Recognizing the increasing need for interaction between
cientific discovery and technological development, the
graduate program in Mechanical Engineering at the University
of Denver (DU) is designed to advance the student’s knowl-
edge in current and emerging technologies, and provide a
unique opportunity for cross-disciplinary education. Tradit-
tional M.S. and Ph.D. programs are available, as well as indi-
vidual classes to serve as continuing education credit.

2003-2004 Course Offerings

Below is a list of undergraduate and graduate mechanical
engineering course offerings for 2003-2004. To earn graduate
credit coursework must be at the 3000 and 4000 level. Consult
the web or faculty for prerequisites and course descriptions.

Fall Quarter 2003 (Sept 8
th
 to Nov 20
th
)
ENME 2510 Mechanics I       [Dr. Tuttle]
ENME 2410 Materials Science I [Dr. Predecki]
ENME 2541 Mechanics of Materials [Dr. Laz]
ENME 2671 Fluid Dynamics/Heat Transfer I [Dr. Lengsfeld]
ENME 2720 Thermodynamics II    [Dr. Armentrout]
ENGR 3610 Engineering Analysis [Dr. Salters]
ENME 3651 Computational Fluid Mechanics [Dr. Wilson]
ENME 4800 Introduction to Bioengineering
[Dr. Rullkoetter & Dr. Lengsfeld]
ENME 4800 Mechanisms                  [Dr. Rullkoetter]
MTSC 4215 Composites II            [Dr. Kumosa]

Winter Quarter 2004 (Jan 5
th
 to March 13
th
)
ENME 2421 Materials Science II [Dr. Hamstad]
ENME 2520 Mechanics II           [Dr. Tuttle]
ENME 2651 Fluid Dynamics/Heat Transfer II [Dr. Lengsfeld]
ENME 3511 Machine Design         [Dr. Hamstad]
ENGR 3630 Finite Element Methods [Dr. Kumosa]
ENGR 3721 Controls               [Dr. Laz]
ENGR 4620 Optimization           [Dr. Rullkoetter]

Spring Quarter 2004 (March 22
nd
 to June 3
rd
)
ENME 2530 Mechanics III          [Dr. Tuttle]
ENME 2661 Fluid Dynamics/Heat Transfer III [Dr. Lengsfeld]
ENME 2710 Thermodynamics I       [Dr. Tuttle]
ENGR 3730 Robotics               [Dr. Salters]
ENME 4800 Advanced Fluids        [Dr. Lengsfeld]
ENME 4800 Fracture Mechanics     [Dr. Laz]
MTSC 4210 Composites I           [Dr. Kumosa]

Research Activities

Active research programs in mechanical engineering are
divided into three specific areas:

Bioengineering Research Group

The Bioengineering Research Group has three focus ar-
areas: the study of joint biomechanics for design and analysis of
total joint replacements; a fluid dynamics approach to bio-
processing and drug delivery; and development of smart sen-
sors for in vivo and in vitro diagnostics. Contact: Dr. Leng-
sfeld, Dr. Rullkoetter or Dr. Shoureshi.

Center for Advanced Materials and Smart Structures

Research focuses included nano-, micro- and macro- fail-
ure mechanisms in advanced composite systems, non-ceramic
composite insulators for high voltage applications, acoustic
emission techniques, mechanical testing, fatigue, life prediction
models, statistics/reliability concepts to develop improved
materials and structural components, and embedded sensors
and actuators. Contact: Dr. Armentrout, Dr. Kumosa, Dr. Laz,
or Dr. Shoureshi

DU Aerosol Group

The DU Aerosol Group studies the role of particles in
stratospheric aerosol, in global climate change
and in air pollution. The development of instruments and
sampling inlets enables the study of the sources and forma-
tion of pollution particles in urban and industrial settings,
the emissions of aircraft and rockets and the processes that
maintain the stratospheric aerosol. Contact: Dr. Wilson

Capabilities

The Department of Engineering has a variety of experi-
mental and analytical facilities available to students and on a
sponsored project basis or per hire.

Materials testing
• Acoustic Emission
  Contact: Dr. Armentrout or Dr. Hamstad
• Comprehensive Material Testing Systems
  Contact: Dr. Armentrout, Dr. Kumosa, or Dr. Laz
• Particle Sizing (PDPA & Counting (4 nm to 40 µm)
  Contact: Dr. Lengsfeld or Dr. Wilson
• Scanning Electron Microscope (SEM)
  Contact: Dr. Armentrout
• X-ray Diffraction
  Contact: Dr. Armentrout or Dr. Predecki

Fabrication
• CADD and Rapid Prototyping   Contact: Dr. Rullkoetter
• Microparticle Fabrication    Contact: Dr. Lengsfeld

Computational facilities
• Computational Fluid Mechanics (Fluent)
  Contact: Dr. Lengsfeld or Dr. Wilson
• Finite Element Analysis (Abaqus/stand. & explicit, Ansys)
  Contact: Dr. Kumosa, Dr. Laz or Dr. Rullkoetter

Faculty Contact Information
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Dr. Paul Predecki        [ppredeck@du.edu, 303-871-3570]
Dr. Paul Rullkoetter     [prullkoe@du.edu, 303-871-3512]
Dr. Rahmat Shoureshi     [rshoures@du.edu, 303-871-2621]
Dr. Elizabeth Tuttle     [etuttle@du.edu, 303-871-3225]
Dr. James C. Wilson       [jwilson@du.edu, 303-871-3516]