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

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.

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.

The educational outcomes for the Mechanical Engineering program are that students will attain:

• an ability to apply knowledge of mathematics, science and engineering;
• an ability to design and conduct experiments, as well as to analyze and interpret data;
• an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability;
• an ability to function on multi-disciplinary teams;
• an ability to identify, formulate and solve engineering problems;
• an understanding of professional and ethical responsibility;
• an ability to communicate effectively;
• the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context;
• a recognition of the need for, and an ability to engage in life-long learning;
• a knowledge of contemporary issues; and
• an ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

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.

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.

Faculty

Allaire, Douglas L, Assistant Professor
Mechanical Engineering
PHD, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, 2009
Alvarado, Jorge L, Professor (courtesy appointment)
Mechanical Engineering
PHD, University of Illinois, 2004

Amiri, Ahmad, Visiting Assistant Professor
Mechanical Engineering
PHD, University of Malaya, 2017
PHD, University of Malaya, 2015

Anand, Nagamangala, Professor
Mechanical Engineering
PHD, Purdue University, 1983

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

Arroyave, Raymundo, Professor (courtesy appointment)
Mechanical Engineering
PHD, Massachusetts Inst of Technology, 2004

Asadi, Amir, Assistant Professor (courtesy appointment)
Mechanical Engineering
PHD, University of Manitoba, 2013

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

Banerjee, Debiyoti, Professor
Mechanical Engineering
PHD, University of California, Los Angeles, 1999

Benjamin, Chandler C, Research Assistant Professor
Mechanical Engineering
PHD, University of Wisconsin - Madison, 2017

Borazjani, Iman, Associate Professor
Mechanical Engineering
PHD, University of Minnesota, 2008

Caton, Jerald A, Professor
Mechanical Engineering
PHD, University of California-Berkeley, 1980

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

Claridge, David E, Professor
Mechanical Engineering
PHD, Stanford University, 1976

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

Corleto, Carlos Roberto, Professor Of The Practice
Mechanical Engineering
PHD, Texas A&M, 1990

Darbha, Swaroop V, Professor
Mechanical Engineering
PHD, University of California, Berkeley, 1994

Delgado, Adolfo, Associate Professor
Mechanical Engineering
PHD, Texas A&M University, 2008

Demkowicz, Michal J, Associate Professor (courtesy appointment)
Mechanical Engineering
PHD, Massachusetts Institute of Technology, 2005

Doron, Yuval, Lecturer
Mechanical Engineering
MS, Texas A&M University, 2009

Felts, Jonathan R, Assistant Professor
Mechanical Engineering
DEN, University of Illinois Urbana Champaign, 2013

Freed, Alan D, Professor
Mechanical Engineering
DEN, University of Wisconsin - Madison, 1985

Gao, Huajian, Visiting Professor
Mechanical Engineering
PHD, Harvard University, 1988

Girimaji, Sharath S, Professor (courtesy appointment)
Mechanical Engineering
PHD, Cornell University, 1990

Gonezen, Sevan, Assistant Professor
Mechanical Engineering
PHD, Rensselaer Polytechnic Institute, 2011

Gopalswamy, Swaminathan, Professor of the Practice
Mechanical Engineering
PHD, University of California, 1991

Grunlan, Jaime C, Professor
Mechanical Engineering
PHD, University of Minnesota, 2001

Haglund, John S, Associate Professor of Instruction
Mechanical Engineering
PHD, Texas A&M University, 2003

Hajimirza, Shima, Assistant Professor
Mechanical Engineering
PHD, Texas A&M University, 2013

Han, Je C, University Distinguished Professor
Mechanical Engineering
PHD, Massachusetts Inst of Technology, 1977

Hasnain, Zohaib, Research Assistant Professor
Mechanical Engineering
PHD, University of Maryland, 2014

Hassan, Yassin A, Professor (courtesy appointment)
Mechanical Engineering
PHD, University of Illinois, 1980

Hipwell, M Cynthia, Professor
Mechanical Engineering
PHD, University of California-Berkeley, 1996
Hogan, Harry A, Professor
Mechanical Engineering
PHD, Texas A&M University, 1984

Hsieh, Sheng-Jen, Professor (courtesy appointment)
Mechanical Engineering
PHD, Texas Tech University, 1995

Hubbard Jr, James, Professor
Mechanical Engineering
PHD, Massachusetts Institute of Technology, 1982

Hung, Nguyen P, Associate Professor (courtesy appointment)
Mechanical Engineering
PHD, University of California, Berkeley, 1987

Hur, Pilwon, Assistant Professor
Mechanical Engineering
DEN, University of Illinois at Urbana-Champaign, 2010

Jacobs, Timothy J, Professor
Mechanical Engineering
PHD, University of Michigan, 2005

Jarrahbashi, Dorrin, Assistant Professor
Mechanical Engineering
PHD, University of California Irvine, 2014

Karaman, Ibrahim, Professor (courtesy appointment)
Mechanical Engineering
PHD, University of Illinois - Urbana-Champaign, 2000

Kim, Haejune, Assistant Professor of Instruction
Mechanical Engineering
PHD, University of Wisconsin - Milwaukee, 2014

Kim, Won-Jong, Associate Professor
Mechanical Engineering
PHD, Massachusetts Inst of Technology, 1997

Kim, Yong-Joe, Associate Professor
Mechanical Engineering
PHD, Purdue University, 2003

Kimber, Mark, Assistant Professor (courtesy appointment)
Mechanical Engineering
PHD, Purdue University, 2008

Kulatilaka, Waruna D, Associate Professor
Mechanical Engineering
DEN, Purdue University, 2006

Lacy, Thomas E., Professor
Mechanical Engineering
PHD, Georgia Institute of Technology, 1998

Layton, Astrid C, Assistant Professor
Mechanical Engineering
PHD, Georgia Institute of Technology, 2014

Lee, ChaBum, Assistant Professor
Mechanical Engineering
PHD, Gwangju Institute of Science and Technology, 2012

Lewis, Heather S, Lecturer
Mechanical Engineering
MEN, North Carolina State University, 2000

Li, Ying, Associate Professor
Mechanical Engineering
PHD, University of Florida, 2007

Liang, Hong, Professor
Mechanical Engineering
PHD, Stevens Institute of Technology, 1992

Ma, Chao, Assistant Professor (courtesy appointment)
Mechanical Engineering
PHD, University of California, 2015

Malak Jr, Richard J, Associate Professor
Mechanical Engineering
PHD, Georgia Institute of Technology, 2008

Mathieu, Olivier E, Research Associate Professor
Mechanical Engineering
PHD, University of Orleans, 2007

McAdams II, Daniel A, Professor
Mechanical Engineering
PHD, University of Texas - Austin, 1999

McVay, Matilda W, Instructional Associate Professor
Mechanical Engineering
PHD, Texas A&M University, 1996

Mohiuddin, Mohammad W, Research Assistant Professor
Mechanical Engineering
PHD, Texas A&M University, 2008

Moreno, Michael R, Assistant Professor
Mechanical Engineering
PHD, Texas A&M University, 2009

Muliana, Hanifah, Professor
Mechanical Engineering
PHD, Georgia Institute of Technology, 2004

Needleman, Alan, Professor (courtesy appointment)
Mechanical Engineering
PHD, Harvard University, 1971

Pagilla, Prabhakar R, Professor
Mechanical Engineering
PHD, University of California, Berkeley, 1996

Palazzolo, Alan B, Professor
Mechanical Engineering
PHD, University of Virginia, 1981

Pate, Michael B, Professor
Mechanical Engineering
PHD, Purdue University, 1982

Petersen, Eric L, Professor
Mechanical Engineering
PHD, Stanford University, 1998
Pharr, George, Assistant Professor
Mechanical Engineering
PHD, Harvard University, 2014

Polycarpou, Andreas A, Professor
Mechanical Engineering
PHD, Suny University at Buffalo, 1994

Radovic, Miladin, Associate Professor (courtesy appointment)
Mechanical Engineering
PHD, Drexel University, 2001

Rajagopal, Kumbakonam, University Distinguished Professor
Mechanical Engineering
PHD, University of Minnesota, 1978

Rasmussen, Bryan P, Professor
Mechanical Engineering
PHD, University of Illinois, 2005

Rathinam, Sivakumar, Associate Professor
Mechanical Engineering
PHD, University of California, Berkeley, 2007

Reddy, Junuthula N, University Distinguished Professor
Mechanical Engineering
PHD, University of Alabama at Huntsville, 1974

Robbins, Andrew B, Visiting Assistant Professor
Mechanical Engineering
PHD, Texas A&M University, 2018

Ryu, Seok Chang, Assistant Professor
Mechanical Engineering
PHD, Stanford University, 2013

Sanandres, Luis A, Professor
Mechanical Engineering
PHD, Texas A&M University, 1985

Saripalli, Srikanth, Associate Professor
Mechanical Engineering
PHD, University of Southern California, 2007

Schobeiri, Tahir M, Senior Professor
Mechanical Engineering
PHD, Technische Universitat Darmstadt, Germany, 1979

Scully, Marlan O, Professor (courtesy appointment)
Mechanical Engineering
PHD, Yale University, 1966

Song, Xingyong, Assistant Professor (courtesy appointment)
Mechanical Engineering
PHD, University of Minnesota, Twin Cities, 2011

Srinivasa, Arun R, Professor
Mechanical Engineering
PHD, University of California, Berkeley, 1991

Staack, David A, Associate Professor
Mechanical Engineering
PHD, Drexel University, 2008

Su, Hung-Jue, TEES Research Professor (courtesy appointment)
Mechanical Engineering
PHD, University of Michigan - Ann Arbor, 1988

Suh, Chii-Der, Associate Professor
Mechanical Engineering
PHD, Texas A&M University, 1997

Tai, Li-Jung, Assistant Professor
Mechanical Engineering
PHD, University of Michigan Ann Arbor, 2011

Tsen, Joannan N, Instructional Assistant Professor
Mechanical Engineering
PHD, Texas A&M University, 2016

Vinayak, Fnu, Assistant Professor
Mechanical Engineering
PHD, Purdue University, 2016

Wang, Jyhwen, Professor (courtesy appointment)
Mechanical Engineering
PHD, Northwestern University, 1991

Wang, Ya, Associate Professor
Mechanical Engineering
PHD, Virginia Tech, 2012

Wen, Sy-Bor, Associate Professor
Mechanical Engineering
PHD, University of California, Berkeley, 2006

Wilkerson, Justin W, Assistant Professor
Mechanical Engineering
PHD, Johns Hopkins University, 2014

Wright, Lesley M, Associate Professor
Mechanical Engineering
PHD, Texas A&M University, College Station, 2006

Yu, Choongho, Associate Professor
Mechanical Engineering
PHD, University of Texas - Austin, 2004

Zambrano-Roman, Byron Alfonso, Research Assistant Professor
Mechanical Engineering
PHD, Michigan State University, 2017

Zhang, Xudong, Professor (courtesy appointment)
Mechanical Engineering
PHD, University of Michigan Ann Arbor, 1997

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)