Industrial Hygiene

Degree Offered

- Masters of Science, Industrial Hygiene (M.S.)

The Master's of Science with a major in Industrial Hygiene is accredited by the Applied and Natural Sciences Accreditation Commission (ANSAC) of ABET, http://www.abet.org.

Program Educational Objectives

Drawing from the university's mission, the program mission, the needs of our constituents, and the Applied Science Accreditation Commission Criteria of ABET, the following educational objectives were developed for the Masters of Science program in Industrial Hygiene:

1. Practice Industrial Hygiene and to initiate and develop leadership roles in business, industry, and/or government.
2. Continue professional development and life-long learning.
3. Interact in society and business in a professional, ethical manner to promote occupational and environmental health.
4. Be proficient in written and oral communication and to utilize people-oriented skills in individual and team environments.
5. Apply the skills from Industrial Hygiene to be proficient in his or her chosen field or doctoral studies.

Student Outcomes

INDUSTRIAL HYGIENE

In order to meet the Program Educational Objectives of the Industrial Hygiene program, students must be able to meet the following educational outcomes at the time of their graduation:

1. An ability to identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to industrial hygiene
2. An ability to formulate or design a system, process, procedure or program to meet desired needs
3. An ability to develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions
4. An ability to communicate effectively with a range of audiences
5. An ability to understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts.
6. An ability to function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty.

Admissions

To qualify as a regular graduate student, applicants must have as a minimum the equivalent of a 3.0 GPA. Applicants with a minimum 2.75 GPA (or the equivalent) may be admitted on a provisional basis. Applicants with GPA below 2.75 would need approval of the dean or his designee. International students must demonstrate proficiency in communicating in English (a minimum TOEFL Score of 550, or IBT Score of 79, or IELTS Score of 6.5).

Students must comply with the rules and regulations as outlined in this catalog for graduate work in the College of Engineering and Mineral Resources and meet individual major and degree admission standards.

Applicants to graduate programs in the IMSE department are required to provide the following.

- A completed application submitted to the WVU Admissions Office
- Official transcripts of all previous college course work
- TOEFL scores for international students as stated above
- GRE General Test scores (not required for the M.S. in Safety Management Program)
- Three letters of recommendation (required for the Ph.D. programs only).

For admission into the M.S. Industrial Hygiene Program, applicants must meet department admission standards and ABET/ASAC prerequisite course requirements which are currently a minimum of sixty-three credit hours of approved science, mathematics, and other technical courses. Of these, at least fifteen credit hours must be junior or senior level. Specific pre/corequisite course requirements include two semesters of general/inorganic chemistry and two semesters of physics. On an individual basis, the faculty may identify additional pre/corequisite coursework, often including organic chemistry and biology. Applicants will be advised about their specific requirements at the time of admission. Applicants not meeting all of the listed requirements may be considered for admission as provisional students.
Curriculum in Masters of Science – Industrial Hygiene

A candidate for the M.S. degree with a major in industrial hygiene must comply with the rules and regulations as outlined in the WVU Graduate Catalog and the specific requirements of the Statler College and the Industrial and Management Systems Engineering Department.

Program Requirements

All M.S. degree candidates follow a planned program of study. The student’s research advisor, in conjunction with the student’s Advising and Examining Committee (AEC) will be responsible for determining the plan of study appropriate to the student’s needs. Students must select a track (thesis or coursework only) by the end of their second semester in the program. Changes in track may be made later as needed. The underlying principle of the planned program is to provide the students with the necessary support to complete their degree and prepare them for their career.

Curriculum Requirements

A minimum cumulative GPA of 3.0 is required in all courses
A minimum of 60% of courses must be from 500 level or above

Course Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>STAT 511</td>
<td>Statistical Methods 1</td>
<td>3</td>
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<tr>
<td>IH&amp;S 460</td>
<td>Ergonomics</td>
<td>3</td>
</tr>
<tr>
<td>IH&amp;S 527</td>
<td>Noise Measurement and Control</td>
<td>3</td>
</tr>
<tr>
<td>IH&amp;S 528</td>
<td>Industrial Ventilation Design</td>
<td>3</td>
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<tr>
<td>IENG 561</td>
<td>Industrial Hygiene Engineering</td>
<td>3</td>
</tr>
<tr>
<td>IH&amp;S 725</td>
<td>Industrial Hygiene Sampling and Analysis</td>
<td>4</td>
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<tr>
<td>OEHS 622</td>
<td>Public Health Toxicology</td>
<td>3</td>
</tr>
<tr>
<td>EPID 601</td>
<td>Public Health Epidemiology</td>
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Online short course: Basic Course in the Protection of Human Research Subjects - Biomedical Focus https://www.citiprogram.org/default.asp

Complete 1 of the following options: 9-11

**Thesis Option (9 Hours)**

- IH&S 693 Special Topics (Aerosol Mechanisms)
- IH&S 697 Research (6 hours)
- Written Proposal/Oral Presentation
- Thesis
- Final Oral or Written Examination

**Coursework Option (11 Hours)**

- IENG 662 Systems Safety Engineering
- OEHS 601 Environmental Health
- IH&S 685 Internship
- Environmental or Safety Elective: (choose one) **
  - ENVP 515 Hazardous Waste Training
  - ENVP 555 Environmental Sampling and Analysis
  - SAFM 580 Fundamentals of Environmental Management
  - SAFM 470 Managing Construction Safety
  - SAFM 533 Disaster Preparedness
  - SAFM 534 Fire Safety Management
- Final oral or written examination

Total Hours 34-36

* Students who do not hold a baccalaureate degree in industrial hygiene may be required to take a set of undergraduate courses above and beyond the minimum coursework requirements. Students must complete those courses and earn at least a “C” in each before completing the 18th credit hour in the industrial hygiene curriculum.

** All courses contributing to Environmental or Safety Elective are three hours.

Final Examination

M.S. students following the thesis option must prepare a written research proposal. The proposal must be approved by the student’s AEC at least one semester prior to the final oral examination.
All students, regardless of option, are required to pass a final oral or written examination, administered by their AEC, covering the thesis and/or related course material.

**Suggested Plan of Study**

The plan below illustrates the Thesis Option. It is important for students to take courses in the order specified as much as possible; all prerequisites and concurrent requirements must be observed. A typical M.S.I.H. degree program that completes degree requirements in two years is as follows.

<table>
<thead>
<tr>
<th>First Year</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<td>STAT 511</td>
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<td>IH&amp;S 725</td>
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<tr>
<th>Second Year</th>
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<th>Hours</th>
<th>Spring</th>
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Total credit hours: 34

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