

Accreditation of The Hydrographic Surveying Course at UCL and The PLA

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In September 1999, the Department of Geomatic Engineering at University College London (UCL) introduced a new MSc in Hydrographic Surveying, in partnership with the Port of London Authority (PLA). In May 2001 this degree programme was approved by the courses board of the International Hydrographic Organisation and the International Federation of Surveyors as a Category A course. The aim of this article is to explain the background to the partnership between UCL and the PLA, and to describe how the course has been designed to meet the IHO/FIG criteria.

Establishment of the Hydrographic Course

The Department of Geomatic Engineering at University College London has been running geomatics based courses for over fifty years, initially in surveying and photogrammetry and more recently supplemented by courses in remote sensing and geographic information science. The academic staff of the department have a strong research profile across most areas of geomatics, with an emphasis on what might be termed the engineering aspects of the subject: the acquisition and processing of spatial data and the analysis of its quality.

It had long been recognised at UCL that our expertise was strongly applicable to hydrographic surveying, and indeed there have been many collaborative research links with industrial organisations involved in this area. To establish a course specifically devoted to hydrographic surveying appeared to be the next logical step in expanding our portfolio of postgraduate courses.

Several of the key elements of any hydrographic course, such as GPS positioning and data analysis, already formed part of our core activities in teaching and research, but there were certain essential elements that we recognised from the outset that we should not be in a position to provide. These included some of the professional marine aspects and specialised techniques, but most importantly we were not in a position to offer practical experience on board dedicated survey vessels.

For this reason, an approach was made to the Port of London Authority to offer a course in partnership between the two institutions. The idea was that most of the core of the course, as well as specialist applications such as positioning, would be provided by UCL, and the practical elements and specific marine applications would be contributed by the PLA.

The PLA was an obvious choice for a partner in such an enterprise. It is one of the

largest UK ports, both in terms of its geographic extent (covering 150 km of the tidal River Thames from the Estuary to Teddington) and in tonnage of cargo entering and leaving the port. The annual turnover currently exceeds £29 million per annum and cargo handled is in the region of one million tonnes per week. The number of vessel arrivals and departures to and from the port during 2000 totalled 26,000. Its Hydrographic Service is equipped with a wide range of vessels and specialist survey equipment including a new side scan sonar system with target recognition and interpretation software. A considerable investment has been made in new and enabling technologies and software to ensure the timely distribution of accurate hydrographic information, i.e. the production of S57 electronic charts, paper charts utilising GIS software and the provision of real time tidal information from some 13 tide gauges.

The proposal to offer a course in partnership was accepted, and a formal commitment was made at the highest level of the two organisations with the signing of an agreement by the Provost of UCL and the Chief Executive of the PLA. Once this had been achieved, detailed planning of the course began and the first intake was admitted in September 1999.

Accreditation of the Course

As most of those working in the field of hydrographic surveying know, accreditation of a course by the International Hydrographic Organisation (IHO) and the International Federation of Surveyors (FIG) is essential in gaining international recognition. They recognise two levels of accreditation, with their Category A level designated as being aimed at courses that *provide a comprehensive and broad-based knowledge in all aspects of the theory and practice of hydrography, and are aimed at individuals who will practise analytical reasoning, decision making, and the development of solutions to non-routine problems.*

Perhaps fewer people are actually aware of what goes into applying for and receiving accreditation by the IHO/FIG. Whilst this paper cannot attempt to discuss the rationale from the official perspective, that of the committee itself, it can perhaps provide something of a 'worm's eye view': the experiences of those being assessed. The first point to note is that the accreditation procedure starts with an extremely thorough assessment of the content of the course. This is done from two perspectives: a detailed outline of the course written in its own terms, and a cross reference to the standards of competence in hydrographic surveying published by the board. The latter is a document that sets out what the board considers is a recommended level of knowledge of key areas of hydrographic surveying, broken down into sections that range from basic mathematics and statistics through to applications such as bathymetry and positioning. The aim, for those applying, is to indicate the level of knowledge gained in each area and to provide evidence for this through cross-referencing to the course syllabus.

This detailed information on the course content is backed up in the submission to the board by information on the staff delivering the course and their research publications, examples of past examination papers, institutional profiles, and so on.

Like all self-regarding exercises, producing the necessary documentation for the submission to the board had a certain fascination, albeit that a great deal of information had to be collated. What we found was that the combination of comparing our course to the standards of competence and our own experience of delivering the course in the first year of its operation focused our minds quite well on the changes that were needed from our initial conception.

From an educational point of view, what concerned us initially was that the standards of competence would be seen as completely defining the nature and content of any hydrographic course, and that there would be little room for individuality or allowance for specialisation. We were impressed, however, that this was not the case in practice. The board did not expect courses to be structured exactly as were their standards of competence: it was often the case that a single element of the board's standards was cross referenced to several different lecture courses on the UCL/PLA programme. An item under 'Bathymetry', for example, might be dealt with under the UCL module *Hydrographic Data Acquisition* and the PLA mod-

ule *Marine Applications*, or components of 'Water Level and Flow' would be cross referenced to our modules on *Geometrical and Physical Principles* and *Ocean and Coastal Zone Management*. To chase all these cross references through must have taken a great deal of effort by the board.

In general we found that it was possible to ensure that we reached a minimum standard across all the elements of the standards of competence whilst still leaving room to excel in certain key areas that we regard as the *particular strengths of the course*, such as *positioning, data analysis, and electronic charting*. It would after all be a sad day if all courses became identical and there were no room for variety of interpretation.

In addition to the written submission of material, there is an opportunity for applicants for accreditation to make a presentation to the board in person, and this is what we did. We were closely questioned about the practical aspects of the course and about subjects such as the qualifications of those being admitted to the MSc programme. By being on the spot we were able to provide further information on these aspects.

Conclusion

At the end of the exercise, the UCL/PLA MSc in Hydrographic Surveying was granted accreditation in Category A, with specialist options in Nautical Charting Hydrography and Hydrography for Coastal Zone Management.

Like most things that are good for you, gaining accreditation was hard work. We feel that we have come through a very thorough examination of the course, and were impressed that the members of the board were able to devote so much attention to each course that was submitted. We also feel that the course has benefited from this exercise in self-scrutiny and external assessment.