Go Beyond Theory

Engineering is a practicing profession. Our labs provide students with opportunities to go beyond theory and gain an advanced understanding of engineering principles. The Mechanical Engineering Department has multiple design and simulation laboratories as well as a subsonic wind tunnel, flow visualization water tunnel, a manufacturing facility, and a mechatronics laboratory. All laboratories employ advanced Computer-Aided Engineering tools to provide the students with real-world design experiences.

The Master of Science (M.S.) in Mechanical Engineering degree at CSUN emphasizes design and applications in four main areas of specialization: aerospace, mechanical systems, dynamics and control, and thermal-fluid systems. Faculty research interests focus on these and other areas including: bioengineering, energy processes and heat transfer, fluid dynamics, computer-aided design and manufacturing, and smart/active materials.

MSME Degree Requirements

Thesis Plan: 30 units
-24 units of course work
-18 units of 500 or 600-level engineering courses
-6 units of Thesis
-Successful defense of thesis

Comprehensive Exam: 33 units
-30 units of coursework
-24 units of 500 or 600-level engineering courses
-3 units CR/NC of Directed Comprehensive Study
-Successful passage of a comprehensive examination

Our Labs

We have over 20,000 square feet of state-of-the-art laboratory space dedicated to teaching and research activities.

- Mechanical Eng. Design Center
- Haas Lab
- Dynamics and Controls Lab
- Biomedical Lab
- Fluids and Heat Transfer
- Mechatronics Lab
- Wind Tunnel Lab
- Systems Engineering Research Lab

Examples of Available Research Projects

- Biomechanical modeling of bone tissue using micro-dilation theory
- Computational grains with large deformation for modeling shape memory alloy phase transitions
- Modeling switching phenomena in Ferroelectric ceramics using the MLPG method
- Neural network based reliability analysis of smart composite plates
- Experimental and numerical study of low Reynolds number airfoils
- Simulation of ram-air parachute canopies under maneuvering conditions
- Fundamental Investigation of Heat Transfer in Electronics Cooling
- Gas Turbine Cooling Techniques
- Heat Pipes Fundamental Investigation and Modeling
- Heat Transfer Study in Micro-Gravity
- Multi Phase Flow and Phase Change in Micro-Channels
- Numerical/Analytical Investigation of Transport through Porous Media
- Thermal Management and Cooling Techniques for High Performance Computing Systems
Recent Master’s Theses

- Intelligent wheelchair utilizing a fuzzy approach with cognitive, facial and speech inputs for user commands
- Determination of the geometry for a ram-air parachute canopy in steady flight through numerical simulations
- Fiber optic coupling and sensing for low power medical device applications
  - Causal transfer function relating leg muscle forces and GRFs during human walking
- Thermo-electro-mechanical analysis of functionally graded quantum dots.
- Exploring lightweight structural options for high aspect ratio winged UAV flight for solar integration
- Impact of liquid propellant properties on small energy conversion device dimensions
  - A holistic approach to finite element analysis of a patient-specific human heart
- Automation of a portable device battery life validation test
- Experimental study of the thermal performance and flow characteristics of metal foam
- Wetting properties and their effect on electrospray thruster design

How to Apply

File an online application to the University through CSUMentor (https://www2.calstate.edu/apply).

Requirements for Admission to the Program

- Satisfaction of all requirements for admission to the University (see www.csun.edu/admissions-records/apply-graduate-student for criteria).
- Completion of the Graduate Record Examination (GRE) with a Quantitative score ranking in the 50th percentile at minimum.
- Minimum Cumulative Undergraduate GPA of 3.0
- Approval by the College of Engineering and Computer Science and the Department Graduate Coordinator.

Note: Graduate courses taken elsewhere (including Tseng College of Extended Learning) may be used for credit in your formal MSME program. A maximum of 9 units with grades of B or higher may be considered with ME Department approval.

<table>
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<tr>
<th>Term</th>
<th>Application submission period begins</th>
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<tr>
<td>Fall</td>
<td>October 1</td>
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<td>Spring</td>
<td>August 1</td>
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Contact

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Jacaranda Hall, Room 4513
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Hours: M-F (8 a.m. to 5 p.m.)
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http://www.csun.edu/engineering-computer-science/mechanical-engineering

Fall 2018 semester admissions open until May 31st, 2018.

Dr. J. Michael Kabo
Graduate Coordinator
Email: mkabo@csun.edu
Phone: (818) 677 - 3890
Office location: JD 3333

Serving more than 42,000 students each year, CSUN is one of the largest universities in the United States, and it has an impact to match its size. Money Magazine recently named CSUN one of the top ten values in all of higher education, and the Social Mobility Index ranked CSUN 5th in the nation for elevating its students’ economic and social well-being. CSUN ranks 10th in the country in awarding bachelor’s degrees to underrepresented minority students, fifth nationally in awarding master’s degrees to Hispanic students and enrolls the largest number of deaf and hard-of-hearing students of any U.S. state university. CSUN’s 171 academic programs and engaged centers enjoy international recognition for excellence. CSUN currently partners with more than 100 institutions of higher education in 22 countries around the globe and attracts the largest international student population of any U.S. master’s level institution. Situated on a 356-acre park-like setting in the heart of Los Angeles’ San Fernando Valley, the campus features modern educational buildings and world-class LEED Gold-certified performing arts and recreational facilities recognized as among the best in the country. CSUN is designated as a Hispanic Serving Institution (HSI) and an Asian American, Native American, Pacific Islander Serving Institution (AANAPISI) and we value the diversity of all of our students and the campus community. CSUN is a welcoming university that champions accessibility, academic excellence and student success.