IMAGINE yourself

- designing sleek new automobiles or high-powered rockets
- developing environmentally friendly alternative energy sources
- creating advanced robotic devices

You can do that in the College of Engineering

Our bachelor degree programs are an excellent place to begin. Choose from 10 programs leading to a multitude of engineering and technology careers, or to fascinating areas of graduate studies.

The College of Engineering

We began in 1891, offering courses in civil and mechanical engineering, and have grown over the years into the largest engineering college in New Mexico with national rankings in many areas. Our faculty members have distinguished themselves with numerous awards in teaching and research. They uniquely combine engineering fundamentals and design with practical, hands-on experiences, giving our graduates a competitive advantage in both industry and advanced graduate studies. Strong research programs expose students to the most advanced engineering knowledge.

DID YOU KNOW?
The American Society for Engineering Education has ranked the College of Engineering at NMSU as one of the top 10 in the nation for the number of engineering degrees awarded to Hispanics.
Choose your path

DID YOU KNOW?
NMSU’s faculty to student ratio is 1:19.

Engineering degree programs

Aerospace Engineering
Chemical Engineering
Civil Engineering
Electrical and Computer Engineering
Engineering Physics
Engineering Technology
Environmental Engineering
Industrial Engineering
Information and Communication Technology
Mechanical Engineering
Surveying Engineering

B.S. (M.S., Ph.D. pending)
B.S., M.S., Ph.D.
B.S., M.S., Ph.D.
B.S., M.S., Ph.D.
B.S., with emphasis in electrical, mechanical, chemical, or aerospace
B.S., with emphasis in civil, electronics and computer, information, or mechanical
M.S.
B.S., M.S., Ph.D.
B.I.C.T.
B.S., M.S., Ph.D.
B.S.

Accreditation

The undergraduate programs in chemical, civil, electrical and computer, engineering physics, industrial, mechanical, and surveying engineering are accredited by the Engineering Accreditation Commission of ABET. The undergraduate programs in civil, electronics and computer, and mechanical engineering technology are accredited by the Technology Accreditation Commission of ABET.

ABET
111 Market Place, Suite 1050
Baltimore, MD 21202-4012
410-347-7700

engr.nmsu.edu
Where do you want to go?

Engineering graduates are in high demand and, as a graduate of New Mexico State University, you will have plenty of career options. With a bachelor of science in engineering, these opportunities include private industry, local, state and federal government agencies and academia. Your undergraduate education also prepares you for graduate studies in engineering, advanced science and other fields such as master of business administration programs, and medical and law school programs.

DID YOU KNOW?

New Mexico State University is home to the oldest and largest college of engineering in New Mexico.

Career fields

The National Association of Colleges and Employers reports that engineers earn some of the highest average starting salaries among those holding bachelor’s degrees. In 2009, average starting salaries for engineers ranged from $50,785 to $65,466. The average starting salary for those with bachelor’s degrees in all other fields was $49,353.


Begin your future today

engr.nmsu.edu
Where will you work?
NMSU holds the largest annual career fair in the region. Our engineering students are recruited by the following companies and agencies.

Private Industry

Baker Concrete Construction
Bohannan-Houston, Inc.
Centex Corp.
Chavez-Grieves Consulting Engineers Inc.
Chevron Phillips Chemical Co.
Conoco Phillips
Cummins
Dow Chemical Co.
El Paso Electric
Ethicon Inc.
ExxonMobil Corp.
Freeport-McMoRan Copper & Gold, Inc.
General Dynamics Corp.
General Electric Co.
General Motors Corp.
Goodrich Aerospace
Halliburton
Harris Corp.
Hewlett-Packard Co.
IBM Corp.
Intel Corp.
Jacobs Engineering
Kiewit New Mexico
Leprino Foods Co.
Lockheed Martin Corp.
Louisiana Energy Service
Molzen-Corbin & Associates
Nestlé
Northrop Grumman
Pacific Gas and Electric Co.
Precision Energy Services, Inc.
Procter & Gamble Co.
Public Service Co. of NM
Raytheon Co.
Siemens Energy
The Boeing Co.
Total Petrochemicals USA, Inc.
Tyson Food, Inc.
Western Refining
Worley Parsons
XCEL Energy

Government Agencies

Arizona Department of Transportation
CIA
FBI
Holloman Air Force Base
Los Alamos National Laboratory
MIT Lincoln Laboratory
NASA
National Nuclear Security Administration
National Oceanic and Atmospheric Administration
New Mexico Department of Transportation
Sandia National Laboratories

U.S. Bureau of Land Management
U.S. Department of Defense
U.S. Department of Interior
U.S. Environmental Protection Agency
U.S. Forest Service
U.S. Naval Surface Warfare Center
U.S. Navy NAVAIR
U.S. Nuclear Regulatory Commission
U.S. Postal Service
U.S. State Department
White Sands Missile Range
Aerospace Engineering

Aerospace engineers are innovative research leaders in the design, construction and analysis of aircraft, satellites, manned-space vehicles and missions, unmanned-aerial vehicles, and the aerodynamic, propulsion, flight control and structural systems of high-tech vehicles.

College of Engineering aerospace engineering students are at the hub of aerospace research. NASA’s test facility, White Sands Missile Range and Spaceport America are all nearby. In addition, the large aerospace companies maintain close ties to the program.

Aerospace Studies

Aerospace studies coursework includes basic engineering concepts, communication skills and laboratory procedures, in addition to more specialized studies. As future aerospace engineers, students are given a thorough grounding in aerodynamics, propulsion, flight stability and control, orbital mechanics, the space environment, aerospace structures, thermodynamics, aerospace systems engineering and design. Laboratory time, where students practice hands-on application of theory, is just as important, and through senior capstone design projects, co-ops and internships, they can acquire real-world engineering experience.

Research Highlight

Using biomimetics, the study of biological systems, NMSU engineers are examining how birds fly and fish swim. The goal is to improve the design of small, autonomous aerial vehicles by developing efficient “flapping” propulsion systems.

DID YOU KNOW?
The College of Engineering at NMSU has New Mexico’s only aerospace engineering program.
Chemical Engineering

The work of chemical engineers is actually all around. Chemical engineers take raw materials and turn them into everyday products such as medicines, foods, paper, plastics, fertilizers and semiconductors – to name but a few. But that’s not all. Chemical engineers also help protect the environment by determining the lifespan of chemicals, inventing substitutes for scarce resources and creating new products from recycled materials.

Chemical Engineering Studies

The coursework for chemical engineering students includes a focus on the fundamental science principles in chemistry, mathematics and physics, with a further emphasis on the chemical engineering fundamentals of material and energy balances, thermodynamics, transport phenomena, and kinetics. Chemical engineering teachers also stress the importance of design and creative problem-solving methods using modern engineering tools such as spreadsheets, symbolic equation processors and process simulators.

Students also carry out hands-on application of theory and concepts in laboratories, learn the importance of teamwork and develop oral and written communication skills. By participating in cooperative education programs and internships, students gain work experience, job knowledge and valuable career contacts in their field.

Research Highlight

Chemical engineers from NMSU are developing new technologies to make vehicles powered by hydrogen fuel cells a reality. By finding ways to remove substances damaging to expensive components used in fuel-cell technology, their research will result in less-costly technology, making it more economically feasible for automakers to produce and offer hydrogen fuel-cell powered vehicles to consumers.

DID YOU KNOW?

NMSU has been ranked one of America’s 100 Best College Buys® for 10 consecutive years.
Civil engineers create the public and private works structures of our world, including freeways, high-rise buildings, bridges, dams, roads, airports and water-treatment plants. They plan, design and supervise the construction of these facilities. Civil engineers will also design the world of tomorrow that could include habitats on other planets, plants that generate power from new sources and infrastructure for new modes of transportation.

Civil Engineering Studies
At NMSU, civil engineering students can specialize in environmental, general civil, geotechnical, structural and water resources engineering. They will follow a course of study that encompasses engineering principals and analysis, mathematics and physical and social sciences. Coursework includes engineering physics, mechanics, hydraulic engineering, chemistry and environmental engineering, in addition to electives for the various civil engineering options. Because of extensive hands-on experiences in internships, co-ops and senior capstone design projects, civil engineering graduates are well prepared to be licensed, practicing professional engineers.

Research Highlight
Some NMSU civil engineering students spend their summer inspecting more than 7,700 miles of roads in southern New Mexico for the New Mexico Department of Transportation. The results of their inspections are used to determine if maintenance or repairs are needed.

DID YOU KNOW?
The civil engineering Bridge Inspection Program has researched techniques to solve technological problems with bridge systems for more than 35 years.
Electrical engineers make the world come alive. From the batteries that power your iPod® to the power plants that fuel our nation, electrical engineers are responsible for taking energy and making it useful. Their work also enables us to communicate via cell phone, satellite radio and wireless Internet. Computer engineers are involved with the design, construction and operation of all aspects of computer systems. Beyond your laptop or desktop computer, they put the digital touch in everything that makes up today’s world, such as cars, cameras, medical equipment, video products – you name it.

Electrical and Computer Engineering Studies
Electrical and computer engineering students at NMSU gain a breadth of knowledge across a range of topics in a hands-on intensive curriculum. The undergraduate program trains students to apply the fundamentals of mathematics and physics and the core areas of computer engineering, circuits and systems, electromagnetic and electronics to analyze problems and creatively design solutions. Electives are offered to provide an area of specialization, such as control systems, communications, computer architecture, digital design, electromagnetic, electronics, photonics, power, or signal processing. Students are well prepared to begin a career or continue their education in a graduate program.

DID YOU KNOW?
The College of Engineering at NMSU was selected to be the first Telemetering Center of Excellence in the United States by the International Foundation for Telemetering. The center provides research opportunities in the study of advanced communications systems and technologies.

The Electric Utility Management Program provides an advanced education program for future engineering managers wishing to work in the electric utility industry. More than 230 students have graduated from the program, and seven have become CEOs of major electric utilities.

Research Highlight
Dr. Jeanine Cook is investigating ways to model and predict the performance of computer chip designs with the goal of making them more productive and efficient. Cook received Presidential honors for research in computer architecture conducted in conjunction with Sandia National Laboratories.

DiD you know?
Engineering Physics

Engineering physics combines the application of basic physical principles with traditional engineering disciplines. Engineering physicists create some of today’s most exciting technologies by manipulating the world at the cellular level through nanotechnology, creating machines, controls and sensors that are smaller than a grain of salt. They move massive amounts of information faster than ever before through fiber-optic technology. And they design laser technologies that can be used in fields as diverse as medicine and defense.

Engineering Physics Studies

The NMSU engineering physics program is offered jointly by the College of Engineering and the department of physics in the College of Arts and Sciences. The degree program provides students with a rigorous course of study in the fundamentals of physics and applied mathematics along with a core curriculum in an engineering specialty. The program offers options in aerospace, chemical, electrical and mechanical engineering. The curriculum includes laboratory work to familiarize students with experimental techniques and technology, using the most advanced equipment. Students practice working in multidisciplinary environments and learn real-world problem-solving strategies based on fundamental physical principles.

Research Highlight

The physics department has strong research programs in the fields of particle and nuclear physics, computational physics, materials science, geophysics, and engineering physics education. Most of this research is done at or in collaboration with national laboratories, including Los Alamos, Argonne, Brookhaven, Fermilab, and Jefferson Lab. Our students and faculty build large detectors filling multistory buildings in order to study the smallest building blocks of matter. They use massively parallel computer systems to model the structure of the earth’s interior, or the structure of the atomic nucleus. Researchers also use beams of light or neutrons to study the ordering of materials—work which could lead to better computer chips or to a better understanding of the state of water that exists on other planets. They have planted seismometers in the ground in Tibet to understand how the Himalayan Mountains were formed. Our researchers also look at how students learn in order to develop better teaching methods.

DID YOU KNOW?

NMSU has New Mexico’s only engineering physics degree program.
Engineering Technology

Engineering technology graduates are problem solvers, creative thinkers and innovators. Their ability to apply engineering principles and concepts in specialized areas enables them to do many things, such as managing the construction of highways, buildings, or water treatment plants; enabling businesses to maximize efficiency through the use of computers; and designing and testing new products.

Engineering Technology Studies

Engineering technology students receive an education in the practical applications of engineering principles. Theory and design give a basic foundation of the principals and then a major portion of time is spent learning the applications and skills required to design, build and test areas specific to the discipline. The curriculum includes mathematics, science, and applied engineering and computing courses. Students can specialize in civil, mechanical, information or electronic and computer engineering technology, with minors available in manufacturing, renewable energy and security technology.

Civil engineering technology students learn to implement current civil engineering practices in design, construction and project management. They take many of the same technical science courses as mechanical engineering technology students, such as fluids, thermodynamics and strength of materials. Civil technical specialty courses include properties of construction materials, blueprint reading, surveying, applied design of structures, highway technology, land development and infrastructure, hydraulics and construction management.

Areas of concentration for electronic and computer engineering technology students are applied circuits, electronics devices, computer hardware, computer application and systems software, programming, networking, digital systems and security.

Mechanical engineering technology students receive instruction in a diverse range of study, including the properties of materials, fluid flow, thermal energy, forces, objects in motion, mechanisms, manufacturing processes and robotics. Students learn how to design mechanical systems using drafting, design and analysis software.

Research Highlight

Students pursuing the renewable energy technology minor are designing a variety of novel applications. One student project involved the design of a solar-powered well pump for livestock watering. In another project, students designed a solar-powered bus stop sign for the NMSU Aggie Transit system. The bus sign has a lit display box for bus schedules and a programmable LED message board powered entirely by solar energy.

DID YOU KNOW?

All of the lecture-based classes in the College of Engineering at NMSU are taught by regular faculty members.
Industrial Engineering

Industrial engineers stand out among the engineering disciplines in that they deal with the human element. Their job is to figure out how to make production processes happen better, faster and safer. Your favorite DVD was on the store shelf for you to buy because an industrial engineer made sure the necessary materials, personnel and machinery were available to produce and deliver it. They analyze, design, and control production, service, and distribution systems. Drawing upon mathematical, physical and social sciences, they use the principles and methods of engineering analysis and design to specify, predict, and evaluate the end result from industrial systems.

Industrial Engineering Studies

The industrial engineering program prepares students for a wide variety of employment opportunities or for advanced education in fields such as engineering, law, medicine or business. Students in the program have plenty of opportunity for hands-on experience in laboratories and they are encouraged to take part in cooperative education and internships.

In addition to engineering principles and analysis, industrial engineering students study chemistry, industrial engineering, engineering physics, manufacturing processes, engineering operations, quality control, simulation modeling and facilities planning and design. This field of study develops skills not only in engineering, but also in math, science, business and the social sciences.

Research Highlight

NMSU industrial engineers are developing new methods of manufacturing using the latest technologies such as injection molding and 3-D prototyping. They study how people can manufacture parts efficiently and use environmentally safe materials and processes. This research is incorporated into the classroom where students learn by doing.

DID YOU KNOW?
The College of Engineering at New Mexico State University offers the only accredited industrial engineering degree program in New Mexico.
Information and Communication Technology

In a world where computers are part of nearly everything we do, information and communication technology graduates are in high demand. ICT professionals design and maintain web sites. They make it possible for you to chat with your friends via the Internet through a network. They manage massive amounts of computerized data and help make your information secure so it won't fall into the wrong hands.

Information and Communication Technology Program

ICT is a degree-completion program designed for students with an associate degree or two years of computer-related or technology studies. Students take junior- and senior-level ICT courses to earn the bachelor's degree. ICT core courses are offered via the Internet, so students can attend class anytime, anywhere. The ICT curriculum emphasizes the study of computer hardware, application and operating systems software, system integration, database design and management, networking, and network security, and includes the study of these specialized areas:

- Java and web design
- Information and physical security
- Computer forensics
- Oracle database management
- UNIX/Linux system administration
- Networking and local-area networks

DID YOU KNOW?
The Information and Communication Technology program was launched in 2004 and has become one of the fastest growing fields of study at NMSU.
If it’s a machine, a mechanical engineer designed it. This includes machines as simple as a bicycle or as complex as the latest military jet. Mechanical engineers often design things that aren’t machines. Their work involves the design, manufacture and operation of a wide range of devices, components and systems – from the ordinary, such as packaging for products, to the amazing, such as artificial organs.

**Mechanical Engineering Studies**

At NMSU, mechanical engineering students receive a thorough foundation in solid mechanics, thermal sciences, fluid mechanics, materials science, engineering analysis, engineering design, and the mathematical and computational methods engineers use to solve problems. Mechanical engineering students learn to use modern experimental and data analysis techniques. They develop skills pertinent to the design process, including the ability to formulate problems, think creatively, communicate effectively, synthesize information and work collaboratively. Through laboratory work, they gain experience in using state-of-the-art computational tools.

**Research Highlight**

Mechanical engineering research at NMSU includes projects in wildfire simulation, behavior of composite foam and other materials, robotics, biomechanics, fluid drag and vortex dynamics, structural vibrations and health monitoring, design optimization and validation of complex simulation models. These and other projects provide students the opportunity to work on cutting-edge technology.

**DID YOU KNOW?**

The mechanical engineering department at NMSU has been offering degrees for more than 100 years and awarded the first-ever engineering degree in the state of New Mexico.
Defining boundaries and measuring land have been an important part of human endeavor since the beginning of recorded history. Whether determining the shape of a nation or specifying the path of a new highway, our world is defined through surveying. Surveying engineers analyze, design and execute surveying and mapping projects. In addition to knowledge of the mathematical and computational methods involved in surveying measurement and analysis, surveyors must also have an understanding of the legal principles of boundary location and the laws related to boundaries and land use.

Surveying Engineering Studies
Surveying engineering students learn the scientific, mathematical and engineering principles of surveying, along with the legal, political and social context of surveying. They also study the responsibilities and ethics of surveying professionals. They learn how to collect, analyze, interpret and apply survey data. NMSU surveying engineering graduates are prepared for licensure by the state in which they work.

Research Highlight
Surveying engineering faculty and students are conducting work for the U.S. Bureau of Land Management to convert previously collected public lands survey system records into modernized digital data. Students are actively involved in this project, which is exposing them to the technical issues involved with the abstraction, manipulation, analysis and subdivision of townships.

DID YOU KNOW?
NMSU is the only college in New Mexico offering a surveying engineering degree program.
Engineering college students are invited to join a wide array of engineering and civic activities. Students attend the regional and national conferences of their respective organizations where they have the opportunity to build professional contacts, attend job fairs and network with other students and engineers. Many different leadership conferences and scholarship possibilities are available, and students with strong academic records may be invited to join national engineering honor societies. Members of student organizations also serve as tutors and mentors in the Freshman Mentoring Program.

**Engineers Council**
A member of the National Association of Engineering Student Councils, E-Council encourages the involvement of engineering students in professional, academic and civic areas. The E-Council connects students with other engineering and student organizations at NMSU, some of which are listed below. Contact E-Council for more information at nmsuecouncil@gmail.com.

**Student Organizations**
- American Indian Science & Engineering Society
- Mexican American Engineers & Scientists
- National Society of Black Engineers
- Society of Hispanic Professional Engineers
- Society of Women Engineers
- Tau Beta Pi Honor Society

**Student Competitions and Activities:**
- Bridge-Building Contest
- Chemical Car Competition
- Community Service Projects
- Concrete Canoe Competition
- Engineers Without Borders Projects
- Mini-Baja Contest
- NASA's Reduced Gravity Student Flight Opportunities Program
- National Materials Handling Competition
- Physics Olympics
- Reno Bidding Competition
- Steel Bridge Competition
- Student Design Competitions
- WERC Environmental Design Contest

Student organizations
[engr.nmsu.edu/student_org.shtml](http://engr.nmsu.edu/student_org.shtml)
Financial assistance is important to every student, but perhaps more so to students who undertake the rigorous engineering education. In addition to federal, state and university-based scholarships, the College of Engineering has many scholarships set aside specifically for engineering students. These vary in amount and are based upon a broad spectrum of criteria.

You must be admitted to NMSU to be considered for financial aid and NMSU scholarships. To be considered for engineering-specific scholarships you must also be admitted to the College of Engineering.

The College of Engineering scholarship application must be submitted online. This one application enables you to be considered for any and all engineering scholarships for which you are eligible.

Check out financial aid and scholarship opportunities.
University-wide: nmsu.edu/finaid
College of Engineering: engr.nmsu.edu/scholarships

Important Due Dates

January 16
• NMSU Presidential Scholarship applications

March 1
• NMSU and College of Engineering scholarship applications
• Free Application for Federal Student Aid (FAFSA) must be completed to be considered for NMSU financial aid and scholarships
Live where you learn

Campus housing offers a unique experience for entering engineering freshmen. You may choose between two Living Learning Communities—one designed specifically for engineers and another reserved for women in science and engineering. These communities cluster first-year students on the same floor, offering them the opportunity to interact with faculty and other students who share common academic interests. Top engineering students serve as resident mentors to freshmen residing in these special dorm communities.

There is no extra cost for choosing the women in science and engineering or the engineers communities. Simply check the appropriate box on the housing application. For more information, visit nmsu.edu/~housing/Application.htm.
Important Contacts

New Mexico State University

Admissions
575-646-3121
800-662-6678
nmsu.edu

Financial Aid
575-646-4105
877-278-8586
nmsu.edu/finaid

Housing
575-646-3202
nmsu.edu/~housing

College of Engineering

Recruiting
575-646-5894
engr.nmsu.edu/admissions.shtml

Scholarships
575-646-2913
engr.nmsu.edu/scholarships.shtml

Chemical Engineering
575-646-1214
che.nmsu.edu

Civil Engineering
575-646-3801
ce.nmsu.edu

Engineering Technology and Surveying Engineering
575-646-2236
etse.nmsu.edu

Industrial Engineering
575-646-4923
ie.nmsu.edu

Klipsch School of Electrical and Computer Engineering
575-646-3115
ee.nmsu.edu

Mechanical and Aerospace Engineering
575-646-3501
me.nmsu.edu

Physics (College of Arts and Sciences)
575-646-3831
engineeringphysics.nmsu.edu

new Mexico State university