

I E 424, Manufacturing Systems3
 I E 451, Engineering Economy3
 I E 460, Evaluation of Engineering Data3
 I E 478, Facilities Planning and Design3
 I E 480, Senior Design3
 Engineering electives*6
 Approved general education elective: Viewing a Wider World†3

*A detailed list of approved electives is available in the Department of Industrial Engineering.

**The catalog section "General Education Courses and Requirements" includes a list of approved electives.

***A two-course sequence in either physics or chemistry is required.

†A detailed list of approved VWW electives is available in the Department of Industrial Engineering. Students should choose VWW electives that meet the ABET humanities and social science requirements.

MECHANICAL ENGINEERING

Professor Thomas D. Burton, department head

Associate Professor Ronald J. Perderson†, associate department head

Professors Genin†, Hardee*†, Hills, Smith* (emeritus); **Associate Professors** Choo, Conley†, Garcia, Leslie, Ma; **Assistant Professors** Allen, Park, Sevostianov, Shashikanth; **College Professors** Donaldson*, Hill
(505) 646-3501

*Registered Professional Engineer (NM)

†Registered Professional Engineer (State other than NM)

DEGREE: Bachelor of Science in Mechanical Engineering

The mechanical engineering program prepares students for a wide range of professional engineering careers in such areas as research and development, design, facilities operation and maintenance, management, and production. Graduates of the program will be prepared to apply engineering sciences, mathematics, computational methods, modern experimental methods, and effective communication skills to problems of interest in industry and government or scholarly topics. Employment opportunities for graduates are extensive. These include energy and utility, manufacturing, automotive, aerospace, defense and space, research and development, and many others. The emphasis in the curriculum is on engineering sciences (solid mechanics, thermal sciences, fluid mechanics, and materials science), mathematics, engineering analysis, engineering design, general sciences, and communication balanced with general education topics and electives. Graduates of the program will also be prepared for graduate studies (subject to grade-point and standardized test qualifications). Students will be prepared to take the fundamentals of engineering examination (and are encouraged to do so) as a step towards professional registration.

Mechanical Engineering Educational Goals and Objectives

The goals of the Department of Mechanical Engineering, as set forth in the departmental strategic plan, are:

- to educate those who will advance knowledge and become the future leaders of industry and academia;
- to conduct both basic and applied research in mechanical engineering and related interdisciplinary areas; and
- to provide service to the profession, to the State of New Mexico, to the country, and to the future development of engineering world wide.

A critical focus within the department is to afford undergraduates of varying backgrounds and abilities every opportunity for achieving success in the mechanical engineering profession. To address this focus, the faculty of the mechanical engineering department, with input from other constituents, have established the following educational objectives for the undergraduate program:

- to prepare students for successful careers and lifelong learning;
- to educate students thoroughly in engineering science and methods of analysis, including the mathematical and computational methods appropriate for engineers to use when solving problems;

- to develop the skills pertinent to the design process, including the students' ability to formulate problems, to think creatively, to communicate effectively, to synthesize information, and to work collaboratively;
- to teach students to use modern experimental and data analysis techniques; and
- to instill in our students an understanding of their professional and ethical responsibilities.

Graduation Requirements

In addition to the NMSU requirements for graduation, a student must obtain a minimum grade of C in mechanical engineering courses.

Requirements (Total credits 129)

Freshman Year (32 credits)

CHEM 111, General Chemistry I, and CHEM 112, Chemistry II8
 ENGL 111G, Rhetoric and Composition4
 ENGL 218G, Technical and Scientific Communication3
 MATH 191, 192, Calculus and Analytic Geometry I, II6
 M E 102, Mechanical Engineering Orientation1
 M E 159, Graphical Communication and Design2
 M E 166, Introduction to Mechanical Engineering2
 M E 222, Product Development/ Laboratory3
 Approved General Education Literature and Fine Arts elective3

Sophomore Year (33 credits)

C E 301, Mechanics of Materials3
 COMM 265G, Principles of Human Communication3
 E E 201, Networks I3
 MATH 291, Calculus and Analytic Geometry III3
 MATH 392, Differential Equations3
 M E 236, Engineering Mechanics I3
 M E 237, Engineering Mechanics II3
 M E 240, Thermodynamics3
 M E 260, Mechanical Engineering Problem Solving3
 PHYS 215, Engineering Physics I3
 PHYS 216, Engineering Physics II3

Junior Year (33 credits)

CH E 361, Engineering Materials3
 ECON 251G, Principles of Macroeconomics, or ECON 252G, Principles of Microeconomics3
 M E 328, Engineering Analysis I3
 M E 338, Fluid Mechanics3
 M E 340, Applied Thermodynamics3
 M E 345, Experimental Methods I3
 M E 329, Engineering Analysis II3
 M E 326, Mechanical Design3
 M E 341, Heat Transfer3
 Approved General Education History elective3
 Approved Mechanics elective*3

Senior Year (31 credits)

M E 425, Design of Machine Elements3
 M E 426, Design Project Laboratory I3
 M E 427, Design Project Laboratory II3
 M E 445, Experimental Methods II3
 M E 449, Mechanical Engineering Senior Seminar1
 Approved General Education Human Thought and Behavior elective3
 Approved General Education Viewing a Wider World elective3
 Approved General Education Viewing a Wider World ECON elective3
 Mathematics elective**3
 Mechanical engineering electives***6

*Mechanics elective must be taken from M E 331, 332, or 333.

**Mathematics electives must be taken from MATH 391, 471, 472, 473, 480, STAT 371, or I E 310.

***Students in their senior year choose 6 credits of M E electives.