MECHANICAL ENGINEERING TECHNOLOGY

Mechanical Engineering Technology (MET) teaches the practical application of engineering principles in mechanical design, computer-aided technologies, materials, mechanical power, and manufacturing. MET is an excellent major for students who love the applied aspects of engineering found in jobs such as product designer, manufacturing facility design, quality control, plant manager, and test engineer. At OSU, the MET curriculum is just as rigorous as an engineering program. In fact, the early classes in MET are nearly identical to a mechanical engineering curriculum, but the upper-division classes will focus much more heavily on practical application of the material so that the MET student will be better prepared to make an immediate contribution on the job.

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 computer aided drafting/manufacturing/engineering (CAD/CAM/CAE). Senior capstone design courses consist of teams of students who either compete in SpeedFest (autonomous vehicle competition) or who complete industry-sponsored interdisciplinary design projects. Both senior design options integrate the knowledge and skills learned during the MET 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 programming. 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.
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 HVAC (heating, ventilation, air conditioning). 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. 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).