Overview
Increase your skills and take your career to a new level in the field of engineering with advanced training in mechanical engineering. In a recent study, EMSI determined that mechanical engineering is among the top 25 occupations facing potential skill shortages. Prepare yourself to meet this market demand with our online Master of Engineering – mechanical engineering specialization which focuses specifically on materials engineering.

Advanced analysis and detailed knowledge of material properties are required when choosing or assessing materials for various engineering projects. Equally important is an understanding of the design, costs, and environmental impact involved. As a practitioner-oriented program, this mechanical engineering degree is designed to equip you with that knowledge and the technical skills for fieldwork practice.

A variety of materials engineering courses offer advanced training in manufacturing, metals and alloys, advanced composite materials, and mechanical design, including material aspects in the context of engineering design and manufacturing processes. Graduates finish this program both technically competent and able to balance business and management principles.

In addition to core courses, flexibility within the online mechanical engineering degree electives allows you to choose coursework that aligns with specific educational or career goals. From systems engineering to experimental optimization, you’re able to choose which 12 credits best round out your degree.

Learning Experience
Our online mechanical engineering master’s program is built on a foundation of practicality. Benefitting from the unique breadth of faculty expertise in areas like bio materials, composites, metals, mechanical design, surfaces, and nano materials, you’ll work through actual case studies that focus on current industry challenges.

In addition, group projects simulate real world dynamics within the mechanical engineering industry with classmates across different geographical locations.

Delivery
Online

Credits
30 credits

Tuition
$882 per credit
Financial aid and a military discount are available

Time Frame
Can be completed in 2 years

Degree Awarded
Master of Engineering in Engineering; transcript reflects the mechanical engineering specialization

Offered By
Department of Mechanical Engineering

Learn More
online.colostate.edu/degrees/mechanical-engineering

Now I know what to look for in the literature; I know what questions to ask; I know where to dig deeper, and I know which technologies aren’t likely to be useful to us. I feel like I have gained an in-depth understanding of additive manufacturing, and now my knowledge base can grow along with the technology.

Phil, MECH 502 Student
Curriculum

Core Courses
15 credits completed or concurrent enrollment required prior to elective enrollment

Fall
• MECH 431 – Metals and Alloys (3 cr.)
• MECH 530 – Advanced Composite Materials (3 cr.)
• MECH 532 – Materials Issues in Mechanical Design (3 cr.)

Spring
• MECH 411 – Manufacturing Engineering (3 cr.)
• MECH 531 – Materials Engineering (3 cr.)

Electives
Elective courses are selected based on a discussion with your academic advisor. A few typical electives include:

Fall
• MECH 501 – Engineering Project Management and Program Management (3 cr.)
• MECH 502 – Advanced/Additive Manufacturing Engineering (3 cr.)
• MECH 529 – Advanced Mechanical Systems (3 cr.)
• MECH 512 – Reliability Engineering (3 cr.)
• MECH 570 – Bioengineering (3 cr.)
• STAT 511 – Design and Data Analysis for Researchers I (4 cr.)

Spring
• MECH 513 – Simulation Modeling and Experimentation (3 cr.)
• MECH 525 – Cell and Tissue Engineering (3 cr.)
• MECH 569 – Micro-Electro-Mechanical Devices (3 cr.)
• MECH 573 – Structure and Function of Biomaterials (3 cr.)
• STAT 512 – Design and Data Analysis for Researchers II (4 cr.)

Some classes may be available in both Fall and Spring. Please check the class schedule for an up-to-date list of course offerings. Students may take other 500 level classes as electives which are not listed here. Please get prior approval from the department before registering for other classes by emailing megadstudies@engr.colostate.edu. Please use the following email subject line: ME Online – Admission Inquiry – YOUR NAME. Include the course information along with a brief explanation of how this course will benefit you in the email.

Minimum Admission Requirements
• Bachelor’s degree in engineering or engineering-related field
• Minimum GPA of 3.0 on a 4.0 scale or first class standing*
• Calculus 1, 2, 3*
• Ordinary differential equations*
• Physics 1 and 2 (calculus-based)*
• For international students: The minimum TOEFL score for admission without condition is 80, and IELTS is 6.5.
• GRE test scores are not required, but may be submitted if you feel these will strengthen your application.

*If you do not meet minimum requirements, please contact megadstudies@engr.colostate.edu to get your transcripts/credentials evaluated before formally applying for the program.

Completion Requirements
• A minimum of 30 credits of graduate work in an approved course of study is required
• 24 credits at the 500-level must be earned at Colorado State University, 21 of which must be earned after formal admission, and 15 of which must be within the mechanical engineering department.
• This is a coursework-only degree; a thesis, project paper, or final examination is not required. Professional experience is not required, but strongly preferred.