

MECHANICAL ENGINEERING TECHNOLOGY

Mechanical Engineering Technology (MET) is the component of engineering that specializes in mechanical design, computer-aided technologies, materials, mechanical power and manufacturing. MET is an excellent major for students interested in mechatronics, robotics, automotive manufacturing, agricultural machinery and processing, mining, shipbuilding, spacecraft, electronics manufacturing, food processing, aircraft metals and plastics production—nearly the entire spectrum of the industry. In the power areas, MET graduates are involved in vapor power cycles, gas power cycles, air conditioning, fluid power and power transmission. Manufacturing areas involving MET graduates include tool design, cost evaluation and control, plant operations, production planning and manufacturing methods.

At OSU, the MET curriculum is as rigorous as engineering programs and is nearly identical to the Mechanical Engineering (ME) curriculum for the first two years, but the upper-level major courses are taught with more emphasis on applications. Multiple MET major courses are popular among engineering undergraduate and graduate students who find value for their job search and thesis/dissertation research.

An important element in MET is the use of laboratory experience as a teaching tool. The MET program has laboratories in mechatronics, fluid power, materials, fluid mechanics, thermal science, basic instrumentation, 3D printing, computer-aided design, manufacturing and engineering (CAD/DAM/CAE). Senior capstone design courses, composed of student teams for SpeedFest (autonomous vehicle competition) or industry-sponsored interdisciplinary design projects, integrates the knowledge and skills learned during their course of study. The latest computer software is provided and supported for the courses that MET students take. Where appropriate, laboratories with modern computer data acquisition systems and on-screen displays are available.

In addition to the required mechanical engineering technology courses, students are provided a solid foundation in calculus, physics, chemistry, and computer science. Minor degree choices are available in mechatronics or entrepreneurship.

Program Educational Objectives

The Mechanical Engineering Technology (MET) program at Oklahoma State University focuses on preparing graduates so that they are able to productively contribute at their workplace after a short introductory period. A graduate from the OSU MET program should be able to:

1. Employ the latest design and analysis tools in engineering and manufacturing.
2. Be a life-long learner through participation and membership in professional organizations, continuation of professional/graduate studies, and/or self-study.
3. Introduce new technologies and methods into their workplace to maximize value to their employer.
4. Work collaboratively in multi-disciplinary teams.
5. Demonstrate professionalism in the workplace by using the highest standards of ethics and personal integrity.

Student Outcomes

Students graduating from the MET program are expected to achieve the following outcomes (1-5):

1. an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline;
2. an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline;
3. an ability to apply written, oral, and graphical communication in broadly defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;
4. an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; and
5. an ability to function effectively as a member as well as a leader on technical teams.

Preparation for a specific industrial function is accomplished by selecting courses that emphasize a given design area, such as fluid power, mechanical design, computer-aided design/manufacturing/engineering (CAD/CAM/CAE), power generation, and air conditioning and heating. Because the program focuses on the application of engineering principles to the pragmatic solution of problems, graduates are immediately productive with minimal on-the-job training, thus increasing their value to industry. Graduates of the MET program are prepared to function in the areas of product design, testing and evaluation; product application and maintenance field engineering; and technical sales and liaison. Industries employing MET graduates include manufacturing companies of all types (aircraft, automobile, compressor and turbine, fluid power manufacturers and others); energy companies (such as natural gas, electrical power generation, and the oil and gas industries); and service companies (transportation industry, architecture and professional engineering firms, and those supporting the oil and gas industry).

Companies utilizing the talents of MET graduates are diversified in their products, as well as geographical location, thus providing a variety of choices in respect to both type of work and place of residence and in diverse industrial, governmental and educational institutions.

The Mechanical Engineering Technology program is accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org> (<http://www.abet.org/>).

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