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Advanced Energy and Fuels Management

The Professional Science Master's (PSM) in Advanced Energy and Fuels Management is a 36-hour post-graduate degree that combines graduate-level technical training in energy resources and technology with opportunities for the development of workplace skills. This intensive program is designed to prepare graduates for leadership positions in the energy industry. The program includes nine (9) business-related credit hours, nine (9) science/technology-related credit hours, three (3) credit hours in energy policy studies, nine (9) credit hours of graduate-level electives, and a six (6) credit hour capstone internship completed with an industrial partner.

Program Description

In the energy sector, increasing global energy demand coupled with a need to reduce the sector's environmental impact are driving unprecedented change. Industry leaders are discovering new ways to create energy from both alternative and traditional resources. At the same time, firms in the energy sector are developing and employing new technologies to reduce the environmental impact of existing energy resources, as well as to improve the manner in which energy and fuels are extracted, refined, generated, stored, and distributed. Rapid growth and change in the energy sector has created a strong demand for personnel in management and leadership roles who are trained in both the technical aspects of the energy industry and who also possess workplace skills. The overarching academic objective of the Professional Science Master's (PSM) in Advanced Energy and Fuels Management is to satisfy this need by providing high-quality professional training that ensures graduates have acquired the diverse skill set sought and demanded by industry.

The proposed course of study achieves this objective by providing core technical training in energy resources, energy production technology and energy policy issues coupled with business training in project and personnel management, business leadership skills and fiscal management. In addition to these core requirements, students participating in this program will have the opportunity to take nine (9) credit hours of electives to allow them to gain additional specialized graduate-level training related to their own specific interests and career goals.

The PSM program consists of a 36-hour curriculum structured in accord with the PSM model originally developed by the Sloan Foundation. The program is designed to be completed in one academic year (based on full-time study), with additional course work to be completed in the preceding summer semester and the capstone internship to be completed in the final summer semester. This intensive program is designed to minimize the time student's need to be away from full-time employment while also maintaining academic rigor.

This program provides the diverse skill set demanded by industry. It includes business, science/technology, and policy elements, broken down as follows:

- 9 Business-related credit hours
- 9 Science/Technology-related credit hours
- 3 Credit hours of energy policy studies
- 9 Credit hours of electives
- A capstone 6-credit hour internship in industry completed over the summer semester following completion of other requirements

The program is composed of the following courses. All specified courses are required (core) curriculum elements. A list of electives is included, but this list is not all inclusive.

Fall Semester (12 hours)

- ME 568 (3) Alternative Energy and Fuel Resources
- ME 446 (3) Energy Management
- IMAE 450 (3) Project Management
- BA 510 (3) Managerial Accounting & Control Concepts

Spring Semester (12 hours)

- GEOG 522 (3) Environmental and Energy Economics
- BA 540 (3) Managerial & Organizational Behavior
- Elective (3 hrs)
- Elective (3 hrs)

Summer Session (6 hours)

- AEFM 585 (6) Internship in Advanced Energy and Fuels Management

This internship requires the student to complete a specified project for the employer supporting the internship, the nature of which will be approved by PSM faculty in consultation with the employer prior to the initiation of the project. The intern is required to submit both a written and oral project report, to both the employer and PSM faculty.

Fall Semester (6 hours)

- Elective (3 hrs)
- PHYS 450 (3 hrs)

Program Admission and Graduate Requirements

An admission committee, composed of the program director and members of the faculty advisory board, will oversee admission of candidates to the program. Preferred candidates are individuals who hold a baccalaureate degree in natural sciences, physical sciences or engineering. Candidates not holding an appropriate baccalaureate degree may be required to complete necessary prerequisite courses prior to admission to the program. Catalog course descriptions for elective courses indicate the nature of any prerequisites or consent of instructor. Academic exceptions may be granted in specific circumstances for individuals with extensive professional experience or other background that, in the opinion of the admissions committee, qualifies the candidate for admission.

- SIU's graduate school admission requirements are available at: gradschool.siu.edu/apply/.
- Graduation requirements are successful completion of all course work and the capstone internship, with an overall GPA \geq 3.0.
- SIU's graduate school graduation requirements are available at: gradschool.siu.edu/current-students/graduation.php.

Advanced Energy and Fuels Management Courses

Advanced Energy and Fuels Management Faculty

Achenbach, Laurie, Microbiology

Altman, Ira, Agribusiness Economics

Anderson, Kenneth, Geology

DeRuntz, Bruce, Technology

Fraedrich, John, Business

Haddock, John, Microbiology

Karau, Steve, Business

Liang, Yanna, Civil Engineering

Lightfoot, David, Plant, Soil, and Agricultural Systems

Mathias, James, Mechanical Engineering and Energy Processes

Mondal, Kanchan, Mechanical Engineering and Energy Processes

Odom, Marcus, Business

Secchi, Silvia, Geography and Environmental Resources

Talapatra, Saikat, Physics

Wiltowski, Tomasz, Mechanical Engineering and Energy Processes

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Catalog Year Statement:

Students starting their collegiate training during the period of time covered by this catalog (see bottom of this page) are subject to the curricular requirements as specified herein. The requirements herein will extend for a seven calendar-year period from the date of entry for baccalaureate programs and three years for associate programs. Should the University change the course requirements contained herein subsequently, students are assured that necessary adjustments will be made so that no additional time is required of them.