

RELOCATION OF THE MASTER OF SCIENCE IN ALTERNATIVE ENERGY TECHNOLOGY AND THE GRADUATE CERTIFICATE IN ALTERNATIVE ENERGY TECHNOLOGY

Recommendation

It is recommended that the Board of Governors relocate both the Master of Science in Alternative Energy Technology and the Graduate Certificate in Alternative Energy Technology from the Dean's Office in the College of Engineering to the Division of Engineering Technology, effective fall term 2023.

Background

To combat global warming and lessen dependence on foreign oil and fossil fuels, the U.S. government has set a high priority on the development of new energy sources. Today, it dominates Michigan's industrial and technology landscape, and engineers are being asked to design renewable energy systems to power everything from vehicles to home heating and cooling systems. In 2004, WSU established the country's first master's degree program in alternative energy technology and has remained ahead of the curve with comprehensive curricula that prepare students to lead the evolution to a hydrogen-based economy.

The Master of Science in Alternative Energy Technology and the Graduate Certificate in Alternative Energy Technology were designed to be interdisciplinary programs in the College of Engineering. However, the curriculum has been designed and taught by faculty primarily in the Division of Engineering Technology. Since the programs were designed, the needs of industry have evolved especially with the transition from internal combustion engines to electric drive vehicles. The current programs focus almost exclusively on fuel cell technology and solar energy. There is a need for an industrial advisory board to oversee and provide input in the redesign of the program. The faculty in the division are well qualified in terms of teaching and research in electric drive vehicles, energy storage, battery technology, and other alternative forms of energy. The Division of Engineering Technology is well-positioned to take on the task of updating the programs and managing the assessment and teaching responsibilities.

Program Description

Mission

The mission of the MS Alternative Energy Technology and Certificate Alternative Energy Technology:

1. To educate and prepare the technical and scientific workforce for emerging alternative energy technology.
2. To promote and mobilize/align available resources to develop interdisciplinary research programs.
3. To disseminate technical information and raise public awareness of emerging alternative energy technology.

Program goals

Alternative Energy Technology (AET) will dominate Michigan's industrial and technology landscape for the coming decades, as evidenced by the tremendous amount of investment that the federal government, automotive industry, and fuel cell manufacturers have committed to advancing a hydrogen-based economy. Wayne State developed a comprehensive portfolio of advanced educational programs to prepare the current and future Michigan workforce for the emerging AET field.

Submitted by: Mark Lawrence Kornbluh, Provost and Senior Vice President for Academic Affairs

WSU's comprehensive curricula not only prepare our full-time graduate and undergraduate students but also caters to Michigan's working engineers and scientists, to advance their knowledge and skills for emerging careers in AET. Our ultimate goal is to position Michigan as a primary center for alternative energy education, curriculum research, and development.

Learning outcomes

1. Apply mathematics, science, and engineering concepts to identify and solve problems in electric-drive vehicle engineering and related general engineering areas.
2. Apply the methodologies, skills, and modern science and engineering tools in electric-drive vehicle engineering design and applications.
3. An ability to design sub-systems, components, or processes for broadly defined electric-drive or alternative energy vehicle problems appropriate to program educational objectives.
4. An ability to identify, analyze and solve broadly defined electric-drive and alternative energy vehicle problems.

Approvals

The proposal was approved by the Academic Operations Committee in the College of Engineering, the Dean of the College of Engineering, and the Provost.