The provision of Accredited Higher Education and Training by Distance Learning to Hydrographic Surveyors and the International Marine Industry

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Introduction

- Background – the need for a new training paradigm in Hydrography
- Concept and Objectives of the Hydrographic Academy
- Team structure: who and why
- Education and Qualifications Models
- Practical training and Blended Learning
- Enterprise e-Learning
- Accreditation
- Planned timelines and HA launch
- Advantages and Disadvantages
- Summary
Background

Accredited, formal hydrographic training has always been classroom-based. Student has always required to go to the training. Very few academic institutions conduct formal hydrographic courses. Resource is forced into becoming an overhead, or lost altogether. Damaging for an industry reliant on a high proportion of field staff: They can seldom afford to lose people for protracted periods. Cost is not always the discriminator; time is. Lack of career professional development is very erosive. Leads to a high turnover of otherwise content staff. Expensive and disruptive. The industry thus has a hard time keeping its people.
Concept – the Hydrographic Academy -

- Designed to meet the needs of the global Hydrographic industry
- NOT a Fugro-exclusive product!!
- Delivery of material from accredited courses primarily through distance and online learning techniques
- Academic credit linked for educational flexibility
- Undergraduate routes to IHO Cat B/Foundation degree (idc)
- Postgraduate routes to IHO Cat A/PG Diploma (idc)
- Industry, Academia and Governmental equal-share team partnership
- Designed to expand collaboration internationally
- Designed to be modular to suit both pure hydrography and needs for related disciplines and marine industries
- Cost-effectiveness is far reaching when all parameters considered
- Students may enroll individually but goal is for industry support for their staff
Teaming of Key Components

A combination of academia (PU), Government (FOST-HM) and Industry (Fugro)

PU provides:
- personnel required to facilitate development of e-learning materials
- produces e-learning material at an appropriate standard for academic and professional accreditation
- formally registers students, and provides appropriate academic support to facilitate successful completion of their studies.

FOST HM provides:
- advice and assistance, particularly regarding gaining professional IHO accreditation for the courses where possible
- potential to provide the resources necessary to deliver the practical training modules
Teaming of Key Components

- Fugro provides:
  - the technological platform access to the Mohive LPS
  - assistance with development and marketing of the courses
  - providing appropriate guidance from the industry’s perspective
  - a small group of students for the ‘pilot’ of each academic module prior to full market offering
  - assistance with marketing and advertising as required
Objectives of the HA Project

- To establish a tight, small team of internationally-recognised organisations to provide:
  - A fully developed programme of e-learning modules
  - Practical training and supervised final exam preparation, conduct and accreditation.
- To develop and deliver a web-based e-learning programme based in part on the already-established Fugro Academy.
- To capture a ‘student’ market within the hydrographic industry that is not currently being provided for with regard to structured education, qualification and CPD.
- To market the educational package and certification industry-wide.
Education and Qualifications Model

- Based on the IHO S5 syllabi
- A progressive model allowing students to participate and advance according to their domestic and work situation
- Modular throughout the structure with key stage development phases
- Undergraduate and postgraduate routes
- Interrogative enrollment process to establish student’s background and pre-course experience/abilities
- Common introductory module
- Not any degree warrants a postgraduate route:
  - Preferably earth-science or maths based
  - Arts based degree students will be ranked regarding their current and previous employment/experience in the industry
Undergraduate Route

**Entry (Level 4)**

**Stage 1 – Level 4**
- **Module U1** 10 Credits
  Mandatory introductory module
  'An Introduction to Hydrography and the Marine Environment'
- **Module U2** 30 Credits
  Introduction to Hydrographic survey practice
- **Module U3** 30 Credits
  Introduction to positioning
- **Module U4** 30 Credits
  Introduction to meteorology and oceanography

**Stage 2 – Level 5**
- **Module U5** 30 Credits
  Introduction to underwater acoustics and positioning methods
- **Module U6** 30 Credits
  Introduction to Hydrographic survey management and charting
- **Module U7** 30 Credits
  WBL project, based on optional units

**Stage 3 – Level 6**

**Foundation degree and CAT B**

**Route to BSc/hons (TBC)**

**Cert of HE**
- 30 Credits
  Practical hydrographic surveying 1
  (2 week residential+exams)
- 30 Credits
  Practical hydrographic surveying 2
  (2 week residential+exams)

**10 Credits**

**120 Credits**

**120 Credits**

**90/120 Credits**

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Postgraduate Route

Entry (Level 4)

Module 1
10 Credits
Mandatory introductory module
'An Introduction to Hydrography and the Marine Environment'

Module P1
10 Credits

Module P2
20 Credits
Advanced Hydrographic survey practice

Module P3
20 Credits
Advanced positioning

Module P4
20 Credits
Advanced meteorology and oceanography

Level 7 – PG Cert

PG Cert Award

Level 7 – PG Dip

Module P5
20 Credits
Advanced meteorology and oceanography

Module P6
20 Credits
Advanced Hydrographic survey management and charting

Module P7
20 Credits
WBL project, based on optional units

20 Credits
Practical hydrographic surveying 1
(2 week residential+exams)

20 Credits
Practical hydrographic surveying 2
(2 week residential+exams)

Level 7 – PG Dip

PG Dip Award and CAT A

Level 7 – PG Cert

PG Cert Award

PG Dip Award and CAT A

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Education and Qualifications Model

- Modules designed to promote interaction with nominated tutors for a particular course
- Entry Module is mandatory irrespective of qualifications or background
  - Contains non-technical, e-learning instructional techniques and introduction to the learning process
- Levels referred to are based on national guidelines followed by the PU:
  - Level 4 are undergraduate studies
  - Level 5 are national academic and professional diploma-level tuition
  - Level 6 are advanced professional diploma levels
  - Level 7 are postgraduate studies
Practical Training Integration

- Conducted at the end of a particular level of modules
- 2 main modules in either under- or post-graduate route
- Conducted under the auspices of fully trained survey staff
- Maximum hands-on; minimum classroom
- Student to display ability and familiarity with practical survey techniques
- Concentrated 2-week residential course for cost-efficiency
- Successful completion will allow student to advance to the next stage of the curriculum
Blended Learning

- Students in e-learning risk being or feeling isolated
- Blended Learning principles will be applied
- Encourages regular student-tutor and student-student interaction
- Student is made to feel part of the University/Academy culture
- Provides additional site access to ‘feel’ part of the regular student base
- Shown in studies to improve:
  - Overall academic achievement
  - Retention rates
  - Completion of courses of study
  - Overall student satisfaction with the learning experience
- Study timetables will be flexible enough to allow fully employed students to adequately pace their progress
- Academic credits for some modules available through work-based learning (WBL)
Enterprise e-Learning

- Fugro has invested already in enterprise software and web services
- E-learning in Fugro Academy comprises 2 main elements:
  - Course authoring software package
  - Learning Management System (LMS)
- Fugro’s experience in this field was highly valuable to PU
- Pages on the PU’s own server will provide access to the student base
- ‘Badging’ on the HA website will highlight the academic partner aspects of the program
- Staff permissions will be created for access to more materials as reqd.
Course Authoring Package

- Web-based collaborative package
- Allows project team to design and manage modular e-learning
  - Templates for easy course pages, ingestion of multimedia etc
  - QC functions include logic and audit trails to ensure correct study workflow is followed
  - Flash-based delivery format affords better content security
- Similar technology is used for common online questionnaires and quizzes from industry, media and academia


Learning Management System

- Allows access to subscribed modules only for the student
- Dual-aspect has module participation and monitoring functions which provides:
  - both student and tutor portals
  - Managerial oversight
  - Student support from nominated tutor
  - Student assessment/evaluation
  - Financial administration
  - Formal examinations
  - Built-in tracking facilities
Accreditation – Professional Body

- Accreditation with the IHO is a principal objective
- Currently ongoing; hoped to have in place before first students qualify
- HA presents unique challenges to traditional hydrographic professional bodies
- Various proofs need to be demonstrated beyond that required for classroom
- Very positive response received to date however includes:
  - Royal Institute of Chartered Surveyors (RICS)
  - Institute of Marine Engineering, Science and Technology (IMarEST)
  - Chartered Institution of Civil Engineering Surveyors (ICES)
  - ... all of whom run their own accreditation schemes/welcome formal education for the offshore industry
Accreditation - Academic

- Modules will be offered on a rolling basis as they are designed
- Fugro has invested in a cadre of student ‘guinea pigs’ to complete and conduct a critical appraisal of each module prior to general distribution
- Also designed to gain rapid PU academic approval
- Every module carries internationally-recognised academic credits
- High catch net irrespective of professional accreditation
- Students will attain Foundation degree (undergrad) or PG Dip (postgrad)
- Students wishing to complete only one or two modules will still receive their credits for those modules
HA Program Advantages

- Resources remain as resources to their employers
- Hugely cost-effective approach to the alternatives
- Available to a very large potential student population
- Attractive for buy-in by other marine-related organisations
- Model can be used by other industry disciplines with similar high field staff percentages
- Ditto Military and associated agencies
- Degree of travel, accommodation and expenses kept to an absolute minimum
- Practical training concentrated and very specific/pertinent to course
- E-learning material also available to the academic partners for their own inclusive student bases
- Wide range of material available through mutual collaboration
HA Program Disadvantages

- Its new
- Its different
- It could be perceived as a threat by established academic institutions
- It could be perceived as a device for educating one’s competitor’s workforce
- It will rely on the enrollment of the right student with the right approach
- It will rely on acceptance by industry as the way to use their training margins effectively
- It will rely on industry buy-in to invest in their people
Summary

- Continuous Professional Development is the key rationale
- We (the industry) are not very good at it currently
- CPD is people investment and will arrest loss of our best young people (the future)
- Approved structure; modular approach is key to gaining recognition and building a large student base
- Student base for HA are the ones NEVER likely to have the chance to attend formal hydrographic education
- Web-based scheme with physical backups designed to reach maximum catchment
- Taking the education to the student is enormously more cost-efficient for all
- HA will be available globally
- Our most valuable resources do not become overheads for their employers
HA promotional video
Thank You