RESEARCH ONLINE

University of Wollongong
Research Online

Faculty of Health and Behavioural Sciences - Papers (Archive)

Faculty of Science, Medicine and Health

2011

Looking back, moving forward: lessons learnt from accreditation of post graduate occupational hygiene courses

Jane L. Whitelaw
University of Wollongong, jwhitela@uow.edu.au

Sue Reed
University of Western Sydney, s.reed@uws.edu.au

Publication Details

Whitelaw, J. L. & Reed, S. 2011, 'Looking back, moving forward: lessons learnt from accreditation of post graduate occupational hygiene courses', in S. Worland (eds), 2011 AIOH Conference Proceedings, AIOH, Vic, Australia, pp. 1-6.

Research Online is the open access institutional repository for the University of Wollongong. For further information contact the UOW Library: research-pubs@uow.edu.au

RESEARCH ONLINE

Looking back, moving forward: lessons learnt from accreditation of post graduate occupational hygiene courses

Abstract

For many years AIOH has had a systematic method for reviewing and accrediting post graduate Occupational Hygiene Courses. Applying institutions would submit a range of course documentation which was then reviewed by a panel under the auspices of the Education Committee. During 2010, the Education Committee developed a set of Learning Outcomes (LO's) for Universities applying for accreditation to map their course against prior to applying. Whilst the system in place has served AIOH well and produced good Graduate outcomes; the inclusion of LO's will enable a more transparent and objective evaluation of courses. In a recent study trip; the system for Course Accreditation in the United States was reviewed and their findings will be compared against the system Australia (AIOH) has in place. This paper provides an important opportunity to look back and learn from organisations who have a more mature system than ours, to ensure the future of our profession by producing good Occupational Hygiene Practitioners and Full and active members of AIOH.

Keywords

graduate, occupational, hygiene, courses, moving, looking, forward, back, lessons, learnt, accreditation, post

Disciplines

Arts and Humanities | Life Sciences | Medicine and Health Sciences | Social and Behavioral Sciences

Publication Details

Whitelaw, J. L. & Reed, S. 2011, 'Looking back, moving forward: lessons learnt from accreditation of post graduate occupational hygiene courses', in S. Worland (eds), 2011 AIOH Conference Proceedings, AIOH, Vic, Australia, pp. 1-6.

This conference paper is available at Research Online: http://ro.uow.edu.au/hbspapers/1140

Looking Back, Moving Forward: Lessons learnt from Accreditation of Post Graduate Occupational Hygiene Courses.

Jane L. Whitelaw[1] & Sue Reed[2]

1 University of Wollongong 2. University of Western Sydney & Edith Cowan University

Keywords: academic program evaluation, accreditation of occupational hygiene programs, core competency assessment, curriculum evaluation, occupational hygiene learning outcomes,

Introduction

For many years AIOH has had a systematic method for reviewing and accrediting post graduate Occupational Hygiene Courses. Applying institutions would submit a range of course documentation which was then reviewed by a panel under the auspices of the Education Committee. During 2010, the Education Committee developed a set of Learning Outcomes (LO's) for Universities applying for accreditation to map their course against prior to applying. Whilst the system in place has served AIOH well and produced good Graduate outcomes; the inclusion of LO's will enable a more transparent and objective evaluation of courses.

In a recent study trip; the system for Course Accreditation in the United States was reviewed and their findings will be compared against the system Australia (AIOH) has in place.

This paper provides an important opportunity to look back and learn from organisations who have a more mature system than ours, to ensure the future of our profession by producing good Occupational Hygiene Practitioners and Full and active members of AIOH.

History of Occupational Hygiene Course Accreditation in Australia

Over twenty years ago, AIOH recognised the need to accredit Occupational Hygiene Courses that would meet the academic criteria for Provisional and Full membership of the Institute. The other components required for Full membership include: appropriate work experience, submission of suitable reports on work undertaken in the field of occupational hygiene and references provided by two Full Members which will not be discussed in this paper.

At that time, when a University applied for accreditation, Council reviewed the course content and assessment methods to determine if they met their agreed standard across the full range of comprehensive occupational hygiene practice (OHP).

The Deakin Universities Graduate Diploma in Occupational Hygiene was the first course to receive accreditation in 1988. Subsequent reviews at five year intervals have seen the course maintain its accreditation for over twenty years. It is currently offered as a two year part time course in an off campus mode.

In 2009, the University of Wollongong (UOW) applied for and obtained accreditation for its Master of Science – Occupational Hygiene Practice which is delivered in a flyin-flyout block mode; combining intensive lectures and practicals with online support. AIOH procedures required UOW to submit program documentation and all course materials which were subject to intensive review by the Education Committee. A site visit by a member of the Education Committee and President Elect confirmed that adequate facilities and equipment were available to deliver the course. The entire process took over six months and a review raised some opportunities to streamline the process, whilst ensuring that the rigour was maintained.

Following the application by UOW the AIOH Council requested the Education Committee to develop a timeline and revise the procedures for evaluation of future applications for accreditation. A review of accreditation procedures from other organisations, such as the British Occupational Hygiene Society (BOHS) the Institution of Occupational Safety and Health (IOSH) was conducted. The IOSH system of clearly defined learning outcomes (which the University maps their graduate outcomes against) was used as a model for the development of the AIOH policy incorporating both the process and graduate outcomes.

AIOH Development of Course Learning Outcomes

The AIOH Policy and Procedure for Accreditation of Occupational Hygiene Courses was developed over 2010-11 and was recently endorsed by council. Initially a workshop was held with members of education committee, including representatives of accredited courses, President and President Elect of AIOH and the Chair of the Membership and Qualifications Committee to scope the knowledge areas and delegate teams to develop specific learning outcomes for each area. These were then reviewed by the whole education committee, with editing occurring over several months. Once the final draft was completed it was sent to the universities that are currently accredited for comment. A meeting was then held with the

co-ordinators of the two accredited University Programs to review their feedback on the procedure, including the draft learning outcomes. The final procedure then went before Council where it was endorsed.

It is expected that the new process will provide a consistent benchmark and give more transparency and clarity around the required graduate learning outcomes of courses seeking accreditation as well as assist them map their programs against the AIOH requirements prior to applying for accreditation. The role of the education committee will then be one of evaluation against the set criteria to ensure the outcomes are met; and a site visit to review facilities and equipment.

AIOH has set six categories of learning outcomes for accredited courses, each with numerous sub points:

1. **General Sciences**: Graduates should appreciate, understand and apply, where appropriate, basic principles of physics, chemistry and human physiology as they relate to the discipline of occupational hygiene. This learning outcome may be achieved by a combination of undergraduate and postgraduate study.
2. **Recognition**: Graduates should be able to identify, describe and prioritise chemical physical and biological hazards in the workplace.
3. **Evaluation and Assessment**: Graduates should be able to undertake exposure assessments, interpret the results, analyse and record the risk, using standard techniques.
4. **Control of Hazards**: Graduates should be able to select appropriate methods to either eliminate or control identified hazards.
5. **Management**: Graduates should be able to contextualise, apply and appraise management practices in industry, commerce and public bodies, particularly as it applies to occupational hygiene.
6. **Communication**: Graduates should be able to effectively communicate (written and verbal) information such as technical data, clearly and concisely at a level appropriate to the intended audience, as well as being able to organise arguments and discussion in a logical sequence. (AIOH, 2011)

To maintain accreditation, Universities are required to provide AIOH with an annual report covering the prior years activities and any proposed changes for the next 12 months. This

includes changes to staff, curriculum, assessment or practical components as well as statistics on students.

Occupational Hygiene Course Accreditation in the United States

The system for specialised course accreditation in the United States in Applied Science, is conducted by an independent non-governmental commission, ABET (Applied Science Accreditation Commission,). The ABET quality standards are set by the relevant professional societies and the program criteria for Industrial Hygiene have been set by the American Industrial Hygiene Association (AIHA) as the lead society (using the American Board of Industrial Hygienists, ABIH rubrics as a framework to categorise the knowledge component) with the American Academy of Environmental Engineers (AAEE) as a co-operating society. In 2000 ABET set new criteria moving from the "process of education" to the assessment of student outcomes; and outcomes based criteria were first used to evaluate undergraduate and masters level industrial hygiene programs in 2001 (Olsen. et al, 2005).

As in Australia, accreditation is a voluntary process on the part of the institution who requests an evaluation of its program. Only programs that have produced at least one graduate are eligible for accreditation. The institution conducts an internal evaluation and completes a self-study questionnaire documenting students, curriculum, faculty, administration, facilities and institutional support meet the established criteria.

To gain accreditation, *"the program must demonstrate that graduates have necessary knowledge, skills, and attitudes to competently and ethically implement and practice applicable scientific, technical, and regulatory aspects of Industrial Hygiene. To this end, graduates will be prepared to anticipate, recognize, evaluate, and control exposures of workers and others to physical, chemical, biological, ergonomic, and psychosocial factors, agents, and/or stressors that can potentially cause related diseases and/or dysfunctions". (ABET,2010a)*

"More specifically, graduates must be able to:

(a) identify agents, factors, and stressors generated by and/or associated with defined sources, unit operations, and/or processes;

(b) describe qualitative and quantitative aspects of generation of agents, factors, and stressors;

(c) *understand physiological and/or toxicological interactions of physical, chemical, biological, and ergonomic agents, factors, and/or stressors with the human body;*
(d) *assess qualitative and quantitative aspects of exposure assessment, dose-response, and risk characterization based on applicable pathways and modes of entry;*
(e) *calculate, interpret, and apply statistical and epidemiological data;*
(f) *recommend and evaluate engineering, administrative, and personal protective equipment controls and/or other interventions to reduce or eliminate hazards;*
(g) *demonstrate an understanding of applicable business and managerial practices;*
(h) *interpret and apply applicable occupational and environmental regulations;*
(i) *understand fundamental aspects of safety and environmental health*
(j) *attain recognized professional certification (ABET, 2010a)*

While the institution seeking accreditation conducts its own program self evaluation, ABET forms an evaluation team to visit the campus. Once onsite, the team spend significant time reviewing course materials, student projects and sample assignments and interviews students, faculty and administrators. The team investigates whether the criteria are met and tackles any questions raised by the self-study. This is conducted over several days. The final evaluation report is reviewed at a large annual ABET commission meeting and members vote as to whether accreditation is granted. *(ABET, 2010b)*

So: What is the Same? and more importantly what are the Differences?

Table 1: summary of the similarities and differences in course accreditation processes between Australia and the United States.

Accreditation Processes	Australia	United States
Standards for accreditation set by?	AIOH	AIHA
Specific Accreditation given to specialised programs, not the institution	Yes	Yes
Voluntary, and by request	Yes	Yes
Must have produced at least one graduate to apply for accreditation	No	Yes
Self examination conducted by the institution	Yes	Yes
External desktop evaluation by team against set LO's & program requirements (eg faculty & facilities)	AIOH Education Committee Members.	Qualified ABET team of academic, govt, industry evaluators.
Period of site review	1 day	Several days
Accreditation decision made by	AIOH council	ABET full meeting
Max accreditation period	5yrs	6yrs
Re-accreditation process	Review of program & site visit	Full re-evaluation process
No of accredited courses (@ 1/10/11)	2	26
Membership of Professional body (@1/10/11)	950	12,000

As a general comment ABET seem to be more assessment, or outcome focussed (rather than delivery focussed) and require a significant project that consolidates the broad learning outcomes and demonstrates effective communication via report writing. Given that the majority of Australian OHP students work full time at a distance from their campus, one of the challenges is to provide innovative ways to incorporate practice principles into the curricula; and both the currently accredited programs offer a project component where the student demonstrates competent practice in an OHP area.

A number of United States Universities offer undergraduate and post graduate qualifications in Industrial Hygiene but have not sought ABET accreditation. Discussion at the 2011 AIHA

Academic Special Interest Group (SIG), raised the cost issues of increased workload to maintain accreditation and ABET fees; as deterrents to seeking accreditation; and were seeking a reduction by ABIH in the professional practice period for graduates who were applying to sit their CIH exam. Their argument was that it would give them an advantage when marketing their courses to students and thus increase student numbers to offset the costs incurred in accreditation.

There are many similarities between the Australian and United States system but the biggest difference is in the administration of the review and the conferring of accreditation. In Australia, the entire process is managed by members of the peak professional body, AIOH whereas in the United States it is managed by ABET which is an independent commission specifically set up to provide course accreditation across a range of disciplines. The benefit of this is that it provides a separation of activities and independence but it is very expensive and seen as an impost by many Universities.

So; Why accredit programs and why choose an accredited one?

According to ABET there are a number of benefits of accreditation to both the University and potential students:

1. It provides the University with a structured mechanism to assess, evaluate, and improve the quality of their program,
2. It assists students and their employers choose a quality program to enhance their professional capacity,
3. It enables employees to recruit graduates that they know are well prepared, and
4. It is used by membership and certification boards to screen applicants

Feedback from students, employers and the AIOH Membership and Qualifications Committee also support these outcomes in the Australian context.

Conclusion

Looking back, AIOH has been on a journey with accreditation of OHP programs for over twenty years now, and the development of learning outcomes and a more defined process is the latest step in ensuring the quality of OHP educational programs and graduate outcomes. With membership of over 950 and growing, it is essential that the profession continues to seek to

equip its members by providing a mechanism to discern quality education leading to competent Occupational Hygiene Practitioners.

Looking forward, as the demand for Occupational Hygienists continues to be strong; it is anticipated that other Universities will seek accreditation for their programs and the recently developed AIOH procedure incorporating defined learning outcomes will assist them in their program development and self evaluation, streamlining the work of the Education Committee but still ensuring a robust review of the of their program.

As more non members, associate and provisional members graduate from ~~take up study in~~ these accredited programs it will boost the number of Full Members and Certified Occupational Hygienists practicing in Australia which will only continue to strengthen the profession and provide a valuable career path in Occupational Hygiene.~~for young Hygienists.~~

References:

ABET (2010a). *Criteria for Accrediting Applied Science Programs: Effective for Evaluations During the 2011-2012 Accreditation Cycle*, ABET Inc Applied Science Accreditation Commission Baltimore, available online at: http://www.abet.org/Linked%20Documents-UPDATE/Program%20Docs/abet-asac-criteria-2011-2012.pdf accessed 26/9/11.

ABET (2010b). The Basics: Accreditation Assures Quality**,** ABET Inc Applied Science Accreditation Commission Baltimore, available online at: www.abet.org accessed 26/9/11.

AIOH (2011). Procedure for Accreditation of University Courses; personal correspondence.

Olson, D.K., Lohman, W.H., Brousseau, L.M, Fredrickson, A.L, McGovern, P.M, Gerberich, S.G, and Nachreiner, N.M. (2005). "Crosscutting Competencies for Occupational Health and Safety Professionals"; *J Public Health Management Practice*, 11(3), 235-243