

# MECHANICAL ENGINEERING (CAPITAL)

<b>Graduate Program Head</b>	Vahid Motevalli
<b>Program Code</b>	MCENG
<b>Campus(es)</b>	Harrisburg (M.S.)
<b>Degrees Conferred</b>	Master of Science (M.S.)
<b>The Graduate Faculty</b>	View ( <a href="https://secure.gradsch.psu.edu/gpms/?searchType=fac&amp;prog=MCENG">https://secure.gradsch.psu.edu/gpms/?searchType=fac&amp;prog=MCENG</a> )

Penn State Harrisburg (PSH) is located within a short commute from York, Lancaster, Carlisle, Reading, and Harrisburg industrial centers concentrated on manufacturing, engineering consulting, product design, and development. The Master of Science in Mechanical Engineering degree program is designed to provide support for industrial research needs, as well as offer an avenue for Penn State Harrisburg B.S. ME graduates to continue their education in the south central Pennsylvania region. The program is accessible to engineering professionals who wish to pursue advanced studies without giving up their current employment. The program may be completed on a full-time or part-time basis. Classes are typically scheduled weekly in three-hour evening sessions, offering a convenient format for career professionals seeking to enroll part time. Whenever possible, the program will take advantage of the specialized equipment and research facilities available in the local industries to enhance the training of M.S. ME students.

## Admission Requirements

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

Admission into the Master of Science (M.S.) Mechanical Engineering program will be granted only to candidates who demonstrate high potential for success in graduate studies. Applicants should have undergraduate degrees in engineering or technology fields from an accredited university and must meet the admission requirements as set by Penn State's Graduate School.

An undergraduate cumulative grade-point average of 3.0 or better on a 4.0 scale, and scores from the GRE are required for admission.

Applicants should submit the following:

- a completed Graduate School online application (<http://gradschool.psu.edu/prospective-students/how-to-apply/>) with the nonrefundable application fee;
- official transcripts from all post-secondary institutions attended (<http://gradschool.psu.edu/prospective-students/how-to-apply/new-applicants/requirements-for-graduate-admission/>);
- three (3) letters of professional recommendations from individuals who can evaluate the applicant's potential;
- a personal statement of professional interest, goals, and experience;
- test scores from the Graduate Record Examination (GRE);
- statement of interest in graduate assistantship, if desired.

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 (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/gcac-305-admission-requirements-international-students/>) for more information.

## Degree Requirements Master of Science (M.S.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-600 Research Degree Policies. (<https://gradschool.psu.edu/graduate-education-policies/>)

A minimum of 31 credits at the 400, 500, 600, or 800 level is required, including 24 course credits with at least 15 credits at the 500 level, 1 credit of ME 590, and 6 credits of thesis research (ME 600 or ME 610).

Code	Title	Credits
<b>Required Courses</b>		
EMCH 524A	Mathematical Methods in Engineering	3
ME 590	Colloquium	1
Students take 9 credits in one of the following concentrations. A list of courses that will count towards these concentrations is maintained by the program office.		9
Thermo-Fluids Science		
Mechanical Science		
Materials Science		
<b>Electives</b>		
Students take 12 credits of electives from a list of approved electives maintained by the program office. To incorporate breadth into the program, students are required to take at least one elective course in a Concentration Area other than the one they complete.		12
<b>Culminating Experience</b>		
ME 600 or ME 610	Thesis Research Thesis Research Off Campus	6
<b>Total Credits</b>		<b>31</b>

A maximum of 3 400-level courses (9 credits) can be counted towards the degree requirements for the M.S. A minimum of 12 credits must be earned in 400- and 500-level courses in Mechanical Engineering.

Students who have deficiencies in the use of spoken or written English may be required to take courses in these areas in addition to the specified degree requirements. Credits earned to remediate deficiencies cannot be applied towards requirements for the M.S. degree.

Degree requirements must be completed within six years of admission to degree status.

## 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 (<https://gradschool.psu.edu/graduate-education-policies/>) and GCAC-700 Professional Degree Policies (<https://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

Graduate assistantships available to students in this program and other forms of student aid are described in the Tuition & Funding (<https://gradschool.psu.edu/graduate-funding/>) section of The Graduate School's website. Students on graduate assistantships must adhere to the course load limits (<https://gradschool.psu.edu/graduate-education-policies/gsad/gsad-900/gsad-901-graduate-assistants/>) set by The Graduate School.

## 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.

Mechanical Engineering (ME) Course List (<https://bulletins.psu.edu/university-course-descriptions/graduate/me/>)

## Learning Outcomes

1. **KNOW** - Graduates will be able to demonstrate broad mastery of core principles in mechanical engineering as well as in-depth mastery in selected mechanical engineering topics.
2. **CRITICAL THINKING** - Graduates will be able to critically and creatively conceptualize, evaluate and formulate mechanical engineering problems, as well as perform the analyses required for problem definition..
3. **APPLY/CREATE** - Graduates will be able to apply advanced knowledge, techniques, skills and state of the practice tools to solve mechanical engineering problems.
4. **COMMUNICATE** - Graduates will be able to effectively communicate, both orally and in writing, project outcomes, such as ideas, requirements, designs, analyses, findings, and justification for decisions.
5. **PROFESSIONAL PRACTICE** - Graduates will be able to demonstrate an understanding of professional and ethical responsibility and conduct themselves accordingly.

## Contact

<b>Campus</b>	Harrisburg
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