development and employability opportunities that students can engage in. These include CV writing or personal statement writing workshops or one-to-one support; advance academic skills support; contributing to UCSD as a Student Rep or Ambassador; support with wellbeing or disabilities needs; and exploration of local and national employment and study opportunities.

Students who complete the FdSc Engineering (Marine Technologies) progress to stage 3 (Level 6) of the BSc (Hons) Integrated Engineering Technologies (UCSD), BEng Marine Technology (University of Plymouth) with aggregate of 50% 2.2 at FdSc, or BEng Marine Technology with Composites (University of Plymouth) with aggregate of 50% 2.2 at FdSc.

Transferring between programmes can only be explored if the student has completed the correct sequence of modules, otherwise transferring may require modules to be undertaken at a lower or equal level.

1.12 UCSD Enterprise and Employability Framework Mapping

FHEQ level: 5						
Employability Criteria	**Definition**	**Programme Aims and Intended LOs**	**Module Aims and LOs**	**Assessment**	**Extra activity (i.e. trips)**	**Other UCSD areas of activity**
Job-specific skills	Students demonstrate the specialist and technical knowledge and skills needed by employers (in the sector) locally and nationally.	PA: 3, 4 PILOs: 2.6.3, 2.6.4	SOUD2490 LOs: 3,4,5 SOUD2500 LOs: 1,2,3,4 SOUD2486 LOs: 1,2,3,4 SOUD2489 LOs: 1,2,3 SOUD2491 LOs: 1,2,3 SOUD2495 LOs: 1,2,3	SOUD2490 Report SOUD2500 Report, Design proposal SOUD2486 Report, Presentation SOUD2489 Portfolio, Observation SOUD2491 Proposal, Report SOUD2495 Test, Report, Presentation	Student trip to local and national employers related to modules.	UCSD HE Study Skills support
General skills (aka. Transferable skills, 'soft' skills)	Students demonstrate the general knowledge, behaviours, and skills needed by every employer and workplace.	PA: 3, 4 PILOs: 2.6.3, 2.6.4	SOUD2490 LOs: 1,3,4,5 SOUD2500 LO: 2 SOUD2486 LO: 5 SOUD2489 LOs: 2,3 SOUD2491 LOs: 1,2,3,4	SOUD2490 Report SOUD2500 Report SOUD2486 Presentation SOUD2489 Portfolio, Observation SOUD2491 Proposal, Report	Employer based projects and briefs, liaising with employers and customers	Engagement in UCSD Student Voice activities

Digital skills	Students demonstrate the essential digital knowledge, behaviours, and skills needed by employers.	PA: 4, 5 PILOs: 2.6.4, 2.6.5	SOUD2490 LO: 3 SOUD2486 LOs: 1,2,3,4 SOUD2489 LO: 2 SOUD2491 LOs: 3,4	SOUD2490 Report SOUD2486 Report, Presentation SOUD2489 Observation SOUD2491 Report	Student trip to local and national employers related to modules.	Accessing SDC VLE, LRC etc Email and Teams
Practice and Experience	Students apply their knowledge and skills to specific career-relevant situations, and within career-relevant contexts.	PA: 5 PILO: 2.6.5	SOUD2500 LOs: 1,2,3,4 SOUD2486 LOs: 1,2,3,4,5 SOUD2489 LOs: 1,2,3 SOUD2491 LOs: 1,2,3,4 SOUD2499 LO: 2	SOUD2500 Report, Design proposal SOUD2486 Report, Presentation SOUD2489 Observation, Presentation SOUD2491 Proposal, Report SOUD2499 Report	Student trip to local and national employers related to modules.	SDC & UCSD Career Events
Careers Guidance	Students explore their knowledge, skills, and behaviours, in terms of their future, employment, and chosen career areas.	PA: 3 PILO: 2.6.3	SOUD2486 LO: 5	SOUD2486 Presentation	Guest speakers from module related employer base	UCSD Employability Support Personal Tutor Support
Enterprise	Students create ideas, set within practical situations, which lead to cultural, social or economic value. This can, but does not have to, lead to venture creation.	PA: 5 PILO: 2.6.5	SOUD2500 LOs: 2,3,4 SOUD2489 LOs: 2,3 SOUD2491 LOs: 1,2,3,4	SOUD2500 Report, Design Proposal SOUD2489 Observation, Presentation SOUD2491 Proposal, Report	Employer based projects and briefs, liaising with employers and customers	
Personal Development	Students reflect on their identities, qualities, and values to better understand themselves, from which to make informed choices about future employment.	Personal Tutorial Programme			Personal tutorial programme	UCSD HE Study Skills Support Personal Tutor support

Professional Behaviours	Students display the professional behaviours required of best practice and suitable for general employment.	PA: 3 PILO: 2.6.3	SOUD2490 LOs: 1,4 SOUD2486 LO: 5 SOUD2489 LOs: 1,2 SOUD2491 LOs: 2,4	SOUD2490 Report SOUD2486 Presentation SOUD2489 Observation SOUD2491 Report	Encouraged throughout the programme and module delivery	Engagement with Personal Tutor and Programme Staff
Networking	Students have opportunities to grow and utilise personal networks of support for a wide range of career- and industry-related activities.				Student trip to local and national employers related to modules.	Linkedin Interaction with engineering students on other programmes
Further information: Employability is a vital part of the learning journey of all UCSD students and is integrated throughout the programme at FHEQ Level 5. As detailed in the UCSD Enterprise and Employability Framework, UCSD students develop their employability across nine criteria.						

1.13 Student engagement in ongoing programme development

UCSD sees students as partners in their academic process, we actively seek and respond to your feedback at several points within the year. You and your course peers will elect a Student Representative to represent your views at Student Consultative Forum three times a year. The Lead Student Rep, elected by the whole student body also acts as a Student Governor in South Devon College's governance structures to represent your views. Students are also asked to give early and end of module review feedback to improve module delivery, and surveys about their student satisfaction once a year. In addition, students can always discuss any concerns or areas of good practice with their personal tutor.

Below, we outline the recent feedback that has been received from students and how we have developed the programme in response to that feedback.

You said:	We did:
Early Module Reviews 2021-22: More team building activities during tutorial. Assistance needed getting in to Sage and other journal sites. More 1-2-1's wanted.	Early Module Review Feedback 2021-22: Regular 1-2-1's will be scheduled in accordance with the module delivery and tutorial. Trip organised to Southampton to see employers and increase team building in the group. Programme support team will continue to support learners where required with accessing online journals. Module specific delivery will look at more focused team collaboration and increase learner engagement as a team, this can include activities which can be used during a tutorial session.

1.14 Applicable Regulations, Policy and Procedures

This is not a definitive list, the UCSD Student Handbook can provide more information Student Handbook | University Centre South Devon (ucsd.ac.uk)

Policy/Procedure/Regulation	Provision	Comments
Regulations	UCSD	
Terms and Conditions	UCSD	
Fee Policy	UCSD	
Admission Policy	UCSD	
Academic Complaints Policy	UCSD	
Service Complaints Policy	UCSD	
Code of Conduct and Disciplinary Policy	UCSD	
Fitness to Study/Study and Wellbeing Review Policy	UCSD	
Academic Offences Policy	UCSD	
Extenuating Circumstances Policy	UCSD	
Academic Appeals	UCSD	
Assessment Policy	UCSD	

2. Programme Specification

2.1 FdSc Engineering Cluster

Final award titles:

FdSc Engineering (Manufacturing)
FdSc Engineering (Design and Development)
FdSc Engineering (Electrical Electronic)
FdSc Engineering (Photonics and Optical Electronics)
FdSc Engineering (Marine Technologies)
HNC Engineering (Manufacturing)
HNC Engineering (Electrical Electronic)
HNC Engineering (Marine Technologies)

UCAS code: TBC

HECOS codes:

Manufacturing: 100202 (50%) and 100209 (50%)
Design and Development: 100182 (50%) and 100184 (50%)
Electrical Electronic: 100163 (100%)
Photonics and Optical Electronics : - 101075 (100%)
Marine Technologies : 100544 (50%) and 100194 (50%)

2.2 Awarding Institution: University of Plymouth

Teaching institution(s): University Centre South Devon - South Devon College

2.3 Accrediting body: Institute of Engineering and Technology – (Pending Application).

2.4 Distinctive Features of the Programme and the Student Experience

The degree has been designed alongside employers in order to ensure that on successful completion all graduates display knowledge and skills which allow them to enhance and further their practice. Input has been taken from current and past progressing full-time learners on engineering courses to ensure that the program has content that will allow learners to study a subject which is becoming a focus of the industrial sectors. The Section has strong links with a range of employers and continuing employer liaison will be possible throughout the programme.

The programme has a strong practical focus, providing ample opportunity for knowledge gained to be strengthened with practical activity based around the ample engineering laboratory equipment.

This engineering degree has five pathway options. At Level 4, students on all pathways will study core engineering modules that will establish foundation levels of engineering knowledge, understanding and skill. At Level 4 and 5, students will study some core modules and some that are specific to their chosen pathway. All of the modules at Level 4 and 5, whether they are core or specific are designed to allow the student to develop knowledge, understanding and skill that is focused towards their pathway.

Lectures, seminars, tutorials, practical's, guest speakers and workplace visits will be designed to facilitate students understanding and application of the causality of engineering theory and practice. Students will be supported in their studies with a personal tutor programme and access to the Higher Education study support services provided by the University Centre South Devon.

Formal formative and summative assessments and feedback will support students to achieve the programme and module outcomes. In accordance with the College Teaching and Learning framework, informal assessment and feedback will also be used within all scheduled teaching and learning activities. Students will be encouraged to provide regular feedback on their learning experience using both informal and College wide planned feedback mechanisms.

Students will be supported at all stages of their studies to connect and engage with local companies and thus remain focused on developing the knowledge, understanding and skill that will support employability.

2.5 Relevant QAA Subject Benchmark Group(s)

QAA Subject Benchmark - Engineering (2019)

- This programme is designed to equip students with the ability to deliver practical solutions to problems by applying the three core elements of scientific principles, mathematics and realisation in a creative and innovative way.
- The programme will develop students who have the skills to begin a professional career.

UK Quality Code for Higher Education (2018)

- This degree programme will be delivered as part of the University Centre South Devon provision and will therefore maintain the highest academic standards.
- Being a part of the University Centre South Devon means that students will be offered multiple opportunities to engage in a programme of activities designed to support their research and scholarly studies.

Foundation Degree Characteristic Statement (2020)

- Analysis, evaluation and application to work context are embedded within all modules.
- Verbal and written communication will be developed through a mixture of assessment methods and teaching and learning strategies.
- Student-employer connection and engagement will be ongoing throughout the degree programme.

2.6 Programme Structure

Level 4: HNC / FdSc Engineering (Marine Technologies) - Full Time				
Year	Semester	Core or Optional	Credits	Module
1	1 & 2	Core	30	SOUD1533 Engineering Science
1	1	Core	20	SOUD1536 Manufacturing and Materials
1	1 & 2	Core	30	SOUD1538 Engineering Project
1	1 & 2	Core	20	SOUD1540 Engineering Mathematics
1	2	Core	20	SOUD1541 Naval Architecture and Propulsion
Level 5: FdSc Engineering (Marine Technologies) - Full Time				
Year	Semester	Core or Optional	Credits	Module
2	1	Core	20	SOUD2486 Engineering Business, Quality and Project Management
2	1	Core	20	SOUD2500 Marine Engineering Systems
2	1	Core	20	SOUD2499 Composite Materials and Manufacture
2	2	Core	20	SOUD2489 Engineering Build
2	1 & 2	Core	20	SOUD2491 Independent Research Project
2	2	Core	20	SOUD2496 Computer Aided Engineering

Level 4: HNC / FdSc Engineering (Marine Technologies) - Part Time

Year	Semester	Core or Optional	Credits	Module
1	1 & 2	Core	30	SOUD1533 Engineering Science
1	1 & 2	Core	20	SOUD1540 Engineering Mathematics
2	1 & 2	Core	30	SOUD1538 Engineering Project
2	1	Core	20	SOUD1536 Manufacturing and Materials
2	2	Core	20	SOUD1541 Naval Architecture and Propulsion

Level 5: FdSc Engineering (Marine Technologies) – Part Time				
Year	**Semester**	**Core or Optional**	**Credits**	**Module**
3	1	Core	20	SOUD2486 Engineering Business, Quality and Project Management
3	1 & 2	Core	20	SOUD2489 Engineering Build
3	2	Core	20	SOUD2499 Composite Materials and Manufacture
4	1	Core	20	SOUD2500 Marine Engineering Systems
4	1 & 2	Core	20	SOUD2491 Independent Research Project
4	2	Core	20	SOUD2496 Computer Aided Engineering

2.7 Programme Aims

QAA Subject Benchmark Statement – Engineering – Oct 2019
Subject Benchmark Statement: Engineering (qaa.ac.uk)

The programme is intended to:

1. Provide students with knowledge and critical understanding of well-established facts, concepts, principles, and theories related to engineering.
2. Apply a cognitive and intellectual approach related to recognising and analysing criteria and specifications appropriate to specific problems, and then plan strategies for their solutions utilising concepts and principles outside the context with which they were taught.
3. Develop key transferable skills including team working, leadership, collaboration, and communication, to identify problems by planning effectively to meet desired outcomes even when situations and priorities change.
4. Develop skills for employability and continuous personal development by enabling students to connect and collaborate with local businesses.
5. Use practical skills training in situations of varying complexity and predictability.

2.8 Programme Intended Learning Outcomes (PILOs)

QAA Subject Benchmark Statement – Engineering – Oct 2019 Subject Benchmark Statement: Engineering (qaa.ac.uk)

Engineering Council The Accreditation of Higher Education Programmes (AHEP) ahep-fourth-edition.pdf (engc.org.uk)

8.1. Knowledge and understanding

On successful completion graduates should have developed:

1) The ability to apply general engineering and specialist engineering theory and technology with a systems approach to problems of moderate complexity.
2) Flexible strategies for being creative, innovative and overcoming difficulties to achieve sustainable solutions to problems of varying complexity.
3) The ability to conduct statistically sound appraisal of data.

8.2. Cognitive and intellectual skills

On successful completion graduates should have developed:

1) An awareness of the complexity of ethical principles and issues and demonstrate and apply this in relation to personal study, particularly with regard to the research project.
2) The ability to evaluate the appropriateness of different approaches to solving problems and to apply these in a work context.
3) An awareness of the importance of identifying, organising and using resources effectively to contribute to design of engineering solutions.

8.3. Key and transferable skills

On successful completion graduates should have developed the ability to:

1) Present and discuss proposals and offer and justify a well informed and insightful point of view.
2) Demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment.
3) Demonstrate a personal commitment to independently plan, manage and evaluate the acquisition of new knowledge and skills as part of a lifelong learning strategy.

8.4. Employment related skills

On successful completion graduates should have developed:

1) Effective communication skills in a variety of forms and for a range of audiences.
2) Considerable critical insight and confidence in leading and working collaboratively with others.
3) The ability to collaborate and plan as part of a team, to carry out roles allocated by the team and take the lead where appropriate, and to fulfil agreed responsibilities.

8.5. Practical skills

On successful completion graduates should have developed:

1) Be able to act autonomously with limited supervision or direction within agreed guidelines in both practice and academic study.
2) The ability to articulate their own approaches to learning and organise an effective work pattern including working to deadlines.
3) The ability to implement design solutions, taking into account, constraints and to react to problems to identify corrective actions during implementation.

2.9 Admissions Criteria, including APCL, APEL and Disability Service arrangements

Accreditation of Prior Learning (APL) - University of Plymouth

Entry Requirements for HNC / FdSc Engineering (Cluster)	
Numeracy and Literacy	Numeracy and Literacy skills can be evidenced with a level 2 qualification in Maths and English (GCSE grade 4 / C or above), or completion of a controlled entry assessment. If English is not your first language, you will need an IELTS score of 7.0 with a minimum score of 6.5 in each component (Reading, Writing, Listening and Speaking or an equivalent English Language qualification).
A-level/AS-level	Normal minimum entry requirements are 48 UCAS Points, to include Mathematics or a science-based subject.
T-Levels	Diploma in a related subject area. 48 UCAS points minimum. To include Mathematics or related module
BTEC National Diploma/QCF Extended Diploma	Diploma/Certificate in a related subject area. 48 UCAS points minimum. To include Mathematics or related module
Access to Higher Education at level 3	48 UCAS points
Welsh Baccalaureate	24 Points. Mathematics must be included
Scottish Qualifications Authority	48 points minimum from Higher Certificate
Irish Leaving Certificate	48 points minimum from Higher Certificate
International Baccalaureate	24 Points. Mathematics must be included
Criminal Records	Students undertaking work experience or professional activity may be required to undertake a satisfactory DBS check. Criminal records should be positively disclosed upon application, in order for applicant suitability to be assessed.

2.10 Non Standard Regulations

Entry Requirements for HNC / FdSc Engineering (Cluster)	
Non standard entry	Candidates are encouraged to apply if they feel they can benefit from the programme. Candidates with non standard entry qualifications will be considered on the basis of relevant work experience and attainment of skills, which demonstrate an ability to study at this level. Students with non-standard qualifications may be asked to complete a written piece of work on a relevant subject and/or learning needs assessment. Assessments will be graded in line with Level 3 Diploma standards.
APEL/APL	Given the wide experience of potential applicants to this course, applications for Accreditation of Prior Learning (APL) and Accreditation of Prior Experiential Learning (APEL) are welcomed.

2.11 Transitional Arrangements for existing students looking to progress onto the programme

Applicants wishing to transfer credit from other programmes of study will be required to provide evidence that the relevant FdSc Engineering (Cluster programme) learning outcomes are sufficiently covered. Transition arrangement will be discussed with learners who have currently completing or have complete the current “common modules” and offered the appropriate pathway linked to their current course.

Appendix 1: Programme Specification Mapping

Marine Technologies

Core modules	Programme Intended Learning Outcomes contributed to (for more information see Section 8)															Compensation Y/N	Assessment Element(s) and weightings E1 (exam), E2 (clinical exam), T1 (test), C1 (coursework), A1 (generic assessment), P1 (practical)
	8.1 Knowledge and understanding			8.2 Cognitive and intellectual skills			8.3 Key and transferable skills			8.4 Employment related skills			8.5 Practical skills				
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
PILOs met at Level 4																	
Engineering Science	Y	Y	Y		Y	Y										Y	C1 – 50%, T1 – 50%
Manufacturing and Materials	Y	Y			Y	Y										Y	C1 – 100%
Engineering Project	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C1 – 25%, P1 – 75%
Engineering Mathematics	Y	Y	Y													Y	C1 – 30%, T1 – 70%
Naval Architecture and Propulsion	Y	Y	Y	Y	Y	Y	Y									Y	C1 – 50%, C2 – 50%
PILOs met at Level 5																	
Engineering Business, Quality and Management	Y	Y	Y		Y			Y	Y	Y	Y					Y	C1 – 50%, C1 – 50%
Marine Engineering Systems	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y			Y	Y	Y	Y	C1 – 50%, C2 – 50%
Computer Aided Engineering	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y		Y	Y	Y	Y	C1 – 60%, P1 – 40%
Engineering Build	Y	Y	Y		Y	Y		Y	Y		Y	Y	Y	Y	Y	Y	C1 – 30%, P1 – 70%
Independent Research Project				Y			Y		Y	Y	Y	Y	Y	Y		Y	C1 – 25%, C2 – 25%, C3 – 50%
Composite Materials and Manufacture	Y	Y	Y	Y	Y	Y	Y			Y	Y		Y	Y	Y	Y	C1 – 50%, C2 – 50%

3. Module Records

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: SOUD1533	**MODULE TITLE:** Engineering Science	
CREDITS: 30	**FHEQ LEVEL:** 4	**HECOS CODE(S):** 100209, 100163, 100544
PRE-REQUISITES: None	**CO-REQUISITES:** None	**COMPENSATABLE:** N

SHORT MODULE DESCRIPTOR: *(max 425 characters)*
Introduction to Engineering science principles that are central to the design of Mechanical and Electrical Engineering systems which will also provide broad knowledge for Engineering professionals. This module will provide an introduction to AC and DC circuit theory, along with Static and Dynamic Mechanical principles for further modules fundamental to the safe and efficient design and production of engineering systems.

ELEMENTS OF ASSESSMENT *[Use HESA KIS definitions] – see Definitions of Elements and Components of Assessment*					
E1 (Examination)		**C1** (Coursework)	50 %	**P1** (Practical**)**	
E2 (Clinical Examination)		**A1** (Generic assessment)			
T1 (Test)	50%	**O1(online open book assessment)**			

SUBJECT ASSESSMENT PANEL to which module should be linked: FdSc Engineering

Professional body minimum pass mark requirement:

MODULE AIMS:
Introduction to Engineering Science principles to provide a broad knowledge and understanding of mechanical and electrical systems, to provide analytical techniques and knowledge required to complete a range of design scenarios and to prepare for further studies in Engineering.

ASSESSED LEARNING OUTCOMES: (additional guidance below; please refer to the Programme Specification for relevant Programme Intended Learning Outcomes.

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

Assessed Module Learning Outcomes (ALOs)	**Programme Intended Learning Outcomes (PILOs) contributed to**
1. Apply circuit theory to solve AC/DC passive circuits for resistance, current and power dissipation.	

2. Calculate static & dynamic theory to mechanical applications. 3. Demonstrate the ability to solve mechanical and electrical calculations for given scenarios	8.1.1, 8.1.2, 8.1.3, 8.2.2, 8.2.3

DATE OF APPROVAL: 26/05/2022	**FACULTY/OFFICE:** Academic Partnerships
DATE OF IMPLEMENTATION: 01/09/2022	**SCHOOL/PARTNER:** South Devon College
DATE(S) OF APPROVED CHANGE: XX/XX/XXXX	**SEMESTER:** Semester 1 & 2

Notes:

Additional Guidance for Learning Outcomes:

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

- Framework for Higher Education Qualifications http://www.qaa.ac.uk/docs/qaa/quality-code/qualifications-frameworks.pdf
- Subject benchmark statements https://www.qaa.ac.uk/quality-code/subject-benchmark-statements
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g. health and social care, medicine, engineering, psychology, architecture, teaching, law)
- QAA Quality Code https://www.qaa.ac.uk/quality-code

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

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

ACADEMIC YEAR: 2022/23
NATIONAL COST CENTRE: 115
MODULE LEADER: Ben Bryant (Mechanical), Jim Macaulay (Electrical)
OTHER MODULE STAFF: Rob Smith, Daniel Shuffell, Matthew Prowse, Carl Holden

Summary of Module Content

Introduction to circuit theorems, passive components, series and parallel circuits containing reactive components. Waveforms, filters, power, resonance, and transformer losses. Introduction to Vectors, forces and moments, Shear force and Bending moments, sectional properties, columns, Torsion. Linear and angular motion, energy systems and energy transfer, simple oscillating systems.

SUMMARY OF TEACHING AND LEARNING ***[Use HESA KIS definitions]***		
Scheduled Activities	**Hours**	**Comments/Additional Information (briefly explain activities, including formative assessment opportunities)**
Lectures, Practical and Tutorials	90	3 Hrs / week. 30 weeks.
Guided Independent Study	210	Moodle activities. Reading and research.
Total	**300**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)**

SUMMATIVE ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework	Technical report (LO1 and LO2). (3000-word count)	100 %
Test	In class, timed test (LO3). (3hr test) (1hr 30mins Electrical) (1hr 30 mins Mechanical)	100 %

REFERRAL ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework	Technical report (LO1 and LO2). (3000-word count)	100 %
Test	In class, timed test (LO3). (3hr test) (1hr 30mins Electrical) (1hr 30 mins Mechanical)	100%

To be completed when presented for Minor Change approval and/or annually updated	
Updated by: Ben Bryant Date: 15/02/2022	**Approved by**: Adrian Bevin Date: 15/02/2022

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: SOUD1536 **MODULE TITLE:** Manufacturing and Materials

CREDITS: 20 **FHEQ LEVEL:** 4 **HECOS CODE(S):** 100209, 100163, 100544

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

SHORT MODULE DESCRIPTOR: *(max 425 characters)*

This module provides an introduction to engineering material properties, selection and processing of materials for engineering applications, methods of inspection and tests. It continues to investigate the links between material structure, properties and appropriate manufacturing methods, materials properties and applies these to traditional and non-traditional manufacturing techniques. Students should gain knowledge of how material properties affect manufacturing choices.

ELEMENTS OF ASSESSMENT *[Use HESA KIS definitions] – see Definitions of Elements and Components of Assessment*					
E1 (Examination)	%	**C1** (Coursework)	100 %	**P1** (Practical**)**	%
E2 (Clinical Examination)	% or Pass/Fail	**A1** (Generic assessment)	Pass/Fail		
T1 (Test)	%	**O1(online open book assessment)**	%		

SUBJECT ASSESSMENT PANEL to which module should be linked: Engineering

Professional body minimum pass mark requirement:

MODULE AIMS:

To provide an introduction to the selection of materials based on structure, behaviour and processing methods available. An appreciation should be gained in the measurement of material properties and how these can be changed with strengthening techniques. Understanding the relationship between material selection and processing requirements by providing an introduction to manufacturing methods.

ASSESSED LEARNING OUTCOMES: (additional guidance below; please refer to the Programme Specification for relevant Programme Intended Learning Outcomes.

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

Assessed Module Learning Outcomes (ALOs)	**Programme Intended Learning Outcomes (PILOs) contributed to**
1. Discuss the basic structure, mechanical and physical properties of a range of common engineering materials. 2. Explain effects of processing methods available to alter structure and properties and show an ability to select materials for engineering applications.	8.1.1, 8.1.2 8.2.2, 8.2.3 8.5.1, 8.5.2, 8.5.3

3. Discuss and contrast traditional and novel manufacturing techniques. 4. Interpret laboratory results from practical workshops.	

DATE OF APPROVAL: 26/05/2022	**FACULTY/OFFICE:** Academic Partnerships
DATE OF IMPLEMENTATION: 01/09/2022	**SCHOOL/PARTNER:** South Devon College
DATE(S) OF APPROVED CHANGE: XX/XX/XXXX	**SEMESTER:** Semester 1

Notes:

Additional Guidance for Learning Outcomes:

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

- Framework for Higher Education Qualifications http://www.qaa.ac.uk/docs/qaa/quality-code/qualifications-frameworks.pdf
- Subject benchmark statements https://www.qaa.ac.uk/quality-code/subject-benchmark-statements
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g. health and social care, medicine, engineering, psychology, architecture, teaching, law)
- QAA Quality Code https://www.qaa.ac.uk/quality-code

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

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

ACADEMIC YEAR: 2022/23
MODULE LEADER: Ben Bryant

NATIONAL COST CENTRE:
OTHER MODULE STAFF: Matthew Prowse, Dan Shuffell, Carl Holden.

Summary of Module Content

This module will cover, Primary forming techniques, Secondary forming techniques, Properties of materials with qualitative descriptions of structure and effects of processing including destructive and non-destructive techniques. Modification techniques of material properties such as heat treatment / working/alloying. Finally applications of materials in engineering with relation to manufacturing industry techniques.

SUMMARY OF TEACHING AND LEARNING ***[Use HESA KIS definitions]***		
Scheduled Activities	**Hours**	**Comments/Additional Information (briefly explain activities, including formative assessment opportunities)**
Lectures, Practical and Tutorials	60	4 Hrs / week. 15 weeks.
Guided Independent Study	140	Moodle activities. Reading and research.
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)**

SUMMATIVE ASSESSMENT

Element Category	**Component Name**	**Component Weighting**
Coursework	Technical report (LO1, LO2) (2000-word count).	50%
	Technical report (LO3 and LO4)(2000-word count).	50%
		100 %

REFERRAL ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework	Technical report (LO1, LO2, LO3 and LO4).	100 %

To be completed when presented for Minor Change approval and/or annually updated	
Updated by: Ben Bryant Date: 15/02/2022	**Approved by**: Adrian Bevin Date: 15/02/2022

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: SOUD1538 **MODULE TITLE:** Engineering Project
CREDITS: 30 **FHEQ LEVEL:** 4 **HECOS CODE(S):** 100209, 100163, 100184
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y
SHORT MODULE DESCRIPTOR: *(max 425 characters)*
This module introduces students to the frameworks and structures that modern design principles and introduction to a CAD modelling software required for use within the industry. Students will explore the importance of engineers working as the link between theory and the needs of customers.

ELEMENTS OF ASSESSMENT *[Use HESA KIS definitions] – see Definitions of Elements and Components of Assessment*					
E1 (Examination)		**C1** (Coursework)	40 %	**P1** (Practical)	60 %
E2 (Clinical Examination)		**A1** (Generic assessment)			
T1 (Test)		**O1**(online time limited assessment)			

SUBJECT ASSESSMENT PANEL to which module should be linked: FdSc Engineering

Professional body minimum pass mark requirement:

MODULE AIMS:
This module aims to aid the learners in creating or improving the design of an Engineering system, problem or a determined project, to the stated requirements of a technical brief. Manage the risk of failure of the design of components/systems, with consideration to conflicting requirements, such as those of function, material and component selection, manufacturing methods and costs. To develop an understanding of structured design methodologies, approaches and linking into a CAD modelling software. To provide experience in planning and implementing design tasks as individuals and/or small collaborative groups.

ASSESSED LEARNING OUTCOMES: (additional guidance below; please refer to the Programme Specification for relevant Programme Intended Learning Outcomes.

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

Assessed Module Learning Outcomes (ALOs)	**Programme Intended Learning Outcomes (PILOs) contributed to**
1. Demonstrate the ability to research, identify and collate information relevant to an Engineering system, project, problem or idea. 2. Examine the design and operational characteristics of an Engineering system, project, problem or idea.	8.1.1, 8.1.2, 8.1.3 8.2.1, 8.2.2, 8.2.3 8.3.3

3. Design and model the concept for your chosen Engineering project with reference to a given technical brief. 4. Demonstrate the ability to work independently on your chosen project in a manner that meets professional requirements 5. Present and communicate the project outcome in styles appropriate for a variety of professional purposes and audiences.	8.4.2 8.5.1, 8.5.2, 8.5.3

DATE OF APPROVAL: 26/05/2022	**FACULTY/OFFICE:** Academic Partnerships
DATE OF IMPLEMENTATION: 01/09/2022	**SCHOOL/PARTNER:** South Devon College
DATE(S) OF APPROVED CHANGE: XX/XX/XXXX	**SEMESTER:** Semester 1 & 2

Notes:

Additional Guidance for Learning Outcomes:

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

- Framework for Higher Education Qualifications http://www.qaa.ac.uk/docs/qaa/quality-code/qualifications-frameworks.pdf
- Subject benchmark statements https://www.qaa.ac.uk/quality-code/subject-benchmark-statements
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g. health and social care, medicine, engineering, psychology, architecture, teaching, law)
- QAA Quality Code https://www.qaa.ac.uk/quality-code

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

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

ACADEMIC YEAR: 2022/23
MODULE LEADER: Ben Bryant

NATIONAL COST CENTRE:
OTHER MODULE STAFF: Daniel Shuffell, Jim Macaulay, Robert Smith, Carl Holden, Liam Moroney

Summary of Module Content

This module will cover, design theory frameworks and structures that modern design principles and introduction to a CAD modelling software required for use within the industry. Learners will undertake design processes development, analysis and concepts to provide technical data and reporting to aid the design process and practice. Finally, design realisation through concept generation, prototyping verification and presenting technical information and documentation to an audience.

SUMMARY OF TEACHING AND LEARNING ***[Use HESA KIS definitions]***		
Scheduled Activities	**Hours**	**Comments/Additional Information (briefly explain activities, including formative assessment opportunities)**
Lectures, Practical and Tutorials	90	3 Hrs / week. 30 weeks.
Guided Independent Study	210	Moodle activities. Reading and research.
Total	**300**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)**

SUMMATIVE ASSESSMENT

Element Category	**Component Name**	**Component Weighting**
Coursework	Technical report (LO1, LO2). (3000-word count)	100 %
Practical	Implementation of a design recorded through video logs and presentation. (LO3, LO4 and LO5).	100 %

REFERRAL ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework	Technical report (LO1, LO2). (3000-word count)	100%
Practical	Implementation of a design and presentation. (LO3, LO4 and LO5).	100%

To be completed when presented for Minor Change approval and/or annually updated	
Updated by: Ben Bryant Date: 15/02/2022	**Approved by**: Adrian Bevin Date: 15/02/2022

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: SOUD1540 **MODULE TITLE:** Engineering Mathematics
CREDITS: 20 **FHEQ LEVEL:** 4 **HECOS CODE(S):** 100209, 100163, 100544
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** N
SHORT MODULE DESCRIPTOR: *(max 425 characters)*
This module is designed to provide an introduction to mathematical principles that underpin the knowledge and skills required for an engineering environment. A focus will be made on applying mathematics to practical engineering scenarios, demonstrating an effective problem-solving methodology.

ELEMENTS OF ASSESSMENT *[Use HESA KIS definitions] – see Definitions of Elements and Components of Assessment*					
E1 (Examination)		**C1** (Coursework)	30 %	**P1** (Practical**)**	
E2 (Clinical Examination)		**A1** (Generic assessment)			
T1 (Test)	70 %	**O1** (online time limited assessment)			

SUBJECT ASSESSMENT PANEL to which module should be linked: FdSc Engineering

Professional body minimum pass mark requirement:

MODULE AIMS:
To provide a stable base of analytical knowledge and technique required to complete a range of design scenarios and to prepare for further studies in Engineering.

ASSESSED LEARNING OUTCOMES: (additional guidance below; please refer to the Programme Specification for relevant Programme Intended Learning Outcomes.

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

Assessed Module Learning Outcomes (ALOs)	**Programme Intended Learning Outcomes (PILOs) contributed to**
1. Analyse and provide solutions for a range of mathematical engineering problems, involving algebraic systems, trigonometrical methods, calculus and engineering statistical methods. 2. Demonstrate the ability to solve a range of technical calculations involving algebraic methods and engineering statistics. 3. Demonstrate the ability to solve a range of technical calculations involving Engineering Calculus and trigonometrical methods.	8.1.1, 8.1.2, 8.1.3

DATE OF APPROVAL: 26/05/2022	**FACULTY/OFFICE:** Academic Partnerships
DATE OF IMPLEMENTATION: 01/09/2022	**SCHOOL/PARTNER:** South Devon College
DATE(S) OF APPROVED CHANGE: XX/XX/XXXX	**SEMESTER:** Semester 1 & 2

Notes:

Additional Guidance for Learning Outcomes:

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

- Framework for Higher Education Qualifications http://www.qaa.ac.uk/docs/qaa/quality-code/qualifications-frameworks.pdf
- Subject benchmark statements https://www.qaa.ac.uk/quality-code/subject-benchmark-statements
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g. health and social care, medicine, engineering, psychology, architecture, teaching, law)
- QAA Quality Code https://www.qaa.ac.uk/quality-code

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

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ACADEMIC YEAR: 2022/23
MODULE LEADER: Rob Smith

NATIONAL COST CENTRE:
OTHER MODULE STAFF: Adrian Boatwright, Carl Holden, Roger Hopper, Jim Macaulay

Summary of Module Content

Polynomial Division, Number sequences and series, Linear equation systems. Sinusoidal functions and co-ordinate systems, waveform properties and synthesis. Theory and application of calculus with relevant subject examples. Methods to collect, analyse and display engineering data

SUMMARY OF TEACHING AND LEARNING ***[Use HESA KIS definitions]***		
Scheduled Activities	**Hours**	**Comments/Additional Information (briefly explain activities, including formative assessment opportunities)**
Lectures, Practical and Tutorials	60	4 Hrs / week. 15 weeks.
Guided Independent Study	140	Moodle activities. Reading and research.
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)**

SUMMATIVE ASSESSMENT

Element Category	**Component Name**	**Component Weighting**
Coursework	Technical report (LO1) (2000-word count).	100 %
Test	1-hour practical skills assessment (LO2). 1-hour practical skills assessment (LO3).	50% 50% Total: 100%

REFERRAL ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework	Technical report (LO1) (2000-word count).	100 %
Test	1-hour practical skills assessment (LO2). 1-hour practical skills assessment (LO3).	100%

To be completed when presented for Minor Change approval and/or annually updated	
Updated by: Rob Smith Date: 15/02/2022	**Approved by**: Ben Bryant Date: 15/02/2022

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: SOUD1541 **MODULE TITLE:** Naval Architecture and Propulsion
CREDITS: 20 **FHEQ LEVEL:** 4 **HECOS CODE(S):** 100544, 100194
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y

SHORT MODULE DESCRIPTOR: *(max 425 characters)*
This module introduces the student to the principles of Naval Architecture through practical design and calculation. Taking a step by step approach the following area of study will be covered, vessel form, production methods, determination and preservation of stability, static and dynamic forces acting on a vessel, resistance and propulsion calculations to determine power and predict performance. Methods of engine selection and typical plant arrangements will be explored. Investigation will be made into factors of manoeuvrability and vessel handling systems.

ELEMENTS OF ASSESSMENT *[Use HESA KIS definitions] – see Definitions of Elements and Components of Assessment*					
E1 (Examination)		**C1** (Coursework)	100 %	**P1** (Practical**)**	
E2 (Clinical Examination)		**A1** (Generic assessment)			
T1 (Test)		**O1** (online time limited assessment)			

SUBJECT ASSESSMENT PANEL to which module should be linked: FdSc Engineering

Professional body minimum pass mark requirement:

MODULE AIMS:
To provide a basic knowledge of how stability, static and dynamic forces working on a marine structure are of vital importance to the design of a vessel. These principles will be emphasised through practical design and calculations whilst linking the use of testing techniques to determine power and fuel consumption. To develop a comprehensive knowledge of marine propulsion power plants and factors in selection. Investigation will be held into how power is converted to propulsion by exploring transmission systems and propeller types. Handling systems will also be described and factors affecting manoeuvrability

ASSESSED LEARNING OUTCOMES: (additional guidance below; please refer to the Programme Specification for relevant Programme Intended Learning Outcomes.

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

Assessed Module Learning Outcomes (ALOs)	**Programme Intended Learning Outcomes (PILOs) contributed to**
1. Use computer software to draft concepts and produce models for manufacture and testing and Determine stability at small and large angles of heel.	8.1.1, 8.1.2, 8.1.3

2. Appreciate the varied forces acting on marine structures using static and dynamic calculations and apply mathematical and computer aided methods to determine vessel resistance to calculate power and expected fuel consumption 3. Investigate current power plant systems used in marine vessels and select engines to meet customer design requirements whilst Identifying typical components in a modern marine power plant transmission system 4. Explore the principle involved in propeller design, selection and appreciate the factors involved in the design and selection of vessel handling systems with appreciation for manoeuvrability.	8.2.1, 8.2.2, 8.2.3 8.3.1 8.5.1, 8.5.2, 8.5.3

DATE OF APPROVAL: 26/05/2022	**FACULTY/OFFICE:** Academic Partnerships
DATE OF IMPLEMENTATION: 01/09/2022	**SCHOOL/PARTNER:** South Devon College
DATE(S) OF APPROVED CHANGE: XX/XX/XXXX	**SEMESTER:** Semester 2

Notes:

Additional Guidance for Learning Outcomes:

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

- Framework for Higher Education Qualifications http://www.qaa.ac.uk/docs/qaa/quality-code/qualifications-frameworks.pdf
- Subject benchmark statements https://www.qaa.ac.uk/quality-code/subject-benchmark-statements
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g. health and social care, medicine, engineering, psychology, architecture, teaching, law)
- QAA Quality Code https://www.qaa.ac.uk/quality-code

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

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

ACADEMIC YEAR: 2022/23 **NATIONAL COST CENTRE:**
MODULE LEADER: Matt Prowse **OTHER MODULE STAFF:** Ben Bryant

Summary of Module Content

Introduction to vessel design and construction principles including hull form, comparison coefficients and lines plan construction to identify key dimensions and location of centre of gravity Determine stability at small and large angles of heel, stability concepts, calculation of GZ curves Principles of loading and damage stability along with flooding of compartments and measure to improve stability Calculate loading conditions and forces acting on a vessel including static and dynamic calculations Identify ship resistance in powering calculations and methods to predict performance. Introduction to main gearing and shafting including design requirements and terminology, transmission of propulsion, Couplings and clutch arrangements. Plant construction and setting-up: techniques, gearing alignment and shaft alignment. Propeller design and types including fixed and controllable pitch propellers. Propeller power calculations, indicated power, shaft power; delivered power, thrust power and theoretical speed, propeller efficiency (thrust power and delivered power); propeller data; resistance prediction; ship and propeller interaction; propeller tests. Ship manoeuvrability systems with rudder types and forces. Low speed ship handling systems propulsion types and configurations: thrusters including azimuth, L-drive and Z drive.

SUMMARY OF TEACHING AND LEARNING ***[Use HESA KIS definitions]***		
Scheduled Activities	**Hours**	**Comments/Additional Information (briefly explain activities, including formative assessment opportunities)**
Lectures, Practical and Tutorials	60	4 Hrs / week. 15 weeks.
Guided Independent Study	140	Moodle activities. Reading and research.
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)**

SUMMATIVE ASSESSMENT

Element Category	**Component Name**	**Component Weighting**
Coursework	Technical calculations and summary report of CAD drawing and Model linked to LO1, LO2. Technical Report with supporting calculations linked to LO3, LO4.	50 % 50% 100%

REFERRAL ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework	Technical calculations and summary report (LO1, LO2, LO3 and LO4).	100 %

To be completed when presented for Minor Change approval and/or annually updated	
Updated by: Matt Prowse Date: 15/02/2022	**Approved by**: Ben Bryant Date: 15/02/2022

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: SOUD2486 **MODULE TITLE:** Computer Aided Engineering
CREDITS: 20 **FHEQ LEVEL: 5** **HECOS CODE(S):** 100202, 100209, 100182
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y

SHORT MODULE DESCRIPTOR: *(max 425 characters)*
This module provides knowledge and understanding of how CAE software can be used to solve, improve and resolve product design and engineering problems for a wide range of industries. An overview through design for manufacture, parametric modelling and design simulation modelling, to the output of models for post-processing and final realisation onto Computer Controlled production systems. Each stage is supported with hands-on practice and realistic component requirements.

ELEMENTS OF ASSESSMENT *[Use HESA KIS definitions] – see Definitions of Elements and Components of Assessment*					
E1 (Examination)		**C1** (Coursework)	60 %	**P1** (Practical**)**	40 %
E2 (Clinical Examination)		**A1** (Generic assessment)			
T1 (Test)		**O1** (online time limited assessment)			

SUBJECT ASSESSMENT PANEL to which module should be linked: FdSc Engineering

Professional body minimum pass mark requirement: Not Applicable

MODULE AIMS:
To introduce students to the concept of Computer-aided engineering (CAE) and the use of computer software to simulate performance to improve product designs or assist in the resolution of engineering problems for a wide range of industries. This includes simulation, validation and optimization of products, processes, and manufacturing tools.

ASSESSED LEARNING OUTCOMES: (additional guidance below; please refer to the Programme Specification for relevant Programme Intended Learning Outcomes.

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

Assessed Module Learning Outcomes (ALOs)	**Programme Intended Learning Outcomes (PILOs) contributed to**
1. Implement a combination of Mathematical, Parametric analysis and FEA modelling software to enhance a CAD model. 2. Validate FEA solutions for the design criteria and analyse the results. 3. Generate associated CAD CAM documentation to undertake CAM modelling	2.6.1.1, 2.6.1.2, 2.6.1.3 2.6.2.1, 2.6.2.2, 2.6.2.3 2.6.3.2, 2.6.3.3

and output machine data, for a given manufacturing problem. 4. Test and validate your machine output data on a machining or prototyping equipment. 5. Present, discuss and justify findings to a team of engineering peers.	2.6.4.1, 2.6.4.2 2.6.5.1, 2.6.5.2, 2.6.5.3

DATE OF APPROVAL: 26/05/2022	**FACULTY/OFFICE:** Academic Partnerships
DATE OF IMPLEMENTATION: 01/09/2022	**SCHOOL/PARTNER:** South Devon College
DATE(S) OF APPROVED CHANGE: XX/XX/XXXX	**SEMESTER:** Semester 2
Notes:	

Additional Guidance for Learning Outcomes:

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

- Subject benchmark statements https://www.qaa.ac.uk/quality-code/subject-benchmark-statements
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g. health and social care, medicine, engineering, psychology, architecture, teaching, law)

QAA Quality Code https://www.qaa.ac.uk/quality-code

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

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ACADEMIC YEAR: 2022/23 **NATIONAL COST CENTRE:** 120
MODULE LEADER: Daniel Shuffell **OTHER MODULE STAFF:** Ben Bryant

Summary of Module Content

SUMMARY OF TEACHING AND LEARNING *[Use HESA KIS definitions]*		
Scheduled Activities	**Hours**	**Comments/Additional Information (briefly explain activities, including formative assessment opportunities)**
Lectures, Practical and Tutorials	45	3 Hrs / week. 15 weeks.
Guided Independent Study	155	Moodle activities. Reading and research.
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)**

Mathematical modelling techniques and software (eg hand calculations, Excel, SMATH, MathCAD, LabView). Direct CAM 2D design software (eg MasterCam), indirect 2D Design software (eg AutoCad), Parametric Design software (e.g. Inventor, Pro-E, Solidworks). Top-down design, design optimisation, manufacturing considerations in design. Design analysis (eg simulation, flow analysis, stress analysis, environmental analysis). 2D Data post-processing, 3D data exchange and processing limitations. NC Machine setting and validation through traditional NC machines, non-traditional low volume / high value/prototyping techniques and incorporating design testing & validation techniques.

SUMMATIVE ASSESSMENT

Element Category	**Component Name**	**Component Weighting**
Coursework	Technical report (LO1, LO2 and LO3). (2500-word count).	100 %
Practical	Technical presentation and operate equipment (LO4 and LO5).	100 %

REFERRAL ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework	Technical report (LO1, LO2 and LO3). (2500-word count). New.	100 %
Practical	Technical presentation and operate equipment (LO4 and LO5). New.	100 %

To be completed when presented for Minor Change approval and/or annually updated	
Updated by: Ben Bryant Date: 15/02/2022	**Approved by**: Adrian Bevin Date: 15/02/2022

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: SOUD2489 **MODULE TITLE:** Engineering Build

CREDITS: 20 **FHEQ LEVEL: 5** **HECOS CODE(S):** 100209, 100163, 100184

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

SHORT MODULE DESCRIPTOR: *(max 425 characters)*
An introduction to the theory, practice and the application of engineering systems will be explored within this module focussing on the design, build construction and simulation. The module will also focus on practical skills within a system environment linked to the learner pathway.

ELEMENTS OF ASSESSMENT *[Use HESA KIS definitions] – see Definitions of Elements and Components of Assessment*					
E1 (Examination)		**C1** (Coursework)	30 %	**P1** (Practical**)**	70 %
E2 (Clinical Examination)		**A1** (Generic assessment)			
T1 (Test)		**O1** (online time limited assessment)			

SUBJECT ASSESSMENT PANEL to which module should be linked: FdSc Engineering

Professional body minimum pass mark requirement: Not Applicable

MODULE AIMS:
The module aims to provide awareness of engineering systems, and improve students' practical skills through a guided design and build exercise linked to their chosen pathway. Learners will demonstrate an ability to work collaboratively in small groups to design and build a system of medium complexity and to document theoretical and practical data linked to the relevant chosen field.

ASSESSED LEARNING OUTCOMES: (additional guidance below; please refer to the Programme Specification for relevant Programme Intended Learning Outcomes.

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

Assessed Module Learning Outcomes (ALOs)	**Programme Intended Learning Outcomes (PILOs) contributed to**
1. Implement knowledge and awareness of a range of topics relevant to an engineered system. 2. Conceptualise, design and build a simple autonomous engineering system under the guidance of lecturers and technicians.	2.6.1.1, 2.6.1.2, 2.6.1.3 2.6.2.2, 2.6.2.3 2.6.3.2, 2.6.3.3 2.6.4.2, 2.6.4.3 2.6.5.1, 2.6.5.2, 2.6.5.3

3. Document the theoretical content and practical activities of the project in the form of a portfolio presentation.	

DATE OF APPROVAL: 26/05/2022	**FACULTY/OFFICE:** Academic Partnerships
DATE OF IMPLEMENTATION: 01/09/2022	**SCHOOL/PARTNER:** South Devon College
DATE(S) OF APPROVED CHANGE: XX/XX/XXXX	**SEMESTER:** Semester 2
Notes:	

Additional Guidance for Learning Outcomes:

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

- Subject benchmark statements https://www.qaa.ac.uk/quality-code/subject-benchmark-statements
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g. health and social care, medicine, engineering, psychology, architecture, teaching, law)

QAA Quality Code https://www.qaa.ac.uk/quality-code

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

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ACADEMIC YEAR: 2022/23
MODULE LEADER: Rob Smith

NATIONAL COST CENTRE: 115
OTHER MODULE STAFF: Ben Bryant, Daniel Shuffell, Jim Macaulay, Carl Holden

Summary of Module Content

SUMMARY OF TEACHING AND LEARNING *[Use HESA KIS definitions]*		
Scheduled Activities	**Hours**	**Comments/Additional Information (briefly explain activities, including formative assessment opportunities)**
Lectures, Practical and Tutorials	45	3 Hrs / week. 15 weeks.
Guided Independent Study	155	Moodle activities. Reading and research.
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)**

Introduction to an engineering system problem including the elements of assessment, system design process and cycle, project development, practical problems with real systems – robustness and sustainability etc., The choice of parts including motors, gears etc. Mechatronics system "build and test", robotics, optics or hybrid engineering systems.

SUMMATIVE ASSESSMENT

Element Category	**Component Name**	**Component Weighting**
Coursework	Portfolio presentation (LO3). (1000-word count equivalent)	100 %
Practical	Practical observation of the engineering scenario (LO1 and LO2).	100 %

REFERRAL ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework	Portfolio presentation (LO3). (1000-word count equivalent). New.	100 %
Practical	Practical observation of the engineering scenario (LO1 and LO2). New.	100 %

To be completed when presented for Minor Change approval and/or annually updated	
Updated by: Rob Smith Date: 15/02/2022	**Approved by**: Ben Bryant Date: 15/02/2022

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: SOUD2490 **MODULE TITLE:** Engineering Business, Quality and Project Management

CREDITS: 20 **FHEQ LEVEL: 5** **HECOS CODE(S):** 100202, 100209, 100182

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

SHORT MODULE DESCRIPTOR: *(max 425 characters)*
This module provides students with an understanding of how businesses operate within the engineering sector. From Total Quality Management within engineering organisations such as Six Sigma techniques, resource management and lean manufacturing to the disciplines of successful Project Management.

ELEMENTS OF ASSESSMENT *[Use HESA KIS definitions] – see Definitions of Elements and Components of Assessment*					
E1 (Examination)		**C1** (Coursework)	100 %	**P1** (Practical**)**	
E2 (Clinical Examination)		**A1** (Generic assessment)			
T1 (Test)		**O1** (online time limited assessment)			

SUBJECT ASSESSMENT PANEL to which module should be linked: FdSc Engineering

Professional body minimum pass mark requirement: Not Applicable

MODULE AIMS:
To provide students with an understanding of the role of business management within an engineering organisation, how quality management can affect the organisation output to become more efficient or autonomous and the effects of decisions made within the management core.

ASSESSED LEARNING OUTCOMES: (additional guidance below; please refer to the Programme Specification for relevant Programme Intended Learning Outcomes.

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

Assessed Module Learning Outcomes (ALOs)	**Programme Intended Learning Outcomes (PILOs) contributed to**
1. Evaluate common core business strategies linking to an engineering organisation. 2. Examine the move towards total quality management and the methods involved. 3. Apply suitable statistical and mathematical techniques to a given Quality Management scenario.	2.6.1.1, 2.6.1.2, 2.6.1.3 2.6.2.2 2.6.3.2, 2.6.3.3 2.6.4.1, 2.6.4.2

4. Identify suitable Project Management techniques to a given scenario. 5. Critically analyse aspects of project management utilising relevant disciplines for a given scenario.	

DATE OF APPROVAL: 26/05/2022	**FACULTY/OFFICE:** Academic Partnerships
DATE OF IMPLEMENTATION: 01/09/2022	**SCHOOL/PARTNER:** South Devon College
DATE(S) OF APPROVED CHANGE: XX/XX/XXXX	**SEMESTER:** Semester 1
Notes:	

Additional Guidance for Learning Outcomes:

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

- Subject benchmark statements https://www.qaa.ac.uk/quality-code/subject-benchmark-statements
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g. health and social care, medicine, engineering, psychology, architecture, teaching, law)

QAA Quality Code https://www.qaa.ac.uk/quality-code

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

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

ACADEMIC YEAR: 2022/23
MODULE LEADER: Ben Bryant

NATIONAL COST CENTRE: 115
OTHER MODULE STAFF: Andrew Faulkner ,Jim Macaulay, Simon Mills

Summary of Module Content

SUMMARY OF TEACHING AND LEARNING *[Use HESA KIS definitions]*		
Scheduled Activities	**Hours**	**Comments/Additional Information (briefly explain activities, including formative assessment opportunities)**
Lectures, Practical and Tutorials	45	3 Hrs / week. 15 weeks.
Guided Independent Study	155	Moodle activities. Reading and research.
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)**

Business common core strategies linking to finance, funds, capital investment etc. Forecasting, strategic planning, inventory planning, KANBAN, SMED, JIT, Key Performance Indicators, scheduling, cost modelling. Six Sigma, TQM, rolled throughput yield, hidden factory, SPC, lean manufacturing. Project context, governance, scope, scheduling, financial management. Project risks, quality, ethics and contracts.

SUMMATIVE ASSESSMENT

Element Category	**Component Name**	**Component Weighting**
Coursework	Technical report (LO1, LO4 and LO5) (2000-word count)	50 %
	Technical report (LO2 and LO3) (2000-word count)	50%
		100%

REFERRAL ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework	Technical report (LO1, LO2, LO3, LO4 and LO5). New.	100 %

To be completed when presented for Minor Change approval and/or annually updated	
Updated by: Ben Bryant Date: 15/02/2022	**Approved by**: Adrian Bevin Date: 15/02/2022

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: SOUD2491 **MODULE TITLE:** Independent Research Project
CREDITS: 20 **FHEQ LEVEL: 5** **HECOS CODE(S):** 100209, 100163, 100184
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y
SHORT MODULE DESCRIPTOR: *(max 425 characters)*
This module provides students with the opportunity to plan, research, produce and reflect upon the findings of a research project relevant to their chosen Engineering pathway and/or Industry.

ELEMENTS OF ASSESSMENT *[Use HESA KIS definitions] – see Definitions of Elements and Components of Assessment*					
E1 (Examination)		**C1** (Coursework)	100 %	**P1** (Practical**)**	
E2 (Clinical Examination)		**A1** (Generic assessment)			
T1 (Test)		**O1** (online time limited assessment)			

SUBJECT ASSESSMENT PANEL to which module should be linked: FdSc Engineering

Professional body minimum pass mark requirement: Not Applicable

MODULE AIMS:
To further develop research skills through the planning of and the completion of an independent research project. To critically analyse and evaluate suitable research methods for the project. To effectively disseminate research findings from the project.

ASSESSED LEARNING OUTCOMES: (additional guidance below; please refer to the Programme Specification for relevant Programme Intended Learning Outcomes.

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

Assessed Module Learning Outcomes (ALOs)	**Programme Intended Learning Outcomes (PILOs) contributed to**
1. Apply appropriate principles and concepts to the development of a project including evidencing appropriate risk management and ethical data collection considerations. 2. Propose appropriate solutions and recommendations within ethical standards and legal restrictions, plan for and collect suitable data, using appropriate methods. 3. Interpret the data collected within the parameters of the project. 4. Disseminate the findings of research using appropriate formats.	2.6.2.1 2.6.3.1, 2.6.3.3 2.6.4.1, 2.6.4.2, 2.6.4.3 2.6.5.1, 2.6.5.2

DATE OF APPROVAL: 26/05/2022	**FACULTY/OFFICE:** Academic Partnerships
DATE OF IMPLEMENTATION: 01/09/2022	**SCHOOL/PARTNER:** South Devon College
DATE(S) OF APPROVED CHANGE: XX/XX/XXXX	**SEMESTER:** Semester 1 & 2
Notes:	

Additional Guidance for Learning Outcomes:

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

- Subject benchmark statements https://www.qaa.ac.uk/quality-code/subject-benchmark-statements
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g. health and social care, medicine, engineering, psychology, architecture, teaching, law)

QAA Quality Code https://www.qaa.ac.uk/quality-code

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

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

ACADEMIC YEAR: 2022/23
MODULE LEADER: Ben Bryant

NATIONAL COST CENTRE: 115
OTHER MODULE STAFF: Matthew Prowse, Geoff Jaggs, Jim Macaulay, Rob Smith, Dan Shuffell

Summary of Module Content

SUMMARY OF TEACHING AND LEARNING *[Use HESA KIS definitions]*		
Scheduled Activities	**Hours**	**Comments/Additional Information (briefly explain activities, including formative assessment opportunities)**
Lectures, Practical and Tutorials	45	3 Hrs / week. 15 weeks.
Guided Independent Study	155	Moodle activities. Reading and research.
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)**

Conduct an independent research project, across the module the learner will undertake; Action planning, data collection/ handling and time management. Application of research skills, data interpretation, application and presentation and finally, personal reflection and appraisal.

SUMMATIVE ASSESSMENT

Element Category	**Component Name**	**Component Weighting**
Coursework	Project proposal (LO1). (1000-word count)	25 %
	Project report (Methodology, Data and Findings) (LO2, LO3 and LO4) (3000-word count)	75 % Total: 100%

REFERRAL ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework	Project Report (LO1, LO2, LO3 and LO4). New.	100 %

To be completed when presented for Minor Change approval and/or annually updated	
Updated by: Ben Bryant Date: 15/02/2022	**Approved by**: Adrian Bevin Date: 15/02/2022

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: SOUD2500 **MODULE TITLE:** Marine Engineering Systems
CREDITS: 20 **FHEQ LEVEL: 5** **HECOS CODE(S):** 100544, 100194
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y

SHORT MODULE DESCRIPTOR: *(max 425 characters)*
This module introduces the systems required for the safe and proficient operation of a vessel at sea. A detailed appreciation will be gained for the systems commonly operating in modern day vessels and particularly the growing luxurious market in the marine industry. Practical skills will be adopted to appreciate the systems and enable knowledge in the design and manufacture of marine components.

ELEMENTS OF ASSESSMENT *[Use HESA KIS definitions] – see Definitions of Elements and Components of Assessment*					
E1 (Examination)		**C1** (Coursework)	100 %	**P1** (Practical**)**	
E2 (Clinical Examination)		**A1** (Generic assessment)			
T1 (Test)		**O1** (online time limited assessment)			

SUBJECT ASSESSMENT PANEL to which module should be linked: FdSc Engineering

Professional body minimum pass mark requirement: Not applicable.

MODULE AIMS:
To provide an introduction to the design and justification of marine engineering systems found on vessels including hydraulic, HVAC, water and fire. Students will be required to present design proposals to a variety of system requirements whilst appreciation will be made on the practical and financial constraints of each system whilst providing justification in the form of calculation to reinforce proposals.

ASSESSED LEARNING OUTCOMES: (additional guidance below; please refer to the Programme Specification for relevant Programme Intended Learning Outcomes.

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

Assessed Module Learning Outcomes (ALOs)	**Programme Intended Learning Outcomes (PILOs) contributed to**
1. Analyse the typical systems found on marine vessels including hydraulic, HVAC, water, fire and electrical distribution. 2. Apply systems through practical and financial justification	2.6.1.1, 2.6.1.2, 2.6.1.3 2.6.2.1, 2.6.2.2, 2.6.2.3 2.6.3.1, 2.6.3.2, 2.6.3.3 2.6.4.1 2.6.5.1, 2.6.5.2, 2.6.5.3

3. Present a design proposal meeting which reflects design specification, knowledge and appreciation of marine engineering systems. 4. Provide calculations to reinforce design selection and proposal.	

DATE OF APPROVAL: 26/05/2022	**FACULTY/OFFICE:** Academic Partnerships
DATE OF IMPLEMENTATION: 01/09/2022	**SCHOOL/PARTNER:** South Devon College
DATE(S) OF APPROVED CHANGE: XX/XX/XXXX	**SEMESTER:** Semester 1
Notes:	

Additional Guidance for Learning Outcomes:

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

- Subject benchmark statements https://www.qaa.ac.uk/quality-code/subject-benchmark-statements
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g. health and social care, medicine, engineering, psychology, architecture, teaching, law)

QAA Quality Code https://www.qaa.ac.uk/quality-code

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

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ACADEMIC YEAR: 2022/23 **NATIONAL COST CENTRE:** 115
MODULE LEADER: Matt Prowse **OTHER MODULE STAFF:**

Summary of Module Content

SUMMARY OF TEACHING AND LEARNING *[Use HESA KIS definitions]*		
Scheduled Activities	**Hours**	**Comments/Additional Information (briefly explain activities, including formative assessment opportunities)**
Lectures, Practical and Tutorials	45	3 Hrs / week. 15 weeks.
Guided Independent Study	155	Moodle activities. Reading and research.
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)**

Typical systems found on marine vessels including hydraulic, HVAC, water, fire and electrical distribution. Through practical and financial justification, sourcing and pricing Review specifications of existing vessels which reflects knowledge and appreciation of marine engineering systems. Evaluate calculations to reinforce design selection and proposal.

SUMMATIVE ASSESSMENT

Element Category	**Component Name**	**Component Weighting**
Coursework	Design proposal (LO3 and LO4).	50 %
	Technical report with supporting calculations (LO1 and LO2).	50 % Total 100%

REFERRAL ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework	Technical Report (LO1, LO2, LO3 and LO4). New.	100 %

To be completed when presented for Minor Change approval and/or annually updated	
Updated by: Matt Prowse Date: 15/02/2022	**Approved by**: Ben Bryant Date: 15/02/2022

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: SOUD2499 **MODULE TITLE:** Composite Materials and Manufacture
CREDITS: 20 **FHEQ LEVEL: 5** **HECOS CODE(S):** 100544, 100194
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y
SHORT MODULE DESCRIPTOR: *(max 425 characters)*
This module provides the student with an in depth knowledge of Composite Materials and Manufacturing techniques. Topics covered include, evaluation of existing composite materials and processing techniques and tailoring composite components to meet a design specification along with current standards and testing procedures relevant to application. Mathematical prediction of composite properties will also be evaluated.

ELEMENTS OF ASSESSMENT *[Use HESA KIS definitions] – see Definitions of Elements and Components of Assessment*					
E1 (Examination)		**C1** (Coursework)	100 %	**P1** (Practical**)**	
E2 (Clinical Examination)		**A1** (Generic assessment)			
T1 (Test)		**O1** (online time limited assessment)			

SUBJECT ASSESSMENT PANEL to which module should be linked: FdSc Engineering

Professional body minimum pass mark requirement: Not applicable.

MODULE AIMS:
To enable students to apply knowledge of composite materials and manufacturing techniques to practical component design and manufacturing techniques.

ASSESSED LEARNING OUTCOMES: (additional guidance below; please refer to the Programme Specification for relevant Programme Intended Learning Outcomes.

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

Assessed Module Learning Outcomes (ALOs)	**Programme Intended Learning Outcomes (PILOs) contributed to**
1. Evaluate mould construction techniques utilised in the composite manufacturing industry 2. Critically evaluate the materials used in preparation and manufacturing for composite production 3. Apply theories and methods for analysis and design of composite structures.	2.6.1.1, 2.6.1.2, 2.6.1.3 2.6.2.1, 2.6.2.2, 2.6.2.3 2.6.3.1 2.6.4.1, 2.6.4.2 2.6.5.1, 2.6.5.2, 2.6.5.3

4. Evaluate composite performance using mathematical calculations and prediction techniques that meet technical build compliance	

DATE OF APPROVAL: 26/05/2022	**FACULTY/OFFICE:** Academic Partnerships
DATE OF IMPLEMENTATION: 01/09/2022	**SCHOOL/PARTNER:** South Devon College
DATE(S) OF APPROVED CHANGE: XX/XX/XXXX	**SEMESTER:** Semester 2
Notes:	

Additional Guidance for Learning Outcomes:

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

- Subject benchmark statements https://www.qaa.ac.uk/quality-code/subject-benchmark-statements
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g. health and social care, medicine, engineering, psychology, architecture, teaching, law)

QAA Quality Code https://www.qaa.ac.uk/quality-code

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

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ACADEMIC YEAR: 2022/23 **NATIONAL COST CENTRE:** 120
MODULE LEADER: Matt Prowse **OTHER MODULE STAFF:**

Summary of Module Content

SUMMARY OF TEACHING AND LEARNING ***[Use HESA KIS definitions]***		
Scheduled Activities	**Hours**	**Comments/Additional Information (briefly explain activities, including formative assessment opportunities)**
Lectures, Practical and Tutorials	45	3 Hrs / week. 15 weeks.
Guided Independent Study	155	Moodle activities. Reading and research.
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)**

Health and safety in the workshop environment General overview and practical handling of materials and manufacturing methods. Practical appreciation for the marine environment emphasising the requirements for composite materials and structures. Manufacturing defects Classification codes and standards. Long term properties of composites (fatigue, corrosion...). Coatings for marine composite structure Mathematical prediction of composite properties End of life considerations.

SUMMATIVE ASSESSMENT

Element Category	**Component Name**	**Component Weighting**
Coursework	Summary report (LO1 and LO3).	50 %
	Investigation report with supporting calculations (LO2 and LO4).	50 % Total 100%

REFERRAL ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework	Technical report (LO1, LO2, LO3 and LO4). New.	100 %

To be completed when presented for Minor Change approval and/or annually updated	
Updated by: Matt Prowse Date: 15/02/2022	**Approved by**: Ben Bryant Date: 15/02/2022