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**MASTER OF SCIENCE PROGRAM IN OCCUPATIONAL AND ENVIRONMENTAL HEALTH
(INDUSTRIAL HYGIENE) ACCREDITATION REPORT AT THE UNIVERSITY OF IOWA**

Action Requested: Receive the accreditation report for the Master of Science Program in Occupational and Environmental Health (Industrial Hygiene) in the Department of Occupational and Environmental Health in the College of Public Health at the University of Iowa.

Executive Summary: The program (1) underwent a self-study that addressed the standards defined by the accrediting body and (2) had an on-site visit by peer evaluators. In August 2007, the program received accreditation for a three-year period to September 2009. The accrediting agency requested a report describing the actions taken to correct shortcomings identified in the final statement. In light of the institution's responses to the interim report, the program received accreditation in August 2009 for the final three years of the maximum six-year period.

This accreditation report addresses the Board of Regents Strategic Plan objective (1.1) to "offer high-quality programs through ongoing program improvement for undergraduate, graduate, professional, and non-degree students and special school students."

Background:

- ◆ Description of Program. The Master of Science Program in Occupational and Environmental Health (Industrial Hygiene) prepares individuals to prevent occupational disease and injury in industrial, environmental, and occupational sectors.
- ◆ Purpose of Accreditation. An accredited educational program is recognized by its peers as having met national standards for its development and evaluation.
- ◆ Accrediting Agency. The accrediting body is the Applied Science Accreditation Commission of the American Board for Engineering and Technology (ASAC/ABET).
- ◆ Review Process. The self-study prepared by the Master of Science Program in Occupational and Environmental Health (Industrial Hygiene) contained the responses to the appropriate standards required by the accrediting body – students; program educational objectives; program outcomes and assessment; professional component; faculty facilities; institutional support and financial resources; program criteria; graduate program requirements.
- ◆ On-Site Team Report. In October 2006, the visiting team determined that the Master of Science Program in Occupational and Environmental Health (Industrial Hygiene) met the requirements for accredited status, although the team identified four program weaknesses and one program concern.

◇ Strengths Identified by the Visiting Team.

- ☑ “Overall, the Master of Science in Industrial Hygiene has high quality students and faculty. Numerous enhancements have been implemented to continue improving the program in the past several years. Examples include increased numbers of core faculty, improved facilities/labs, revision of the curriculum, and expansion of the number of certified industrial hygienists represented on the faculty and on the external advisory panel.”
- ☑ “In addition to a strong core faculty, affiliated faculty in the College of Public Health, College of Medicine, College of Engineering, and other units within the University of Iowa gives this program good depth and breadth in industrial hygiene and related fields. The other four departments in the College of Public Health and the Heartland Center for Occupational Health and Safety, a National Institute of Occupational Safety and Health (NIOSH), provide excellent research assistantships, thesis research, and internship opportunities for industrial hygiene master’s degree students.”
- ☑ “In an effort to provide students with expanded field experiences, the industrial hygiene program has partnered with local industries who hire IH students as consultants through the IH Student Association. Faculty members assist students in preparing for these field studies to ensure a quality educational experience and professional results. Recent curricular changes have also increased student participation in field experiences. As a result, the experiential learning aspect of the industrial hygiene program continues to improve.”

◇ Program Weaknesses to be Addressed by the Program.

- ☑ “Criterion 2, Program Educational Objectives, requires that each applied science program have in place ‘a process based on the needs of the program’s various constituencies in which the objectives are determined and periodically evaluated.’ The program’s constituencies were defined in the 2006 Study to include employers, students, faculty, alumni, University of Iowa staff and administration, Heartland Center for Occupational Health and Safety Advisory Board, and professional organizations. However, at the time of the visit in October 2006, employers were not demonstrated to be materially involved in determining educational objectives or in evaluating and recommending improvements to the program.

The Interim Report submitted in June 2008 details the program’s formation of an Advisory Board and the process that has been established to incorporate their input. The Advisory Board consists of nine individuals. These board members are primarily practicing industrial hygienists (n=6) that the faculty see during the year through local AIHA section meetings, conferences, professional meetings, and a training symposium provided by the ERC (Education and Research Centers). Other individuals include a plant manager of a nuclear power plant, a professor of safety at Iowa State University, and a researcher for NIOSH. These individuals have insight on the skills needed by industrial hygienists to carry out their duties.

Besides seeking their advice on specific curriculum or programmatic concerns, the University also sought their guidance on recruiting new students and placing graduating students. Some of the external partners provide plant visits, internships, and preceptorship opportunities for students. The program has held at least one annual conference call to update Advisory Board members on the program and discuss future directions of the IH program.

Upon advice of the Advisory Board, the program initiated a new applied statistics course to be taught for the first time in the Fall semester of 2008 because the introductory statistics course provided by the Biostatistics Department had not been adequately preparing MS students to conduct data analyses for their theses and preceptorship projects and other course work. The course will use statistical software packages that are more likely to be available to practicing industrial hygienists rather than sophisticated software such SAS® or SPSS®. This course will be continually evaluated by students and faculty peers to determine whether it is adequately developing students' statistical skills.

The program learned from their alumni and colleagues in the field that *control banding* and *Bayesian statistics* are being used by practicing industrial hygienists as tools to evaluate workplace exposures and worker risks. The American Industrial Hygiene Association (AIHA) and other professional organizations have been presenting training courses and discussion sessions at professional meetings on these topics. The Advisory Board and alumni have also told the program that employers are asking them to use or consider using these tools in their workplaces. The program currently has very little instruction on these topics in their training program. Beginning in the Fall of 2008, lecture, homework, and testing materials will be presented on these topics in the Fundamentals of Industrial Hygiene, Control of Occupational Hazards, and Statistics for Experimenters courses. The faculty members have been studying and discussing these topics in preparation for their courses.

The program learned that a few industrial hygiene training programs are dropping the inclusion of an industrial ventilation control course in their training curriculum. The program currently has a comprehensive applied ventilation course which includes instruction on the basic evaluation and design of industrial ventilation systems. The program's alumni and Advisory Board indicated that most practicing industrial hygienists are not heavily involved in designing industrial ventilation systems. However, they are frequently involved in evaluating whether ventilation systems are performing properly. They may also be involved in simple ventilation design or modification and need to understand the principles behind using industrial ventilation systems as a control measure. They also noted that industrial ventilation continues to be a major component on the Certified Industrial Hygienists (CIH) examination. The program plans to continue presenting a ventilation course with the inclusion of laboratory and field exercises on evaluating the function of ventilation systems.

This criterion is satisfied; the weakness is resolved."

- ☑ “ABET policy requires samples of student work from the full range of required courses for graduation showing a range of student performance. At the time of the visit in October 2006, student work was not available for the full range of required courses and evaluation of student achievement in all curricular requirements was not possible. Although student work that was supplied evidenced achievement of many of the educational objectives and required program outcomes, without the full range of required course work it was not possible for the site visit team to determine achievement of the established educational objectives and program outcomes.

The Interim Report submitted in June 2008 provided examples of student work from all of the required courses for graduation. These materials were organized by course and labeled by exercise. Examples of student work included graded tests, completed assignments, laboratory reports, specific class projects, and research reports. The material demonstrated that the course objectives were being met and documented achievement of program outcomes.

This criterion is satisfied; the weakness is resolved.”

- ◇ Accreditation Status. In June 2008, the University of Iowa responded to the program weaknesses contained in the final statement on the evaluation of the Master of Science Program in Occupational and Environmental Health (Industrial Hygiene). Based on those responses, the Applied Science Accreditation Commission of the American Board of Engineering and Technology determined that all program weaknesses had been resolved. Therefore, ASAC/ABET awarded accreditation to the Master of Science Program in Occupational and Environmental Health (Industrial Hygiene) at the University of Iowa for the remaining three-years of the maximum six-year period. No further action is required until the next reaccreditation evaluation.