



**MLA
COLLEGE**



PROGRAMME QUALITY HANDBOOK

2021 - 2022

BSc (Hons) Maritime Technology (Engineering)

BSc (Hons) Maritime Technology (Electro Technical)

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1. Introduction

Welcome to MLA College. We are delighted that you have chosen to study with us. This programme has been designed to equip you with the skills and knowledge base required to work in your chosen specialism within the Qatari Emiri Navy. It is also a platform from which you can undertake additional vocational and academic qualifications. We will do all we can to ensure sure you get the maximum benefit from your time studying with us.

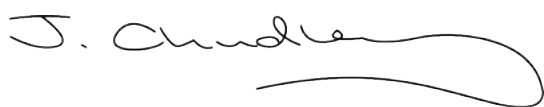
You will already know that MLA College is internationally recognised for its excellent reputation, and you will also benefit from the consistently high standards and expectations MLA College, alongside Dahra Global, brings to all aspects of its teaching and learning.

You will find that all staff are dedicated to ensuring you have the best experience possible. As well as being professional, intellectually challenging and up to date in their knowledge of the subject matter, we ensure that those teaching you do so in a research-informed, creative, responsive and engaging way. Your tutors are supported by highly experienced professional colleagues who are here to give you advice and guidance on all aspects of your studies.

As a student at MLA College and the University of Plymouth your feedback is important to allow us to continually develop our programmes. We have in place a number of surveys conducted by MLA College during your period of registration. Please do take the time to complete these surveys which will inform our plans to ensure all students continue to receive the best possible experience during their time with us.

We want you to enjoy the best study experience possible and we're here to help create the best opportunities for what you want to do next.

Welcome again to the MLA College and good luck in your studies.



Professor John Chudley, Rector

2. About this handbook

This Programme Quality handbook contains important information including:

- The approved programme specification
- Module records

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

- our [MLA College Student Handbook](#) which contains student support-based information on issues such as finance and studying at HE
- Your [University of Plymouth Student Handbook](#)

3. Programme specification

Programme Title: BSc (Hons) Maritime Technology (Engineering)
BSc (Hons) Maritime Technology (Electro Technical)

Partner Delivering Institution: MLA College

Start Date: Academic Year 2021-22 (February 2022)

First Award Date: 2025

Date(s) of Revision(s) to this Document:

New Programme Approval 15th June 2021

This programme specification template aligns with recommendations within the UK Quality Code for Higher Education¹. The information provided, by the programme proposer, in each section is definitively agreed between the delivering institution and University of Plymouth at approval. Therefore, any requests for changes to content (post the conditions set at approval) must follow University of Plymouth's procedures for making changes to partnership programmes².

1 QAA, 2015, Chapter B1: programme [Design, development and Approval](#)

2 If required please contact Academic Partnerships Programme Administration for assistance.

Programme Details

| | |
|--|--|
| Awarding Institution: | University of Plymouth |
| Partner Institution and delivery site(s): | MLA College, The Merchant, St Andrew Street, Plymouth, PL1 2AX |
| Accrediting Body: | N/A |
| Language of Study: | English ¹ |
| Mode of Study: | Full time |
| Final Award: | BSc Hons |
| Intermediate Award: | None |
| Programme Title: | BSc (Hons) Maritime Technology (Engineering) BSc (Hons) Maritime Technology (Electro Technical) |
| UCAS Code: | N/A Applications handled directly |
| HECOS Code: | 100194 Marine Technology |
| Benchmarks: | <p>Framework for Higher Education Qualifications (FHEQ);</p> <p>The QAA Engineering Subject Benchmark Statement The Engineering Council, UK Standard for Professional Engineering Competence (UK-SPEC)</p> <p>“SEEC Credit Level Descriptors for Higher Education”, Southern England Consortium for Credit Accumulation and Transfer (SEEC), 2010.</p> |
| Date of Programme Approval: | 15th June 2021 |

¹ Unless otherwise approved through Plymouth University’s Academic Development and Partnerships Committee

3.1 Brief description of the Programme

This is a 3-year programme, fully residential at the “Mohammed Bin Ghanim Al Ghanim Naval Academy” leading to a BSc (Hons) Maritime Technology (Engineering) or (Electro Technical). The Programme focuses on marine engineering, electro technical, IT and cybersecurity, shipboard engineering operations and safety and specialised naval studies. Graduates from this programme are expected to be able to “Operate, Maintain and Repair” engineering and electro technical parts of a naval vessel. Education and training is supported by availability and use of specifically designed training vessels, which would cater for practical experience and time at sea in between semesters, as well as ship visits during the semester when required. The Mohammed Bin Ghanim Al Ghanim Naval Academy is equipped with the state-of-the-art maritime (Bridge, engine room, and naval) simulation facilities, as well as state-of-the-art laboratories, workshops, and learning hubs (library).

The programme is designed around a blended approach and fully supports student learning through lectures, tutorial, laboratory and workshop sessions, ample time in simulation facilities as well as time onboard training vessels providing a blended learning student experience. Graduates would have received education and practical experience to work as future Naval Officers in Qatar Emiri Navy (QEN) and act in accordance with the United Nations Convention for Law of the Sea (UNCLOS) protecting the national resources within the state of Qatar territorial waters and providing the nation with naval protection.

The programme develops academic knowledge and skills required to study the complex interaction of the marine environment, the human element and technology. Such student development is enabled by the combination of academic and professional expertise that the staff provide. The professional expertise has often been developed in former careers including ship command, as deck and engineer officers in both the Merchant Navy and Naval forces, or in senior company management.

Whilst the programme design has considered the standards and competencies required under the IMO’s International Convention on “Standards of Training, Certification, and Watchkeeping (STCW)” it is not envisaged that graduates will be following the Merchant Navy career route.

3.2 Details of Accreditation by a Professional/Statutory Body (if appropriate)

None.

3.3 Exceptions to University of Plymouth Regulations (Non-Standard Regulations)

Note: University of Plymouth's Academic Regulations are available via [their website](#).

The University's Academic Regulations are implemented in full, with the exceptions below:

Approved by the University of Plymouth on 15th June 2021.

Instant Referrals in the event of Failure or Non-Submission: with or without submission of a valid Extenuating Circumstances claim, may be approved through MLA College's Interim Assessment and Award Board (IAAB) which then reports to the next scheduled UoP Subject Assessment Panel (SAP) and/or Award Assessment Board (AAB).

Withdrawal: any removal of recruits by the Qatari Emiri Navy will preclude that/those specific student(s) from continuing their studies on, and therefore equate to interruption of or withdrawal from, this award. For QEN driven withdrawal from modules, which may equate to full interruption of study, the student(s) will retain their attempt number when they return. For QEN driven full withdrawal from programme the Award Assessment Board will ratify the withdrawal, award any credits already gained, and retain the student(s)'s attempt number to protect any instance that would allow the student to return.

10 Credit Modules: to enable recruits and the QEN to consider all packages of study, i.e. modules, as starting and finishing within semesters, this programme is approved to include 10 credit modules, rather than the regulatory minimum of 20, within its programme structure.

Figure 3.3.1: Referral/Repeat flow for students interrupting before the completion of an undergraduate module

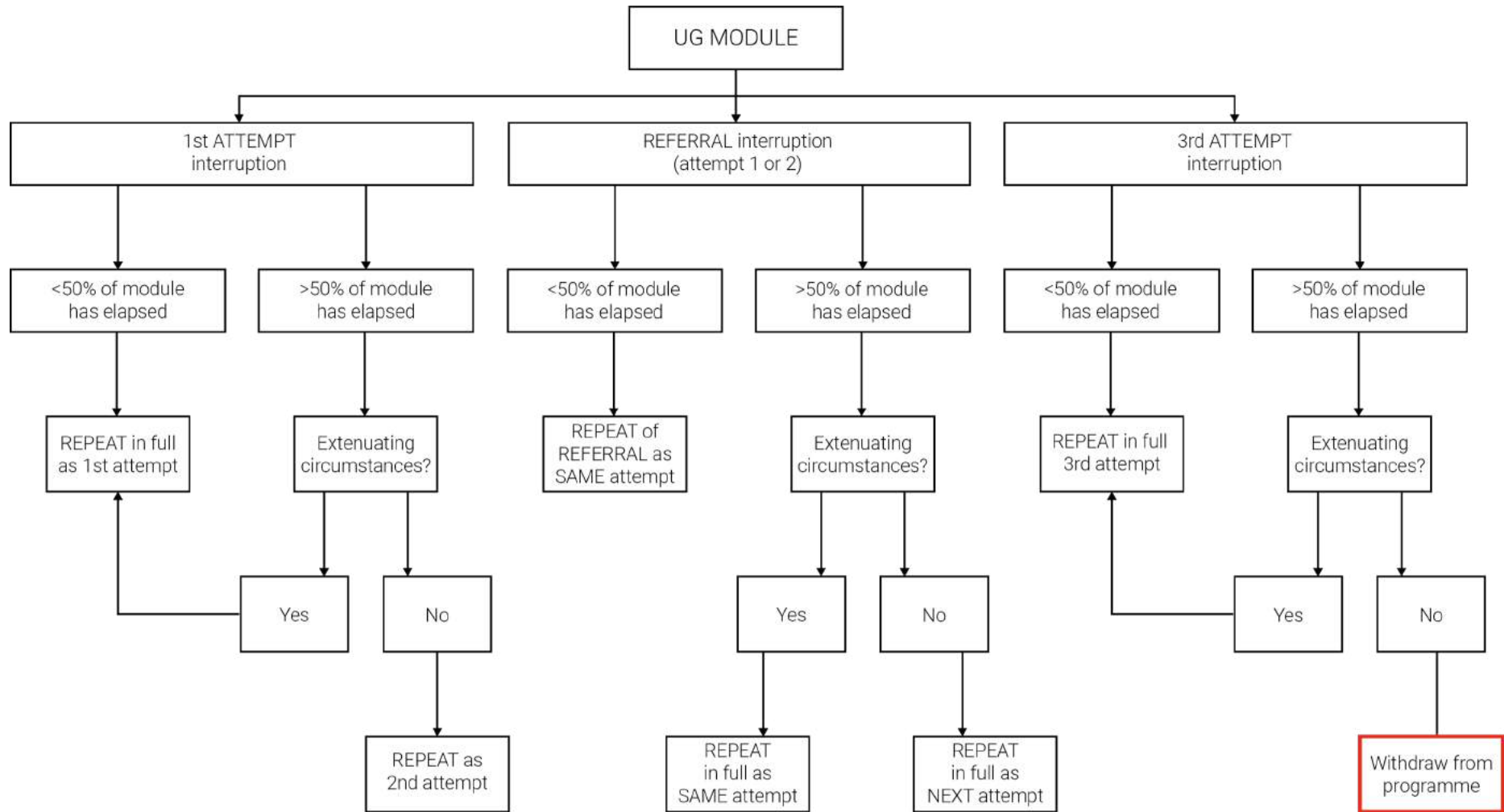
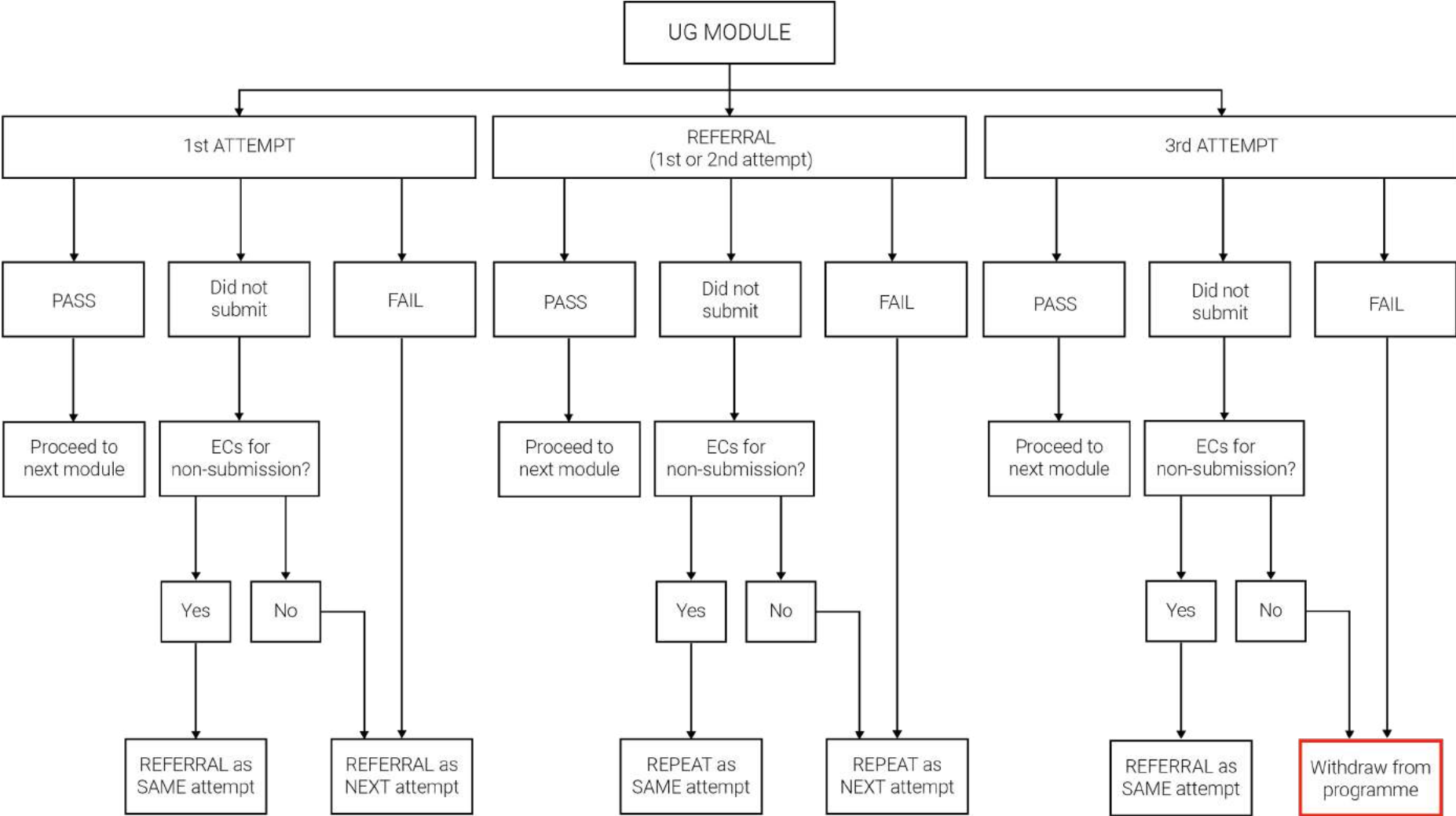


Figure 3.3.2: Referral/Repeat flow for students completing an undergraduate module



3.4 Programme structure

The structure of this programme is shown in [‘Table 3.4.1: Level 4 Modules \(common\) and credit weighting’](#); [‘Table 3.4.2: Level 5 Modules and credit weighting - Engineering’](#); [‘Table 3.4.3: Level 5 Modules and credit weighting - Electro Technical’](#); [‘Table 3.4.4: Level 6 Modules and credit weighting - Engineering’](#); and [‘Table 3.4.5: Level 6 Modules and credit weighting - Electro Technical’](#).

Level 4 addresses the fundamentals of Maritime Technology such as engineering design, general ship knowledge, as well as some of the core principles that help students understand academic and study skills, alongside technical aspects of naval operations. Mathematics and Physics will also be introduced and covered at Level 4. At the same time, a close learner-tutor relationship will help manage and embed expectations regarding study and research behaviour, allow students the chance to improve both their academic and social English and create a learning community which will foster relationships that can act as a support mechanism in future years. All modules are compulsory.

Table 3.4.1: Level 4 Modules (common) and credit weighting

| Code | Title | Credit |
|-----------------------------|--|--------|
| Level 4 - Semester 1 | | |
| MLA416 | Maritime Orientation | 20 |
| MLA424 | Engineering Design I | 10 |
| MLA418 | Communication and Academic Skills | 10 |
| MLA419 | Applied Mathematics | 20 |
| Level 4 - Semester 2 | | |
| MLA425 | General Ship Knowledge (Technology) | 20 |
| MLA426 | Engineering Design II | 10 |
| MLA422 | Introduction to Information and Communication Technologies | 10 |
| MLA423 | Applied Physics | 20 |

Level 5 - This level will start to further develop and integrate concepts identified at Level 4, arguing that understanding Maritime Technology requires an appreciation of how various areas of knowledge and expertise work together in addressing naval operations and solving problems. Further engineering subjects including material science, fluid mechanics, electrical and electronics, thermodynamics, and auxiliary machinery will be covered.

The first semester at Level 5 also includes a module on “Safety and Emergencies at Sea” following which students will be able to embark on their first period of sea service (6 weeks) where they will be mainly observing operation of a naval vessel without being directly involved. Whilst at sea they will undergo training on ship familiarization and safety drills, lookout and quarter master duties and handling of berthing hawsers. On successful completion of Level 5 students will have their second period of sea time (4 weeks), where they will continue with some of the operational tasks and will also undertake engineering tasks.

All modules are compulsory.

Table 3.4.2: Level 5 Modules and credit weighting - Engineering

| Code | Title | Credit |
|-----------------------------|-------------------------------------|---------------|
| Level 5 - Semester 3 | | |
| MLA528 | Material Science | 20 |
| MLA529 | Electrical & Electronic Engineering | 20 |
| MLA523 | Safety and Emergencies at Sea | 20 |
| Level 5 - Semester 4 | | |
| MLA530 | Fluid Mechanics | 20 |
| MLA531 | Mechanics & Thermodynamics | 20 |
| MLA532 | Auxiliary Machinery | 20 |

Table 3.4.3: Level 5 Modules and credit weighting - Electro Technical

| Code | Title | Credit |
|-----------------------------|---|---------------|
| Level 5 - Semester 3 | | |
| MLA533 | Electrical & Electronics Engineering I | 20 |
| MLA534 | Application of Power Electronics | 20 |
| MLA523 | Safety and Emergencies at Sea | 20 |
| Level 5 - Semester 4 | | |
| MLA535 | Electrical & Electronics Engineering II | 20 |
| MLA536 | Electronic Control and Embedded Systems | 20 |
| MLA537 | Operation and Maintenance of Electrical Equipment and Systems | 20 |

Level 6 – This level is the culmination phase of the programme with the final year project being the focus of the study. Student will further develop their knowledge and practical experience of core subject areas of maritime technology and naval studies. Students will be mentored by tutors, delivering a variety of reports, both research-based and reflective, which document the progress and results of their projects. Level 6 also involves 2 periods of sea time where students will be more involved with operational aspect of naval vessels.

Learner autonomy is increased at Level 6. Academic input is expected to more explicitly focus on guidance and support as students are encouraged to engage independently.

All modules are compulsory.

Table 3.4.4: Level 6 Modules and credit weighting - Engineering

| Code | Title | Credit |
|-----------------------------|--------------------------------|--------|
| Level 6 - Semester 5 | | |
| MLA626 | Refrigeration and A/C Units | 20 |
| MLA627 | Internal Combustion Engines I | 10 |
| MLA628 | Final year project | - |
| Level 6 - Semester 6 | | |
| MLA629 | Naval Architecture | 20 |
| MLA630 | Internal Combustion Engines II | 10 |
| MLA628 | Final year project | 40 |

Table 3.4.5: Level 6 Modules and credit weighting - Electro Technical

| Code | Title | Credit |
|-----------------------------|---|--------|
| Level 6 - Semester 5 | | |
| MLA631 | Microwave and Radar Engineering | 20 |
| MLA632 | Control Systems, Weapons and Sensors I | 20 |
| MLA628 | Final year project | - |
| Level 6 - Semester 6 | | |
| MLA633 | Communications Systems | 20 |
| MLA634 | Control Systems, Weapons and Sensors II | 20 |
| MLA628 | Final year project | 40 |

3.5 Programme aims

The high level goal of this programme is to produce well disciplined graduates with technical knowledge and practical experience of operating, maintaining and repairing a variety of technical systems onboard a vessel.

The specific programme aims to produce graduates that should be able to:

1. Develop the academic knowledge and skills required to study the complex interaction of the maritime environment, the human element and technology.
2. Provide students with a range of problem-solving skills.
3. Provide a scientifically based and intellectually stimulating programme of study incorporating theoretical, quantitative, practical and applied aspects of the marine engineering and shipboard operations.
4. Enable students to acquire transferable, technical, and professional skills appropriate to both personal and career development.
5. Allow students to actively engage in research opportunities beyond that normally associated with Maritime Institutions.
6. Allow the student to appreciate, appraise and critique the maritime industry towards which the course is biased.

3.6 Programme intended Learning Outcomes

| BSc (Hons) Maritime Technology (Engineering) | BSc (Hons) Maritime Technology (Electro Technical) |
|---|---|
| 3.6.1 Knowledge and understanding | |
| <p>On successful completion of the programme graduates will have:</p> <ul style="list-style-type: none"> a. A comprehensive knowledge and understanding of the scientific principles and methodologies in marine engineering necessary to underpin their education. b. Knowledge and understanding of mathematical methods necessary to underpin their education and to enable them to apply a range of mathematical methods, tools and notations proficiently and critically in the analysis and solution of complex problems. c. Ability to apply and integrate knowledge and understanding of other technical disciplines to support study of their own discipline. | <p>On successful completion of the programme graduates will have:</p> <ul style="list-style-type: none"> a. A practical and theoretical knowledge in the areas of science, engineering, technology, and mathematics essential to common electrical, electronics and control marine systems. b. Knowledge of design principles and methodologies common in electrical, electronic and control systems engineering. c. Ability to apply and integrate knowledge and understanding of other technical disciplines to support study of their own discipline. |
| 3.6.2 Cognitive and intellectual skills | |
| <p>On completion graduates should be able to:</p> <ul style="list-style-type: none"> a. Understanding of marine engineering principles and the ability to apply them to the critical analysis of key engineering processes. b. Ability to identify, classify and describe the performance of systems and components using suitable analytical methods and modelling techniques. c. Ability to apply quantitative and computational methods in order to solve engineering problems and implement appropriate action. d. Understanding of, and the ability to apply, an integrated or systems approach to solve complex engineering problems. | <p>On completion graduates should have developed:</p> <ul style="list-style-type: none"> a. The ability to select an appropriate systematic mathematical / analytical / scientific method to solve problems while understanding the accuracy of such methods when proposing such solutions. b. Ability to identify, classify and describe the performance of systems and components using suitable analytical methods and modelling techniques. c. Ability to apply quantitative and computational methods in order to solve technical problems and implement appropriate action. d. Understanding of, and the ability to apply, an integrated or systems approach to solve complex technical problems. |

BSc (Hons) Maritime Technology (Engineering)**BSc (Hons) Maritime Technology (Electro Technical)****3.6.3 Key and transferable skills**

On completion, graduates should have developed the knowledge, understanding and skills, in a maritime technology context, to:

- a. Investigate and define problems, identifying any constraints and limitations, e.g. ethical, health, safety, security and risk issues; intellectual property; codes of practice and standards.
- b. Apply advanced problem-solving skills, technical knowledge and understanding, to establish rigorous and creative solutions that are fit for purpose for all aspects of the problem including production, operation, maintenance, repair, and disposal.
- c. Plan and manage the design process, including cost drivers, and evaluate outcomes.
- d. Communicate their work to technical and non-technical audiences.

On completion, graduates should have developed the knowledge, understanding and skills, in a maritime technology context, to:

- a. Investigate and define the problem, identifying any constraints and limitations, e.g. ethical, health, safety, security and risk issues; intellectual property; codes of practice and standards.
- b. Apply advanced problem-solving skills, technical knowledge and understanding, to establish rigorous and creative solutions that are fit for purpose for all aspects of the problem including production, operation, maintenance, repair, and disposal.
- c. Plan and manage the design process, including cost drivers, and evaluate outcomes.
- d. Communicate their work to technical and non-technical audiences.

BSc (Hons) Maritime Technology (Engineering)**BSc (Hons) Maritime Technology (Electro Technical)****3.6.4 Employment related skills**

On successful completion, graduates need the skills to manage their activities and to be aware of the various legal and ethical constraints under which they should operate, including:

- a. Understanding of the need for a high level of professional and ethical conduct, and a knowledge of professional codes of practise.
- b. Knowledge and understanding of management techniques, including project and change management, used to achieve objectives.
- c. Understanding of the requirement for marine engineering activities to promote professional development and ability to apply quantitative techniques where appropriate.
- d. Knowledge and understanding of risk issues, including health and safety, environmental and commercial risk, risk assessment and risk management techniques.

On successful completion, graduates need the skills to manage their activities and to be aware of the various legal and ethical constraints under which they should operate, including:

- a. Understanding of the need for a high level of professional and ethical conduct, and a knowledge of professional codes of practise.
- b. Knowledge and understanding of management techniques, including project and change management, used to achieve objectives.
- c. Understanding of the requirement for marine engineering activities to promote professional development and ability to apply quantitative techniques where appropriate.
- d. Knowledge and understanding of risk issues, including health and safety, environmental and commercial risk, risk assessment and risk management techniques.

BSc (Hons) Maritime Technology (Engineering)**BSc (Hons) Maritime Technology (Electro Technical)****3.6.5 Practical skills**

On successful completion graduates should have developed:

- a. Knowledge of characteristics of particular equipment, processes or products.
- b. Ability to apply relevant practical, laboratory skills and other appropriate transferrable skills.
- c. Understanding of codes of practice and appropriate industry standards.
- d. Understanding of different roles within a team and the ability to exercise initiative and personal responsibility, which may be as a team member or leader.

On successful completion graduates should have developed:

- a. Knowledge of characteristics of particular equipment, processes or products used in electrical / electronic professions.
- b. Ability to apply relevant practical, laboratory skills and other appropriate transferrable skills.
- c. Understanding of codes of practice and appropriate industry standards.
- d. Understanding of different roles within a team and the ability to exercise initiative and personal responsibility, which may be as a team member or leader.

3.7 Admissions Criteria, including APCL, APEL and Disability Service arrangement

All applicants must satisfy the QEN entry requirements (physical, aptitude, citizenship) and additionally have GCSE (or equivalent) Maths and English at Grade C or above. Where schooling is undertaken in Qatar, the individual will need to have qualifications gained for secondary education, including General Secondary Education Certificates (equivalent to GCSE A*-C) and Upper Secondary Certification (equivalent to A levels) with Science options. In addition, applicants may be required to undertake a bridging course to ensure their skills level and English Language competency (spoken and written) meets MLA College's normal admissions criteria as set out in '[Table 3.7.1: MLA College Normal Admissions Criteria](#)'.

Table 3.7.1: MLA College Normal Admissions Criteria

| Entry Requirements to level 4 | |
|--|--|
| A-Level/AS Level/ Vocational A-level | 96 points with a minimum of two A levels. This will normally be expected to include at least a pass at grade C in a science subject (Physics, Chemistry, Maths, Environmental Science) and/or other numerate discipline. AS Levels may contribute to a points offer, these qualifications may be taken into consideration as part of the admissions process. |
| General Studies A-Level | Will not normally be accepted as an entry qualification. |
| AVCE Double Award | 280 with minimum of CC in a Science subject. Additional study would usually be required to achieve 280 points. 280 points =A*A*. |
| BTEC QCF Diploma and Extended Diploma | 112 points QCF Extended Diploma. Subjects studied need to demonstrate a commitment to studying science. Additional study would normally be required to achieve 280 points with the QCF Diploma. D*D* = 112 points. |
| Access to Higher Education | Pass approved course in relevant subject (Science and Technology preferred but other appropriate courses considered) with 33 merits at level 3 to include 12 merits in a Science subject. |
| National Vocational Qualification (including Advanced Modern Apprenticeships) | An appropriate NVQ at Level 3/AMA will be considered with other information that demonstrates your ability to successfully complete the programme you have selected. A commitment to studying science needs to be demonstrated. |
| Scottish Qualifications Authority | 120 points. At least one science subject (Physics, Chemistry, Maths, Environmental Science) passed at grade C. |
| Irish Leaving Certificate | H34444. At least one science subject (Physics, Chemistry, Maths, Environmental Science) passed at grade C. |
| European Baccalaureate | 72% point to include 7.5 in Science and Maths. |
| International Baccalaureate | Offers will be made based on total points acquisition within the range of 28 points to include 4 in Higher Level Science or Maths. If overseas and not studying English within IB, must have IELTS 6.0 overall with 5.5 in all other elements. |
| Work Experience | <p>MLA College are keen to consider admission on the basis of work or life experience. Where an applicant presents with appropriate experience, this may be taken into account in lieu of certificated qualifications, regardless of age.</p> <p>Relevant industry experience will be considered on individual merit. Specific reference to APCL and APEL is made below.</p> |

Table 3.7.1: MLA College Normal Admissions Criteria (continued)

| Entry Requirements to level 4 | |
|--------------------------------------|--|
| APCL/APEL | <p>The University’s regulations for Accreditation of Prior Certificated Learning (APCL) and Assessment of Prior Experiential Learning (APEL) are set out in the ‘University of Plymouth Academic Regulations’. Accreditation of Prior Certificated Learning will be considered on verification of formal qualifications in line with the University’s regulations.</p> <p>Alternatively, an applicant with credits in a non-related subject must demonstrate that they have knowledge and skills sufficient to meet the challenges and demands of this programme. If APCL credit is insufficient APEL may be considered (see below).</p> <p>Students who do not possess the level of qualifications outlined above may be eligible for admission to the programme on the basis of previous work experience or training. This will be assessed in line with the University’s policy on the Accreditation of Prior Experiential Learning (APEL). APEL will be considered towards a University of Plymouth award in respect of knowledge and skills acquired through life, work experience, and/or study which are not formally attested through certification by a recognised professional or academic body. Students applying for APEL will be required to complete a form of assessment, governed by the University of Plymouth regulations, in order to demonstrate that they have satisfied the learning outcomes of the module(s) for which credit is claimed.</p> <p>Additionally, students must provide evidence of literacy / communication skills at a level that demonstrates their ability to progress and they will be expected to demonstrate their capacity to benefit from and successfully complete the programme.</p> |
| English Language Requirements | <p>If students have not obtained or do not have the appropriate entry qualifications in the English language, they may be required to produce evidence of English language ability. This will normally be the equivalent of:</p> <ul style="list-style-type: none"> • GCSE Grade C or above in English language. • IELTS 6.0 overall or above with a minimum of 5.5 in all four components (listening, reading, speaking and writing) • For further information and alternatives to IELTS, see the University of Plymouth’s International Student Entry Requirements. |

3.8 Progression routes/criteria for progression to Final and Intermediate Awards

Options for further study are available at Masters' Level with MLA College and University of Plymouth.

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

Not applicable.

Section 3 Appendix 1: Programme Specification Mapping (UG)

Module contribution to the meeting of Award Learning Outcomes – Level 4

| Modules | | Award Learning Outcomes contributed to (for more information see Section 8) | | | | | | | | | | | | | | | | Compensation | Assessment Element(s) and weightings E1- exam T1- test C1- coursework A1 – generic assessment P1 - practical | | | | |
|--------------------|---|---|----------|----------|--|---------------------------------|----------|----------|----------|-------------------------|----------|----------|----------|---------------------------|----------|----------|----------|--------------|---|------------------|----------|---|--------------------------|
| | | Knowledge & understanding | | | | Cognitive & intellectual skills | | | | Key transferable skills | | | | Employment related skills | | | | | | Practical skills | | | |
| | | 1 | 2 | 3 | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | 1 | 2 | 3 | 4 |
| Common | MLA416 Maritime Orientation | ✓ | | | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | Y | C1: 60%, T1: 40% |
| | MLA424 Engineering Design I, 10C | ✓ | | ✓ | | | ✓ | | | | ✓ | ✓ | ✓ | | ✓ | | | ✓ | ✓ | | | Y | E1: 30%, C1: 40%, P1:30% |
| | MLA418 Communication and Academic Skills, 10C | ✓ | | ✓ | | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ | | ✓ | Y | C1: 50%, P1: 50% |
| | MLA419 Applied Maths | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | | | | | | ✓ | | | | | | Y | E1: 60%, C1: 40% |
| | MLA425 General Ship Knowledge (Technology) | ✓ | | ✓ | | | ✓ | | ✓ | ✓ | | | ✓ | ✓ | | | | ✓ | | ✓ | ✓ | Y | E1: 50%, C1: 50% |
| | MLA424 Engineering Design II, 10C | ✓ | | ✓ | | ✓ | ✓ | | | | ✓ | | ✓ | | ✓ | | | ✓ | ✓ | | | Y | C1: 50%, P1: 50% |
| | Introduction to ICT, 10C | ✓ | ✓ | ✓ | | ✓ | | | ✓ | | ✓ | | ✓ | | | | ✓ | ✓ | | | | Y | E1: 60%, C1: 40% |
| | MLA423 Applied Physics | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | | | | | | | | | | ✓ | | | Y | E1: 70%, P1: 30% |
| Level 4 LOs | | 8 | 3 | 7 | | 6 | 6 | 2 | 3 | 4 | 4 | 2 | 6 | 2 | 2 | 3 | 2 | 6 | 4 | 2 | 3 | | |

Module contribution to the meeting of Award Learning Outcomes – Level 5

| Modules | | Award Learning Outcomes contributed to (for more information see Section 8) | | | | | | | | | | | | | | | | Compensation Y/N | Assessment Element(s) and weightings E1- exam T1- test C1- coursework P1 - practical | | | | |
|--|---|---|---|---|---|---------------------------------|---|---|---|---------------------------|---|---|---|---------------------------|---|---|---|---------------------|--|------------------|---|------------------|-----------------|
| | | Knowledge & understanding | | | | Cognitive & intellectual skills | | | | Key & transferable skills | | | | Employment related skills | | | | | | Practical skills | | | |
| | | 1 | 2 | 3 | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | 1 | 2 | 3 | 4 |
| Engineering | MLA528 Material science | ✓ | | ✓ | | ✓ | ✓ | | | ✓ | ✓ | | | | | ✓ | | ✓ | ✓ | | | Y | E1: 60%, C1:40% |
| | MLA529 Electrical & electronics Eng. | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | | ✓ | | | | ✓ | | | ✓ | ✓ | | | Y | E1:60%, P1:40% |
| | MLA530 fluid Mechanics | ✓ | ✓ | ✓ | | ✓ | | ✓ | | | | ✓ | ✓ | | | | | | ✓ | | | Y | E1:70%, C1:30%, |
| | MLA531 Mechanics and thermodynamics | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | | ✓ | | | ✓ | | | | ✓ | ✓ | | | Y | E1:50%, C1:50% |
| | MLA532 Auxiliary machinery | ✓ | | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | | Y | C1:60%, T1:40% |
| C1 Electro-Technical | | | | | | | | | | | | | | | | | | | | | | | |
| | MLA523 Safety and emergencies at sea | ✓ | | ✓ | | ✓ | | | | ✓ | ✓ | | ✓ | ✓ | | | ✓ | ✓ | | ✓ | ✓ | Y | C1:50%, P1:50% |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | MLA533 Electrical & electronics Eng. I | ✓ | ✓ | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | | | | | ✓ | ✓ | ✓ | | | Y | E1:60%, P1: 40% |
| | MLA534 Application of power electronics | ✓ | ✓ | | | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | | | | ✓ | ✓ | ✓ | ✓ | | Y | E1:60%, C1:40% |
| | MLA535 Electrical & electronics Eng. II | ✓ | | ✓ | | ✓ | | | ✓ | | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ | ✓ | | | Y | E1: 70%, P1:30% |
| MLA536 Electronic control and embedded systems | ✓ | ✓ | ✓ | | ✓ | | ✓ | | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | | Y | T1: 60%, P1: 40% | |
| MLA537 Operation and maintenance of electrical equipment & systems | ✓ | | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | Y | C1: 60%, P1: 40% | |
| Level 5 LOs | | | | | | | | | | | | | | | | | | | | | | | |

Module contribution to the meeting of Award Learning Outcomes – Level 6

| Modules | | Award Learning Outcomes contributed to (for more information see Section 8) | | | | | | | | | | | | | | | | Compensation Y/N | Assessment Element(s) and weightings E1- exam T1- test C1- coursework P1 - practical | | | | |
|---|--|---|---|---|--|---------------------------------|---|---|---|---------------------------|---|---|---|---------------------------|---|---|---|---------------------|--|------------------|---|---|------------------|
| | | Knowledge & understanding | | | | Cognitive & intellectual skills | | | | Key & transferable skills | | | | Employment related skills | | | | | | Practical skills | | | |
| | | 1 | 2 | 3 | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | 1 | 2 | 3 | 4 |
| Engineering Electro-Technical C | MLA626 Refrigeration and A/C Units | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | | ✓ | | ✓ | ✓ | | | Y | E1: 60%, C1:40% |
| | MLA627 Internal combustion engines I | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | Y | E1: 50%, C1: 50% |
| | MLA629 Naval Architecture | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Y | E1:60%, C1:40% |
| | MLA630 Internal combustion engines II | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | Y | E1:70%, C1:30%, |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | MLA631 Microwave and RADAR engineering | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | Y | E1: 60%, P1: 40% |
| | MLA632 Control systems, weapons and sensors I | ✓ | | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | | | ✓ | ✓ | ✓ | ✓ | | | Y | E1: 60%, C1: 40% |
| | MLA633 Communication systems | ✓ | ✓ | | | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | Y | E1: 60%, P1: 40% |
| | MLA634 Control systems, weapons and sensors II | ✓ | ✓ | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | Y | E1: 60%, P1: 40% |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | MLA628-final year project, 40C | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | N | C1: 85%, P1: 15% |
| Level 6 LOs | | | | | | | | | | | | | | | | | | | | | | | |

4. Module records

Definitive Module Records

BSc (Hons) Maritime Technology (Engineering)

BSc (Hons) Maritime Technology (Electro Technical)

| Code | Title | Credit |
|---|--|--------|
| Level 4 - Semester 1 | | |
| MLA416 | Maritime Orientation | 20 |
| MLA424 | Engineering Design I | 10 |
| MLA418 | Communication and Academic Skills | 10 |
| MLA419 | Applied Mathematics | 20 |
| Level 4 - Semester 2 | | |
| MLA425 | General Ship Knowledge (Technology) | 20 |
| MLA426 | Engineering Design II | 10 |
| MLA422 | Introduction to Information and Communication Technologies | 10 |
| MLA423 | Applied Physics | 20 |
| Level 5 Engineering - Semester 3 | | |
| MLA528 | Material Science | 20 |
| MLA529 | Electrical & Electronics Engineering | 20 |
| MLA523 | Safety and Emergencies at Sea | 20 |
| Level 5 Engineering - Semester 4 | | |
| MLA530 | Fluid Mechanics | 20 |
| MLA531 | Mechanics & Thermodynamics | 20 |
| MLA532 | Auxiliary Machinery | 20 |

| Code | Title | Credit |
|---|--------------------------------|---------------|
| Level 6 Engineering - Semester 5 | | |
| MLA626 | Refrigeration and A/C Units | 20 |
| MLA627 | Internal Combustion Engines I | 20 |
| MLA628 | Final year project | - |
| Level 6 Engineering - Semester 6 | | |
| MLA629 | Naval Architecture | 20 |
| MLA630 | Internal Combustion Engines II | 20 |
| MLA628 | Final year project | 40 |

UNIVERSITY OF PLYMOUTH MODULE RECORD
BSC (HONS) MARITIME TECHNOLOGY (ENGINEERING)
BSC (HONS) MARITIME TECHNOLOGY (ELECTRO TECHNICAL)
COMMON LEVEL 4 MODULES

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: MLA 424 **MODULE TITLE:** Engineering Design I
CREDITS: 10 **FHEQ LEVEL:** 4 **HECOS CODE:** 100194
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y

SHORT MODULE DESCRIPTOR:

This module introduces students to “Technical Drawing and Design”, from an Engineering perspective. Students using manual drawing equipment will produce a portfolio of drawings based on the engineering drawing topics taught. Lectures and tutorials will be complemented by design, drawing and drafting studios.

| ELEMENTS OF ASSESSMENT <i>[Use HESA KIS definitions]</i> | | | | | |
|---|-----|-----------------|-----|----------------|-----|
| E1 (Examination) | 30% | C1 (Coursework) | 40% | P1 (Practical) | 30% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This aim of module is to introduce the students to technical drawing and design, from an engineering perspective.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|--|--|
| 1. Draw geometric shapes by applying international drawing standards | KU1, CI2 |
| 2. Use 1st Angle & 3 rd angle Orthographic Projection drawing principles through completion of technical drawings | KU1, KU3, KT2, KT3, KT4 |
| 3. Apply appropriate technical drawing methodologies to successfully produce isometric engineering drawing solutions | KU1, ER2, PS1, PS2 |

| | |
|--|---|
| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: Feb to June |

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

NATIONAL COST CENTRE: 124

MODULE LEADER: Cdr P Banerjee (Retd)

OTHER MODULE STAFF: S Kurimchira

Summary of Module Content:

Introduction to drawings standards (*lines, symbols, lettering, numbering, geometric construction, scales, Dimensioning, etc.*); 1st & 3rd angle projections

Isometric Projection (*Principles, Scale, Construction, examples*)

Engineering Drawings (*Symbols, Examples of equipment drawings*)

Sectoring (*Sectional views, Types of sections*)

SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions]

| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
|-----------------------------|--------------|--|
| Lecture | 20 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 10 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Practical | 30 | Supervised Laboratory or workshop |
| Independent study | 40 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 100 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Examination | 60 Minutes examination on ALOs 1 and 2 | 100% |
| Coursework | Take home assignment on ALO 2 | 100% |
| Practical | Design office assessed work on ALO 3 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Examination | 60 minutes examination on ALOs 1 and 2 | 100% |
| Coursework | Take home assignment on ALO 2 and 3 | 100% |
| Practical | Design office assessed work on ALO 2 and 3 | 100% |

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

Updated by:

Date:

Approved by:

Date:

UNIVERSITY OF PLYMOUTH MODULE RECORD

BSC (HONS) MARITIME TECHNOLOGY (ENGINEERING)
BSC (HONS) MARITIME TECHNOLOGY (ELECTRO TECHNICAL)
COMMON LEVEL 4 MODULES

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: MLA 425 **MODULE TITLE:** General Ship Knowledge (Technology)
CREDITS: 20 **FHEQ LEVEL:** 4 **HECOS CODE:** 100194
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y

SHORT MODULE DESCRIPTOR:

This introductory module provides the students with an introduction to basic design, purpose and layout of various engineering systems, onboard a ship and scope of work in the engineering department. Lectures and tutorials are complemented by ship visits and engine room simulator work.

| ELEMENTS OF ASSESSMENT [Use HESA KIS definitions] | | | | | |
|--|-----|-----------------|-----|----------------|-----|
| E1 (Examination) | 50% | C1 (Coursework) | 50% | P1 (Practical) | 00% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This module aims to provide the students with the required level of knowledge in basic design, purpose and layout of various engineering systems on board a ship, and scope of work in the engineering department.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|--|--|
| 1. Outline and describe typical layout of marine machinery systems | KU1, KU3, PS1, CI4 |
| 2. Using simple diagrams explain the pumping and piping arrangements | KU1, CI2, PS1 |
| 3. Discuss roles and duties in Engineering Dept, including Electro-Tech Officers | KT1, KT4, ER1, PS3, PS4 |

| | |
|--|---|
| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: July to December |

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

NATIONAL COST CENTRE: 124

**MODULE LEADER: Cdr P Sugunakar
(Retd)**

OTHER MODULE STAFF: M Farooq, R Udayabhanu

Summary of Module Content:

Diesel Propulsion Plant, Diesel Generators, Auxiliary Machinery, Ship Pumping and Piping Systems

Propeller Shaft Component, Steering Gear, Ship Boats & Engines, Roles and Duties

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 60 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 40 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Practical | 20 | Engine-room simulator |
| Field Trips | 30 | Visit to ports and ships |
| Independent study | 50 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 200 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Written exam | 90 minutes examination on ALOs 1 and 2 | 100% |
| Coursework | Take home assignment on ALO 3 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|-------------------------------------|----------------------------|
| Written exam | 90 minutes examination ALOs 1 and 2 | 100% |
| Coursework | Take home assignment on ALO 3 | 100% |

| To be completed when presented for Minor Change approval and/or annually updated | | |
|---|--------------|---------------------|
| Updated by: | Date: | Approved by: |
| | | Date: XX/XX/XXXX |

UNIVERSITY OF PLYMOUTH MODULE RECORD

BSC (HONS) MARITIME TECHNOLOGY (ENGINEERING)

BSC (HONS) MARITIME TECHNOLOGY (ELECTRO TECHNICAL)

COMMON LEVEL 4 MODULES

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: MLA 426 **MODULE TITLE:** Engineering Design II
CREDITS: 10 **FHEQ LEVEL:** 4 **HECOS CODE:** 100194
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y

SHORT MODULE DESCRIPTOR:

This module builds on the knowledge gained from the module Engineering Design 1. Students using manual drawing equipment will produce a portfolio of drawings based on the engineering drawing topics taught. This module introduces the student to Computer Aided Design (CAD) Software. Lectures and tutorials will be complemented by design and drawing studio work as well as introduction to computer aided design lab.

| ELEMENTS OF ASSESSMENT [Use HESA KIS definitions] | | | | | |
|--|-----|------------------------|-----|-----------------------|------------|
| E1 (Examination) | 00% | C1 (Coursework) | 50% | P1 (Practical) | 50% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This module aims to introduce the student to subject specific technical drawings and Computer Aided Design (CAD) and related Software applications.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|---|--|
| 1. Apply appropriate international drawing standards for piping diagrams. | KU1, KU3, CI1, PS1 |
| 2. Display accuracy, attention to detail and neatness in the drawings produced. | KU3, KT2, KT4, PS1, PS2, |
| 3. Create a portfolio of Engineering drawings (P&IDs / SLDs / Schematics) and explain various parts and symbols used. | KU1, KU3, CI2 |
| 4. Give examples of CAD Engineering applications in ship design and construction. | KU3, ER2, PS1, PS2 |

| | |
|--|---|
| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: July to December |

Notes:

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

MODULE LEADER: Cdr P Banerjee (Retd)

NATIONAL COST CENTRE: 124

OTHER MODULE STAFF: S Kurimchira

Summary of Module Content:

Engineering Fluid diagrams & prints

Electrical diagrams and schematics; Electronic & Logic diagrams and schematics

Introduction to CAD Techniques; Assembly Drawing with sectional view

Samples drawing of ship plans

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 20 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 10 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Practical | 30 | Supervised Laboratory or workshop |
| Independent study | 40 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 100 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|---|----------------------------|
| Coursework | Take home assignment on ALOs 1, 2 and 3 | 100% |
| Practical | Assessed design office exercises on ALOs 2, 3 and 4 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Coursework | Take home assignment on ALOs 1 and 2 | 100% |
| Practical | Assessed design office exercises on ALOs 3 and 4 | 100% |

| To be completed when presented for Minor Change approval and/or annually updated | |
|---|---|
| Updated by: Date: | Approved by: Date: XX/XX/XXXX |

UNIVERSITY OF PLYMOUTH MODULE RECORD

BSC (HONS) MARITIME TECHNOLOGY (ENGINEERING) LEVELS 5 & 6

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: MLA 528 **MODULE TITLE:** Material Science
CREDITS: 20 **FHEQ LEVEL:** 5 **HECOS CODE:** 100194
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y

SHORT MODULE DESCRIPTOR:

This module provides opportunities for the students to gain detailed and in-depth knowledge of properties of materials in particular those commonly used in the shipbuilding and wider maritime sector.

| ELEMENTS OF ASSESSMENT <i>[Use HESA KIS definitions]</i> | | | | | |
|---|-----|-----------------|-----|----------------|-----|
| E1 (Examination) | 60% | C1 (Coursework) | 40% | P1 (Practical) | 00% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

The aim of this module is to provide the students with detailed and in-depth knowledge of properties of materials in particular those commonly used in the maritime sector.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|--|--|
| 1. Describe with high level detail atomic structure and bonding of materials | KU1, KU3, CI1, PS1, |
| 2. Review and discuss mechanical properties of materials | KU1, KU3, CI1, CI2, PS1, |
| 3. Identify and explain failure modes | KU1, CI1, CI2, KT1, KT2, ER3, PS2 |
| 4. Investigate and analyse properties and uses of non-metallic material | KU1, KU3, CI1, PS1 |

| | |
|--|---|
| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: Feb to June |

Notes:

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

NATIONAL COST CENTRE: 124

MODULE LEADER: Cdr P Banerjee (Retd)

OTHER MODULE STAFF: None

Summary of Module Content:

Material in Engineering: *(Metals, ceramics, polymers and composites ...)*

Fundamentals: *(Atomic structure and bonding, electrons, atoms and molecules, the Periodic table)*

Mechanical properties: *(Stress, strain, Elasticity, tensile properties, hardness, strengthening mechanisms)*

Metals and Alloys: *(Phase diagrams, thermal processing, precipitation hardening,)*

Failure of metals: *(fracture, brittle and ductile failure, impact and fracture toughness, fatigue & creep)*

Non-metallic materials and their properties: *(Ceramics and glasses, polymers, composites ...)*

Materials in engineering application & Introduction to Advanced Materials & Tools

Environmental Degradation: *(Corrosion, oxidation of materials & prevention ...)*

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 60 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 30 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Practical | 30 | Supervised Laboratory or workshop |
| Independent study | 80 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 200 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Written exam | 90 minutes examination on ALOs 1 and 3 | 100% |
| Coursework | Take home assignment on ALO 2 and 4 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Written exam | 90 minutes examination on ALOs 1 and 3 | 100% |
| Coursework | Take home assignment on ALO 2 and 4 | 100% |

| To be completed when presented for Minor Change approval and/or annually updated | | |
|---|--------------|---------------------|
| Updated by: | Date: | Approved by: |
| | | Date: XX/XX/XXXX |

UNIVERSITY OF PLYMOUTH MODULE RECORD

BSc (Hons) Maritime Technology (Engineering)

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: MLA 529 **MODULE TITLE:** Electrical & Electronics Engineering

CREDITS: 20

FHEQ LEVEL: 5

HECOS CODE: 100194

PRE-REQUISITES: None

CO-REQUISITES: None

COMPENSATABLE: Y

SHORT MODULE DESCRIPTOR:

This module provides the students with essential principles that form the foundations of electrical and electronic engineering. Lectures and tutorials will be complemented by practical in workshops.

| ELEMENTS OF ASSESSMENT <i>[Use HESA KIS definitions]</i> | | | | | |
|---|-----|------------------------|-----|-----------------------|------------|
| E1 (Examination) | 60% | C1 (Coursework) | 00% | P1 (Practical) | 40% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This module aims to provide the students with essential knowledge and principles that form the foundations of electrical and electronic engineering, as required for marine engineers.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|--|--|
| 1 Identify electrical and electronic components and their applications | KU1, KU3, PS1 |
| 2 Analyse the performance of electrical machines | KU2, KU3, CI2, CI4 KU3, PS1 |
| 3 Identify electronic components and use them to design circuits | |
| 4 Using examples and diagrams, discuss in sufficient detail various terms and their function in a PID controller | KU1, KU2, CI1, KT2, ER2, PS1, PS2 |

| | |
|--|---|
| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: Feb to June |

Notes:

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

NATIONAL COST CENTRE: 124

MODULE LEADER: Cdr A Mittal (Retd)

OTHER MODULE STAFF: None

Summary of Module Content:

Electrical Circuits and Measurements
Batteries & Alternate source of energy
Magnetic circuits, Electromagnetism & Electromagnetic Induction
Semiconductor, Transistors
Digital Electronics
Electrical machines (DC & AC machines)
Automation and Control
Shipboard Power generation & distribution

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 60 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 30 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Practical | 30 | Supervised Laboratory or workshop |
| Independent study | 80 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 200 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Written exam | 90 minutes examination on ALOs 2 and 4 | 100% |
| Practical | Assessed laboratory work on ALOs 1 and 3 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|---|----------------------------|
| Written exam | 90 minutes examination on ALOs 2 and 4 | 100% |
| Practical | Assessed practical work on ALOs 1 and 3 | 100% |

| To be completed when presented for Minor Change approval and/or annually updated | | |
|---|--------------|---------------------|
| Updated by: | Date: | Approved by: |
| | | Date: XX/XX/XXXX |

UNIVERSITY OF PLYMOUTH MODULE RECORD

BSc (Hons) Maritime Technology (Engineering)

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: MLA 530 **MODULE TITLE:** Fluid Mechanics
CREDITS: 20 **FHEQ LEVEL:** 5 **HECOS CODE:** 100194
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y

SHORT MODULE DESCRIPTOR:

This module provides the students with relevant theoretical knowledge of fluid properties as applied in naval architecture and other marine engineering subjects. Lectures and tutorials will be complemented with experiments fluids lab.

| ELEMENTS OF ASSESSMENT [Use HESA KIS definitions] | | | | | |
|--|-----|-----------------|-----|----------------|-----|
| E1 (Examination) | 70% | C1 (Coursework) | 30% | P1 (Practical) | 00% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This module aims to provides the students with relevant theoretical knowledge of fluid properties as applied in naval architecture and other marine engineering subjects, and in preparation of future module in future modules.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|---|--|
| 1. Outline properties of fluids, and effect of various forces on different surfaces and pipes | KU1, KU2, KU3, CI1, KU1, KU2, KU3, CI1 |
| 2. Compare and contrast Inviscid and viscous fluids and their characteristics | KU1, KU3, CI1, CI3, KT3 |
| 3. Apply fluid mechanics laws in solving maritime problems | KU1, KU3, CI1, KT4, PS2 |
| 4. Give real world examples of laminar and turbulent flow and explain their properties | |

| | |
|--|---|
| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: July to December |

Notes:

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

NATIONAL COST CENTRE: 124

MODULE LEADER: Cdr P Banerjee (Retd)

OTHER MODULE STAFF: None

Summary of Module Content:

Revision (*Mass, force, acceleration, energy, ...*)
Properties of fluid; Viscous and Inviscid flow
Fluid Statics (*Archimedes Principle & Buoyant forces*)
Fluid Kinematics (*Bernoulli's Equation & Application*)
Fluid Dynamics and Laminar, Turbulent Flow
Hydraulics – marine applications
Introduction to CFD

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 70 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 30 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Practical | 20 | Supervised Laboratory or workshop |
| Independent study | 80 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 200 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|---|----------------------------|
| Written exam | 90 minutes examination on ALOs 1, 2 and 3 | 100% |
| Coursework | Take home assignment on ALO4 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|---|----------------------------|
| Written exam | 90 minutes examination on ALOs 1, 2 and 3 | 100% |
| Coursework | Take home assignment on ALO 4 | 100% |

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

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| Updated by: Date: | Approved by: Date: XX/XX/XXXX |
|-----------------------------|---|

UNIVERSITY OF PLYMOUTH MODULE RECORD

BSc (Hons) Maritime Technology (Engineering)

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: MLA 531 **MODULE TITLE:** Mechanics and Thermodynamics
CREDITS: 20 **FHEQ LEVEL:** 5 **HECOS CODE:** 100194
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y
SHORT MODULE DESCRIPTOR:

This module provides the students with theoretical knowledge and engineering application of mechanics of solids and first and second laws of thermodynamics. Lectures and tutorials will be complemented by experiments in workshops and labs.

| ELEMENTS OF ASSESSMENT [Use HESA KIS definitions] | | | | | |
|--|-----|-----------------|-----|----------------|-----|
| E1 (Examination) | 50% | C1 (Coursework) | 50% | P1 (Practical) | 00% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This module aims to provide the students with theoretical knowledge and engineering application of mechanics of solids and first and second laws of thermodynamics.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|---|--|
| 1. Solve engineering problems dealing with force, displacement, velocity and acceleration | KU1, KU2, KU3, CI1, CI3, KT2, ER1, PS2 |
| 2. Apply Kinematics, Dynamics and Shock, Noise and Vibrations related to ship/ marine equipment | KU1, KU2, KU3, CI1, CI2, PS2 |
| 3. Analyse forces in rigid bodies and more complex structures | KU1, KU3, CI1, CI3, PS2 |
| 4. Discuss in detail thermodynamics laws and their applications | KU1, CI1, PS1, PS2 |

| | |
|--|---|
| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: July to December |

Notes:

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

NATIONAL COST CENTRE: 124

MODULE LEADER: Cdr P Banerjee (Retd)

OTHER MODULE STAFF: None

Summary of Module Content:

Definitions, terminology and Units; Statics, Kinematics; Work, Power and Energy; Dynamics
Shock, Noise and Vibration

Zeroth law, Thermal equilibrium and Introduction to Steam Tables

Basic concepts and 1st thermodynamics law

Basic concepts and 2nd thermodynamics law

Fluid cycles; Gas Power Cycles; Refrigeration

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 70 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 30 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Practical | 30 | Supervised Laboratory or workshop |
| Independent study | 70 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 200 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Written exam | 90 minutes examination on ALOs 1 and 3 | 100% |
| Coursework | Take home assignment on ALOs 2 and 4 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|---|----------------------------|
| Written exam | 90 minutes examinations on ALOs 1 and 3 | 100% |
| Coursework | Take home assignment on ALOs 2 and 4 | 100% |

| To be completed when presented for Minor Change approval and/or annually updated | |
|---|---|
| Updated by: Date: | Approved by: Date: XX/XX/XXXX |

UNIVERSITY OF PLYMOUTH MODULE RECORD

BSc (Hons) Maritime Technology (Engineering)

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: MLA 532 **MODULE TITLE:** Auxiliary Machinery
CREDITS: 20 **FHEQ LEVEL:** 5 **HECOS CODE:** 100194
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y

SHORT MODULE DESCRIPTOR:

This module provides the students with theoretical and working principles of Auxiliary machineries typically found in a ship’s engine room. Lectures, tutorials, will be complemented by practical in the workshops and frequent ship visits.

| ELEMENTS OF ASSESSMENT <i>[Use HESA KIS definitions]</i> | | | | | |
|---|-----|-----------------|-----|----------------|-----|
| T1 (Test) | 40% | C1 (Coursework) | 60% | P1 (Practical) | 00% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This module aims to provides the students with theoretical and working principles of Auxiliary machineries typically found in a ship’s engine room.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|---|--|
| 1. Outline layout and various parts of a typical ship’s engine room and their purpose | KU1, KU3, CI1, CI2, KT1, PS1 |
| 2. Evaluate operation and safety measures associated with various auxiliary systems | KU3, CI1, CI2, CI4, KT2, ER4, PS1 |
| 3. Review and analyse purpose and operation of heat exchangers, evaporators, fresh-water generators | KU1, KU3, KT2, PS1, PS2 |
| 4. Appraise operation of steering gear | KU1, CI1, CI2, ER1, ER4, PS1 |

| | |
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| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: July to December |

Notes:

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

NATIONAL COST CENTRE: 124

MODULE LEADER: Cdr P Banerjee (Retd)

OTHER MODULE STAFF: None

Summary of Module Content:

Engine room layout, Piping systems and fittings, Tanks; Valves, cocks, packing, Joints, filters, strainers and seals; Pumps; RO plants and STP
Centrifuges and air compressors
Steering system; Stabiliser; Shafting, Rudders and Propellers

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 70 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 30 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Practical | 30 | Supervised Laboratory or workshop |
| Independent study | 70 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 200 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--------------------------------------|----------------------------|
| Test | In class test on ALOs 1 and 4 | 100% |
| Coursework | Take home assignment on ALOs 2 and 3 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--------------------------------------|----------------------------|
| Test | In class test on ALOs 1 and 4 | 100% |
| Coursework | Take home assignment on ALOs 2 and 3 | 100% |

| To be completed when presented for Minor Change approval and/or annually updated | | |
|---|--------------|---------------------|
| Updated by: | Date: | Approved by: |
| | | Date: XX/XX/XXXX |

UNIVERSITY OF PLYMOUTH MODULE RECORD

BSc (Hons) Maritime Technology (Engineering)

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: MLA 626

MODULE TITLE: Refrigeration and A/C Units

CREDITS: 20

FHEQ LEVEL: 6

HECOS CODE: 100194

PRE-REQUISITES: None

CO-REQUISITES: None

COMPENSATABLE: Y

SHORT MODULE DESCRIPTOR:

This module provides detailed theoretical and practical knowledge of refrigeration and air conditioning as they are used on board a ship. Lectures and tutorial will be complemented by laboratory work, simulation, and visit to ships when appropriate.

| ELEMENTS OF ASSESSMENT <i>[Use HESA KIS definitions]</i> | | | | | |
|---|-----|-----------------|-----|----------------|-----|
| E1 (Examination) | 60% | C1 (Coursework) | 40% | P1 (Practical) | 00% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This module aims to provide detailed theoretical and practical knowledge of refrigeration and air conditioning units as they are used on board a ship.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|---|--|
| 1. Analyse performance of reciprocating compressors | KU1, KU2, CI1, CI2, CI3, CI4, KT1, KT2, PS1 |
| 2. Analyse theoretical aspects of refrigeration and air conditioning | KU1, KU3, CI1, CI2, KT2, PS1, PS2 |
| 3. Appraise design and construction of heat exchangers for refrigeration and A/C units. | KU1, KU3, CI1, CI2, CI4, KT1, KT4, ER3, PS1, |

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| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: Feb to June |

Notes:

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

MODULE LEADER: Cdr P Banerjee (Retd)

NATIONAL COST CENTRE: 124

OTHER MODULE STAFF: None

Summary of Module Content:

Basic Principles of Heat, Elementary refrigeration cycles
Vapour Compression & Vapour Absorption systems
Direct & In-direct cooling systems
Types of compressors; Marine refrigerating plants; Marine air conditioning
Operation, Maintenance & Troubleshooting

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 60 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 20 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Practical | 20 | Supervised Laboratory or workshop |
| Field Trips | 20 | Visit to ports and ships |
| Independent study | 80 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 200 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Written exam | 90 minutes examination on ALOs 1 and 2 | 100% |
| Coursework | Take home assignment on ALO 3 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Written exam | 90 minutes examination on ALOs 1 and 2 | 100% |
| Coursework | Take home assignment on ALO3 | 100% |

| To be completed when presented for Minor Change approval and/or annually updated | | |
|---|--------------|---|
| Updated by: XX/XX/XXXX | Date: | Approved by: Date: XX/XX/XXXX |

UNIVERSITY OF PLYMOUTH MODULE RECORD

BSc (Hons) Maritime Technology (Engineering)

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: MLA 627 **MODULE TITLE:** Internal Combustion Engines I
CREDITS: 20 **FHEQ LEVEL:** 6 **HECOS CODE:** 100194
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y
SHORT MODULE DESCRIPTOR:

This module provides the students with detailed knowledge of construction, operation, and maintenance of marine internal combustion engine, including scavenging and supercharging systems, types of fuel and lubricating oil used.

| ELEMENTS OF ASSESSMENT <i>[Use HESA KIS definitions]</i> | | | | | |
|---|-----|-----------------|-----|----------------|-----|
| E1 (Examination) | 50% | C1 (Coursework) | 50% | P1 (Practical) | 00% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This aim of this is provides the students with knowledge of construction, operation, and maintenance of marine internal combustion engine.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|--|--|
| 1. Analyse and evaluate various types of marine engine and their uses | KU1, KU3, CI1, KT2, PS1 |
| 2. Identify and discuss in detail various systems used in marine diesel engine plants | KU1, CI1, CI3, KT2, ER4, PS1 |
| 3. Analyse and evaluate supercharging system | KU1, KU2, CI1, CI2, CI3, KT1, ER4, PS1 |
| 4. Appraise qualities and behaviour of various types of fuel and lubricating oil used in marine diesel engines | KU1, CI1, CI2, CI4, KT2, KT4, PS1, PS2, PS3 |

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|--|---|
| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: Feb to June |

Notes:

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

MODULE LEADER: Cdr P Banerjee (Retd)

NATIONAL COST CENTRE: 124

OTHER MODULE STAFF: None

Summary of Module Content:

Internal Combustion Engines (Basic Terminology, History, Types)

General description of marine diesel engine, (ICE construction, components, Cycles – Otto, Diesel, dual etc.)

IC engines cooling systems (Sea & Fresh water, LO, Fuel, Air & Exhaust)

Basic of TC, terms, types, operation; Fuel types, Octane & Diesel number

Friction, wear, lubrication, etc

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 70 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 20 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Practical | 20 | Supervised Laboratory or workshop |
| Field Trips | 20 | Visit to ports and ships |
| Independent study | 70 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 200 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Written exam | 90 minutes examination on ALOs 1 and 2 | 100% |
| Coursework | Take home assignment on ALOs 3 and 4 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Written exam | 90 minutes examination on ALOs 1 and 2 | 100% |
| Coursework | Take home assignment on ALOs 3 and 4 | 100% |

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

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| Updated by: Date: XX/XX/XXXX | Approved by: Date: XX/XX/XXXX |
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UNIVERSITY OF PLYMOUTH MODULE RECORD

BSc (Hons) Maritime Technology (Engineering)

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: MLA 629 **MODULE TITLE:** Naval Architecture
CREDITS: 20 **FHEQ LEVEL:** 6 **HECOS CODE:** 100194
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y
SHORT MODULE DESCRIPTOR:

This module builds on previous knowledge in particular Fluid mechanics, and further develops students' knowledge on various aspects of ship design, resistance and propulsion, propeller and rudder design.

| ELEMENTS OF ASSESSMENT [Use HESA KIS definitions] | | | | | |
|--|-----|-----------------|-----|----------------|-----|
| E1 (Examination) | 60% | C1 (Coursework) | 40% | P1 (Practical) | 00% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

The module aims to provide the students with detailed knowledge on various aspects of ship design, resistance and propulsion, propeller and rudder design.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|---|--|
| 1. Solve problems in naval architecture related to seakeeping, damaged stability, and dry-docking | KU1, KU2, KU3, CI1, CI3, KT1, KT3 |
| 2. Assess vessel initial and intact stability | KU1, KU2, CI1, CI3, KT1, KT3, ER3, ER4 |
| 3. Calculate structural loading and integrity | KU1, KU2, CI1, CI2, KT1, KT3, ER3, ER4 |
| 4. Review and report drydocking procedures including safety related issues | CI1, CI4, KT1, KT2, KT4, ER1, ER2, PS1, PS3, PS4 |

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| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: July to December |

Notes:

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

NATIONAL COST CENTRE: 124

MODULE LEADER: Cdr P Banerjee (Retd)

OTHER MODULE STAFF: None

Summary of Module Content:

- Ship design terminology and definitions; Hydrostatics; Buoyancy, stability, C o G
- Damaged stability
- Ship design process; States of Equilibrium
- Stresses on ship structure; Ship structure and strength
- Hull Maintenance Aspects (*corrosion, painting, fouling etc*)
- Docking & Undocking
- Regulatory framework

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 70 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 40 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Independent study | 90 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 200 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Written exam | 90 minutes examination on ALOs 1, 2 and 3 | 100% |
| Coursework | Take home assignment and presentation on ALO 4 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Written exam | 90 minutes examination on ALOs 1, 2, and 3 | 100% |
| Coursework | Take home assignment and presentation on ALO 4 | 100% |

| To be completed when presented for Minor Change approval and/or annually updated | |
|---|---|
| Updated by: Date: XX/XX/XXXX | Approved by: Date: XX/XX/XXXX |

UNIVERSITY OF PLYMOUTH MODULE RECORD

BSc (Hons) Maritime Technology (Engineering)

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: MLA 630 **MODULE TITLE:** Internal Combustion Engines II
CREDITS: 20 **FHEQ LEVEL:** 6 **HECOS CODE:** 100194
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y

SHORT MODULE DESCRIPTOR:

This module continues development on previous modules in particular Internal Combustion Engines I and covers relevant topics on design and operation of marine diesel engines, fuel pumps and operational aspect of marine diesel engines including safety and emergency procedures.

| ELEMENTS OF ASSESSMENT [Use HESA KIS definitions] | | | | | |
|--|-----|------------------------|-----|-----------------------|------------|
| E1 (Examination) | 70% | C1 (Coursework) | 30% | P1 (Practical) | 00% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This module aims to provide the students with detailed knowledge on the design and operation of marine diesel engines, fuel pumps and operational aspect of marine diesel engines including safety and emergency procedures.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|---|--|
| 1. Analyse structure and application of marine fuel injection pump | KU1, KU2, PS1, |
| 2. Demonstrate knowledge, understanding and proficiency in starting and reversing of marine diesel engines | KU1, KU3, CI1, KT1, PS1, PS3 |
| 3. With the aid of diagrams discuss in sufficient detail construction and operation of a marine diesel engine | KU1, KU3, CI4, KT1, PS1, PS2 |
| 4. Calculate forces and stresses in medium speed marine engines | KU1, KU2, CI3, KT1, PS1 |
| 5. Critically discuss the impact of automation on the design and operation of marine diesel engines | KU1, KU3, CI1, KT2, KT4, ER1, ER2, ER4, PS3 |

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| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: July to December |

Notes:

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

NATIONAL COST CENTRE: 124

MODULE LEADER: Cdr P Banerjee (Retd)

OTHER MODULE STAFF: None

Summary of Module Content:

Fuel pumps and metering devices; Governor System & Control; Gearbox, Couplings & Clutches

Starting and reversing procedure; Emergency shutdown; Engine Design, Operating parameters

Failure Analysis, Troubleshooting; Maintenance *(Planned & Condition Based)*

Automation & Simulators

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 70 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 20 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Practical | 20 | Supervised Laboratory or workshop |
| Field Trips | 20 | Visit to ports and ships |
| Independent study | 70 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 200 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Written exam | 90 minutes examination on ALOs 1, 2, 3 and 4 | 100% |
| Coursework | Take home assignment on ALO 5 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Written exam | 90 minutes examination on ALOs 1, 2, 3 and 4 | 100% |
| Coursework | Take home assignment on ALO 5 | 100% |

| To be completed when presented for Minor Change approval and/or annually updated | |
|---|---|
| Updated by: Date: XX/XX/XXXX | Approved by: Date: XX/XX/XXXX |

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: MLA 628 **MODULE TITLE:** Final year project
CREDITS: 40 **FHEQ LEVEL:** 6 **HECOS CODE:** 100194
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** N

SHORT MODULE DESCRIPTOR:

The project module is different from other modules in that although students are supervised, the onus is on the student to define the problem boundaries, to investigate possible solutions, and to present the results in writing and verbally. Apart from an initial briefing session there are no formal lectures to attend. Contact time consists of regular individual/small group meetings to discuss progress.

| ELEMENTS OF ASSESSMENT [Use HESA KIS definitions] | | | |
|--|-----|-------------------------------|-----|
| C1 (Proposal and Report) | 85% | P1 (Oral Presentation) | 15% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This module aims to provide the students with the opportunity to define a suitable topic and work independently to investigate and report on the topic.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|---|--|
| 1. Demonstrate initiative and creativity in applying skills and knowledge and experience gained from previous work in an individual practical, problem solving project, | KU1, KU2, KU3, CI1, CI2, CI3, CI4, KT2, ER3, ER4, PS1, PS2, |
| 2. Further develop generic, project related skills including those of project management, written and verbal communication, and system presentation and demonstration | KU3, CI1, CI2, CI3, KT1, KT2, KT3, KT4, ER3, ER4, PS1, |
| 3. Manage a project and deliver a solution to a potential customer / supervisor as realistically as possible in an academic context. | KU3, CI1, CI2, CI3, KT1, KT2, KT3, ER1, ER2, ER3, PS1, PS2, PS3, PS4 |

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| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: All year |

Notes

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

NATIONAL COST CENTRE: 124

MODULE LEADER: Cdr P Banerjee (Retd)

OTHER MODULE STAFF: Staff will be appointed to supervise the project

Summary of Module Content:

Choice of Topic, Literature Review
 Project Proposal, Ethical issue and clearance
 Dissertation / Project report

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 20 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 20 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Independent study | 360 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 400 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|-------------------------------|----------------------------|
| Coursework | Project proposal | 100% |
| Coursework | Dissertation / Project Report | 100% |
| Practical | Oral Presentation | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|-------------------------------|----------------------------|
| Coursework | Project proposal | 100% |
| Coursework | Dissertation / Project report | 100% |
| Practical | Oral Presentation | 100% |

| To be completed when presented for Minor Change approval and/or annually updated | |
|---|---|
| Updated by: Date: XX/XX/XXXX | Approved by: Date: XX/XX/XXXX |

Definitive Module Records

BSc (Hons) Maritime Technology (Electro Technical)

| Code | Title | Credit |
|---|---|---------------|
| Level 5 Electro Technical - Semester 3 | | |
| MLA533 | Electrical & Electronics Engineering I | 20 |
| MLA534 | Application of Power Electronics | 20 |
| MLA523 | Safety and Emergencies at Sea | 20 |
| Level 5 Electro Technical - Semester 4 | | |
| MLA535 | Electrical & Electronics Engineering II | 20 |
| MLA536 | Electronic Control and Embedded Systems | 20 |
| MLA537 | Operation and Maintenance of Electrical Equipment and Systems | 20 |
| Level 6 Electro Technical - Semester 5 | | |
| MLA631 | Microwave and Radar Engineering | 20 |
| MLA632 | Control Systems, Weapons and Sensors I | 20 |
| MLA628 | Final year project | - |
| Level 6 Electro Technical - Semester 6 | | |
| MLA633 | Communication Systems | 20 |
| MLA634 | Control Systems, Weapons and Sensors II | 20 |
| MLA628 | Final year project | 40 |

UNIVERSITY OF PLYMOUTH MODULE RECORD

BSC (HONS) MARITIME TECHNOLOGY (ELECTRO TECHNICAL)

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: MLA 533 **MODULE TITLE:** Electrical & Electronics Engineering I

CREDITS: 20 **FHEQ LEVEL:** 5 **HECOS CODE:** 100194

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

SHORT MODULE DESCRIPTOR:

This module provides the students with the essential principles that form the foundations of electrical and electronic engineering required for DC and AC motors, including High Voltage power systems, in particular those aspects related to shipboard operations. Lectures and tutorials will be complemented by practical work in workshops and visit to ships.

| ELEMENTS OF ASSESSMENT <i>[Use HESA KIS definitions]</i> | | | | | |
|---|-----|-----------------|-----|----------------|-----|
| E1 (Examination) | 60% | C1 (Coursework) | 00% | P1 (Practical) | 40% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This module aims at providing the students with the knowledge of essential principles that form the foundations of electrical and electronic engineering required for DC and AC motors, including High Voltage power systems.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|---|--|
| 1. Identify electrical components and explain in detail their application | KU1, CI2, KT1, ER4, PS1 |
| 2. Analyse performance of electrical machines | KU1, KU2, CI3, PS1, PS2 |
| 3. Identify electronic components and highlight their use in designing circuits | KU1, CI2, KT1, ER4, PS1 |
| 4. Review and report in detail application of various Power Generation and Distribution equipment and accessories | KU1, CI1, CI2, KT1, KT2, PS1 |

| | |
|--|---|
| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: Feb to June |

Notes:

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

NATIONAL COST CENTRE: 124

MODULE LEADER: Cdr A Mittal (Retd)

OTHER MODULE STAFF: None

Summary of Module Content:

Electrical Circuits, Measurements & Instruments (*Measuring devices theory viz. voltmeter, ammeter, etc.*)

Batteries & Alternate source of energy

Magnetic circuits, Electromagnetism & Electromagnetic Induction

Digital Electronics - Basic GATE theory

Semiconductors, Transistors

Electrical machines (DC & AC machines)

Basics of microprocessors, Control systems & Applications

Power generation & distribution (*Application on ship*)

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 60 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 20 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Practical | 60 | Supervised Laboratory or workshop |
| Independent study | 60 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 200 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|---|----------------------------|
| Written exam | 90 minutes examination on ALOs 2 and 3 | 100% |
| Practical | Assessed practical work on ALOs 1 and 4 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|---|----------------------------|
| Written exam | 90 minutes examination on ALOs 2 and 3 | 100% |
| Practical | Assessed practical work on ALOs 1 and 4 | 100% |

| To be completed when presented for Minor Change approval and/or annually updated | |
|---|---|
| Updated by: Date: | Approved by: Date: XX/XX/XXXX |

UNIVERSITY OF PLYMOUTH MODULE RECORD

Bsc (Hons) Maritime Technology (Electro Technical)

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: MLA 534 **MODULE TITLE:** Application of Power Electronics
CREDITS: 20 **FHEQ LEVEL:** 5 **HECOS CODE:** 100194
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y

SHORT MODULE DESCRIPTOR:

Theoretical and application of various power electronics, such as the amplifier, thyristor, rectifiers, inverters, and semiconductors will be covered in this module. Lectures and tutorials are complemented by workshop practice and ship visits.

| ELEMENTS OF ASSESSMENT [Use HESA KIS definitions] | | | | | |
|--|-----|-----------------|-----|----------------|-----|
| E1 (Examination) | 60% | C1 (Coursework) | 40% | P1 (Practical) | 00% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This module aims to provide the students with detailed and in-depth theoretical knowledge and practical experience of Power Electronics and their maritime applications, as applied to shipboard operations.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|---|--|
| 1. Review and report Amplifier and Thyristor theories | KU1, KU2, KU3, CI1, KT2, PS1 KU1, KU2, CI1, KT1, PS1 |
| 2. Compare and contrast the structure and application of converters, inverters and rectifiers | KU1, CI2, KT2, ER4, PS1, PS2 |
| 3. Compare different instruments used in electronics and their applications | KU1, KU2, CI1, ER4, PS1 |
| 4. Investigate and report electromagnetic interference and compatibility | |

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|--|---|
| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: Feb to June |

Notes:

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

MODULE LEADER: Cdr A Mittal (Retd)

NATIONAL COST CENTRE: 124

OTHER MODULE STAFF: None

Summary of Module Content:

Amplifier theory, Thyristor Theory, Advanced Semiconductor devices
Power Electronic devices
Rectifiers, Inverter, (*Types of Inverters, Regeneration in inverters*)
Converter, EMI & EMC

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 80 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 20 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Practical | 30 | Supervised Laboratory or workshop |
| Field Trips | 20 | Visit to ports and ships |
| Independent study | 50 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 200 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|---|----------------------------|
| Written exam | 90 minutes examination on ALOs 1, 2 and 3 | 100% |
| Coursework | Take home assignment on ALO 4 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|---|----------------------------|
| Written exam | 90 minutes examination on ALOs 1, 2 and 3 | 100% |
| Coursework | Take home assignment on ALO 4 | 100% |

| To be completed when presented for Minor Change approval and/or annually updated | |
|---|---|
| Updated by: Date: | Approved by: Date: XX/XX/XXXX |

UNIVERSITY OF PLYMOUTH MODULE RECORD

Bsc (Hons) Maritime Technology (Electro Technical)

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: MLA 535 **MODULE TITLE:** Electrical and Electronics Engineering II
CREDITS: 20 **FHEQ LEVEL:** 5 **HECOS CODE:** 100194
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y
SHORT MODULE DESCRIPTOR:

The main topics covered in this module are the shipboard power generation and distribution and allied systems and instrumentation. An introduction to control systems is also provided.

| ELEMENTS OF ASSESSMENT <i>[Use HESA KIS definitions]</i> | | | | | |
|---|-----|-----------------|-----|----------------|-----|
| E1 (Examination) | 70% | C1 (Coursework) | 00% | P1 (Practical) | 30% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This module further develops the students’ relevant theoretical knowledge and practical experience of shipboard power generation and distribution and various instrumentation, as well as an introduction to control systems.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|---|--|
| 1. Compare and contrast types, operation & applications of AC & DC Motors | KU1, KU3, CI1, CI2, PS1 |
| 2. Propose a shipboard power generation and distribution arrangement in detail | KU1, KU3, CI1, CI2, CI4, KT1, KT3, ER2, PS1 |
| 3. Provide details of generators and their control system with application on ships | KU1, KU3, CI1, PS1 |
| 4. Investigate and report application of UPS and batteries onboard Ships | KU1, KU3, CI1, KT4, ER4, PS1, PS2 |

| | |
|--|---|
| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: July to December |

Notes:

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

MODULE LEADER: Cdr A Mittal (Retd)

NATIONAL COST CENTRE: 124

OTHER MODULE STAFF: None

Summary of Module Content:

DC Motors; Control & Servo Systems and components
Generators & Generator controls
Power generation and distribution systems
Switchboards
AC Motors; Electrohydraulic & Pneumatic Systems
Application of UPS & Batteries onboard ships

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 60 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 20 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Practical | 50 | Supervised Laboratory or workshop |
| Field Trips | 20 | Visit to ports and ships |
| Independent study | 50 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 200 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|---|----------------------------|
| Written exam | 90 minutes examination on ALOs 1 and 3 | 100% |
| Practical | Assessed practical work on ALOs 2 and 4 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|---|----------------------------|
| Written exam | 90 minutes examination on ALOs 1 and 3 | 100% |
| Practical | Assessed practical work on ALOs 2 and 4 | 100% |

| To be completed when presented for Minor Change approval and/or annually updated | |
|---|---|
| Updated by: Date: | Approved by: Date: XX/XX/XXXX |

UNIVERSITY OF PLYMOUTH MODULE RECORD

Bsc (Hons) Maritime Technology (Electro Technical)

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: MLA 536 MODULE TITLE: Electronic Control and Embedded Systems

CREDITS: 20

FHEQ LEVEL: 5

HECOS CODE: 100194

PRE-REQUISITES: None

CO-REQUISITES: None

COMPENSATABLE: Y

SHORT MODULE DESCRIPTOR:

This module being multidisciplinary provides the students with theoretical knowledge and practical experience of electronic control and embedded systems which covers the whole spectrum of algorithms, computer software and hardware, digital electronics, sensors and actuators. This module is taught by a combination of lectures, tutorial, and laboratory exercises.

| ELEMENTS OF ASSESSMENT <i>[Use HESA KIS definitions]</i> | | | | | |
|---|-----|-----------------|-----|----------------|-----|
| T1 (Test) | 60% | C1 (Coursework) | 00% | P1 (Practical) | 40% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This module aims to provide the students with theoretical knowledge and practical experience of electronic control and embedded systems.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|---|--|
| 1. Use real world applications to discuss electronic control and embedded systems | KU1, KU2, KU3, CI2, PS1, PS3 |
| 2. Investigate microprocessor design and their application in embedded systems | KU1, KU3, KT3, PS1, PS3 |
| 3. Outline the process of designing and testing networks, PLC systems and their application onboard ships | KU1, KU3, CI1, KT1, PS1, PS3 |
| 4. Analyse, design, test and debug linear control circuits | KU1, KU2, KU3, CI1, CI3, KT2, KT3, PS1, PS2, |

| | |
|--|---|
| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: July to December |

Notes

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

MODULE LEADER: Cdr A Mittal (Retd)

NATIONAL COST CENTRE: 124

OTHER MODULE STAFF: None

Summary of Module Content:

Amplifier theory, Thyristor Theory, Advanced Semiconductor devices
Power Electronic devices
Rectifiers, Inverter, (*Types of Inverters, Regeneration in inverters*)
Converter, EMI & EMC

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 60 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 20 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Practical | 50 | Supervised Laboratory or workshop |
| Field Trips | 20 | Visit to ports and ships |
| Independent study | 50 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 200 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Written exam | 90 minutes examination ALOs 1, 2 and 3 | 100% |
| Practical | Assessed practical work on ALO 4 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Written exam | 90 minutes examination ALOs 1, 2 and 3 | 100% |
| Practical | Assessed practical work on ALO 4 | 100% |

| To be completed when presented for Minor Change approval and/or annually updated | |
|---|---|
| Updated by: Date: XX/XX/XXXX | Approved by: Date: XX/XX/XXXX |

UNIVERSITY OF PLYMOUTH MODULE RECORD

Bsc (Hons) Maritime Technology (Electro Technical)

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: MLA 537 MODULE TITLE: Operation and Maintenance of Electrical Equipment and Systems

CREDITS: 20 FHEQ LEVEL: 5 HECOS CODE: 100194

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

SHORT MODULE DESCRIPTOR:

Operation, maintenance and repair of plants and systems is a core element of this programme, and this module provides the students with theoretical and working principles of electrical plants, techniques, procedures, and methods used in installation, commissioning, testing and fault finding, maintenance of electrical installations onboard a ship.

| ELEMENTS OF ASSESSMENT [Use HESA KIS definitions] | | | | | |
|--|-----|-----------------|-----|----------------|-----|
| T1 (Test) | 00% | C1 (Coursework) | 60% | P1 (Practical) | 40% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This module aims to provide the students with theoretical and working principles of electrical plants, techniques, procedures, and methods used in installation, commissioning, testing and fault finding, maintenance of electrical installations onboard a ship.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|--|--|
| 1. Discuss theoretical aspects of various electrical systems and demonstrate an ability to operate them safely | KU1, KU3, CI1, CI2, KT1, KT2, PS1, PS2 |
| 2. Find and interpret technical data from manufacturers manuals on electrical systems' operational performance and maintenance | KU3, CI1, CI2, CI4, KT1, KT4, PS1, PS2, PS3 |
| 3. Implement safe working practices in an electrical installation environment | CI2, KT1, KT2, ER4, PS1, PS2, PS3 |
| 4. Implement functional wiring for a range of practical circuits and equipment | KU3, CI2, KT1, ER4, PS1, PS2, PS3 |
| 5. Work alone or in a team to carry out inspections, test measurements and fault diagnosis and compiling technical reports | CI1, CI2, CI4, KT1, KT2, KT4, ER2, ER4, PS1, PS2, PS3, PS4 |

| | |
|--|---|
| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: July to December |

Notes:

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
MODULE LEADER: S K Nalli

NATIONAL COST CENTRE: 124
OTHER MODULE STAFF: None

Summary of Module Content:

Safe working practices; Starting & Stopping Procedures; Motor Power and Control Circuits
 Testing and commissioning (*Acceptance trials and trial procedures*)
 Fault diagnosis and troubleshooting, Repair and maintenance

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 60 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 20 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Practical | 40 | Supervised Laboratory or workshop |
| Field Trips | 20 | Visit to ports and ships |
| Independent study | 60 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 200 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Coursework | Take home assignment on ALOs 2 and 3 | 100% |
| Practical | Assessed practical work on ALOs 1, 4 and 5 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Coursework | Take home assignment on ALOs 2 and 3 | 100% |
| Practical | Assessed practical work on ALOs 1, 4 and 5 | 100% |

| To be completed when presented for Minor Change approval and/or annually updated | | |
|---|--------------|---|
| Updated by: XX/XX/XXXX | Date: | Approved by: Date: XX/XX/XXXX |

UNIVERSITY OF PLYMOUTH MODULE RECORD

BSc (Hons) Maritime Technology (Electro Technical)

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: MLA 631 **MODULE TITLE:** Microwave and Radar Engineering
CREDITS: 20 **FHEQ LEVEL:** 6 **HECOS CODE:** 100194
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y

SHORT MODULE DESCRIPTOR:

This module provides detailed theoretical and practical knowledge and skills to understand the theory and operation of common marine navigation equipment including microwave and Radar systems and identify faults and perform basic remedial repairs. The module is taught through classroom lectures and tutorial and laboratory work.

| ELEMENTS OF ASSESSMENT [Use HESA KIS definitions] | | | | | |
|--|-----|------------------------|-----|-----------------------|-----|
| E1 (Examination) | 60% | C1 (Coursework) | 00% | P1 (Practical) | 40% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This module aims to provide the students with theoretical and practical knowledge and skills to understand the theory and operation of common marine navigation equipment, identify faults and perform basic remedial repairs.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|---|--|
| 1. Appraise the theoretical aspects of navigational equipment and demonstrate an ability to operate them | KU1, KU2, CI2, KT1, KT2, ER4, PS1, PS3 |
| 2. Find and apply technical data from manufacturers manuals on system operational performance and maintenance | KU3, CI1, CI2, CI4, KT1, KT2, ER2, PS1, PS3 |
| 3. Investigate microwave and Radar theory | KU1, KU2, CI2, PS2 |
| 4. Review and analyse procedure/methodology related to, conduct, inspections, testing and fault diagnosis of various navigation equipment | CI1, CI4, KT1, KT2, KT4, ER1, ER2, ER4, PS1, PS2, PS3 |

| | |
|--|---|
| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: Feb to June |

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

MODULE LEADER: S K Nalli

NATIONAL COST CENTRE: 124

OTHER MODULE STAFF: None

Summary of Module Content:

Marine Navigation Systems; Basic Principles of Radar and ARPA

Marine Radar systems; Maintenance procedures & practice

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 60 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 40 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Practical | 20 | Supervised Laboratory or workshop |
| Field Trips | 20 | Visit to ports and ships |
| Independent study | 60 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 200 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|---|----------------------------|
| Written exam | 90 minutes examination on ALOs 1 and 3 | 100% |
| Practical | Assessed practical work on ALOs 2 and 4 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|---|----------------------------|
| Written exam | 90 minutes examination on ALOs 1 and 3 | 100% |
| Practical | Assessed practical work on ALOs 2 and 4 | 100% |

| To be completed when presented for Minor Change approval and/or annually updated | |
|---|---|
| Updated by: Date: XX/XX/XXXX | Approved by: Date: XX/XX/XXXX |

UNIVERSITY OF PLYMOUTH MODULE RECORD

Bsc (Hons) Maritime Technology (Electro Technical)

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: MLA 632 MODULE TITLE: Control systems, weapons and sensors I

CREDITS: 20 FHEQ LEVEL: 6 HECOS CODE: 100194

PRE-REQUISITES: None CO-REQUISITES: None COMPENSATABLE: N

SHORT MODULE DESCRIPTOR:

This module provides students with an appreciation and theoretical knowledge of various naval platforms and their operational capabilities and their weapons systems. Sonar theory will be discussed and further develops students' knowledge on various aspects of design, build, operation and maintenance of Sonar systems.

| ELEMENTS OF ASSESSMENT [Use HESA KIS definitions] | | | | | |
|--|-----|-----------------|-----|----------------|-----|
| E1 (Examination) | 60% | C1 (Coursework) | 40% | P1 (Practical) | 00% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This module aims to provide students with the theoretical knowledge of various naval platforms and their operational capabilities and their weapons systems.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|---|--|
| 1. Identify and compare capabilities of various naval platforms | CI1, CI2, KT1, KT2, ER3, ER4, PS1 |
| 2. Discuss operational principles of various weapons systems | KU3, CI1, CI2, CI3, KT1, ER3, ER4, PS1 |
| 3. Breakdown of the Sonar system and provide description of subsystems | KU3, CI1, CI2, CI3, CI4, KT1, KT3, PS1 |
| 4. Investigate properties of sound, their relationships, and underwater propagation | KU1, KU3, CI1, PS2 |

| | |
|--|---|
| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: Feb to June |

Notes:

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

MODULE LEADER: S K Nalli

NATIONAL COST CENTRE: 124

OTHER MODULE STAFF: None

Summary of Module Content:

Type of naval vessels and operational capabilities; Naval weapons systems; Weapons and Gun Mounts
Historical developments; Underwater sound; Sonar types (active, passive); Target Detection and ranging

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 80 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 40 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Field Trips | 20 | Visit to ports and ships |
| Independent study | 60 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 200 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Written exam | 90 minutes examination on ALOs 3 and 4 | 100% |
| Coursework | Take home assignment on ALOs 1 and 2 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Written exam | 90 minutes examination on ALOs 3 and 4 | 100% |
| Coursework | Take home assignment on ALOs 1 and 2 | 100% |

| To be completed when presented for Minor Change approval and/or annually updated | |
|---|---|
| Updated by: Date: XX/XX/XXXX | Approved by: Date: XX/XX/XXXX |

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: MLA 633 **MODULE TITLE:** Communications Systems
CREDITS: 20 **FHEQ LEVEL:** 6 **HECOS CODE:** 100194
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y

SHORT MODULE DESCRIPTOR:

This module provides the students with detailed theoretical knowledge of design, and practical experience of operation and maintenance of marine communication systems commonly used on board a ship.

| ELEMENTS OF ASSESSMENT [Use HESA KIS definitions] | | | | | |
|--|-----|-----------------|-----|----------------|-----|
| E1 (Examination) | 60% | C1 (Coursework) | 00% | P1 (Practical) | 40% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This module aims to provide the students with theoretical knowledge of design, and practical experience of operation and maintenance of marine communication systems.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|---|--|
| 1. Discuss theoretical aspects and demonstrate operation of various shipboard communication system | KU1, KU2, CI2, KT1, KT2, ER4, PS1, PS3 |
| 2. Find and use technical data from manufacturers manuals on system operational performance and maintenance | CI1, CI2, CI4, KT1, KT2, ER2, PS1, PS3 |
| 3. Compare and contrast operation of different satellite communication systems | KU1, KU2, CI2, |
| 4. Review and analyse procedure/methodology related to conduct, inspections, testing and fault diagnosis of communication equipment & systems | CI1, CI4, KT1, KT2, KT4, ER1, ER2, ER4, PS1, PS3, PS4 |

| | |
|--|---|
| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: July to December |

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

NATIONAL COST CENTRE: 124

MODULE LEADER: Cdr A Mittal (Retd)

OTHER MODULE STAFF: None

Summary of Module Content:

Digital Communications; Marine Satellite Communication; Communication Systems

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 60 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 40 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Practical | 40 | Supervised Laboratory or workshop |
| Independent study | 60 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 200 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|---|----------------------------|
| Written exam | 90 minutes examination on ALOs 1 and 3 | 100% |
| Practical | Assessed practical work on ALOs 2 and 4 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|---|----------------------------|
| Written exam | 90 minutes examination on ALOs 1 and 3 | 100% |
| Practical | Assessed practical work on ALOs 2 and 4 | 100% |

| To be completed when presented for Minor Change approval and/or annually updated | | |
|---|--------------|---|
| Updated by: XX/XX/XXXX | Date: | Approved by: Date: XX/XX/XXXX |

UNIVERSITY OF PLYMOUTH MODULE RECORD

Bsc (Hons) Maritime Technology (Electro Technical)

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: MLA 634 **MODULE TITLE:** Control systems, weapons and sensors II
CREDITS: 20 **FHEQ LEVEL:** 6 **HECOS CODE:** 100194
PRE-REQUISITES: None **CO-REQUISITES:** None **COMPENSATABLE:** Y
SHORT MODULE DESCRIPTOR:

This module is developed to provide the students with further knowledge of various weapons sensing devices, guidance and control.

| ELEMENTS OF ASSESSMENT <i>[Use HESA KIS definitions]</i> | | | | | |
|---|-----|-----------------|-----|----------------|-----|
| E1 (Examination) | 60% | C1 (Coursework) | 00% | P1 (Practical) | 40% |

SUBJECT ASSESSMENT PANEL to which module should be linked: MLA

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

This module aims to provide the students with theoretical knowledge of various weapon systems sensing, guidance and control.

ASSESSED LEARNING OUTCOMES:

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

| Assessed Module Learning Outcomes | Award/ Programme Learning Outcomes contributed to |
|---|--|
| 1. Identify various types of sensors and their limitations, used in weapons systems | KU1, KU2, CI1, CI2, PS1 |
| 2. Investigate and discuss in detail operation of control & guidance systems | KU1, KU2, CI1, PS1 |
| 3. Review and analyse procedure / methodology related to, conduct, inspections, testing and fault diagnosis of various Weapon equipment & systems | KU1, CI3, KT1, KT2, KT4, ER4, PS1, PS2, PS3, PS4 |

| | |
|--|---|
| DATE OF APPROVAL: 15/06/2021 | FACULTY/OFFICE: Academic Partnership |
| DATE OF IMPLEMENTATION: 02/2022 | SCHOOL/PARTNER: MLA |
| DATE(S) OF APPROVED CHANGE: N/A | SEMESTER: July to December |

Notes:

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

MODULE LEADER: S K Nalli

NATIONAL COST CENTRE: 124

OTHER MODULE STAFF: None

Summary of Module Content:

Automatic Tracking Systems; Electronic Scanning and Phased Arrays.
Underwater Detection and Tracking; Visible and Infrared Spectrum; Countermeasures
Guidance and Control; Operation, Maintenance & Trouble shooting

| SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions] | | |
|--|--------------|--|
| Scheduled Activities | Hours | Comments/Additional Information (briefly explain activities, including formative assessment opportunities) |
| Lecture | 60 | Lecture, small group discussions, chance for interactive class participation |
| Tutorial | 40 | Discussions with peers and tutor. Formative tasks will be included here, with opportunity for feedback at next tutorial. |
| Practical | 40 | Supervised Laboratory or workshop |
| Independent study | 60 | Reading around the subject based upon direction from tutor and personal research, and preparation for assessment |
| Total | 200 | (NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.) |

SUMMATIVE ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Written exam | 90 minutes examination on ALOs 1 and 2 | 100% |
| Coursework | Take home assignment on ALO 3 | 100% |

REFERRAL ASSESSMENT

| Element Category | Component Name | Component Weighting |
|-------------------------|--|----------------------------|
| Written exam | 90 minutes examination on ALOs 1 and 2 | 100% |
| Coursework | Take home assignment on ALO 3 | 100% |

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

| | |
|--|---|
| Updated by: Date: XX/XX/XXXX | Approved by: Date: XX/XX/XXXX |
|--|---|

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