Mechanical Engineering, M.S.M.E., Ph.D.

Degrees Offered

- Masters of Science, Mechanical Engineering (M.S.M.E.)
- Doctor of Philosophy, Mechanical Engineering (Ph.D.)

MMAE Graduate Program Educational Objectives:

1. To provide high quality advanced master-level and Ph.D. level education to graduate engineering students to enable successful careers in technology development, innovation and research, with depth and breadth in one or several areas of the mechanical engineering discipline.
2. To develop the capacity of graduates to conduct independent research and/or technology development and innovation, through original contributions to the mechanical engineering discipline and to disseminate the results of their scholarly work.
3. To instill in graduates the drive for leadership in technology development, innovation and research and to contribute to the advancement of the profession in a societal and economic context.

Mechanical Engineering Program Outcomes:

- Holders of graduate degrees will have an expert-level understanding of the advanced principles of mechanical engineering, which include mechanical systems design, system dynamics, solid mechanics, energy systems, engineering materials, automatic controls, mechatronics, and computational mechanics.
- Holders of graduate degrees will hold paramount the highest standards of ethical and professional responsibility in the practice of their profession to contribute to the well being of society and to the advancement of the mechanical engineering profession.
- Holders of Ph.D. degrees will have furthered original research contributions to the state of the art in their specific areas of expertise and will be able to develop innovative research in order to advance the frontiers of knowledge, secure sponsored research, and disseminate its findings through scholarly publications.

Thesis Based Master's Degrees

All the requirements for thesis based master's degrees (M.S.A.E., M.S.M.E. and M.S.M.S.&E.) in the MAE Department must be completed within eight years preceding the student’s graduation. All students in these programs are required to engage in research, complete and successfully defend a master's thesis. They must identify a subject for their thesis research, form a three-member advisory and examining committee (AEC), and file a plan of study by the end of their second semester of enrollment in the graduate program. A minimum of twenty-four credit hours of coursework with a minimum overall GPA of 3.0/4.0 and six credit hours of M.S. thesis research are required for the thesis based master's degrees. Students must pass a final examination administered by their advisory and examining committee before being certified for the degree. All thesis based master's degree students have to comply with core requirements by selecting a "core area" taking two of the courses listed in that area, and in addition they have to comply with the mathematics requirements by taking two courses from an approved list. Four additional courses can be selected from a list of technical electives, or from the core and mathematics lists to complete the coursework requirements, with no more than three courses at the 400 level.

Ph.D. Degrees

The MAE Department offers Ph.D. Programs in Aerospace Engineering, in Mechanical Engineering, and in Materials Science and Engineering. These programs require a minimum of eighteen credit hours of graduate level coursework plus a minimum of twenty-four credit hours of research. Students in the Ph.D. program must take and pass the Ph.D. Qualifier examination by the second semester of the program with a second attempt no later than the third semester in the program if necessary. After the qualifier examination, students are expected to produce a dissertation proposal and defend it before a five-member advising and examining committee (AEC). Subsequent to the successful proposal defense, students must comply with the journal paper publication (or patent disclosure) requirement in order to attain Ph.D. Candidacy. Finally, Ph.D. candidates must successfully defend a Ph.D. dissertation and submit it to WVU library through the ETD protocol to fulfill all the requirements for the degree.

Admissions for 2026-2027

MASTER ADMISSIONS

To be eligible for admission into the Master of Science in Mechanical Engineering degree program, a candidate must fulfill the following requirements:

- 3.0 or better grade point average (out of a possible 4.0) in any previous engineering degree, from an accredited or internationally recognized program.
- A statement of purpose.
- Three recent reference letters, at least two of which should be from professors of the institution last attended.
- The GRE is not required for consideration of admission to the program; however, GRE scores can be used to support review for assistantships within the program

- International applicants must meet the WVU requirement of English language proficiency (https://graduateadmissions.wvu.edu/how-to-apply/apply-for-2024-2025/international-graduate-applicant/).

DOCTORAL ADMISSIONS

To be eligible for admission into the doctoral program, a candidate must fulfill the following requirements:

- A statement of purpose.
- Three recent reference letters, at least two of which should be from professors of the institution last attended.
- Applicants must hold or expect to receive (by the enrollment date) a M.S. degree in an engineering discipline from an institution which has an ABET accredited undergraduate program in engineering or an internationally recognized program in engineering (except for students qualified for the direct track to Ph.D. degree option, described below). Qualified candidates holding a M.S. degree in applied sciences can also be considered for admission into the Ph.D. program.
- 3.0 or better grade point average (out of a possible 4.0) in all previous engineering degrees (B.S. and M.S.), from accredited or internationally recognized programs.
- International applicants must meet the WVU requirement of English language proficiency (https://graduateadmissions.wvu.edu/information-for/international-students/).
- The GRE is not required for consideration of admission to the program; however, GRE scores can be used to support review for assistantships within the program.

DIRECT-TRACK BS-PHD ADMISSIONS

The Department of Mechanical, Materials and Aerospace Engineering (MMAE) offers a direct track option from the bachelor of science (B.S.) to the doctor of philosophy (Ph.D.) degree for prospective qualified students holding a B.S. degree in an engineering discipline, materials science, mathematics, or applied sciences from an accredited undergraduate program or an internationally recognized institution. This is an accelerated track that provides outstanding candidates the option of earning a Ph.D. degree in less than five years after graduating from an undergraduate program by engaging early in their Ph.D. dissertation research without having to complete a research thesis for a master of science (M.S.) degree. To qualify for the direct- track degree option, all applicants must have:

- A cumulative grade point average (GPA) of 3.5/4.0 or higher in his/her undergraduate studies.
- A statement of purpose.
- The GRE is not required for consideration of admission to the program; however, GRE scores can be used to support review for assistantships within the program.
- Three recent reference letters, at least two of which should be from professors of the institution last attended.
- International applicants must meet the WVU requirement of English language proficiency (https://graduateadmissions.wvu.edu/how-to-apply/apply-for-2023-2024/international-graduate-applicant/).

MSME Major Code: 3050
PhD Major Code: 3051

For specific information on the following programs, please see the link to the right:

- Mechanical Engineering, M.S.M.E.

For specific information on the following programs, please see the link to the right:

- Mechanical Engineering, Ph.D.