J. MIKE WALKER '66
DEPARTMENT OF
MECHANICAL ENGINEERING

What is Mechanical Engineering?

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 a 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 undergraduate program in Mechanical Engineering at Texas A&M University is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

Where do Mechanical Engineers Work?

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, analysis of thermal systems, 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.

Mechanical Engineering at Texas A&M

The mission of the Department of Mechanical Engineering is to serve the students of Texas A&M University, the State of Texas, and the nation by:

- providing quality education that is well-grounded in the fundamental principles of engineering, fostering innovation and preparing students for leadership positions and successful careers in industry, government, and academia;
- advancing the knowledge base of mechanical engineering to support the competitiveness of existing industry and to spawn new economic development in Texas and the nation through active involvement in basic and applied research in a global context; and
- successfully pursue life-long learning and advanced study opportunities, and subsequently contribute to the development of advanced concepts and leading edge technologies.

The objectives of the Mechanical Engineering program are to produce graduates who will:

- have successful careers, and become leaders, in industry and the public sector;
- appropriately apply acquired knowledge, work well with other people, effectively communicate ideas and technical information, and continue to learn and improve; and
- successfully pursue advanced studies, if they so choose, opportunities, and subsequently contribute to the development of advanced concepts and leading edge technologies.

Mechanical engineers should possess a thorough understanding of engineering science as well as analytical and practical skills in one of many basic mechanical engineering specialties. The mechanical engineering curriculum at Texas A&M 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 dynamic systems and controls, design, experimentation, fluid mechanics, heat transfer, manufacturing, and materials. Elective courses are offered in numerous areas including air conditioning, automotive engineering, computer-aided design, control systems, corrosion, energy conversion, internal combustion engines, manufacturing, materials, mechanical design, polymers, mechatronics, metallurgy, power generation, robotics, stress analysis, fluid mechanics, turbomachinery, and others. The selection of elective courses is dictated by the interests and goals of the student, working with departmental advisors and within the curriculum guidelines.

Experiential Education in Mechanical Engineering

Many students enhance their education by participating in cooperative education and/or 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. Many students also participate in research projects through individual 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 full bachelors program is offered on College Station and Qatar campuses. All mechanical engineering undergraduate coursework is offered on both campuses, whereas some coursework is offered via distance learning.

Faculty

Albakri, Mohammad, Assistant Professor
Mechanical Engineering-Qatar
PHD, Virginia Polytechnic Institute and State University, 2016

Allaire, Douglas L, Associate Professor
Mechanical Engineering
PHD, Massachusetts Institute of Technology, 2009

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PHD, Texas A&M, 2022
PHD, Texas A&M University, 2022
PHD, University of Malaya, 2017
Anand, Nagamangala, Regents Professor  
Mechanical Engineering  
PHD, Purdue University, 1983

Antao, Dion S, Assistant Professor  
Mechanical Engineering  
PHD, Drexel University, 2013

Balas, Mark, Professor  
Mechanical Engineering  
PHD, University of Denver, 1974

Balawi, Shadi Omar, Instructional Associate Professor  
Mechanical Engineering  
PHD, University of Cincinnati, 2007

Bandyopadhyay, Arkasama, Research Assistant Professor  
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Banerjee, Debjyoti, Professor  
Mechanical Engineering  
PHD, University of California at Los Angeles, 1999

Benjamin, Chandler C, Research Assistant Professor  
Mechanical Engineering  
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Borazjani, Iman, Associate Professor  
Mechanical Engineering  
PHD, University of Minnesota, 2008

Charoenphol, Phapanin, Instructional Assistant Professor  
Mechanical Engineering  
DEN, University of Michigan, 2012

Claridge, David E, Professor  
Mechanical Engineering  
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Cope, Dale A, Associate Professor of the Practice  
Mechanical Engineering  
PHD, Wichita State University, 2002

Corleto, Carlos Roberto, Professor of the Practice  
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PHD, Texas A&M University, 1990

Darbha, Swaroop V, Professor  
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Grunlan, Jaime C, Professor  
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PHD, Manitoba University, 1995

Hassan, Yassin A, University Distinguished Professor and Regents  
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Mechanical Engineering-Qatar  
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Hipwell, M Cynthia, Professor  
Mechanical Engineering  
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Hogan, Harry A, Professor  
Mechanical Engineering  
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Hubbard Jr, James, Professor  
Mechanical Engineering  
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Jacobs, Timothy J, Professor  
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Mechanical Engineering  
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Rasmussen, Bryan P, Professor  
Mechanical Engineering  
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Rathinam, Sivakumar, Professor  
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Reddy, Junuthula N, Distinguished Professor and Regents Professor  
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Robbins, Andrew B, Research Assistant Professor  
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Ruimi, Annie, Associate Professor  
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Sanandres, Luis A, Professor  
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Saripalli, Srikanth, Professor  
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Schuller, Michael J, Instructional Associate Professor  
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Staack, David A, Associate Professor  
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Subramanian, Velumani, Instructional Associate Professor  
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Thomas, Naveen, Instructional Assistant Professor  
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PHD, Texas A&M, 2021  
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Thyagarajan, Ravi, Professor Of The Practice  
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Wang, Ya, Associate Professor  
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Wilkerson, Justin W, Associate Professor  
Mechanical Engineering  
PHD, Johns Hopkins University, 2014

Wright, Lesley M, Associate Professor  
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Yu, Choongho, Professor  
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Zambrano-Roman, Byron Alfonso, Research Assistant Professor  
Mechanical Engineering  
PHD, Michigan State University, 2017

Zhou, Yuxiao, Assistant Professor  
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Majors

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

Minors

- 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/)