RENEWABLE ENERGY AND SUSTAINABILITY SYSTEMS

Graduate Program Head	Mort D Webster
Program Code	RESS
Campus(es)	World Campus (M.P.S.)
Degrees Conferred	Master of Professional Studies (M.P.S.)
The Graduate Faculty	View (https://secure.gradsch.psu.edu/gpms/?searchType=fac&prog=RESS)

The RESS professional master's program (MPS-RESS) is an online, interdisciplinary master's degree program designed to prepare professionals in the fields of renewable energy and sustainability systems to lead the world's transformation from an unsustainable, fossil energy economy to a renewable, sustainable basis of operation. For example, attaining an ambitious national goal of 25% of energy from renewable resources by the year 2025 in the U.S. requires a tremendous increase in renewable energy production and use in ways that are sustainable, environmentally sound, and reliable. The MPS-RESS program is designed to address the critical need for professionals with relevant expertise in *renewable energy* and *sustainability systems*.

The program provides broad coverage of topics related to *renewable energy* and *sustainability systems* while providing in-depth coverage of related technologies and policies. Students are required to follow a focused curriculum that combines requisite rigor with flexibility appropriate to a rapidly changing field. Students take a number of core program courses that provide an in-depth understanding of the sustainability framework relevant to energy and sustainability systems and, in consultation with their program adviser, select additional courses from a broad array of electives designed to meet their individual learning goals. While not required to do so, students may choose from one of two program tracks: one which provides specialized technical instruction in various aspects of renewable energy systems while the other focuses on sustainability management and policy. A comprehensive Scholarship and Academic Research Integrity (SARI) plan embeds ethics and integrity training both at the start and at the end of the master's program. A capstone course or capstone research experience with an EME faculty member is required of all students that serves to aggregate the material learned and provide a summative educational experience within the framework of a semester long group-based project.

Admission Requirements

Applicants apply for admission to the program via the Graduate School application for admission (http://gradschool.psu.edu/prospective-students/how-to-apply/). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (http://gradschool.psu.edu/graduate-education-policies/).

Educational Background

Academic performance and/or professional experience must be equivalent to that expected for admission to a typical resident-program master's degree. Applications must include a statement of professional goals, a curriculum vita or resume, and three letters of recommendation.

The language of instruction at Penn State is English. English proficiency test scores (TOEFL/IELTS) may be required for international applicants. See GCAC-305 Admission Requirements for International Students (http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/gcac-305-admission-requirements-international-students/) for more information.

Core Application Packet

- Statement of Purpose: A statement of professional experience and goals (up to 500 words)
- Vita or resume
- Three letters of recommendation. The individuals writing letters should be familiar with you and comfortable discussing your professional and/or academic strengths and accomplishments. Preferably, all letters will be written within the last six months and reference the applicant's current career goals and/or ability to perform graduate level study.
- Official transcripts from all post-secondary institutions attended (http://www.gradschool.psu.edu/prospective-students/how-to-apply/new-applicants/requirements-for-graduate-admission/)
- Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) score, if applicable
- Nonrefundable application fee

Admissions Process

Applications will be evaluated by the MPS-RESS Admissions Committee based on the applicants' technical qualifications for the program relative to their area of interest, their previous educational experience, and English Language proficiency. In general, successful applicants are expected to have earned a junior/senior grade-point average of at least 3.0 on a 4.0 scale. Applicants with a marginal record are encouraged to first complete a related Graduate Certificate before applying for admission to the MPS-RESS program. Exemplary performance in the graduate certificate will be taken into consideration for possible admission into the MPS-RESS program, but completion of a certificate does not imply or guarantee admission into a degree program.

Degree Requirements

Master of Professional Studies (M.P.S.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-700 Professional Degree Policies (http://gradschool.psu.edu/graduate-education-policies/).

The MPS-RESS degree is conferred upon students who earn a minimum of 33 credits of course work at the 400, 500, or 800 level while maintaining an average grade-point average of 3.0 or better in all course work, including at least 18 credits at the 500 or 800 level (with at least 6 credits at the 500 level), and who complete a culminating experience (capstone course or scholarly paper) in consultation with a graduate adviser. The program curriculum includes:

- 12 credits of core courses,
- 18 credits of electives, and
- a 3-credit capstone course (EME 589) or scholarly paper (EME 596).

Substitutions for required courses, either with resident-education courses, alternate online courses, or courses from other institutions, will be considered on a case-by-case basis, and must be petitioned and approved by the Program Chair, with input from the student's adviser.

Code	Title	Credits
Required Courses		
BIOET 533	Ethical Dimensions of Renewable Energy and Sustainability Systems	3
EME 504	Foundations in Sustainability Systems	3
EME 801	Energy Markets, Policy, and Regulation	3
EME 802	Renewable and Sustainable Energy Systems	3
Additional Courses		
Additional courses that will count as electives towards this degree can be chosen from a list of approved elective courses maintained by the graduate program office. This listing includes 2 program tracks that provide focused instruction in a given aspect of renewable energy and sustainability systems.		18
Culminating Experience		
Choose one of the following:		3
EME 589	Management and Design of Renewable Energy and Sustainability Systems (Capstone Course)	
EME 596	Individual Studies (Scholarly Paper)	
Total Credits		**33**

Minor

A graduate minor is available in any approved graduate major or dual-title program. The default requirements for a graduate minor are stated in Graduate Council policies listed under GCAC-600 Research Degree Policies (http://gradschool.psu.edu/graduate-education-policies/) and GCAC-700 Professional Degree Policies (http://gradschool.psu.edu/graduate-education-policies/), depending on the type of degree the student is pursuing:

- GCAC-611 Minor - Research Doctorate (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/gcac-611-minor-research-doctorate/)
- GCAC-641 Minor - Research Master's (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/gcac-641-minor-research-masters/)
- GCAC-709 Minor - Professional Doctorate (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-700/gcac-709-professional-doctoral-minor/)
- GCAC-741 Minor - Professional Master's (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-700/gcac-741-masters-minor-professional/)

Student Aid

World Campus students in graduate degree programs may be eligible for financial aid. Refer to the Tuition and Financial Aid section (http://www.worldcampus.psu.edu/tuition-and-financial-aid/) of the World Campus website for more information.

Courses

Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

Energy and Mineral Engineering (EME) Course List (https://bulletins.psu.edu/university-course-descriptions/graduate/eme/)

Learning Outcomes

1. Execute and evaluate sustainability or renewable energy systems using baseline, techno-economic, life cycle, *or* cost/benefit analyses.
2. Demonstrate fundamental understanding of the principles of energy science, including resource availability and conversion technologies.
3. Demonstrate an appreciation for the commercialization process relative to project and product development.
4. Demonstrate the ability to make sound decisions in complex situations.
5. Evaluate sustainability decisions in the broader context of society's interests.

Contact

Campus	World Campus
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Program Website	View (https://www.ress.psu.edu/)