COLLEGE OF ENGINEERING

Dean - Lakshmi Reddi, P.E.

Associate Dean (Academic Programs) - TBA

Associate Dean/Director of Engineering Research Center - Phillip DeLeon

Associate Dean (Outreach and Recruitment) - Patricia Sullivan

Assistant Dean (Student Success and Experiential Learning) - Gabe Garcia

College Chief of Staff - Linda Fresques

Program Manager - Elizabeth Howard

The College of Engineering comprises six departments:

- Chemical Engineering (http://catalogs.nmsu.edu/nmsu/engineering/chemical-materials-engineering);
- Civil Engineering (http://catalogs.nmsu.edu/nmsu/engineering/civil-engineering);
- Electrical and Computer Engineering (http://catalogs.nmsu.edu/nmsu/engineering/electrical-computer-engineering);
- Engineering Technology and Surveying Engineering (http://catalogs.nmsu.edu/nmsu/engineering/engineering-technology-surveying);
- Industrial Engineering (http://catalogs.nmsu.edu/nmsu/engineering/industrial-engineering);
- Mechanical and Aerospace Engineering (http://catalogs.nmsu.edu/nmsu/engineering/mechanical-aerospace-engineering).

Mission of the College of Engineering

The College of Engineering will uphold the land grant mission of NMSU through nationally recognized programs in education, research and professional and public service.

With respect to our undergraduate programs, we will accomplish our mission by focusing on the following goals:

1. To be nationally and internationally recognized for academic and research programs in engineering and engineering technology.
2. Provide world-class engineers and engineering technologists for industrial, government, and academic constituents of the College of Engineering.
3. To be the University of Choice for undergraduate engineering and engineering technology education in the region.
4. To serve as an engine for economic development in New Mexico through the advancement of engineering and technology.

Furthermore, graduates receiving baccalaureate degrees will demonstrate:

- an ability to apply knowledge of mathematics, science and engineering;
- an ability to design and conduct experiments, as well as to analyze and interpret data;
- an ability to design a system, component or process to meet desired needs;
- an ability to function on multi-disciplinary teams;
- an ability to identify, formulate, and solve engineering problems;
- an understanding of professional and ethical responsibility;
- an ability to communicate effectively;
- the broad education necessary to understand the impact of engineering solutions in a global and societal context;
- a recognition of the need for, and an ability to engage in life-long learning;
- a knowledge of contemporary issues; and
- an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Undergraduate Student Advisement

Starting with the fall 2017 semester, students entering the College of Engineering will be advised by the Center for Academic Advising and Student Support (CAASS) located in Garcia Annex. Students may also change majors at the CAASS. Students uncertain about choosing a major may list themselves as undeclared in the College of Engineering and be advised by the CAASS. Undeclared students will be asked to choose a major after two semesters in the college. Students must have a declared major in order to graduate.

At the discretion of the associate dean, students who do not demonstrate satisfactory progress may be required to leave the College of Engineering.

Undergraduate General Education

With the exception of math and science, the college accepts all coursework approved for inclusion in the New Mexico General Education Common Core. Calculus I, General Chemistry I and Engineering Physics I are required to satisfy areas II and III of the common core.

S/U Coursework

The college requires most degree requirements to be taken with traditional grading. Students may take selected humanities and social science courses under the S/U option. Other exceptions are specifically noted in the program descriptions later in this catalog.

Undergraduate Math Placement

Entering freshmen are placed into an appropriate math course based upon the results of the Math Placement Exam administered regularly by the NMSU mathematics department. Students with advanced placement or transfer credit for mathematics will be placed accordingly. Math placement may be altered at the discretion of the associate dean.

Minors

Minors are available from most departments within the College of Engineering are outlined in the individual program descriptions.

Undergraduate Cooperative Education

After two semesters of satisfactory academic work (2.5 GPA), an engineering student may go on a work phase with one of the many companies or governmental agencies with which the university has co-op agreements. The experience obtained through alternating periods of academic and fieldwork greatly contributes to the preparation of a student for professional life. Work phases are considered to be a vital part of the educational process, and students are counseled in the selection of co-op positions that will lead to progressive learning experiences.
Earnings while on work phase provide a source of financial assistance to meet educational expenses.

A significant number of undergraduate engineering students are in the cooperative education program. Students may, with the approval of their department head, earn credit while participating in a co-op work phase. Co-op credits do not normally count toward the degree requirements but do show on the transcript.

Undergraduate General Academic Requirements

For regular admission to the university and the College of Engineering, incoming freshman and transfer applicants must meet the university’s qualifications for regular admission as stated in the undergraduate catalog in effect at the time of application. Students admitted to the College of Engineering will be classified by the college as a pre-[major] until the standard requirements described below for admission to the program major are met.

Pre-[major] students will be admitted into their respective programs once they have met the following criteria:

- Earn a minimum grade of C- in all of the following courses:

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 111G</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 110 (engineering technology)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SPCD 111G</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>ENGR 100</td>
<td>Introduction to Engineering</td>
<td>3</td>
</tr>
<tr>
<td>MATH 191G</td>
<td>Calculus and Analytic Geometry I</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 235 (engineering technology)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PHYS 213</td>
<td>Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>or PHYS 215G</td>
<td>Engineering Physics I</td>
<td></td>
</tr>
<tr>
<td>or PHYS 211 (engineering technology)</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Any of the above courses with earned AP credit (minimum score of 3) is exempt from the list. Transfer students may meet this criteria with determined passing credit of equivalent courses. PRE [major] students will be advised by their EG [major] department.

NMSU College of Engineering reserves the right to independently test any student’s English proficiency upon arrival, including those who have earned scores satisfying minimum admission criteria. If the demonstrated level of English proficiency is not sufficient for academic success as determined by the Center for English Language Programs, support classes may be required to improve proficiency.

Students must earn a minimum cumulative GPA of 2.0 before enrolling in engineering courses numbered 300 or above.

Students must earn a grade of C- or better in all engineering, technology, math and science courses (including associated prerequisite courses) required for the degree and also courses taken to satisfy the general education requirements for Area I-Communications, Area II-Mathematics/Algebra, and Area III-Laboratory Science. If a grade lower than C- is earned in any of these courses, the student is required to retake the course immediately during the next semester it is offered. An undergraduate student may attempt an engineering, math, or physical science course no more than three times to earn a passing grade of C- or better. Anytime a student earns less than a C-, a meeting with the appropriate engineering academic advisor is required to develop a plan for addressing this issue. If the student fails to pass any of these courses after three attempts, then the student will not be able to continue as an engineering major and will be counseled on other degree options.

Engineering Transfer Policy

Policy for engineering majors enrolling in courses at other institutions to meet College of Engineering Departmental Core Requirements.

1. NMSU Policy Manual Chapter 6, section 89, paragraph A. “The decision to award a student credit for work completed at another institution rests with the faculty.”

2. NMSU main campus engineering majors may take core classes at other institutions of higher education to meet NMSU College of Engineering Departmental Core if the NMSU core course cannot accommodate any more eligible students.

3. The following conditions and restrictions apply to any course not taken on the NMSU main campus.
   - The department must approve the course prior to enrollment (student to provide course syllabus and any other documentation to department head).
   - The course must be a class in a program that is accredited by an accreditation commission of ABET, Inc. and cannot be graded S/U.
   - The course must be substantially the same as the equivalent NMSU class and the student must have satisfied all NMSU prerequisite requirements.
   - The student shall provide a corresponding course syllabus and any other documentation required.
   - If NMSU prerequisite requirements are not satisfied, credit will be denied regardless of a passing grade for the course at the other institution.

4. In addition to 3 above, the following conditions apply to any on-line course not taken from the NMSU main campus.
   - Scheduled exams, if any, shall be proctored.
   - If NMSU prerequisite requirements are not satisfied, credit will be denied regardless of a passing grade for the course at the other institution.

Requirements for Graduation

The minimum requirements for undergraduate degrees are:

1. Satisfaction of the university requirements as previously outlined in the Regulations (http://catalogs.nmsu.edu/nmsu/regulations-policies) section of this catalog.
2. Satisfaction of the college requirements as outlined under General Academic Requirements, above.
3. Satisfaction of the departmental rules and course requirements as outlined in the individual program descriptions.

NOTE: In order to maintain quality, remain current, and satisfy changes in accreditation criteria, requirements which have been published may be
Changed. Any such changes will be announced and will not be retroactive. Always consult an academic advisor before registering for classes.

Graduate Degrees
Graduate study is available in

- Aerospace Engineering (http://catalogs.nmsu.edu/nmsu/engineering/mechanical-aerospace-engineering)
- Chemical Engineering (http://catalogs.nmsu.edu/nmsu/engineering/chemical-materials-engineering)
- Civil Engineering (http://catalogs.nmsu.edu/nmsu/engineering/civil-engineering)
- Electrical Engineering (http://catalogs.nmsu.edu/nmsu/engineering/electrical-computer-engineering)
- Environmental Engineering (http://catalogs.nmsu.edu/nmsu/engineering/environmental-engineering)
- Industrial Engineering (http://catalogs.nmsu.edu/nmsu/engineering/industrial-engineering)
- Mechanical Engineering (http://catalogs.nmsu.edu/nmsu/engineering/mechanical-aerospace-engineering)

See individual program descriptions for graduate degree requirements.

Bachelor Degrees
Bachelor of Information and Communication Technology (http://catalogs.nmsu.edu/nmsu/engineering/engineering-technology-information-communication-technology)

Bachelor of Science in Engineering

Majors in:

- Aerospace Engineering (http://catalogs.nmsu.edu/nmsu/engineering/mechanical-aerospace-engineering)
- Chemical Engineering (http://catalogs.nmsu.edu/nmsu/engineering/chemical-materials-engineering)
- Civil Engineering (http://catalogs.nmsu.edu/nmsu/engineering/civil-engineering)
- Electrical Engineering (http://catalogs.nmsu.edu/nmsu/engineering/electrical-computer-engineering)
- Environmental Engineering (http://catalogs.nmsu.edu/nmsu/engineering/environmental-engineering)
- Industrial Engineering (http://catalogs.nmsu.edu/nmsu/engineering/industrial-engineering)
- Mechanical Engineering (http://catalogs.nmsu.edu/nmsu/engineering/mechanical-aerospace-engineering)

See individual program descriptions for graduate degree requirements.
- Mechanical Engineering (http://catalogs.nmsu.edu/nmsu/engineering/mechanical-aerospace-engineering/mechanical-engineering-bachelor-science-mechanical-engineering)

**Dual Degrees**

**Bachelor of Science/ Master of Science-Electrical Engineering**

**Masters Degree**

**Master of Engineering**

Majors in:

- Aerospace Engineering (http://catalogs.nmsu.edu/nmsu/engineering/mechanical-aerospace-engineering/aerospace-engineering-master-engineering)
- Chemical Process Industry (http://catalogs.nmsu.edu/nmsu/engineering/chemical-materials-engineering/chemical-process-industry-master-engineering)
- Civil Engineering (http://catalogs.nmsu.edu/nmsu/engineering/civil-engineering/civil-engineering-master-engineering)
- Electrical Engineering (http://catalogs.nmsu.edu/nmsu/engineering/electrical-computer-engineering/electrical-engineering-master-engineering)
- Industrial Engineering (http://catalogs.nmsu.edu/nmsu/engineering/industrial-engineering/industrial-engineering-master-engineering)
- Mechanical Engineering (http://catalogs.nmsu.edu/nmsu/engineering/mechanical-aerospace-engineering/mechanical-engineering-master-engineering)

**Master of Science in Aerospace Engineering** (http://catalogs.nmsu.edu/nmsu/engineering/mechanical-aerospace-engineering/aerospace-engineering-master-science-aerospace-engineering)

**Master of Science in Chemical Engineering**

**Master of Science in Civil Engineering**

Major in:

- Civil Engineering
  - Geotechnical Engineering (Option)
  - Structural Engineering (Option)
  - Water Resource Engineering (Option)

**Master of Science in Electrical Engineering** (http://catalogs.nmsu.edu/nmsu/engineering/electrical-computer-engineering/electrical-engineering-master-science-electrical-engineering)

**Master of Science in Environmental Engineering**

**Master of Science in Industrial Engineering**

**Master of Science in Mechanical Engineering**

**Doctoral Degree**

**Doctor of Philosophy**

Majors in:

- Aerospace Engineering (http://catalogs.nmsu.edu/nmsu/engineering/mechanical-aerospace-engineering/aerospace-engineering-doctor-philosophy)
- Chemical Engineering (http://catalogs.nmsu.edu/nmsu/engineering/chemical-materials-engineering/chemical-engineering-doctor-philosophy)
- Electrical Engineering (http://catalogs.nmsu.edu/nmsu/engineering/electrical-computer-engineering/engineering-doctor-philosophy)
- Engineering
  - Civil Engineering (http://catalogs.nmsu.edu/nmsu/engineering/civil-engineering/civil-engineering-doctor-philosophy)
  - Industrial Engineering (http://catalogs.nmsu.edu/nmsu/engineering/industrial-engineering/industrial-engineering-doctor-philosophy)
  - Mechanical Engineering (http://catalogs.nmsu.edu/nmsu/engineering/mechanical-aerospace-engineering/engineering-doctor-philosophy)

**Graduate Certificates**

Digital Communications - Graduate Certificate (http://catalogs.nmsu.edu/nmsu/engineering/electrical-computer-engineering/digital-communications-certificate)

Digital Signal Processing - Graduate Certificate (http://catalogs.nmsu.edu/nmsu/engineering/electrical-computer-engineering/digital-signal-processing-certificate)

Electric Energy Systems - Graduate Certificate (http://catalogs.nmsu.edu/nmsu/engineering/electrical-computer-engineering/electric-energy-systems-certificate)

Systems Engineering - Graduate Certificate (http://catalogs.nmsu.edu/nmsu/engineering/industrial-engineering/systems-engineering-certificate)

Telemetry - Graduate Certificate (http://catalogs.nmsu.edu/nmsu/engineering/electrical-computer-engineering/telemetry-certificate)

**Undergraduate Minors**

- Aerospace Engineering (http://catalogs.nmsu.edu/nmsu/engineering/mechanical-aerospace-engineering/aerospace-engineering-undergraduate-minor)
- Agricultural Engineering (http://catalogs.nmsu.edu/nmsu/engineering/civil-engineering/agricultural-engineering-undergraduate-minor)
- Biomedical Engineering (http://catalogs.nmsu.edu/nmsu/engineering/chemical-materials-engineering/biomedical-engineering-undergraduate-minor)
- Brewery Engineering (http://catalogs.nmsu.edu/nmsu/engineering/chemical-materials-engineering/brewery-engineering-undergraduate-minor)
- Computational Engineering (http://catalogs.nmsu.edu/nmsu/engineering/chemical-materials-engineering/computational-engineering-undergraduate-minor)
- Computer Engineering (http://catalogs.nmsu.edu/nmsu/engineering/electrical-computer-engineering/computer-engineering-undergraduate-minor)
• Digital Forensics (http://catalogs.nmsu.edu/nmsu/engineering/engineering-technology-surveying/digital-forensics-undergraduate-minor)

• Electrical Engineering (http://catalogs.nmsu.edu/nmsu/engineering/electrical-computer-engineering/electrical-engineering-undergraduate-minor)

• Entrepreneurship (http://catalogs.nmsu.edu/nmsu/engineering/industrial-engineering/entrepreneurship-undergraduate-minor)

• Environmental Engineering (http://catalogs.nmsu.edu/nmsu/engineering/civil-engineering/environmental-engineering-undergraduate-minor)

• Geomatics (http://catalogs.nmsu.edu/nmsu/engineering/engineering-technology-surveying/geomatics-undergraduate-minor)

• Information Security Technology (http://catalogs.nmsu.edu/nmsu/engineering/engineering-technology-surveying/information-security-technology-undergraduate-minor)

• Manufacturing (http://catalogs.nmsu.edu/nmsu/engineering/engineering-technology-surveying/manufacturing-undergraduate-minor)

• Materials Engineering (http://catalogs.nmsu.edu/nmsu/engineering/chemical-materials-engineering/computational-engineering-undergraduate-minor)

• Mechanical Engineering (http://catalogs.nmsu.edu/nmsu/engineering/mechanical-aerospace-engineering/mechanical-engineering-undergraduate-minor)

• Nuclear Chemical Engineering (http://catalogs.nmsu.edu/nmsu/engineering/chemical-materials-engineering/nuclear-chemical-engineering-undergraduate-minor)


• Pre-Medicine Studies (http://catalogs.nmsu.edu/nmsu/engineering/chemical-materials-engineering/pre-medicine-studies-undergraduate-minor)

• Renewable Energy Technologies (http://catalogs.nmsu.edu/nmsu/engineering/engineering-technology-surveying/renewable-energy-technologies-undergraduate-minor)

• Structural Engineering (http://catalogs.nmsu.edu/nmsu/engineering/civil-engineering/structural-engineering-undergraduate-minor)

Graduate Minor

• Materials Engineering (http://catalogs.nmsu.edu/nmsu/engineering/chemical-materials-engineering/materials-engineering-graduate-minor)

Accreditation

ABET (formerly the Accreditation Board for Engineering and Technology), established in 1933 and composed of representatives from technical societies, assures professional standards by periodic evaluations of the programs in the College of Engineering. (ABET may be contacted at http://www.abet.org)

Continuous accreditation by the Engineering Accreditation Commission (EAC) of ABET has been in force since

• 1938 for civil, electrical, and mechanical engineering,
• 1967 for chemical engineering,
• 2001 for surveying engineering and
• 2005 for engineering physics.
• 2012 for aerospace engineering.

The electronics and computer, civil, and mechanical engineering technology baccalaureate degree programs have been accredited by the Technology Accreditation Commission (TAC) of ABET since 1988.

The college is a member of the American Society for Engineering Education (ASEE).