

MECHANICAL ENGINEERING PROGRAM

Mechanical engineering is a highly diversified profession. The mechanical engineer designs machines, devices, various products and control systems, and works with the generation, conversion, transmission and utilization of mechanical and thermal power. Assignments often include analysis and synthesis of mechanical, thermal and fluid systems. Mechanical engineers are also responsible for characterization, specification and analysis of materials used in design and manufacturing. Manufacturing systems, robotics, electromechanical devices and control systems are also the purview of the mechanical engineer. Graduates in mechanical engineering are among the most versatile engineers and enjoy professional employment in industry, government, consulting and research organizations.

The work of mechanical engineers varies from general engineering to numerous narrow specialties, as required by the wide variety of employers. A general list, though not in any way exhaustive, of the areas of professional employment opportunities available to mechanical engineers includes design, construction, controls, materials specification and evaluation, thermal systems analysis, fluid and solid mechanics, manufacturing, plant engineering, research and development, and technical sales. Many mechanical engineers are promoted to management and administrative positions as well.

Program Mission

The mission of the Mechanical Engineering Program is to serve the students of Texas A&M at Qatar and the State of Qatar by:

- Providing quality education, well grounded in the fundamental principles of engineering, to prepare students for leadership positions and successful careers in industry, government and academia.
- Extending the knowledge base of mechanical engineering to support the competitiveness of existing industry and to spawn new economic development in the State of Qatar and the region through active involvement in basic and applied research.
- Providing professional development opportunities for practicing engineers through continuing education, service and outreach activities.

Program Educational Objectives

The objectives of the Mechanical Engineering Program at Texas A&M at Qatar are to produce graduates who, a few years after leaving Texas A&M Qatar will:

1. Have broad engineering experience of increasing complexity to address the evolving needs of the private and public sectors in Qatar, the surrounding regions, and beyond.
2. Have leadership positions in their professional career.
3. Have met new challenges by engaging in professional development, further technical education and/or non-technical education.

The mechanical engineering curriculum at Texas A&M at Qatar requires students to develop and apply logical thinking, innovative approaches and ethical standards as a prerequisite for professional competence. The curriculum consists of basic theory courses complemented by laboratory experiences in science and mathematics, dynamic systems and controls, design, experimentation, fluid mechanics, heat transfer,

manufacturing, and materials. Elective courses are offered in several specific areas of mechanical engineering including air conditioning, computer-aided design, control systems, corrosion, energy conversion, materials, mechanical design, plastics, mechatronics, failure, power generation, turbomachinery and others. The selection of elective courses is dictated by the interests and professional goals of the student, working with departmental advisors and within the curriculum guidelines.

Many students enhance their education by participating in professional internships, which offer opportunities for employment in engineering positions, while working toward a degree. Numerous study abroad programs are also available for gaining experience and perspectives in the international arena. Participation in student chapters of professional and honor societies provides leadership opportunities, collegial activities and learning experiences outside the classroom. Students may also participate in research projects through individually directed studies courses with a professor. The Mechanical Engineering Program culminates with a senior capstone design course sequence highlighted by real-life projects sponsored by various industries. Students benefit from the challenges and gratification that come through direct interaction with practicing engineers.

Before commencing course work in the major, students must be admitted to the major or have the approval of the department.

The undergraduate program in Mechanical Engineering at Texas A&M University at Qatar is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org> (<https://www.abet.org/>).

Faculty

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Zheng, Minghui, Associate Professor
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Zhou, Yuxiao, Assistant Professor
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Majors

- Bachelor of Science in Mechanical Engineering (<http://catalog.tamu.edu/undergraduate/qatar/mechanical-engineering-program/mechanical-engineering-bs/>)

Minors

- Analysis, Design and Management of Energy Conversion Systems Minor (<http://catalog.tamu.edu/undergraduate/engineering/mechanical/analysis-design-management-energy-conversion-systems-minor/>)
- Control of Mechanical Systems Minor (<http://catalog.tamu.edu/undergraduate/engineering/mechanical/control-mechanical-systems-minor/>)
- Design and Simulation of Mechanical Systems Minor (<http://catalog.tamu.edu/undergraduate/engineering/mechanical/design-simulation-mechanical-systems-minor/>)