



Masters of Science Degree in Mechanical Engineering

CALIFORNIA STATE UNIVERSITY, LOS ANGELES

The graduate program leading to a Master of Science in Mechanical Engineering, at California State University, Los Angeles is designed for engineers who wish to further their proficiency in a particular field of specialization and/or broaden their perspective and knowledge of engineering beyond the Bachelor degree. The program offers an applied curriculum covering advanced courses in fundamental subjects, emerging areas of mechanical engineering, and state-of-the-art computer aided engineering tools with emphasis on a multidisciplinary approach. In addition to a rigorous curriculum, high achieving individuals may engage in cutting-edge applied research within a NASA University Research Center, an NSF Research Center, or other externally funded research projects. With a Master of Science in Mechanical Engineering, engineers will enhance the prospects of their professional career and/or be prepared to continue their education toward a doctoral degree.

The graduate program is organized especially to accommodate the needs of engineers employed full time. The classes applicable toward the graduate degree are offered during late afternoon hours or evenings. Instruction is offered year round on the semester system. Each of the three semesters that comprise the academic year (Fall, Spring, and Summer) is 16 weeks in duration.

The University is located at the eastern edge of Los Angeles within a five mile radius of downtown and adjacent to the western part of the San Gabriel Valley. The convenient location allows easy access by freeway and major surface streets, as well as by bus and Metrolink, from all parts of the Greater Los Angeles Area.

Admission to the Program

Admission to the program requires possession of a degree equivalent to CSULA's Bachelor of Science in Mechanical Engineering and a minimum 2.5 grade point average in the last 60 semester units attempted for the baccalaureate. Applicants who do not meet the minimum 2.50 grade point average in their last 60 units may be admitted to post-baccalaureate unclassified standing with Special Action Admission until prescribed qualifying courses of at least 14 units, approved by the graduate advisor, have been completed with a minimum 3.0 grade point average.

An applicant with a Bachelor of Science degree in an allied field such as physics, chemistry, mathematics, or another area of engineering may be admitted with unclassified post-baccalaureate standing until prescribed prerequisite courses have been successfully completed.

Program of Study

Upon admission, the new student should make an appointment to see the Mechanical Engineering Graduate Advisor. With the help of the advisor, the student should develop a program of study. The program of study can be changed during the course of study if the need arises, but only after the student submits a petition and the petition is approved. Courses which are not on the student's program of study will not be counted toward the M.S. degree. Upon advisor approval, a student may transfer up to 13 semester units of classes

applicable toward a graduate degree completed at another qualifying institution of higher learning or at CSULA through Open University.

List of Courses applicable to the M.S. Degree in Mechanical Engineering

The following courses offered by the Mechanical Engineering Department are applicable toward fulfilling the requirements for an M.S. degree in Mechanical Engineering provided they are not completed during the course of undergraduate study (i.e., the same course cannot be counted toward an undergraduate and a graduate degree).

A brief description of the courses and the necessary prerequisites are published in the CSULA General Catalog. Students should consult the Department Office and the Schedule of Classes for the semester, date and time when a particular class is offered. For more information on each course and/or research opportunity in a particular area, students should contact faculty with expertise in that area.

MACHINE DESIGN, APPLIED MECHANICS		Units
ME 4020	Advanced Mechanics of Materials	3
ME 4110	Vibrational Analysis I	3
ME 4120	Strength of Materials Laboratory II	1
ME 4140	Machine Design II	3
ME 4210	Dynamics of Mechanisms	3
ME 4230	Introduction to Finite Element Method	3
ME 5010	Advanced Mechanics of Particles	3
ME 5010	Advanced Mechanics of Rigid Bodies	3
ME 5030	Design of Mechanical Systems and Products	3
ME 5110	Vibrational Analysis II	3
ME 5140	Fatigue and Failure in Engineering Design	3
MANUFACTURING AND MATERIALS		
ME 4280	Automation and computer-aided Manufacturing	3
ME 4300	Properties and Selection of Engineering Materials	3
ME 4310	Metallography Laboratory	1
ME 4810	Introduction to Robotics	3
ME 5140	Fatigue and Failure in Engineering Design	3
ME 5280	Metforming Science and Applications.	3
ME 5290	Machining Science and Applications	3
ME 5300	Near-Net-Shape Manufacturing and Surface Treatment	3
ME 5310	Processing of and Design with Modern Engineering Materials	3
THERMAL AND FLUID SCIENCES		
ME 4060	Heat Transfer II	3
ME 4070	Design of Thermal Systems	3
ME 4080	Fluid Mechanics II	3
ME 4130	Fluid Mechanics Laboratory II	1
ME 4150	Air Conditioning	3
ME 4160	Energy Systems	3
ME 4180	Renewable Energy and Sustainability	3
ME 5040	Thermal Radiation	3
ME 5050	Heat Conduction	3
ME 5060	Heat Convection	3
ME 5250	Computational Fluid Mechanics	3

AEROSPACE AND CONTROL ENGINEERING

ME 4030	Aerodynamics	3
ME 4040	Compressible Aerodynamics	3
ME 4100	Control of Mechanical Systems	3
ME 4220	Optimization of Engineering Systems	3
ME 5080	Compressible Fluids	3
ME 5210	Dynamic Systems Analysis	3
ME 5220	Optimal Control of Mechanical Systems	3

ADDITIONAL COURSES

ME 4090	Mechanical Engineering Analysis (required for all MS students)	3
ME 4190	Computer Aided Mechanical Engineering	3
ME 4500	Biomechanics	3
ME 4510	Biomaterials	3
ME 4520	Impact Biomechanics	3
ME 4540	Special Topics in Mechanical Engineering	1-3
ME 4590	Rehabilitation Design and Internship	3
ME 5540	Special Graduate Topics in Mechanical Engineering	3
ME 5590	Advanced Rehabilitation Design and Internship	3
ME 5960	Comprehensive Examination	0
ME 5970	Graduate Research	1-6
ME 5980	Graduate Directed Study	1-3
ME 5990	Thesis	3

In addition to the above courses, the graduate advisor may allow a student to select a limited number of courses in other engineering disciplines or outside of engineering with consistent with an approved plan of study.

Faculty and Areas of Specialization

Mohsen Eshraghi, Assistant Professor (Ph.D., Mississippi State University)

Materials Science; Manufacturing; Numerical Modeling; Lattice Boltzmann Method

Darrell W. Guillaume, Professor and Chair of Mechanical Engineering (Ph.D., University of California, Irvine)

Registered Professional Mechanical Engineer

Fluid Mechanics; Thermodynamics; Heat Transfer; Combustion

Samuel Landsberger, Professor of Mechanical Engineering and Kinesiology (Sc.D., Massachusetts

Institute of Technology, Cambridge, MA)

Design; Kinematics; Rehabilitation Engineering

Arturo Pacheco-Vega, Professor of Mechanical Engineering (Ph.D., University of Notre Dame)

Fluid Mechanics; Heat Transfer; Dynamical Systems and Thermal Control; System optimization; Soft Computing

Trinh K. Pham, Associate Professor of Mechanical Engineering (Ph.D., University of California, Irvine)

Fluid Mechanics; Thermodynamics; Heat Transfer; Combustion; Energy Systems

David E. Raymond, Assistant Professor of Mechanical Engineering

Ph.D., Wayne State University

Impact Biomechanics; Vehicle Safety Systems; Forensic Engineering

Adel Sharif, Professor of Mechanical Engineering (Ph.D., University of California, Irvine)

Registered Professional Mechanical Engineer

Machine Design; Structural Materials

He Shen, Assistant Professor of Mechanical Engineering (Ph.D., University of Central Florida)
Dynamics and Control; Autonomous Systems; Process Automation; Modeling, Simulation, and Design

Chivey Wu, Professor of Mechanical Engineering (Ph.D., University of Illinois)
Aerodynamics; Computer-Aided Engineering

Emeriti Professors:

Lih-Min Hsia, Emeritus Professor of Mechanical Engineering (Ph.D., University of California, Davis)
Registered Professional Mechanical Engineer
Kinematics of Mechanisms; Computer-Aided Design; Robotics

Neda S. Fabris, Emeritus Professor of Mechanical Engineering (Ph.D., Illinois Institute of Technology)
Manufacturing; Material Science; Mechanics; Design

Stephen F. Felszeghy, Emeritus Professor of Mechanical Engineering (Ph.D., University of California, Berkeley)
Solid Mechanics; Finite Element Methods; Mechanical Vibrations; Dynamics

Philip Gold, Emeritus Professor of Mechanical Engineering (Ph.D., University of California, Los Angeles)
Energy Systems; Thermodynamics

Raymond B. Landis Dean Emeritus, (Ph.D., University of California, Los Angeles)
Thermal Sciences and Fluid Mechanics

Ram Manvi, Emeritus Professor of Mechanical Engineering (Ph.D., Washington State University)
Registered Professional Mechanical Engineer
Energy Conversion; Thermal and Environmental Engineering

Michael, M. Maurer, Emeritus Professor of Mechanical Engineering (Ph.D., Tulane University)
Thermodynamics; Turbomachinery

Maj Dean Mirmirani, Emeritus Professor of Mechanical Engineering (Ph.D., University of California, Berkeley)
Dynamic Systems and Control; Applied Mechanics; Flight Mechanics

Richard D. Roberto, Emeritus Professor of Mechanical Engineering (M.S., University of California, Los Angeles)
Registered Professional Mechanical Engineer
Machine Design; Dynamics; Vibrations

FURTHER INFORMATION

Further information about the M.S. program may be obtained from the Department of Mechanical Engineering (323) 343-4490 and at the Department's Website:

<http://www.calstatela.edu/academic/ecst/me/index.htm>

Admission information and application forms may be obtained by writing to: Office of Admissions, CALIFORNIA STATE UNIVERSITY, LOS ANGELES, 5151 State University Drive, Los Angeles, CA 90032-8530 or online at the University's websites.