Modern Energy Production and Sustainable Use, MS

ESMEPSUMS

Where do sustainable engineering and renewable energy production meet? How can you apply your technical engineering skills to creating solutions for complex energy systems? Learn to demonstrate real-world, proven capabilities and interdisciplinary thinking by mastering skills related to creation, storage and use of renewable energy.

Program Description

Degree Awarded: MS Modern Energy Production and Sustainable Use
This MS program in modern energy production and sustainable use prepares students for professional careers in transdisciplinary areas of renewable energy generation and storage, energy-saving materials, manufacturing, sustainable transportation, and related fields in industry, government, and educational institutions.

Students are provided with the skills and knowledge needed to address the challenges associated with the different modalities in energy production and storage, and they are encouraged to work with instructors in the program who are conducting research.

At a Glance

- **College/School:** Ira A. Fulton Schools of Engineering
- **Location:** Tempe campus

Accelerated Program Options
This program allows students to obtain both a bachelor's and master's degree in as little as five years. It is offered as an accelerated bachelor's and master's degree with:

Mechanical Engineering, BSE
Mechanical Engineering (Energy and Environment), BSE

Acceptance to the graduate program requires a separate application. During their junior year, eligible students are advised by their academic departments to apply.

**Degree Requirements**

30 credit hours and a portfolio

**Required Core (12 credit hours)**
Choose four courses:
ALT 535 Applied Photovoltaics (3)
CHE 573 Fuel Cells and Biofuel Cells (3)
CHE 578 Biomass Energy Conversion Technology (3)
MAE 576 Energy Efficiency (3)
MAE 579 Wind Energy (3)
MAE 582 Renewable Energy: Mechanical Systems (3)
MSE 560 Nanomaterials in Energy Production and Storage (3)
SEC 501 Solar Engineering and Commercialization I (3)

**Mathematics Elective (3 credit hours)**

**Sustainability Electives (6 credit hours)**

**Technical Electives (9 credit hours)**

**Culminating Experience (0 credit hours)**
portfolio (0)

**Additional Curriculum Information**
The modern energy production and sustainable use program only offers a nonthesis, portfolio option.

Students should see the academic unit for a list of approved elective coursework. Other coursework may be used with approval of the academic unit.

During the last semester of their program, students submit a portfolio containing at least two projects from previous engineering coursework along with a paper explaining the projects. Students must successfully complete the portfolio requirements to pass the culminating experience.
Admission Requirements

Applicants must fulfill the requirements of both the Graduate College and the Ira A. Fulton Schools of Engineering.

Applicants are eligible to apply to the program if they have earned a bachelor's or master's degree in any engineering, physical science or related field from a regionally accredited institution.

Applicants must have a minimum cumulative GPA of 3.00 (scale is 4.00 = "A") in the last 60 hours of their first bachelor's degree program, or applicants must have a minimum cumulative GPA of 3.00 (scale is 4.00 = "A") in an applicable master's degree program.

Applicants are required to submit:

1. graduate admission application and application fee
2. official transcripts
3. three letters of recommendation
4. professional resume
5. personal statement
6. proof of English proficiency

Additional Application Information

An applicant whose native language is not English must provide proof of English proficiency regardless of current residency. The minimum score required on the TOEFL iBT is 90.

Application Deadlines

Fall

Spring

expand

Career Opportunities

Professionals with a modern energy production and sustainable master's degree have strong opportunities at all levels in various energy related technologies with private and government entities. The skills learned in this degree prepare graduates for a career as a practicing engineer.

Career examples include:

- development engineer
- process engineer
- product engineer

Contact Information