College of Engineering

Bachelor of Science in Engineering

www.cnuas.edu

CALIFORNIA NATIONAL UNIVERSITY
FOR ADVANCED STUDIES
California National University for Advanced Studies

Provides an online learning environment where students receive one-on-one instruction from an esteemed faculty, personalized student service, and the flexibility to achieve their lifelong learning goals while balancing career and family responsibilities.


All CNU programs are approved for veteran’s benefits under the G.I. Bill and veterans educational assistance program (VEAP). If you are eligible and wish to receive tuition assistance under one of these programs, contact your local VA office or education office to receive an eligibility certificate.

California National University for Advanced Studies is approved to participate in the voluntary education tuition assistance program administered by the defense activity for non-traditional education support (DANTES). Active duty military personnel and reservists should contact their education office for more information.

CNU adheres to the standards of the soc (servicemembers opportunity colleges).
California National University

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NU offers Bachelor and Master of Science in Engineering degrees with electives in computer, electrical, environmental, quality, and mechanical engineering, as well as a Bachelor of Computer Science.

Our undergraduate programs highlight the basic sciences and general engineering courses to help students evolve into well-rounded engineers with strengths in the area of his/her elective choice. In our graduate programs, students and faculty work closely together to choose a sub-discipline that complements the work environment for real-world application.

For example, a computer engineering student could specialize in microprocessors or switching theory; an electrical engineering student could specialize in electronics power distribution, control systems, or communications; an environmental engineering student could specialize in hazardous waste management, transport phenomena, or air pollution control; a mechanical engineering student could specialize in thermodynamics or mechanical design; and a computer science student could specialize in advanced computer architecture or programming languages. Graduates are expected to possess sufficient knowledge to achieve professional certification.

CNU’s Online Campus* delivers high quality academic programs with the flexibility and personalized support you need to achieve your education goals without compromising work and family responsibilities. With a computer, internet, and e-mail access, you can participate in your online classroom anytime, from anywhere.

Complete and submit assignments online.
Communicate with professors in one-on-one interactions for feedback and support from an expert in the field. Engage with virtual classmates through threaded discussion forums to enrich your learning.

CNU puts you in control of your learning. With no campus visits required and 15-week trimesters starting every Friday, you can study at the time, the place, and the pace that work best for your lifestyle.

* The minimum recommended computer requirements for using CNU’s Online Campus are:

Platform:
• PC (Windows 2000 or XP or higher)
• Mac (10.2 or higher)

Hardware:
• 128 MB of RAM
• 2 GB of free disk space
• CD ROM and DVD drive
• Sound card with speakers (for courses with multimedia)
• Ethernet or Wireless network card (for high-speed Internet connection) or 56K modem (for dial-up Internet connection)
• T1, DSL, Cable, or Satellite high-speed connection
• A monitor capable of at least 800x600 resolution
Bachelor of Science in Engineering

The engineering programs at the undergraduate and graduate levels are designed to prepare students for rewarding careers in these fields. Graduates are expected to possess sufficient knowledge to achieve professional certification (e.g., registration as a Professional Engineer), if they choose to do so. Expected outcomes for each degree program are based on guidelines established by professional organizations such as the Accreditation Board for Engineering and Technology (ABET).

Bachelor of Science in Engineering Program Objectives:
The BSE program objective is to provide a general engineering program designed for working adults interested in technical career advancement. Courses in several elective areas are provided to allow for in-depth study of topics related to a student’s technical field of choice, i.e., mechanical, electrical, environmental, computer science, computer engineering, or quality.

BSE Program Learning Outcomes:
- An ability to apply knowledge of mathematics, science and engineering.
- A recognition of the importance of experimentation in engineering, as well as the ability to analyze and interpret data.
- An ability to design a system, component, or process to meet desired needs.
- An ability to identify, formulate, and solve engineering problems.
- An ability to use the techniques, skills and modern engineering tools necessary for ethical engineering practice.
- A knowledge of basic sciences, including chemistry and physics.
- A knowledge of engineering mathematics, including multivariate calculus, differential equations, statistics, and linear algebra.
- An ability to communicate effectively.

BSE Students Will Gain:
- An understanding of math and science skills required for the practice of engineering.
- An understanding of a broad-based core of engineering knowledge applicable to all fields of engineering.
- An ability to use modern computational tools used in engineering practice.
- Opportunities to explore their technical area of interest via elective courses and the Capstone Project.

Degree Program Requirements
A High School Diploma or GED equivalent is required for admission. Applicants to the Bachelor of Science in Engineering degree program are expected to have a background in algebra, plane geometry, trigonometry, physics and chemistry. If an applicant lacks this background, prerequisite courses will be assigned from the CNU Basic Science curriculum. Students who have not taken Calculus I may be required to take a math placement test. The Bachelor of Science in Engineering degree program requires satisfactory completion of a minimum of 126 units of academic work with a cumulative GPA of 2.0 or better in the following areas:

- General Education 30 units (lower division)
- Basic Sciences 33 units (lower division)
- General Engineering 30 units (lower/upper division)
- Engineering Electives 30 units (upper division)
- Capstone Project 3 units (upper division)
- Total 126 units

Courses are offered in a systematic manner, i.e., where applicable, prerequisites will be completed before the student can enroll in subsequent higher level offerings.
GENERAL EDUCATION
30 UNITS (LOWER DIVISION)

Students pursuing a Bachelor of Science in Engineering degree must complete a breadth requirement of 30 General Education units. Students may elect to take the College-Level Examination Program (CLEP) exams to meet this requirement instead of or in combination with courses. Students have the option to fulfill general education requirements by choosing courses related to the subject areas listed below:

1. Communications (written/oral)
2. Computation (quantitative reasoning/concepts)
3. Social Science (history, sociology, economics, and politics)
4. Computer Technology & Practice
5. Humanities (literature, philosophy, language, culture, the arts)
6. Life/Physical Sciences

BASIC SCIENCES
33 UNITS (LOWER DIVISION)

The Bachelor of Science in Engineering requires a strong foundation in mathematics and science. Applicants needing additional preparation in mathematics prior to taking Calculus I will be assigned prerequisite courses from CNU’s curriculum and/or placement exams.

GENERAL ENGINEERING
30 UNITS

General Engineering courses provide a broad introduction to engineering concepts and computer tools required for their application.

ENGINEERING ELECTIVES
30 UNITS (UPPER DIVISION)

ELECTIVE AREAS

- Computer Engineering
- Electrical Engineering
- Mechanical Engineering
- Computer Science
- Environmental Engineering
- Quality Assurance Science

Students pursuing a Bachelor of Science in Engineering degree may select courses from the six elective areas after they have completed the prescribed core of General Education, Basic Sciences, and General Engineering. Selection of electives will be done with the advice and approval of a Faculty Advisor.

The course of study includes time for instruction, application, evaluation, and examination. The student will be required to engage in activities that demonstrate the ability to apply engineering principles to practical problems. Laboratory experience will be achieved through computer simulation, but access to additional materials and equipment may be required for some courses.

CAPSTONE PROJECT
3 UNITS (UPPER DIVISION)

In addition, a Capstone Project is required which begins with an approved proposal on a current subject. The Capstone Project should have a significant design component, and culminate in a formal report. The expectation is that the Capstone Project will entail one trimester of work requiring 4 hours of practicum per week for 15 weeks.
Course listing

GENERAL EDUCATION (30 UNITS)
Advisement for General Education courses is offered on an individual basis.

BASIC SCIENCES (33 UNITS)
BSCI 101 Calculus I (3 units)
BSCI 102 Calculus II (3 units)
BSCI 103 Calculus III (3 units)
BSCI 104 Ordinary Differential Equations (3 units)
BSCI 105 Probability and Statistics (3 units)
BSCI 206 Physics I Mechanics (4 units: 3 guided instruction/1 lab)
BSCI 207 Physics II Electricity and Magnetism (4 units: 3 guided instruction/1 lab)
BSCI 208 Chemistry I (4 units: 3 guided instruction/1 lab)
BSCI 209 Chemistry II (3 units)
BSCI 210 Physics III Modern Physics (3 units)

GENERAL ENGINEERING (30 UNITS)
ENGR 201 Computer Programming for Engineers (3 units)
ENGR 308 Strength of Materials I (3 units)

GENERAL ENGINEERING, cont’d
ENGR 301 Engineering Economy (3 units)
ENGR 302 Engineering Materials (4 units: 3 guided instruction/1 lab)
ENGR 303 Statics and Strength of Materials I (3 units)
ENGR 304 Thermodynamics I (3 units)
ENGR 305 Basic Circuit Analysis (4 units: 3 guided instruction/1 lab)
ENGR 306 Engineering Dynamics (3 units)
ENGR 307 Introduction to Logic Design (4 units: 3 guided instruction/1 lab)

Many engineering courses require the use of software packages such as MATLAB; AUTOCAD; and Electronics Workbench. CD ROM and DVD drives are required. A minimum of 512 MB RAM is recommended. Please note that the Chemistry I and II software is not MAC-compatible.

ENGINEERING ELECTIVES (SELECT 30 UNITS)
Select 30 Units from 300–400 Level
* (7 courses minimum from 400 Level) with approval of faculty advisor and/or Dean

CULMINATING EXPERIENCE (3 UNITS)
ENGR 499 Capstone Project (3 units)

For Course Descriptions, please click here or visit us online at www.cnuas.edu
College of Engineering

Admissions Checklist

(GREEN INDICATES REQUIRED)

- Completed Application
- Application Fee
- Admissions Essay
- Resume

INSTITUTIONAL

- Transcripts
  (all postsecondary schools attended)
- Tuition Assistance Forms
  (if applicable)
- Diplomas
- Test Scores
  (CLEP, PEP, DANTES, SAT, ACT, GRE, etc.)

EXPERIENTIAL

- Professional Licenses/Certifications
- Certificates of Completion
- Patents/Projects
- Honors/Awards

OTHER

- Workplace Supervisor’s Evaluation
- Letters of Recommendation
- Articles/Publicity

DEGREE PROGRAM

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GO TO WWW.CNUAS.EDU TO APPLY ONLINE

FOR FURTHER INQUIRIES OR COMMENTS, E-MAIL: cnuadms@mail.cnuas.edu