



**MLA  
COLLEGE**

In partnership with



**UNIVERSITY OF  
PLYMOUTH**

**ACADEMIC PARTNERSHIPS**

**PROGRAMME QUALITY HANDBOOK  
2023 - 2024**

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**Postgraduate Diploma - Advanced Hydrography for  
Professionals**

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## 1. Welcome and Introduction

Welcome to MLA College. We are delighted that you have chosen to study with us. We will do all we can to ensure sure you get the maximum benefit from your time here – and that you will be well prepared for the next stage in your academic or professional career path.

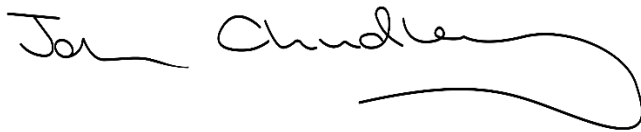
You will already know that MLA College is internationally recognised for its excellent reputation, and you will also benefit from the consistently high standards and expectations MLA College brings to all aspects of its teaching and learning.

You will find that all our 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 us, and 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 are here to help create the best opportunities for what you want to do next.

Welcome again to the MLA College.

A handwritten signature in black ink, appearing to read 'John Chudley', with a long, sweeping underline that extends to the right.

Professor John Chudley, Rector

MLA College

## 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:

- MLA College Student Handbook which contains student support- based information available [here](#)
- Your University of Plymouth Student Handbook available [here](#)
- Non-Standard Regulations (Exceptions to The University of Plymouth Regulations)

## 3. Programme Specification

### 3.1. Brief overview of the programme

MLA College's PGDip in Advanced Hydrography for Professionals is intended to meet the needs of the hydrographic survey industry and its workforce by providing a flexible, innovative programme of study. This part-time, blended learning programme is a combination of distance e-learning modules and residential sessions which will ordinarily be completed in the order set out in the programme outline. The students will have the opportunity to put theories into practice, in a real maritime environment, using the latest equipment. This programme exists in the main to facilitate the development of those already working within the offshore industry, who may for example, have been working as hydrographic surveyors for some time, but who do not have the requisite formal qualifications. The programme does not require a student to be in employment although the distance learning delivery does enable students to be deployed either at sea or on an offshore structure while they study, and this is a distinctive feature of the programme. The programme also provides a route for those who have an undergraduate degree, diploma or appropriate professional qualification and wish to progress to postgraduate study.

Modules have been designed to incorporate the latest technologies and innovations in e-learning, taking into account the fact that most students will be deployed in remote locations while studying, with extremely limited access to the Internet. Students have the opportunity to enrol upon each module in turn, allowing maximum flexibility in study, important for those working in irregular monthly shift patterns. Due to the importance of the residential modules and how these contribute to the overall flow of the programme, students are encouraged to progress through the modules in order. This Diploma programme has been designed alongside representatives from industry to meet the needs of professionals seeking to further their knowledge and continuing their education in this sector.

### 3.2. Awarding institution/body; teaching institution(s); accrediting body

The teaching institution and awarding institution for all academic related qualifications is University of Plymouth.

### 3.3. Relevant QAA Subject Benchmark Group(s)

Relevant QAA Subject Benchmark group is Earth sciences, environmental sciences and environmental studies (2007) (ES3).

### 3.4. Admissions criteria, including APCL and APEL arrangements

#### **Broad scope**

Applications are welcomed from people who, in addition to any formal qualifications:

- can demonstrate the ability to succeed in the Postgraduate Diploma Advanced Hydrography for Professionals programme

- will derive the greatest benefit from studying with the University.
- have a commitment and enthusiasm to learn.

All applications are considered on individual merit in relation to the aims and outcomes of the programme. Flexible, modular HA programmes allows selected 'bridging' modules from the DipHE Hydrography for Professionals programme to be undertaken if appropriate to the needs of certain students (Section 4.3 and Appendix 3). This ensures that suitable candidates that have been employed successfully within the industry and are fully capable of following the PGDip programme are not disadvantaged.

We endeavour to meet specific needs of students with disabilities. The Disability Assist Service, based on the Plymouth campus, supports disabled students across the University as well as those involved in distance learning. Interaction with these resources may be limited during distance learning modules but will be fully exploited during residential (practical) modules, including taking advantage of university resources to support international students.

### 3.4.1. Qualifications for postgraduate entry to Advanced Hydrography for Professionals

The below criteria set out normal minimum qualifications required for entry to the Postgraduate Diploma Advanced Hydrography for Professionals programme.

The standard entry requirements will be one of:

- A first degree, or appropriate professional or academic qualifications (UK, EU or international) deemed by the University to be equivalent to a first degree. A first degree would normally be expected in hydrographic surveying or a marine-based science subject with a hydrographic survey component
- Students who do not possess appropriate HE qualifications may be admitted to a postgraduate programme on the basis of prior experience if the programme leader/admissions tutor considers that the candidate has thereby demonstrated the potential to complete the programme successfully. Students following this entry route may well be expected to undertake one or more bridging modules.

Applicants are expected to submit a full *Curriculum Vita* or résumé and an application form. Admissions tutors for MLA College will check all applications thoroughly and may also arrange an interview (usually by telephone or video conferencing) for potential students in order to assess their suitability for study. Offers are based on the information provided in the application documents and interview (where appropriate).

In general, due to the demands on the student of a programme of distance learning study, Admissions tutors will recommend that a student only studies one MLA College module at a time. In this way, the modular nature of the programme and its progression coherency will not be compromised.

Some graduates may wish to enter the PGDip programme without entirely suitable undergraduate qualifications. For example, they may have a BSc (hons) in a land survey oriented subject and industrial experience as a hydrographic surveyor but will not have studied the marine-based theories

required to undertake the PGDip. Equally, some may have a marine-based undergraduate degree, but will not have studied the basic surveying theory at undergraduate level before. To ensure maximum flexibility, The Marine Learning Alliance will offer up to two 'bridging' modules from the undergraduate DipHE Hydrography for Professionals programme for students who do not meet the standard entry criteria. For example, study of one or both of EHYD103 'Fundamentals of Hydrography' and EHYD201 'Meteorology and Oceanography' may be suggested in appropriate cases. Note that in such cases, credits from the bridging modules do not contribute to the 120 postgraduate credits required to pass the PGDip, although a pass mark must be achieved in any bridging module attempted in order to continue on the programme. For more details, and case studies of prospective students and routes, please see Appendix 3.

### 3.4.2. Accreditation of Prior Certificated Learning (APCL) and Assessment of Prior Experiential Learning (APEL)

The University's regulations for Accreditation of Prior Certificated Learning (APCL) and Assessment of Prior Experiential Learning (APEL) are set out in the 'University Academic Regulations'. In the case of admission to PgDip Advanced Hydrography for Professionals we are also 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, regardless of age. MLA College's Admissions Tutor may contact applicants for further information where an application includes a request to consider prior learning. Admissions tutors will typically require detailed evidence of study and achievement before a decision can be made.

### 3.4.3. English language requirements

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:

- GCSE Grade C or above in English language.
- IELTS average score of 6.5 or above with a score of at least 6.5 in the written component.
- TOEFL score of 90.
- Equivalencies are detailed in 'Admissions Information and Procedures' available from MLA College

### 3.4.4. Overseas qualifications

MLA College Admissions team will check the comparability of students with overseas qualifications through UK NARIC, a government agency who provide an advisory service and provide advice and guidance to applicants.

### 3.4.5. Progression from other degrees

It may be possible for students to transfer to PGDip Advanced Hydrography for Professionals from other programmes. The Admissions Tutor will review the material covered already by the student and make an assessment of the most appropriate entry point to the programme.

### 3.5. Summary of exceptions to university regulations (Non-Standard Regulations)

1. **48 Hour Extension for Late Submission:** the student's Personal Tutor may approve a 48-hour extension for Distance Learning assessment submission without need for formal Extenuation Circumstances application.
2. **28 (calendar) day Extenuating Circumstances Extension for Late Submission:** in exception to **The University of Plymouth's** Extenuating Circumstances Policy and Procedures, both self-certified and evidenced applications for Extenuating Circumstances (EC), considered valid by MLA College, will be offered 28 calendar days as an extension to the assessment deadline. Additionally, poor internet connection, where appropriately described as an employment driven issue causing the missing of an assessment deadline (e.g. whilst 'at sea'), may be considered as a valid extenuating circumstance.
3. **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 **The University of Plymouth** Subject Assessment Panel (SAP) and/or Award Assessment Board (AAB). More information is available in the student handbook which is available in your TLP and on the [MLA website](#).
4. **Maximum Period of Study:** all distance-learning awards that equate to a single level of study or more, including programmes-in-parts, have a maximum period of study of 10 years. Should completion within that timeframe appear unreasonable, **the University of Plymouth's** regulations for Accreditation of Prior Learning should be considered and followed prior to enrolment onto each part.



### 3.6. Distinctive features of the programme at University of Plymouth

#### **Key features of the programme**

The PGDip Advanced Hydrography for Professionals programme is an innovative blend of distance e-learning and residential practical sessions. The e-learning course materials are designed by a team of academics and learning technologists to provide a seamless Total Learning Package (TLP). This TLP incorporates the latest technological developments in a Virtual Learning Environment which integrates online and offline components and can be downloaded to your laptop and/or desktop computer, so you must be able to download files of up to 650MB at the start of each term. This will enable students to study successfully whilst deployed for extended periods offshore when access to the Internet is usually limited or absent. The TLP adds value to lecture material with formative testing, learning support materials and a significant element of practical work.

Residential practical sessions will focus on the operational, planning, and managerial skills required to be an effective senior hydrographic surveyor or survey manager. They will also cover materials which are harder to convey through an e-learning medium, such as mathematics. A selection of mathematics self-study material will be provided within each module to build or refresh the students' knowledge, with a complete revision package being provided as pre-study course prior to EHYD503a. Boat work, vessel handling, practical surveying and leadership skills over intensive two-week sessions will build on the theoretical knowledge gained through the e-learning modules.

The programme has been designed in close collaboration with representatives from the Royal Navy's school of hydrographic surveying at FOST HM and Fugro, the world's largest integrated supplier of geoscience and survey related services. Additionally, guidance has been sought from the professional bodies at an early stage of programme design. This programme has theoretical and practical management and leadership elements running as a thread through some of the later modules with the aim to develop students for junior and middle management roles, a unique feature of this programme. Appropriate theories will be applied in practical hydrography planning and operational contexts to enable the student to develop these important professional skills. All students can be assured that the PGDip Advanced Hydrography for Professionals programme will meet their personal, professional, and developmental needs.

### 3.7. Titles for Final and Intermediate awards

#### **Named final award:**

'Postgraduate Diploma in Advanced Hydrography for Professionals'

A generic 'Postgraduate Certificate of Higher Education' will be awarded to students who leave the MLA College programme having achieved 60 Level 7 credits only.

### 3.8. Programme Aims and Intended Learning Outcomes (mapped in accordance with QAA HE Qualifications Framework descriptors)

The Postgraduate Diploma of Higher Education in Advanced Hydrography for Professionals programme has the following overall aim:

To offer a comprehensive programme of advanced study which provides the offshore industry employers, and their current and potential workforce, with opportunities to engage fully with Higher Education to produce respected hydrography graduates who can operate with safety to appropriate professional standards

### 3.9. Programme aims

The general aims of the Postgraduate Diploma in Advanced Hydrography for Professionals programme are as follows:

- To deliver an intellectually-stimulating programme of study enabling students to develop skills in planning, executing, and documenting a wide variety of hydrographic surveying operations whilst efficiently managing equipment and personnel
- To facilitate the development in students of advanced techniques in data acquisition and management, based on the fundamental scientific and technical aspects of hydrographic surveying
- To develop in students the knowledge, skills, understanding, and critical evaluation relating to the theory and conduct of operational hydrography, including leadership and hydrographic survey management

### 3.10. Intended programme learning outcomes

#### **Knowledge and understanding (KU)**

On completion graduates should have developed:

- A deep and systematic understanding of the mathematical and scientific principles required to complete complex hydrographic work
- An advanced theoretical and practical understanding of the equipment and processes used to conduct hydrographic and oceanographic surveys and observations
- Cognitive and intellectual skills (CI)
- On completion graduates should have developed:
- Accurate gathering, analysis, evaluation, interpretation and reporting of complex data relating to hydrographic survey work
- An ability to apply arguments and make sound judgements in advanced survey concepts

#### **Key and transferable skills (KT)**

On completion graduates should have developed an ability to:

- Communicate information, arguments, and analysis effectively at both a scientific and professional level using structured and coherent arguments
- Plan and manage a complex task related to hydrographic survey, within time constraints
- Use a range of techniques to initiate and undertake complex and independent problem solving

#### **Employment related skills (E)**

On completion graduates should be able to:

- Reflect critically on own learning development and style with application to professional career development
- Critically assess the suitability of survey techniques against survey specifications and legal requirements
- Practical skills (P)
- On completion graduates should be able to:
- Supervise the work of a hydrographic survey team, including planning and making decisions in complex and unpredictable environments

- Collect, record and process advanced field observations and apply relevant hydrographic surveying software effectively.

### 3.11. Intended programme learning outcomes mapped against modules

#### Knowledge and understanding

Programme Learning Outcome	Related Core Modules
1. A deep and systematic understanding of the mathematical and scientific principles required to complete complex hydrographic work	EHYD503B EHYD506B Mathematics self-study scheme will be available throughout all modules. A study support package is also a pre-study task for module EHYD503B
2. An advanced theoretical and practical understanding of the equipment and processes used to conduct hydrographic and oceanographic surveys and observations	EHYD502A, EHYD503B, EHYD504A, EHYD505A, EHYD506B

#### Cognitive and intellectual skills

Programme Learning Outcome	Related Core Modules
1. Accurate gathering, analysis, evaluation, interpretation and reporting of complex data relating to hydrographic survey work	EHYD503B, EHYD506B
2. An ability to apply arguments and make sound judgements in advanced survey concepts	EHYD501A, EHYD502A, EHYD503B, EHYD504A, EHYD505A, EHYD506B

#### Key and transferable skills

Programme Learning Outcome	Related Core Modules
1. Communicate information, arguments and analysis effectively at both a scientific and professional level using structured and coherent arguments	EHYD501A, EHYD502A, EHYD504A, EHYD505A, EHYD506B
2. Plan and manage a complex task related to hydrographic survey, within time constraints	EHYD505A, EHYD506B
3. Use a range of techniques to initiate and undertake complex and independent problem solving	EHYD503B, EHYD504A, EHYD505A, EHYD506B

#### Employment related skills

Programme Learning Outcome	Related Core Modules
1. Reflect critically on own learning development and style with application to professional career development	EHYD505A, EHYD506B
2. Critically assess the suitability of survey techniques against survey specifications and legal requirements	EHYD505, EHYD506B

## Practical skills

Programme Learning Outcome	Related Core Modules
1. Supervise the work of a hydrographic survey team, including planning and making decisions in complex and unpredictable environments	EHYD503B, EHYD505A, EHYD506B
2. Collect, record and process advanced field observations and apply relevant hydrographic surveying software effectively	EHYD503B, EHYD505A, EHYD506B

### 3.12. Programme relationship with QAA Subject Benchmark Statement

The Earth Sciences, environmental sciences and environmental studies (ES3) QAA Benchmark Statement (2007) identifies that graduates of programmes in the ES3 subject grouping will have developed a range of skills and aptitudes. Although ES3 does not apply specifically to postgraduate programmes, the elements within are considered highly relevant to this programme of study.

The themed nature of the MLA College programme means that the benchmark statements are met in various modules, in different forms, rather than forming the specific structure and module content of the programme. The mapping below indicates (a) key modules in which students meet these benchmark statements, and (b) the programme learning outcomes that reflect the QAA benchmark. The benchmarks may be met in other modules, and other programme learning outcomes as well, in different contexts.

The QAA statement identifies (a) Knowledge, (b) Intellectual Skills, (C) Practical skills, (d) Communication skills and Interpersonal/teamwork skills, (e) Self-management and professional development skills and (f) Numeracy and C & IT skills. These skills are listed in Tables 1-6 below and mapped to representative modules and programme learning outcomes. Programme Learning Outcomes are coded as: Knowledge and Understanding (KU); Cognitive and Intellectual Skills (CI); Key and Transferable Skills (KT); Employment Related Skills (E); Practical Skills (P). The number refers to the relevant learning outcome listed in section 8.2 (Intended Programme Learning Outcomes).

**Table 1**

QAA Benchmark	Key module	Most Relevant Programme Learning Outcome
<b>Intellectual skills (Knowledge &amp; Understanding)</b> Graduates with an honours degree in ES3: <ul style="list-style-type: none"> <li>• have a knowledge and understanding of subject-specific theories, paradigms, concepts and principles</li> <li>• integrate evidence from a range of sources to test findings and hypotheses</li> <li>• consider and appraise issues from a range of multidisciplinary and interdisciplinary perspectives</li> <li>• analyse, synthesise, summarise, appraise and critically evaluate information</li> <li>• define complex problems and develop and evaluate possible solutions</li> </ul>	EHYD501A	KU1
	EHYD504A	KU1
	EHYD504A/5	KU1
	EHYD501A	KU1
	EHYD502A	KU2

<ul style="list-style-type: none"> <li>develop and test hypotheses to inform and design investigations (and experiments)</li> <li>plan, conduct and present an independent project with appropriate guidance</li> <li>take a critical approach to academic literature, data and other sources of information</li> </ul> <p>have confidence and competence in dealing with uncertainty in data and systems response.</p>	EHYD506B	E1
	EHYD506B	E2
	ALL MODULES	
	EHYD503B	E2

**Table 2**

QAA Benchmark	Key module	Most Relevant Programme Learning Outcome
<p><b>Practical skills</b></p> <p>The graduate key skills that should be developed in ES3 degree programmes are:</p> <ul style="list-style-type: none"> <li>conduct fieldwork and laboratory investigations competently (as appropriate)</li> <li>Describe and record observations effectively in the field and laboratory</li> <li>interpret and evaluate practical results in a logical manner</li> <li>undertake laboratory and fieldwork ethically and safely with an appreciation of appropriate codes of conduct and legal requirements</li> <li>gather, prepare, process and interpret data using appropriate techniques</li> <li>use appropriate numerical, statistical and qualitative techniques</li> <li>use appropriate technologies in addressing problems effectively.</li> </ul>	<p>EHYD506B</p> <p>EHYD503B</p> <p>EHYD503B</p> <p>EHYD503B/6B</p> <p>EHYD501A</p> <p>EHYD502A</p> <p>EHYD503B/506B</p>	<p>P1</p> <p>P2</p> <p>P1</p> <p>P1</p> <p>KT1</p> <p>KT3</p> <p>KT2</p>

**Table 3**

<p><b>Communication skills</b> The graduate key skills that should be developed in ES3 degree programmes are:</p> <ul style="list-style-type: none"> <li>• communicate effectively with a variety of audiences using a range of formats and media</li> <li>• have good interpersonal communication skills to enable effective team working</li> <li>• acknowledge and understand different perspectives</li> <li>• effectively articulate and synthesise an argument</li> <li>• present a case in an influential and persuasive manner.</li> </ul>	<p>EHYD503B</p> <p>EHYD506B</p> <p>EHYD503B</p> <p>EHYD503B</p> <p>EHYD506B</p>	<p>C1</p> <p>C1</p> <p>P1</p> <p>P1</p>
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**Table 4**

QAA Benchmark	Key module	Most Relevant Programme Learning Outcome
<p><b>Personal and professional skills</b> Graduates with an honours degree in ES3 will:</p> <ul style="list-style-type: none"> <li>• reflect on the process of learning and evaluate personal strengths and weaknesses</li> <li>• plan and organise workloads, including project management (develop leadership qualities; work effectively as a team member; work online and remotely as well as in person.</li> <li>• demonstrate professional behaviours)</li> <li>• display an appreciation of developing graduate skills relevant to career pathways</li> <li>• recognise and respect the views of others</li> <li>• demonstrate an understanding of the importance of risk assessment and associated legislation for health, safety and well-being</li> </ul>	<p>EHYD505A</p> <p>EHYD506B</p> <p>EHYD501A</p> <p>EHYD501A</p> <p>EHYD503B/506B</p>	<p>E1</p> <p>KT2/P1</p> <p>E1</p> <p>E1</p>

### 3.13. Teaching and Learning Strategies

Provision of education and training by distance and online learning has become well established within universities and corporate institutions. It has been noted by the majority of researchers that when a quality classroom-based learning programme is compared to a quality online learning programme, people learn equally well, and achieve broadly equivalent results regardless of the method of delivery<sup>1</sup>.

It is widely recognised that a student's success on an online learning programme is driven by the level of interaction, which can be in terms of tutor-student interaction and student-student interaction. A student isolated within an e-learning environment is unlikely to maximise his or her potential and, therefore, a blended learning approach which facilitates at least some interaction is highly desirable. Blended learning has been shown to increase achievement in tests, result in higher completion and retention rates, improve student satisfaction, as well as offering learners a more efficient, flexible, and varied learning experience<sup>2</sup>. Great importance is given to the residential practical sessions which, despite all modules running discretely, coherently link the programme together. Online interaction and collaboration between students will be fostered through the use of technology enhanced solutions (bulletin boards and discussion forums), and synchronous online conferences are also a possibility. By placing group learning at strategic places within modules, these will help enhance the student experience providing the opportunity for both pre and post module interaction with the same residential cohort.

MLA College has developed a comprehensive teaching and learning strategy based on a blended learning solution of e-learning material and assessment studied remotely, and intensive on-site practical sessions. Some of the key teaching and learning considerations relating to the design of MLA College's e-learning environment and course materials are as follows<sup>3</sup>:

- To facilitate an individual's learning
- To bring together students from diverse locations, with individual interests, skills and needs to form learning communities
- To state expectations clearly
- To set and maintain rigorous academic standards, and communicate expectations clearly
- To be adaptable with regard to learner's needs
- To communicate clearly and effectively
- To make consideration of the different abilities and learning styles of students
- To encourage discussion, debate, and critical thinking

Early research conducted by MLA College indicated that all learning materials should:

- Be accessed in any order and still make sense. It can only be suggested that a student follow the materials in a given order, and many are used to taking a hypertext approach of randomly clicking links in an online environment
- Meet the learning styles and preferences of different types of students

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<sup>1</sup> Nistor *et al.*, 2003; Bramble & Panda, 2008.

<sup>2</sup> Bramble & Panda, 2008. Chapter 2

<sup>3</sup> Adapted from Porter, L. 2004. *Developing an online curriculum. Technologies and Techniques*. Information Science Publishing, London. 316 pp.

- Be able to be used by students across platforms and differing levels of technology
- Be transportable and light in physical weight
- Be able to be used without a regular internet connection
- Be supported by a tutor, available regularly to individual students for advice and to deal with subject specific and general academic queries

MLA College uses a balanced approach of constructivism and behaviourism, whereby students are 'lectured' in some way and are then exposed to practical applications and activities.

In general, the e-learning material comprises narrated PowerPoint lectures, with accompanying transcript and notes. Each lecture is followed by a series of formative tests allowing the student to test their own progress and knowledge. The learner is then given the opportunity to revisit the lecture material as many times as they feel is necessary to meet the learning outcomes for that section and complete the formative assessment to an appropriate standard. The HTML-based nature of the programme means navigation within the package is similar to navigating around a website, this presents the student with a familiar environment which is not platform (operating system) specific.

Within the e-learning environment, there is scope to incorporate practical work, which the student will complete using either manual methods (such as calculations or observations of a particular experiment) or an appropriate software package, such as Microsoft Excel and "lite" versions of industry software packages. These are designed carefully to mimic the experiences of a student undertaking a more traditional 'lab session' on campus and will ensure a similar level of practical ability is attained in the relevant topic areas. This aspect will assist in preparing students for the residential practical sessions.

The residential modules (EHYD503B, EHYD506B) will be very intensive in nature, and will allow the students an opportunity to explore other modes of teaching and learning. A particular focus of the EHYD503B is mathematics tuition, and this is provided in a classroom environment as it is beyond the scope of MLA College to develop and supply a comprehensive range of mathematics e-learning materials. MLA College will, however, add appropriate supporting mathematics materials for reference and review to the TLP of appropriate modules in the programme, and will include a pre-study maths package for students before they arrive to undertake module EHYD503B. Up to date equipment will be used in the practical work, so that students coming from the leading edge of the offshore industry will be able to use familiar equipment in an educational setting. Having students on site will facilitate learning through group work and allow them a chance to undertake formal written examinations. These modules will also consist of preparatory elements and post-residential review, processing and report writing conducted through distance learning. Time expiry software licences will enable in-depth analysis of data on completion of the final module and facilitate a challenging and industry relevant project linking practical sessions to the advanced theory gained throughout the programme.

Each student will be assigned a personal tutor whilst enrolled on an MLA College module. The tutor will ensure that any student queries or requests for support are dealt with within 48 hours of receipt and will provide a 'friendly face'. Video calls are used where possible and where a student does not have access to this medium on a daily basis then it is used during off watch periods to build on the tutor/student interaction. This is a critical aspect of MLA College's provision, and will ensure that all students, the majority of whom are in remote locations abroad, receive an exemplary teaching and



learning experience. Typically, all enquiries will be closed the same working day, but support is not provided by the academic team during the evenings or weekends and is limited to UK working hours only (see Section 12).

### 3.14. Assessment strategies and methods (mapped against modules, alternative and inclusive assessment strategy)

#### **General position**

The programme implements the University's Academic Regulations, with some exceptions (section 5.0). Students must complete a total of 120 credits at Level 7. The overall mark for each student is built on the cumulative mark awarded for each of the modules taken in the programme. The format of assessment is identified in the DMR for each module, and the Programme Manager maintains an oversight of assessment across the programme. Module Leaders are responsible for assessments within each module and arrive at a mark for each student for each module, and The Programme Manager oversees a review of exams and referral coursework material by the External Examiner as required.

#### **Relationship between assessment, Subject Assessment Panels and Academic Boards**

The general process is as follows:

- Students undertake a programme of study, enrolling and making payment on a module-by-module basis.
- Students undertake assessment by coursework and/or exam as appropriate to the nature of the module delivery.
- External examiners review exams prior to them being set (exams and referral coursework where necessary) to help ensure that levels are appropriate and equivalent to other institutions.
- External examiners review a sub-section of coursework and exams at Level 5 (and at Level 4 where necessary) to ensure marking is at an appropriate level.
- Marks (collated by Faculty) are considered at MLA College Panels. Due to both the modular nature and the all-year round operation of the programme, it may be necessary to hold panels at multiple times per year (see Operational Specification 1.0). This is to be organised by collaboration between module leaders, external examiners, and faculty administration staff. At the Panels, Module Leaders (a) check (and confirm) the marks for the module; (b) identify any irregularities in assessment (e.g. factors affecting assessment, or cases of academic dishonesty) that need to be considered.
- Shortly after the Panels, MLA College Boards consider individual student profiles, and make a decision on the route of progression for each individual student, as per the regulations.
- Referral work is offered for External Examiner review as required and considered at Panels and Boards. As with assessment panels it may be necessary to hold panels at multiple times per year. This is to be organised by collaboration between module leaders, external examiners, and faculty administration staff.

#### **Feedback and evaluation**

The control, feedback and evolution on assessment strategy sits within the normal School framework. The procedures followed are guided by the School Teaching and Learning Committee, which is in turn informed by the Faculty Teaching and Learning Committee. Assessment is

considered as part of the Annual Review procedure, when problems are identified, or when evolutions are required. Specific identifiers may include module feedback points, consideration of marks range at the Subject Assessment Panels, and/or External Examiner comments during the year, at the Panels, or in report.

### **Alignment, inclusivity and variety**

Assessments are specifically set to encourage work towards the learning outcomes of the modules and will aim to test all the learning outcomes in the individual modules. It is recognised that this is not possible in all instances (e.g. group work in the first attempt assessment cannot be replicated in a referral assessment) but is applied where feasibly possible.

### **Workload**

Due to the nature of the delivery of the programme and the stringent professional body requirements, an expected assessment workload is proposed as follows:

For a 20-credit module at Level 7, a student would typically be expected to submit two pieces of coursework and one exam, or three pieces of coursework, not exceeding 8,000 words in total. As the MLA College programme is delivered in a modular fashion, there is unlikely to be any particular issue with assessment conflicts with other modules, as can occur with a student enrolled on a full-time course on campus.

Students will typically be enrolled on only one module at a time but may be enrolled in a maximum of two in exceptional cases. The latter case will generally only occur when the delivery of the modular programme would cause undue delays to a student's overall study calendar.

### **Assessment criteria**

The basic content of material to be assessed is guided by the QAA subject benchmark statements. Assessment criteria are set in line with the SEEC level descriptors.

It is good practice for Module Leaders to identify the assessment criteria for their work ahead of setting work, and this is encouraged within the programme where possible, however, it may not always be appropriate to give an absolutely explicit scheme (e.g. where a mark scheme gives too much 'steer' in the derivation of an equation or a numerical solution, or where the question is investigative, and the response is open). Where marks schemes are not possible, Module Leaders are encouraged to develop guidelines and broad threshold statements.

A default mark scheme for coursework is presented in Appendix 1. This is applied where alternative schemes are not developed by the Module Leader, or where the Module Leader decides this scheme is appropriate.

### **Second marking/internal mark moderation**

Module Leaders are responsible for collating module marks and identifying who will mark each component. Each component is subject to an internal moderation process in which:

The first marker marks all the work.

Marking of a selection (subset) of work is checked by a second member of staff. The assessments checked will generally include a selection from the top, middle and bottom of the mark spectrum. The internal moderator is looking to check that levels of assessment are appropriate. The moderator may also be requested to advise on borderline cases. The Module Leader will decide on appropriate action in the event that the moderator highlights marking issues. Recruitment of the second member of staff is the responsibility of the Module Leader.

The subset of marked work will be made available to the External Examiner, who also has the opportunity to check the level of work.

The process of internal moderation provides a useful mechanism for sharing module material and assessment practice amongst the team.

Where second marking is not possible or appropriate (e.g. second marker availability), the situation and the assessment will be identified to the External Examiner, and the first marker's mark will be used.

### **Assessment methods**

An appropriate mix of formative and summative assessments will be provided throughout the programme. Due to the distance learning nature of the course, the majority of assessment will be undertaken through coursework submission. Formal examination and technical skill assessment will form a substantial majority of the assessment aspect of the residential course.

The MLA College team has undertaken a significant amount of research and development work to ensure that the assessments are authentic, varied, and provide a true measure of a student's progress and development. Examples of some approaches incorporated within the teaching and learning environment are as follows:

- Professional portfolio: Enables developmental work in PDP, and relating studies to professional practice
- Essay writing: Facilitates the demonstration of subject knowledge and research findings
- Technical report writing: Develops scientific, communication and technical skills
- Presentations: Traditionally presentations do not lend themselves to distance learning assessment however, by utilising technologies available it is possible to introduce this important assessment style to this programme.
- Group working: Building on the development of the community within the cohort, students will use the online discussion area to work in groups to complete a group assignment.
- Peer assessment: This is a major technique used in group work and it can be utilised as a good tool for building a group's community before any major group coursework submission takes place.
- Lab work and technical skills: These aspects will be facilitated through the innovative use of software and learning technology.
- Formal examinations: these will be completed as part of the residential sessions to meet academic and professional body regulations.

### **Assessment timing**

As students enrol on a module-by-module basis, there is unlikely to be any issue with a conflict in assessment timing, or 'bunching', as can be experienced by a student studying multiple modules on campus. All MLA College modules have been designed in order to spread assignments appropriately throughout the study period.

### **3.15. Programme outlines**

See Appendix 2 for full details of the programme and individual modules, together with indicative content.

Students are expected to pass 120 credits at Level 7. If a student passes 60 credits at level 7 but cannot continue with the programme, they may be eligible to exit with a generic Postgraduate Certificate. The pass requirement for each module is 50% ( $\geq 40\%$  in coursework and examination elements).

Students have complete flexibility in terms of when they choose to enrol on the next module in sequence, as the majority of modules will be offered up to twice per year, some of them outside the standard university academic calendar. This will ease the burden on the admissions and administrative teams, whilst providing the students with the maximum opportunity to engage with the university.

Careful planning of the module start, and end times will be undertaken to ensure that the requirement for Panels and Boards with an external examiner present will be in the order of once or twice per year.

### **3.16. Specific issues:**

The unique nature of MLA College's programmes means there are certain areas and specific issues that must be recognised and dealt with in order to ensure the successful delivery of courses. The main difficulty is the distance learning aspect and the challenges posed by teaching students in different time zones and in International and remote locations.

#### **Time Zones**

Students can be located in time zone both east and west of the UK. In order to overcome difficulty in making contact with students via Skype or phone, the course tutors will offer time slots both early in the morning and late in the afternoon, so students overseas can still make contact if they need to within the normal working hours of their location.

#### **International and remote locations**

Students can often be located offshore on ships or platforms and may not have a reliable broadband internet connection. Students are often very restricted in the amount of data they can receive or send (this can often be limited to text only email). The course has been specifically designed to take this into account. The Total Learning Package (TLP) that the students receive at the beginning of their course includes fully comprehensive video narrated lectures as well as a wealth of supplementary material to aid the student as fully as possible when they are without an internet connection. Students are expected to have access to a broadband internet connection at the beginning, middle and end of the course. This is an essential requirement that students are made aware of before they are admitted to the course. This is to facilitate enrolment, formative feedback, and coursework submission. The TLP also includes a number of links to online areas such as the Tulip site and online discussion areas for the course. The interface allows for a seamless transition to these areas when the students have an internet connection.

#### **Residential practical sessions**

The duration of the two residential practical modules will be in the order of two weeks each. These modules will be planned in to facilitate the numbers of students, and it is likely that two of the two-week sessions will run each summer in the UK. In this way, there is some flexibility to accommodate a student's work patterns.

### 3.17. Appendix 1: General Guidelines on Assessment Criteria

This section provides general guidelines on the criteria for the assessment of coursework on the PgDip Advanced Hydrography for Professionals. Module leaders will provide more specific guidelines on individual assignments.

Grading system for assessments:

Coursework and examinations will normally be marked using a categorical marking scheme of grades, in conjunction with a set of generic marking criteria.

Assessments will be given an alphabetic grade (A-F), which is equivalent to a degree classification band and is modified with a plus or minus sign dependent on the standard within the band.

The conversion to a numerical percentage takes place only when the grades are entered into the marks spreadsheet for each module. These percentage marks are uploaded into the University student records system and are used to calculate aggregate scores for each module and the overall programme mark.

The criteria specified here are necessarily general and qualitative. It is important to remember that not all criteria will have equal weighting and that not all aspects of submissions will necessarily meet all criteria for the grade awarded. Strong performance against one criterion may compensate for weaknesses in other areas and particular weaknesses may lead to a reduction in the overall grade. These guidelines are merely intended to provide broad benchmarks for the preparation and self-appraisal of assignments prior to submission.

<b>Criteria</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
<b>Content</b>	Fully addresses the assessment brief using all relevant information with few errors	Addresses the assessment brief with most facts relevant and no significant errors	Addresses the assessment brief using core information but some gaps in hydrographic knowledge	Addresses the assessment brief but containing a minimal amount of the required material	A marginal fail, does not contain enough relevant information to address brief and/or contains multiple errors	Clear fail that does not address assessment brief, with totally inadequate or irrelevant information
<b>Understanding and Evaluation</b>	Full understanding of topic within wider context. Full critical evaluation with arguments supported by evidence and examples.	Substantial understanding demonstrated. Critical evaluation present with arguments supported by evidence.	Adequate understanding demonstrated although evaluation may be limited with restricted use of evidence	Enough understanding demonstrated but with minimal evaluation and/or evidence offered	Marginal understanding demonstrated that lacks evaluation and evidence	A concerning lack of understanding and evaluation present.
<b>Originality/ Independent Thinking</b>	Evidence of considerable insight and independent thinking e.g. by including own views; making connections with other subject areas etc.	Substantially correct independent thinking with links to other areas/studies.	Some individuality within the assessment but not always fully explored	Own views minimally offered and/or displaying scientific naivety	Marginal originality and/or independent thought	No evidence of any valid independent thought

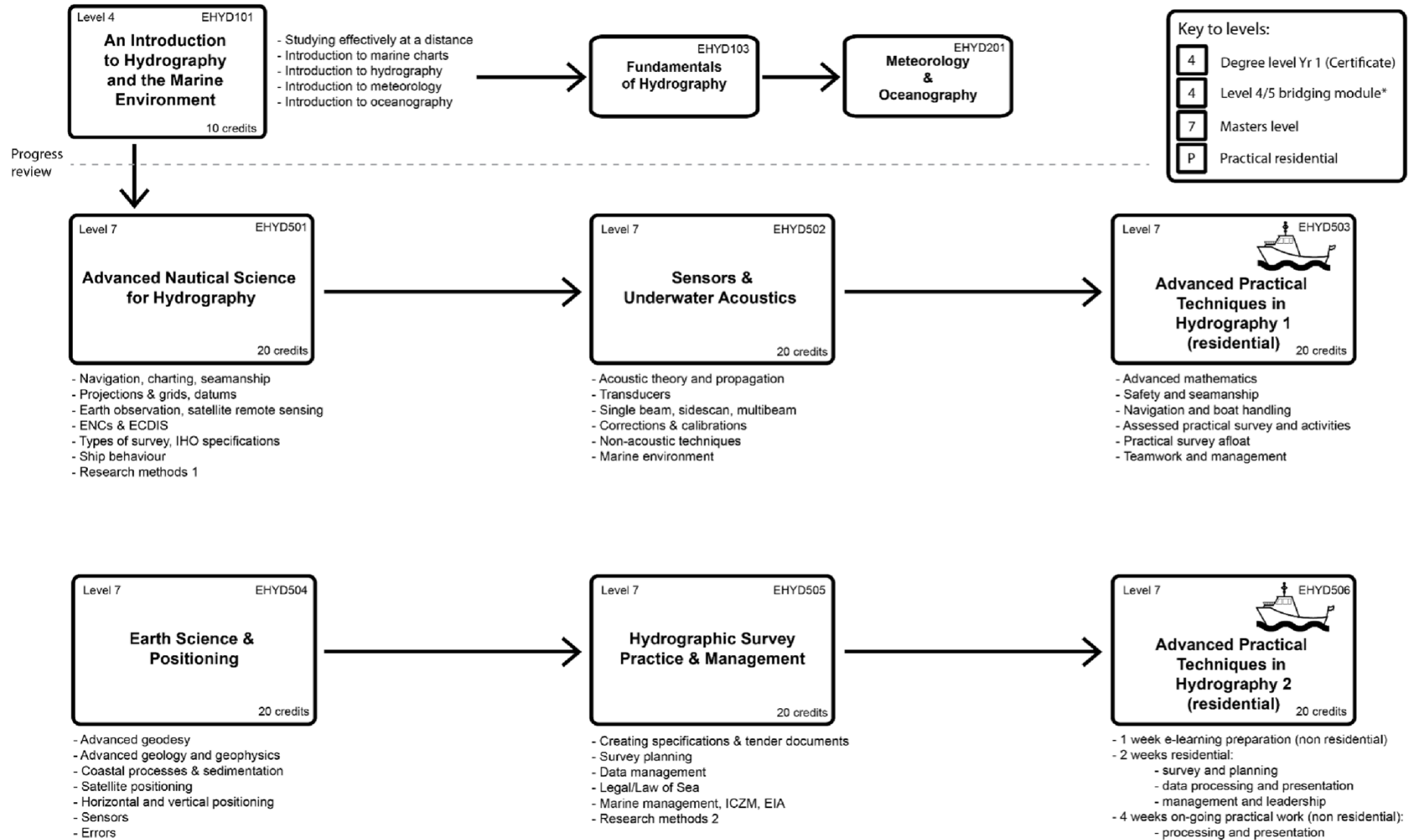
<b>Data Analysis and Interpretation</b>	An analytical/discriminating approach to the data, applying appropriate statistics. Comprehensive understanding of implications & limitations of the data	A sound approach to data analysis, applying valid statistical tests. Good understanding of data and associated limitations	Suitable approach to most aspects of data analysis. Valid interpretation but gaps evident	Data analysis attempted but limited, including weak interpretation	Marginal or insufficient data analysis and interpretation	No, or wholly inappropriate, data analysis and interpretation
<b>Use of Literature</b>	Evidence of consulting wide range of valid sources of information, especially primary literature. Uses findings to support facts and arguments. Appropriately references sources within the text and in the reference list	Evidence of consulting a range of literature to support facts and statements. Mostly cites references sources in correct format within the text and in the reference list	Evidence of consulting a limited range of literature, often with a reliance on textbook sources. References in text or list may contain errors	Some reference to literature evident but statements not well-supported. References often incorrectly cited and/or listed	Marginal reference to literature with little attempt to incorporate references into work and/or incorrectly cited.	No, or totally inappropriate reference to literature
<b>General Communication Skills</b>	Excellent overall standard of presentation, exhibiting a high standard of English and clarity of expression. Excellent layout and structure of material. Legible handwriting or appropriate use of fonts. Highly effective use of relevant visual material.	High standard of presentation, exhibiting a good standard of English and clarity of expression. Good layout and structure of material. Legible handwriting and use of fonts. Good use of relevant visual material.	Adequate standard of presentation, using acceptable standards of English. Some attention to layout, structure and formatting may be needed. Visual material may need some attention.	Low standard of presentation with grammatical errors. Layout and structure may reduce impact and communication. Use of visual material not well-incorporated	Marginal standard of presentation. Poor use of English with clumsy structure. Handwriting may not be legible and/or inappropriate use of fonts. Visual material typically not relevant.	Totally unacceptable standard of presentation with concerning use of English. No, or totally inappropriate, use of visual material.
<b>Independence and Use of Support</b>	Completely self-motivated; works independently or in collaboration with others where relevant. Seeks appropriate support, as necessary. Formulates problem and relevant questions prior to seeking advice. Is meticulous in acknowledging support and contribution of others.	Mostly self-motivated and able to work well alone or in team. Seeks appropriate support, as necessary. Acknowledges support and contribution of others.	Able to work independently or in a team but may not always access enough support where necessary	Partly relies on others for motivation or to ensure progress and may be reluctant to seek necessary help. Weak team member. Does not always acknowledge sources of support.	Depends on others for motivation or fails to seek necessary advice. Fails to work as member of a team. Work may be highly derivative and/or support not acknowledged.	Fails to start or progress with tasks. Does not seek and/or use help. Makes no contribution as member of a team. Does not acknowledge support and/or plagiarises.

## The PG Grading Scheme

Degree Class	Grade		Numerical Equivalent (%)
	A+		95+
	A		85
<b>Distinction = and &gt; 70%</b>	A-		75
	B+		68
	B		65
<b>Merit = and &gt; 60%</b>	B-		62
	C+		58
	C		55
<b>Pass = and &gt; 50%</b>	C-		52
	D+		48
<b>Fail (Marginal)</b>	D		45
	D-		42
	E+		38
<b>Fail</b>	E		35
	E-		32
	F+		25
<b>Fail</b>	F		15
	F-		5
<b>No acceptable answer</b>	0		0



# PgDip ADVANCED HYDROGRAPHY FOR PROFESSIONALS



\* = Additional bridging modules to be studied depending on students' qualifications and experience. Please see DipHE Hydrography for Professionals syllabus for details of module content.

## 4. Module Records

### UNIVERSITY OF PLYMOUTH MODULE RECORD

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

**MODULE CODE:** EHYD501A  
**CREDITS:** 20  
**PRE-REQUISITES:** None

**MODULE TITLE:** Advanced Nautical Science for Hydrography  
**FHEQ LEVEL:** 7  
**CO-REQUISITES:** None

**HECOS CODE(S):** F720  
**COMPENSATABLE:** Yes

#### SHORT MODULE DESCRIPTOR:

This module will allow the student to review the historical and professional framework for hydrographic surveying and develop an in depth understanding of the effects on survey of ship motion and behaviour. A comprehensive treatment of Earth observation and remote sensing is augmented by support for study and research skills.

ELEMENTS OF ASSESSMENT	
C1 (Coursework)	100%

**SUBJECT ASSESSMENT PANEL to which module should be linked:** MLA

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

#### MODULE AIMS:

This module aims to allow the student to develop a comprehensive understanding of remote sensing and ship behaviour, and how these relate to the professional aspects of hydrographic surveying.

#### ASSESSED LEARNING OUTCOMES:

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

Assessed Module Learning Outcomes (ALOs)	Programme Intended Learning Outcomes (PILOs) contributed to
<ol style="list-style-type: none"><li>1. Display a systematic knowledge of the aspects of charting and navigation relevant to the hydrographic surveyor</li><li>2. Demonstrate an in-depth knowledge of the elements of Earth observation and satellite remote sensing relevant to the advanced survey practice</li><li>3. Evaluate and predict the behaviour of floating platforms at sea, and predict the effects on survey activities</li><li>4. Improve and develop the study and research skills necessary to undertake a programme of postgraduate study successfully</li></ol>	<p>LO1 &amp; LO2 Display a systematic knowledge of the aspects of charting &amp; of the elements of Earth observation and satellite remote sensing</p> <p>LO3 &amp; LO4 Evaluate and predict the behaviour of floating platforms at sea and predict the effects on survey activities.</p>

<b>DATE OF APPROVAL:</b> 01/2013	<b>FACULTY/OFFICE:</b> Academic Partnerships
<b>DATE OF IMPLEMENTATION:</b> 03/2013	<b>SCHOOL/PARTNER:</b> MLA
<b>DATE(S) OF APPROVED CHANGE:</b> 03/2022	<b>SEMESTER:</b> AY
<b>MODE OF DELIVERY:</b> distance learning	
<b>Notes</b> (for office use only): EHYD501A replaces code EHYD501 to reflect only that this module should be compensatable (R Pomeroy, 3/3/22)	

## 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: 2023-24**

**MODULE LEADER: Dr Carlos Martins**

**NATIONAL COST CENTRE: 111**

**OTHER MODULE STAFF: Dr Paul Wright**

### Summary of Module Content:

A review of the background nautical science theory is followed by a study of advanced Earth observation and satellite remote sensing. Ship behaviour and the effect of vessel stability on a survey platform is covered in detail, together with work to refresh and improve research and study skills.

SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions]		
Scheduled Activities	Hours	Comments/Additional Information
Lectures (on-line)	40	Full suite of Nautical Science and Hydrography lectures
Practical work (on-line)	20	Including ship stability experiments and remote sensing data processing and analysis
Directed and self-study	50	Research
Personal development planning	10	
Professional portfolio	80	Building maths & written work portfolio
<b>Total</b>	<b>200</b>	<b>(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)</b>

### SUMMATIVE ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework	Professional Portfolio	35%
		65%

### REFERRAL ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework (in lieu of the original assessment)	Professional Portfolio	35%
		65%

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

**Updated by:** Ann Timms

**Date:** 30<sup>th</sup> October 2023

**Approved by:** Glenn Harris

**Date:** 2<sup>nd</sup> November 2023

### Recommended Texts and Sources:

- International Hydrographic Organization's online "Manual on Hydrography"
- International Hydrographic Organization's online "Standards for Hydrographic Surveys"
- European Space Agency introductory material on the eduspace portal [includes the ability to have the text in different languages]
- Robinson, I.S. 2004. Measuring the oceans from space: the principles and methods of satellite oceanography. Springer in association with Praxis, New York.
- Gary C. Guenther, G.C., Cunningham, A.G., LaRocque, P.E. and Reid, D.J. 2001. Meeting the accuracy challenge in airborne Lidar bathymetry. eProceedings Vol. 1, No. 1.

## UNIVERSITY OF PLYMOUTH MODULE RECORD

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

**MODULE CODE:** EHYD502A

**CREDITS:** 20

**PRE-REQUISITES:** None

**MODULE TITLE:** Sensors and Underwater Acoustics

**FHEQ LEVEL:** 7

**CO-REQUISITES:** None

**HECOS CODE(S):** F720

**COMPENSATABLE:** Yes

### SHORT MODULE DESCRIPTOR:

This module provides a detailed coverage of the nature of sound, and its behaviour and application in the undersea environment as well as a review of the marine environment. Material covered in this module provides the theoretical knowledge required to operate depth sounding equipment effectively whilst afloat

ELEMENTS OF ASSESSMENT	
C1 (Coursework)	100%

**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 an in-depth knowledge and understanding of sonar systems leading to a full appreciation of the function of depth sounding apparatus.

### ASSESSED LEARNING OUTCOMES:

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

Assessed Module Learning Outcomes (ALOs)	Programme Intended Learning Outcomes (PILOs) contributed to
<ol style="list-style-type: none"> <li>1. Explain the principles of sonar and evaluate performance in a variety of complex oceanographic conditions</li> <li>2. Discuss the theory of operation of the main sonar systems; including single beam, sidescan and multibeam echo sounders</li> <li>3. Apply tidal and marine environmental theory to maximise sensor performance</li> <li>4. Describe and evaluate a variety of non-acoustic techniques including LIDAR</li> </ol>	<p>LO1 Explain the principles of sonar and evaluate performance in a variety of complex oceanographic conditions</p> <p>LO2, LO3 &amp; LO4 Discuss the theory of operation of the main sonar systems, including single beam, sidescan and multibeam echo sounders. Apply tidal and marine environmental theory. Evaluate non-acoustic hydrographic survey techniques.</p>

<b>DATE OF APPROVAL:</b> 01/2013	<b>FACULTY/OFFICE:</b> Academic Partnerships
<b>DATE OF IMPLEMENTATION:</b> 03/2014	<b>SCHOOL/PARTNER:</b> MLA
<b>DATE(S) OF APPROVED CHANGE:</b> 03/2022	<b>SEMESTER:</b> AY
<b>MODE OF DELIVERY:</b> distance learning	
Notes (for office use only): EHYD502A replaces code EHYD502 to reflect only that this module should be compensatable (R Pomeroy, 3/3/22)	

## **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: 2023-24**

**MODULE LEADER: Dr Carlos Martins**

**NATIONAL COST CENTRE: 111**

**OTHER MODULE STAFF: Dr Paul Wright**

### **Summary of Module Content:**

The nature of sound waves in the sea, the principles of sonar and its range of applications. Background signals and their impact on sonar performance. Sonar system design and signal processing techniques employed. Review of marine environmental considerations. Sonar propagation in deep and shallow waters, the sonar equations, range prediction and other techniques such as LIDAR.

<b>SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions]</b>		
<b>Scheduled Activities</b>	<b>Hours</b>	<b>Comments/Additional Information</b>
Lectures (on-line)	35	Off and online study
Practical work (on-line)	10	Including ray tracing, image analysis and range prediction
Tutorials and formative assessment	15	Tutor-led sessions
Directed and self-study	55	Research & preparation
Personal Development Planning	10	
Professional portfolio	75	Building written maths & essay work
<b>Total</b>	<b>200</b>	<b>(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)</b>

### **SUMMATIVE ASSESSMENT**

<b>Element Category</b>	<b>Component Name</b>	<b>Component Weighting</b>
Coursework	Professional Portfolio	35%
		65%

### **REFERRAL ASSESSMENT**

<b>Element Category</b>	<b>Component Name</b>	<b>Component Weighting</b>
Coursework (in lieu of the original assessment)	Professional Portfolio	35%
		65%

<b>To be completed when presented for Minor Change approval and/or annually updated</b>	
<b>Updated by:</b> Ann Timms <b>Date:</b> 30 <sup>th</sup> October 2023	<b>Approved by:</b> Glenn Harris <b>Date:</b> 2 <sup>nd</sup> November 2023

**Recommended Texts and Sources:**

Waite, A. D. (2002) Sonar for Practising Engineers. Wiley

Urlick, R. J (1983) Principles of Underwater Sound (3rd Edn). McGraw-Hill

**Journals:**

- Hydrographic Journal
- Hydro International
- Sea Technology

## UNIVERSITY OF PLYMOUTH MODULE RECORD

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

**MODULE CODE:** EHYD503B

**CREDITS:** 20

**PRE-REQUISITES:** None

**MODULE TITLE:** Advanced Practical Techniques in Hydrography 1

**FHEQ LEVEL:** 7

**CO-REQUISITES:** None

**HECOS CODE(S):** F720

**COMPENSATABLE:** Yes

### SHORT MODULE DESCRIPTOR:

This module will focus on a blend of underpinning requirements in advanced mathematics, together with applied skills ashore and afloat. This will enable students to develop the necessary applied survey expertise.

ELEMENTS OF ASSESSMENT	
C1 (Coursework)	100%

**SUBJECT ASSESSMENT PANEL to which module should be linked:** MLA

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

### MODULE AIMS:

This module aims to explain the mathematics required to undertake advanced studies in hydrographic surveying. In conjunction with this, the development of a student's advanced analytical skills applied ashore and afloat will form a major focus of this module.

### ASSESSED LEARNING OUTCOMES:

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

Assessed Module Learning Outcomes (ALOs)	Programme Intended Learning Outcomes (PILOs) contributed to
1. Apply the advanced mathematical techniques required to work effectively with hydrographic data.	A deep and systematic understanding of the mathematical and scientific principles required to complete complex hydrographic work
2. Complete a range of supervisory and survey tasks from planning and preparation to processing and presentation, applying basic management and leadership principles.	Supervise the work of a hydrographic survey team, including planning and making decisions in complex and unpredictable environments
3. Present and analyse primary hydrographic data	Communicate information, arguments, and analysis effectively at both a scientific and professional level using structured and coherent arguments

<b>DATE OF APPROVAL:</b> 25/01/2018	<b>FACULTY/OFFICE:</b> Academic Partnerships
<b>DATE OF IMPLEMENTATION:</b> 25/01/2018	<b>SCHOOL/PARTNER:</b> MLA College
<b>DATE(S) OF APPROVED CHANGE:</b> 25/01/2018	<b>SEMESTER:</b> AY
<b>MODE OF DELIVERY:</b> distance learning	
<b>Notes (office use only):</b> For delivering institution's HE Operations or Academic Partnerships use if required Practical competencies had been assessed as an A1 element of assessment on the previous version of this module. Discussion highlighted that this is more accurately represents the new P1 element of assessment and suits a pass/fail measurement of the	

competencies being assessed. Mathematics is now assessed as a coursework element as it underpins hydrographic practice and is most appropriate in an applied context

Guidance for Learning Outcomes is given below; please refer to the Programme Specification for relevant Award Learning Outcomes.



## 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: 2023-24**

**MODULE LEADER: Dr Carlos Martins**

**NATIONAL COST CENTRE: 111**

**OTHER MODULE STAFF: Dr Paul Wright**

### Summary of Module Content:

Advanced mathematics for surveyors. Revision and refresher in advanced theoretical principles. An introduction to survey techniques including levelling, setting up a tide pole, use of total stations and geodetic GPS. Sessions will present and discuss a range of equipment, including positioning systems, side scan sonar, single beam, and multibeam echo sounders in the context of a survey tasking. Team working, leadership and survey management.

<b>SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions]</b>		
<b>Scheduled Activities</b>	<b>Hours</b>	<b>Comments/Additional Information</b>
Scheduled: online Lectures	35	Indicative figures for distance learning practical preparation and planning; mathematics
Scheduled: classroom lectures; Teaching sessions ashore and afloat; group presentations	80	Safety, teamwork, and survey techniques using a range of survey equipment in an applied environment. Including assessed practical competencies and skills
Scheduled: practical competencies	25	Supervised assessment of student understanding of survey equipment and analysis of real data
Independent	60	Reading and summative assessment preparation
<b>Total</b>	<b>200</b>	<b>(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)</b>

### SUMMATIVE ASSESSMENT

<b>Element Category</b>	<b>Component Name</b>	<b>Component Weighting</b>
Coursework	Production of end of module scientific report	100%
Practical	Presentation	Pass/Fail
	Practical competencies	Pass/Fail

### REFERRAL ASSESSMENT

<b>Element Category</b>	<b>Component Name</b>	<b>Component Weighting</b>
Coursework (in lieu of the original assessment)	Production of end of module scientific report	100%
Practical	Online presentation	Pass/Fail
	Practical competencies	Pass/Fail

<b>To be completed when presented for Minor Change approval and/or annually updated</b>	
<b>Updated by:</b> Ann Timms <b>Date:</b> 25 <sup>th</sup> October 2023	<b>Approved by:</b> Glenn Harris <b>Date:</b> 2 <sup>nd</sup> November 2023

**Recommended Texts and Sources:**

Lekkerkerk H-J, van der Velden R, Haycock T, Jansen P, de Vries R, van Waalwijk P, Beemster C. (2006) Handbook of Offshore Surveying. Skilltrade, Clarkson Research Services, London

International Hydrographic Organization's online "Manual on Hydrography" (publication C-13)

International Hydrographic Organization's online "Standards for Hydrographic Surveys" (publication S-44)

Journals:

Hydrographic Journal

Hydro International

Sea Technology

## UNIVERSITY OF PLYMOUTH MODULE RECORD

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

**MODULE CODE:** EHYD504A  
**CREDITS:** 20  
**PRE-REQUISITES:** None

**MODULE TITLE:** Earth Science and Positioning  
**FHEQ LEVEL:** 7  
**CO-REQUISITES:** None

**HECOS CODE(S):** F720  
**COMPENSATABLE:** Yes

### SHORT MODULE DESCRIPTOR:

This module will provide the advanced theory in geodesy and positioning necessary to undertake and manage practical hydrographic survey work. Studies in geology, geophysics and sedimentation provide the underpinning knowledge necessary for future work in survey planning, conduct and management both inshore and offshore. Management of errors.

ELEMENTS OF ASSESSMENT	
C1 (Coursework)	100%

**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 student with the advanced principles and techniques in Earth science and positioning necessary to collect and process hydrographic data effectively.

### ASSESSED LEARNING OUTCOMES

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

Assessed Module Learning Outcomes (ALOs)	Programme Intended Learning Outcomes (PILOs) contributed to
<ol style="list-style-type: none"> <li>1. Relevant geodetic theory in hydrographic survey contexts</li> <li>2. Demonstrate a comprehensive knowledge of the aspects of geology and geophysics of relevance to advanced hydrographic survey operations</li> <li>3. Evaluate, select, and compare equipment and techniques for horizontal and vertical positioning</li> <li>4. Identify, evaluate, and manage errors</li> </ol>	<p>LO1 &amp; LO2 Geodetic theory geology and geophysics for advanced hydrographic survey operations</p> <p>LO3 &amp; LO4 Geodetic theory of horizontal and vertical positioning. Evaluation and selection of equipment and techniques for horizontal and vertical positioning. Manage errors &amp; error budgets.</p>

<b>DATE OF APPROVAL:</b> 01/2013	<b>FACULTY/OFFICE:</b> Academic Partnerships
<b>DATE OF IMPLEMENTATION:</b> 11/2014	<b>SCHOOL/PARTNER:</b> MLA
<b>DATE(S) OF APPROVED CHANGE:</b> 03/2022	<b>SEMESTER:</b> AY
<b>MODE OF DELIVERY:</b> distance learning	
<b>Notes (for office use only):</b>	
EHYD504A replaces code EHYD504 to reflect only that this module should be compensatable (R Pomeroy, 3/3/22)	

## 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: 2023-24**

**NATIONAL COST CENTRE: 111**

**MODULE LEADER: Dr Carlos Martins**

**OTHER MODULE STAFF: Dr Paul Wright**

### Summary of Module Content:

Advanced geodesy, coordinate systems, geophysics, and sediment transport. Horizontal and vertical positioning, applying appropriate methods to solve complex planning and practical problems. Errors, error theory and error management

<b>SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions]</b>		
<b>Scheduled Activities</b>	<b>Hours</b>	<b>Comments/Additional Information</b>
Lectures (on-line)	30	On and offline lectures
Practical work (online)	10	Including triangulation and trilateration exercises
Tutorials and formative assessment	50	Tutor-led sessions and topical exercises
Directed and self-study	40	Research
Personal development planning	10	
Professional portfolio	60	Building written and mathematical portfolio of work
<b>Total</b>	<b>200</b>	<b>(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)</b>

### SUMMATIVE ASSESSMENT

<b>Element Category</b>	<b>Component Name</b>	<b>Component Weighting</b>
Coursework	Professional Portfolio	50% 50%

### REFERRAL ASSESSMENT

<b>Element Category</b>	<b>Component Name</b>	<b>Component Weighting</b>
Coursework (in lieu of the original assessment)	Professional Portfolio	50% 50%

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

**Updated by:** Ann Timms

**Approved by:** Glenn Harris

**Date:** 25<sup>th</sup> October 2023

**Date:** 2<sup>nd</sup> November 2023

### Recommended Texts and Sources:

- Pinet, P. R. (2009) *Invitation to Oceanography*, 5<sup>th</sup> Edition. Jones and Bartlett Publishers, Inc, 576 pp.
- Coffeen JA, 1986, *Seismic Exploration Fundamentals*, Penwell, 2<sup>nd</sup> Edition
- Lekkerkerk H-J, van der Velden R, Haycock T, Jansen P, de Vries R, van Waalwijk P, Beemster C. (2006) *Handbook of Offshore Surveying*. Skilltrade, Clarkson Research Services, London
- International Hydrographic Organization's online "*Manual on Hydrography*" (publication C-13)
- International Hydrographic Organization's online "*Standards for Hydrographic Surveys*" (publication S-44)

Journals:

- Hydrographic Journal

- Hydro International
- Sea Technology

Marine Geodesy

## UNIVERSITY OF PLYMOUTH MODULE RECORD

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

<b>MODULE CODE:</b> EHY505A	<b>MODULE TITLE:</b> Hydrographic Survey Practice and Management	
<b>CREDITS:</b> 20	<b>FHEQ LEVEL:</b> 7	<b>HECOS CODE(S):</b> F270
<b>PRE-REQUISITES:</b> None	<b>CO-REQUISITES:</b> None	<b>COMPENSATABLE:</b> Yes

**SHORT MODULE DESCRIPTOR:**

This module prepares the student for the final practical residential module, by developing important skills in survey planning and management

ELEMENTS OF ASSESSMENT	
C1 (Coursework)	100%

**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 student with the competences necessary to plan and specify a hydrographic survey, paying due regard to the relevant legal and advisory frameworks.

**ASSESSED LEARNING OUTCOMES:**

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

Assessed Module Learning Outcomes (ALOs)	Programme Intended Learning Outcomes (PILOs) contributed to
<ol style="list-style-type: none"> <li>1. Evaluate the application of relevant legal and advisory frameworks to the planning and conduct of hydrographic surveys</li> <li>2. Specify and plan a hydrographic survey, producing appropriate documentation to required standards</li> <li>3. Demonstrate an ability to select and appraise the leadership and management theories necessary to manage hydrographic survey operations effectively</li> <li>4. Manage hydrographic data effectively using a variety of ICT based tools</li> </ol>	<p>Evaluate regulatory and legal frameworks to the conduct of hydrographic surveys. Specify and plan a hydrographic survey, producing appropriate documentation to required standards.</p> <p>Appraise leadership and management theories. Manage hydrographic data effectively using a variety of IT tools.</p>

<b>DATE OF APPROVAL:</b> 01/2013	<b>FACULTY/OFFICE:</b> Academic Partnerships
<b>DATE OF IMPLEMENTATION:</b> 06/2015	<b>SCHOOL/PARTNER:</b> MLA
<b>DATE(S) OF APPROVED CHANGE:</b> 03/22	<b>SEMESTER:</b> AY
<b>MODE OF DELIVERY:</b> distance learning	
<b>Additional notes (for office use only):</b> EHYD505A replaces code EHYD505 to reflect only that this module should be compensatable (R Pomeroy, 3/3/22)	

## 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: 2023-24**

**MODULE LEADER: Dr Carlos Martins**

**NATIONAL COST CENTRE: 111**

**OTHER MODULE STAFF: Dr Paul Wright**

### Summary of Module Content:

Relevant legal frameworks, including Law of the Sea, UNCLOS, and guiding paradigms included in Integrated Coastal Zone Management. Further research methods and data management, including an introduction to management and leadership relevant to hydrographic surveyors. Survey design and specifications, including the production of tender documentation. Data management.

SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions]		
Scheduled Activities	Hours	Comments/Additional Information
Lectures (on-line)	40	Watching and listening to on and offline lectures
Practical work (on-line)	15	Including presentations and planning techniques
Tutorials and formative assessment	15	Tutor-led sessions and quizzes
Directed and self-study	60	Research
Personal development planning and research methods	10	
Professional portfolio	60	Competing own written and mathematical work
<b>Total</b>	<b>200</b>	<b>(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)</b>

### SUMMATIVE ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework	Professional Portfolio	60%
		40%

### REFERRAL ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework (in lieu of the original assessment)	Professional Portfolio	60%
		40%

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

**Updated by:** Ann Timms

**Date:** 25<sup>th</sup> March 2023

**Approved by:** Glenn Harris

**Date:** 2<sup>nd</sup> November 2023

#### Recommended Texts and Sources:

- Lekkerkerk H-J, van der Velden R, Haycock T, Jansen P, de Vries R, van Waalwijk P, Beemster C. (2006) *Handbook of Offshore Surveying*. Skilltrade, Clarkson Research Services, London
- International Hydrographic Organization's online "*Manual on Hydrography*" (publication C-13)
- International Hydrographic Organization's online "*Standards for Hydrographic Surveys*" (publication S-44)

#### Journals:

- Hydrographic Journal
- Hydro International
- Sea Technology
- Marine Geodesy

## UNIVERSITY OF PLYMOUTH MODULE RECORD

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

<b>MODULE CODE:</b> EHYD506B	<b>MODULE TITLE:</b> Advanced Practical Techniques in Hydrography 2	
<b>CREDITS:</b> 20	<b>FHEQ LEVEL:</b> 7	<b>HECOS CODE(S):</b> F720
<b>PRE-REQUISITES:</b> None	<b>CO-REQUISITES:</b> None	<b>COMPENSATABLE:</b> Y

### SHORT MODULE DESCRIPTOR:

This module will enable students to plan and execute all aspects of a hydrographic survey on a variety of scales paying due regard to legal and commercial requirements. A significant amount of applied survey work will be undertaken, allowing the development of skills in operational hydrography and survey management, and data processing using industry standard software.

ELEMENTS OF ASSESSMENT			
C1 (Coursework)	100%	P1 (Practical)	PASS/FAIL

**SUBJECT ASSESSMENT PANEL to which module should be linked:** MLA

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

### MODULE AIMS:

This module provides the opportunity for the student to create an effective, efficient plan for the conduct of a hydrographic survey; then to manage and analyse a challenging practical task as part of a team in a real environment, including processing, presenting and evaluating collected data using relevant techniques.

### ASSESSED LEARNING OUTCOMES:

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

Assessed Module Learning Outcomes (ALOs)	Programme Intended Learning Outcomes (PILOs) contributed to
1. Plan and conduct hydrographic surveys to an appropriate standard, calibrating equipment where necessary  2. Work as part of a team, developing the ability to lead and manage all aspects of the survey process  3. Process, present and evaluate the gathered data using appropriate methods	Critically assess the suitability of survey techniques against survey specifications and legal requirements  Supervise the work of a hydrographic survey team, including planning and making decisions in complex and unpredictable environments  Communicate information, arguments and analysis effectively at both a scientific and professional level using structured and coherent arguments

<b>DATE OF APPROVAL:</b> 25/01/2018	<b>FACULTY/OFFICE:</b> Academic Partnerships
<b>DATE OF IMPLEMENTATION:</b> 25/01/2018	<b>SCHOOL/PARTNER:</b> MLA College
<b>DATE(S) OF APPROVED CHANGE:</b>	<b>SEMESTER:</b> AY
<b>MODE OF DELIVERY:</b> distance learning	



Notes:

Mathematics is now assessed as a coursework element as it underpins hydrographic practice and is most appropriate in an applied context

## **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: 2023-24**

**MODULE LEADER: Dr Carlos Martins**

**NATIONAL COST CENTRE: 111**

**OTHER MODULE STAFF: Dr Paul Wright**

### **Summary of Module Content:**

Production of a comprehensive survey plan and briefing. Conduct of surveys afloat using acoustic techniques with appropriate management and leadership skills. Processing and evaluation of data using industry-standard software packages. Presentation of results and production of a survey report.

<b>SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions]</b>		
<b>Scheduled Activities</b>	<b>Hours</b>	<b>Comments/Additional Information</b>
Scheduled: online Lectures	35	For practical survey preparation, planning and management
Scheduled: classroom lectures; Teaching sessions ashore and afloat; group presentations	80	Maximising hands-on use and assessment of hydrographic survey equipment, ashore and afloat. On survey planning, management and leadership, data collection and analysis. Delivery of survey results as formative and summative presentations.
Scheduled: practical competencies	25	Supervised assessment of student understanding of survey equipment and analysis of real data
Independent	60	Reading and summative assessment preparation
<b>Total</b>	<b>200</b>	<b>(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)</b>

### **SUMMATIVE ASSESSMENT**

<b>Element Category</b>	<b>Component Name</b>	<b>Component Weighting</b>
Coursework	Production of end of module scientific report	100%
Practical	Presentation	Pass/Fail
	Practical competencies	Pass/Fail

### **REFERRAL ASSESSMENT**

<b>Element Category</b>	<b>Component Name</b>	<b>Component Weighting</b>
Coursework (in lieu of the original assessment)	Production of end of module scientific report	100%
Practical	Presentation	Pass/Fail
	Practical competencies	Pass/Fail

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

**Updated by:** Ann Timms  
**Date:** 30<sup>th</sup> October 2023

**Approved by:** Glenn Harris  
**Date:**

### **Recommended Texts and Sources:**

- Lekkerkerk H-J, van der Velden R, Haycock T, Jansen P, de Vries R, van Waalwijk P, Beemster C. (2006) Handbook of Offshore Surveying. Skilltrade, Clarkson Research Services, London

- International Hydrographic Organization's online "Manual on Hydrography" (publication C-13)
- International Hydrographic Organization's online "Standards for Hydrographic Surveys" (publication S-44)

Journals:

- Hydrographic Journal
- Hydro International
- Sea Technology