

**PROGRAMME SPECIFICATION**

**Programme Title:**  HNC Marine Engineering

**Partner Institution:** Cornwall College at Falmouth Marine School

**Start Date:** September 2014

**First Date of Award:** July 2016 (Part time only)

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

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# PROGRAMME SPECIFICATION

This Programme Specification should contain no information referring to individual members of staff as it will be employed as a public document.

# **Programme Details**

|  |  |
| --- | --- |
| **Awarding Institution:** | Plymouth University |
| **Teaching Institution:** | Cornwall College Group, Falmouth Marine School |
| **Accrediting Body:** | N/A |
| **Language of Study:** | English |
| **Mode of Study:** | Part time |
| **Final Award:** | HNC |
| **Intermediate Award:** | N/A |
| **Programme Title:** | HNC Marine Engineering |
| **UCAS Code:** | N/A |
| **JACS Code:** | H100 |
| **Benchmarks:** | Informed by: Engineering (2010) and FHEQ |
| **Date of Programme Approval:** | 20 May 2014 |

# Brief Description of the Programme

The following is a description of the programme that clarifies both its position within the delivering institution and Plymouth University’s portfolio. This material/ may be used for promotion of the programme and the text should be approximately 200-250 words.

The programme is will provide a challenging, innovative and broad based vocational programme of study to enable the learner to undertake professional development within their area of employment. It will develop the concepts, knowledge, skills and techniques required to support engineering and marine related industries within the south-west of England.

The programme will attract students from a wide variety of academic and employment backgrounds who are interested in developing both the vocational and academic skills required for progression in those industries

Learners will be encouraged to focus on the development of higher level skills in a technical and management context to enhance progression opportunities across a range of careers within marine related industry. The range of optional modules will allow the student to tailor their programme of study to meet the needs of their employment.

This programme of learning will provide opportunities for learners to gain a university accredited vocational qualification and will provide partial fulfilment of the underpinning knowledge and understanding requirements for registration as an Incorporated Engineer (IEng). It also offers learners a progression route to the professional qualifications offered by Institute of Marine Engineering Science and Technology (IMarEST).

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

Whilst there is no direct accreditation at this time (application for accreditation to IMarEST is underway), the programme will provide learners with the opportunity to apply for membership (on payment of the relevant membership fees) of the following professional body:

* Institute of Marine Engineering Science and Technology (IMarEST).

# Exceptions to Plymouth University Regulations

*(Note: Plymouth University’s Academic Regulations are available internally on the intranet:* [*https://staff.plymouth.ac.uk//extexam/academicregs/intranet.htm*](https://staff.plymouth.ac.uk/extexam/academicregs/intranet.htm) *)*

There are none.

# Programme Aims

The programme will deliver:

1. A challenging, innovative and broad based programme of study that will enable the candidate to develop the concepts, knowledge, skills and techniques required for employment and progression within marine related industries
2. Graduates who will meet the needs of the marine related industries with the specialist skills to be responsive to current industry requirements as well as identifying and responding to future trends.
3. A high level of vocational skills training and analysis that will also form part of their future progression opportunities
4. A means of attracting students who come from a wide variety of academic and employment backgrounds and are interested in developing the ability to integrate the vocational and academic skills required by marine related industries, enabling the understanding of the vocational area through both academic and professional reflective practice.
5. A high degree of contextualised module delivery that reflects and develops the specialist requirements of marine related industry.

# Programme Intended Learning Outcomes (ILO)

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

1. Demonstrate a knowledge and understanding of essential facts, concepts, theories and principles of engineering disciplines and the underpinning science and mathematics and will have an appreciation of the wider multidisciplinary engineering context and the underlying principles.
2. Apply appropriate quantitative science and engineering tools to the analysis of problems and be able to demonstrate creative and innovative ability in the synthesis of solutions and in formulating design thus working with an appropriate level of detail.
3. Develop transferable skills that will be of value in a wide range of situations and include those skills required in problem solving, communication, and working with others, as well as making effective use of general IT facilities and information retrieval skills.
4. Recognise and develop practical engineering skills acquired through their employment within the marine related industries and also undertake work within laboratories and workshops.
5. Undertake individual and group project work and develop the skills required in the use of computer software in design, analysis, control and report writing.
6. Employ a range of skills, techniques, personal qualities and attributes essential for successful performance in working life thus enabling them to make a significant contribution to employment at the appropriate professional level
7. Appreciate the social, environmental, ethical, economic and commercial considerations affecting the exercise of their engineering judgement
8. Undertake further progression towards an undergraduate degree or professional qualification.

# Distinctive Features

The following provides a definitive and approved list of elements that may be used to both conceptualise and promote the market position of this programme:

The distinctive features of the course are:

* Located in Falmouth town which supports a range of thriving marine related industries, the course will make full use of the experience of those learners employed within local business as prime examples for case studies.
* That it is structured such that it is of relevance to a large number of marine related industries within the south-west of England that are constantly developing and evolving.
* Is intended to attract students with marine industry backgrounds who would like to develop their skills to enable professional progression through managerial roles within the industry
* Requires the learner to identify a mentor within their company to aid and develop learning
* Delivery will be based at the new college campus in Falmouth with the benefit of relevant marine engineering, marine electrical, marine hydraulic and marine design resources
* Falmouth Marine School provides an enhanced opportunity for students to benefit from the pastoral and tutorial support of their tutors due to the range of marine related skills, knowledge and ability of the academic and technical staff available to support the learners through their programme of learning

# Student Numbers

The following provides information that should act as a guide to assure the quality of the student experience, progression opportunities, and staff and resource planning:

Approximate minimum student numbers per stage = 10

Target student numbers per stage =14

Approximate maximum student numbers per stage = 16

# Progression Route(s)

Approved ‘progression route(s)’ are those where successful achievement on a programme enables a student to progress onto a stage of another Plymouth University programme.

Learners successfully completing the HNC Marine Engineering may progress to:

BSc (Hons) Marine and Composite Technology, Level 5, (Plymouth University)

For those learners successfully completing the programme of learning and achieving a minimum of 60% in the core modules of study, there is the opportunity to progress to:

BEng (Hons) Marine Technology, Level 4, (Plymouth University)

There may however, be factors that limit the availability of a place on a progression route in any one year. If a progression route place is not available in the first year in which a student wishes to progress to Plymouth University, a place is guaranteed within three years. Should a Plymouth University progression route be withdrawn, the timing of the programme closure will either be timed so as to allow progression for existing students who wish to progress immediately onto a Plymouth University programme (excluding periods of interruption or repeat years of study) or appropriate alternative solutions will be found.

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

# Admissions Criteria

|  |  |
| --- | --- |
| **Qualification(s) Required for Entry to this Programme:** | **Details:** |
| **Level 2:** |  |
| * **Key Skills requirement / Higher Level Diploma:** | Normally: Literacy, Numeracy and Science (Level 2) |
| **and/or** |  |
| * **GCSEs required at Grade C or above:** | Maths and English |
| **Level 3: preferably one of the following:** |  |
| * **A Levels required to meet AS/A2/UCAS Points Tariff:** | 120 points (to include at least 80 from A2) Maths/ Science/ Engineering/ Design Technology or similar |
|  |  |
| * **BTEC National Certificate/Diploma:** | PM at BTEC National Certificate in Engineering  PPP at BTEC Extended Diploma in Engineering  PPP at BTEC National Diploma in Engineering |
|  |  |
| * **VDA: AGNVQ, AVCE, AVS:** | Pass in a relevant subject area |
| * **Access to HE or Year 0 provision:** | Successful completion of an access programme in a relevant subject with 45 credits at Level 3 |
| * **International Baccalaureate:** | 24 point score |
| * **Irish / Scottish Highers / Advanced Highers:** | Normally 120 points to include Higher or Advanced Higher (considered on an individual basis) |
| **Work Experience:** | Part time/ Full time Employment within a marine related industry |
| **Other non-standard awards or experiences:** | To have completed a recognised marine related or engineering related apprenticeship or to have significant work related experience |
| **APEL / APCL possibilities:** | Applications are considered on an individual basis |
| **Interview / Portfolio requirements** | Interviews WILL be required by the tutor |
| **Independent Safeguarding Agency (ISA) / Disclosure and Barring Service (DBS) clearance required:** | Not required. |

# Academic Standards and Quality Enhancement

The programme will follow Plymouth University’s current annual monitoring process for partnership programmes to complete evaluation of and planning for maintaining and improving quality and standards.

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

**Subject External Examiner(s):**

All modules are parented by this programme and are therefore covered by this programme's External Examiner.

**Additional stakeholders specific to this programme:**

The current Edexcel BTEC HNC Marine Engineering has attracted the attention of many key industry employers, particularly the Ministry of Defence (HM Royal Naval Dockyard, Devonport), Pendennis Super Yachts, Fugro Seacore and other SMEs based in the south-west region. Their input and guidance on relevant modules of learning to their respective industries have formed the basis for the current module content.

# Programme Structure

The following provides the current structure diagram for this programme. It enables both full time and part time routes to be compared within a single diagram as well as any optional modules to be clearly indicated.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **FHEQ Level: 4**. **For: HNC Marine Engineering and Management** | | | | | | | |
| **F/T Route Year** | **P/T Route Year** | **Core or Option Module** | **Credits** | **Module** **Code** | **Term** | | **Module** |
| N/A | 1 | Core | 20 | CORF143 | AY | | Analytical Methods |
| N/A | 1 | Core | 20 | CORF144 | AY | | Engineering Science |
| N/A | 1 | Option | 20 | CORF146 | | AY | Project Management |
| N/A | 1 | Option | 20 | CORF147 | AY | | Pneumatic and Hydraulic Systems Design and Management |
| N/A | 1 | Option | 20 | CORF148 | AY | | 3-D Computer Aided Design |
| N/A | 1 | Option | 20 | CORF153 | AY | | Marine Control and Instrumentation Systems |
|  |  |  |  |  |  | |  |
| N/A | 2 | Core | 20 | CORF145 | AY | | Naval Architecture |
| N/A | 2 | Option | 20 | CORF151 | AY | | Engineering Business Management Techniques |
| N/A | 2 | Option | 20 | CORF152 | AY | | Marine Composite Materials |
| N/A | 2 | Option | 20 | CORF154 | AY | | Work-based Experience |
|  |  |  |  |  |  | |  |

Students will be required to undertake 60 credits per academic year, totalling 120 credits over the two-year programme.

Optional modules are to be selected on enrolment in agreement with the Programme Manager. These modules will be delivered on a blended learning basis which will be discussed with the student at admissions stage.

# PS13. Exposition and Mapping of Learning Outcomes, Teaching & Learning and Assessment

Developing graduate attributes and skills, at any level of HE, is dependent on the clarity of strategies and methods for identifying the attributes and skills relevant to the programme and the where and how these are operationalized. The interrelated factors of Teaching, Learning and Assessment and how these are inclusive in nature are fundamentally significant to these strategies and methods, as are where and how these are specifically distributed within the programme.

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Level: 4** | | | | | | |
| **Definitions of Graduate Attributes and Skills Relevant to this Programme** | **Teaching and Learning Strategy / Methods** | **Programme Aims** | **Programme Intended Learning Outcomes** | **Range of Assessments** | **Related Core Modules** | |
| **Knowledge / Understanding:**  For this sub-bachelor level programme the following has been informed by the Foundation Degree Qualification Benchmark (FDQB), as well as the QAA Subject Benchmark(s) The Accreditation of Higher Education Programmes  UK Standard for Professional Engineering Competence 2010  *“they must be able to demonstrate their knowledge and understanding of essential facts, concepts, theories and principles of their engineering discipline, and its underpinning science and mathematics. They must have an appreciation of the wider multidisciplinary engineering context and its underlying principles. They must appreciate the social , environmental, ethical, economic and commercial considerations affecting the exercise of their engineering judgement”*  By the end of this level of this programme the students will be able to demonstrate for:  A threshold pass:  The learners will apply analytical mathematical knowledge concepts and techniques and investigate a number of major scientific principles, which underpin the design and operation of engineering systems, to include factors affecting ship design and construction. This will be assessed through a range of elements to include in-class testing, assignment report writing and laboratory/practical report. | | Primary:  Lectures, Tutorials and discussion groups  Guided independent studies  Secondary/Supplementary:  Critical evaluation of theoretical sessions  Continuous feedback from module tutors | 1, 3, 4 | 3,4,6 | Exams  Laboratory/ Practical Reports  Assignments | CORF143  CORF144  CORF145 | |
| An exposition for embedding Knowledge and Understanding through Teaching & Learning and Assessment at this level of the programme:  The learner has demonstrated: Knowledge and understanding of scientific principles and methodology necessary to underpin their education in their engineering discipline, to enable appreciation of its scientific and engineering context, and to support their understanding of historical, current, and future developments and technologies; Knowledge and understanding of mathematical principles necessary to underpin their education in their engineering discipline and to enable them to apply mathematical methods, tools and notations proficiently in the analysis and solution of engineering problems; Ability to apply and integrate knowledge and understanding of other engineering disciplines to support study of their own engineering discipline | | | | | | | |
| **Cognitive and Intellectual Skills:**  For this sub-bachelor level programme the following has been informed by the Foundation Degree Qualification Benchmark (FDQB), as well as QAA Subject Benchmark(s) Engineering Council 2010  *“They must be able to apply appropriate quantitative science and engineering tools to the analysis of problems. They must be able to demonstrate creative and innovative ability in the synthesis of solutions and in formulating designs. They must be able to comprehend the broad picture and thus work with an appropriate level of detail.”*  By the end of this level of this programme the students will be able to demonstrate for:  A threshold pass:  The learner will apply analytical principals to resolve mechanical, electrical and marine related problems whilst demonstrating an innovative approach in resolving complex problems to create detailed solutions. This to be assessed through elements of in-class testing and assignment writing. | | Primary:  Lectures, Tutorials and discussion groups  Guided independent studies  Secondary/Supplementary:  Critical evaluation of theoretical sessions  Continuous feedback from module tutors | 1, 3, 5 | 1,2,3 | In-class tests  Reports  Assignments | | CORF143  CORF144  CORF145 |
| An exposition for embedding Cognitive and Intellectual Skills through Teaching & Learning and Assessment at this level of the programme:  An understanding of engineering principles and the ability to apply them to analyse key engineering processes; The ability to identify, classify and describe the performance of systems and components through the use of analytical methods and modelling techniques; the ability to apply quantitative methods and computer software relevant to their engineering discipline, in order to solve engineering problems; The understanding of and ability to apply a systems approach to engineering problems | | | | | | | |
| **Key Transferable Skills:**  For this sub-bachelor level programme the following has been informed by the Foundation Degree Qualification Benchmark (FDQB), as well as QAA Subject Benchmark(s) Engineering Council 2010  *“They must have developed transferable skills that will be of value in a wide range of situations. These are exemplified by the Qualifications and Curriculum Authority Higher Level Key Skills and include problem solving, communication, and working with others, as well as the effective use of general IT facilities and information retrieval skills. They also include planning self-learning and improving performance, as the foundation for lifelong learning/CPD.”*  By the end of this level of this programme the students will be able to demonstrate for:  A threshold pass:  The learner will apply analytical skills to a range of detailed situations and communicating these effectively through the use of mathematical solution and use of relevant IT software packages (Excel, Minitab, Wolfram Alpha) to demonstrate understanding. This to be assessed through a range of elements to include in-class testing and completion of in class assessment | | Primary:  Lectures, Tutorials and discussion groups  Guided independent studies  Secondary/Supplementary:  Critical evaluation of theoretical sessions  Continuous feedback from module tutors | 3,4,5 | 3,4,5,6 | In-class tests  Reports  Assignments | | CORF143  CORF144  CORF145 |
| An exposition for embedding Key Transferable Skills through Teaching & Learning and Assessment at this level of the programme:  The ability to investigate and define a problem and identify constraints including environmental and sustainability limitations, health and safety and risk assessment issues; Understand customer and user needs and the importance of considerations such as aesthetics; Identify and manage cost drivers; Use creativity to establish innovative solutions; Ensure fitness for purpose for all aspects of the problem including production, operation, maintenance and disposal | | | | | | | |
| **Practical Skills:**  For this sub-bachelor level programme the following has been informed by the Foundation Degree Qualification Benchmark (FDQB), as well as QAA Subject Benchmark(s) Engineering Council 2010  *“they must possess practical engineering skills acquired through, for example, work carried out in laboratories and workshops; in industry through supervised work experience; in individual and group project work; in design work; and in the development and use of computer software in design, analysis and control. Evidence of group working and of participation in a major project is expected.”*  By the end of this level of this programme the students will be able to demonstrate for:  A threshold pass:  The learner will undertake and be assessed through practical skills through the Engineering Science and naval Architecture modules to be assessed through laboratory/ practical report writing.  Other modules of learning will evidence the use and management of WORK related equipment, components, control, management and manufacturing systems, all to be assessed by completion of report based assessment. | | Primary:  Engineering science: laboratory/ workshops static and dynamic engineering systems  Naval Architecture: analysis of ships trim and stability  Secondary/Supplementary:  Project Management: Undertaking group project work  Pneumatic and Hydraulic Systems  Design and Management:  System design and analysis  Marine Composite Materials:  Open and closed moulding techniques and testing  Marine Control and Instrumentation Systems:  Integration and distribution of control systems  Work-based Experience:  Industry based experience  Advanced Computer Aided Design:  Work related experience  Engineering Business Management Techniques:  Work related experience | 1,2,3,4,5 | 3,4,5,6 | Laboratory/ Practical Reports  Assignments | | CORF 144  CORF 145  CORF146  CORF147  CORF152  CORF153  CORF154  CORF148  CORF151 |
| An exposition for embedding Practical Skills through Teaching & Learning and Assessment at this level of the programme:  Learners will have demonstrated an ability to apply practical skills developed within the course to a wide variety of industry related scenarios. Practical skills will be embedded into the programme forming an essential part of the learner’s professional development. | | | | | | | |
| **Employment Related Skills:**  For this sub-bachelor level programme the following has been informed by the Foundation Degree Qualification Benchmark (FDQB), as well as QAA Subject Benchmark(s) Engineering Council 2010  *“enabling learners to take responsibility for managing their own careers and lifelong learning”* | | Primary:  Lectures, Tutorials and discussion groups  Guided independent studies  Secondary/Supplementary:  Critical evaluation of theoretical sessions  Continuous feedback from module tutors | 1,2,3,4,5 | 1,2,3,4,5,6 | Continuous assessment through report writing | | CORF145  CORF146  CORF147  CORF148  CORF149  CORF150  CORF151  CORF152 |

# Work Based/Related Learning

WBL is an essential element of a Higher National Certificate (HNC) and therefore needs to be detailed here. However, there should be an employability focus for all HE programmes, through at least Work Related Learning. Therefore, the following section is applicable to all programmes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Level 4: HNC Marine Engineering** | | | | | |
| **WBL/WRL Activity:** | **Logistics** | **Programme Aim** | **Programme Intended Learning Outcome** | **Range of Assessments** | **Related Module(s)** |
| All optional modules are work related; the learner selecting those which are most appropriate for their continued role within their employment or to their professional development.  The following modules give opportunity for WBL/ WRL Activity which are delivered and assessed as guided learning with support form suitably qualified lecturing staff.  *Undertaking group project work*  *System design and analysis*  *Open and closed moulding techniques and testing*  *Integration and distribution of control systems*  *Industry based experience*  *Work related experience*  *Work related experience* | The programme of learning requires that those enrolled should have:   * Current employment within marine related industries * Significant work experience within marine related industries * Significant marine related industry based experience | 1,2,3,4,5 | 1,2,3,4,5,6 | Assignments give students the opportunity to reflect current learning and extend upon that at HE level | CORF146: Project Management  CORF147: Pneumatic and Hydraulic Systems  Design and Management  CORF152: Marine Composite Materials  CORF153: Marine Control and Instrumentation Systems  CORF154: Work-based Experience  CORF148: Advanced Computer Aided Design:  CORF151: Engineering Business Management Techniques |
| An exposition to explain this map:  The learners enrolled to this programme will be in either part time or full time employment within engineering or marine related industries. | | | | | |