NATIONAL UNIVERSITY

SCHOOL OF ENGINEERING AND COMPUTING

# BACHELOR OF SCIENCE IN CONSTRUCTION ENGINEERING TECHNOLOGY

## Build a Solid Foundation in Construction Principles

The Construction Engineering Technology program at National University is designed to provide you with a well-rounded education in construction principles and practices and prepare you for a career in the construction industry. With this degree you'll be prepared for careers such as construction superintendent, field engineer, project manager, project coordinator, facilities engineer, cost estimator, CAD drafter, or quality and safety controller.

You'll learn to communicate about your trade through written, verbal, and graphical media and to use engineering science and mathematics to solve construction problems. Importantly, you'll have an understanding of potential ethical issues that could arise and learn how to apply sound professional standards for making tough decisions.

### Program highlights:

- Entire program can be completed online
- Use technology to address engineering problems
- Apply modern methods for surveying and metrics
- Build a foundation in mechanical and electrical systems
- Become proficient in cost estimating and scheduling
- Learn field inspection techniques and safety standards
- Apply the principles of project management
- Establish yourself as an important member of a building team

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## MAJOR IN CONSTRUCTION ENGINEERING TECHNOLOGY

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The Construction Engineering Technology program provides students with a well-rounded education in construction principles and practices in preparation for a career in the construction industry. Upon completion of this degree, students will be prepared for careers such as construction superintendent, field engineer, project coordinator, facilities engineer, cost estimator, CAD drafter, and quality and safety controller. Additionally, graduates of this program with experience, interest, and/or knowledge about specific construction trades will be capable of performing in a large number of positions within those respective subcontracting firms.

### Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Effectively communicate through written, verbal, and graphical media.
- Demonstrate knowledge of engineering science and mathematics and its application in problem solving.
- Analyze structural systems.
- Recognize ethical issues and apply professional standards in decision-making.
- Utilize appropriate computer tools for engineering problems.
- Apply modern methods for surveying and metrics.
- Exhibit a fundamental understanding of building mechanical and electrical systems.
- Demonstrate cost estimating and scheduling techniques.
- Integrate and apply field inspection techniques and safety standards.
- Apply the principles of project management and control.
- Work effectively in a team environment.

### Degree Requirements

To receive a Bachelor of Science in Construction Engineering Technology, students must complete at least 180 quarter units to include a minimum of 70.5 units of the University General Education requirements; 76.5 units must be completed at the upper-division level and 45 units must be taken in residence, including the capstone project classes. In the absence of transfer credit, students may need to take additional general electives to satisfy the total units for the degree. Students should refer to the section on undergraduate admission procedures for specific information on admission and evaluation. All students receiving an undergraduate degree in Nevada are required by state law to complete a course in Nevada Constitution.

### Preparation for the Major

(10 courses; 39 quarter units)

MTH 215 * College Algebra & Trigonometry
*Prerequisite: Accuplacer test placement evaluation or MTH 12A and MTH 12B*

PHS 104 * Introductory Physics
*Prerequisite: 2 years of high school algebra and MTH 204 or MTH 215 or MTH 216A and MTH 216B*

PHS 104A * Introductory Physics Lab (1.5 quarter units)
*Prerequisite: PHS 104 or PHS 171 for science majors*

**OR**

PHS 130A ^ Physics Lab for Engineering (1.5 quarter units)

CHE 101 * Introductory Chemistry
*Recommended Preparation: MTH 204 or MTH 215 or MTH 216A and MTH 216B*

CHE 101A * Introductory Chemistry Lab (1.5 quarter units)
*Prerequisite: CHE 101 or CHE 141 for science majors*

**OR**

CHE 120A ^ Intro to Chemistry Lab for Eng (1.5 quarter units)
*Prerequisite: CHE 101*

CSC 208 * Calculus for Comp. Science I
*Prerequisite: MTH 215*

CSC 220 Applied Probability & Stats.
*Prerequisite: MTH 215*

EGR 220 Engineering Mathematics
*Prerequisite: MTH 215*

EGR 225 Statics & Strength of Material
*Prerequisite: EGR 220*

EGR 219 Intro to Graphics and Auto CAD
*Prerequisite: MTH 215*

^ For online students only

* May be used to meet a General Education requirement.

### Requirements for the Major

(15 courses; 64.5 quarter units)

EGR 310 Engineering Economics
*Prerequisite: MTH 215*

EGR 320 Scientific Problem Solving
*Prerequisite: CSC 208 or EGR 220*

EGR 320L Scientific Problem Solving-LAB (1.5 quarter units)
*Prerequisite: EGR 320*

EGR 316 Legal Aspects of Engineering

DEN 308 Computer Aided Engineering I
*Prerequisite: EGR 219*

CEN 320 Surveying, Metrics and GIS
*Prerequisite: EGR 219*

CEN 323 Structural Analysis
*Prerequisite: EGR 220 and EGR 225*

CEN 325 Soil Mechanics and Foundation
*Prerequisite: CEN 323*

CEN 410 Constr. Materials and Methods
*Prerequisite: MTH 215*

CEN 413 Plans and Specifications
*Prerequisite: EGR 219*

CEN 416 Mech. and Electrical Systems
*Prerequisite: MTH 215*

CEN 419 Est., Scheduling and Control
*Prerequisite: CEN 410*

EGR 440 Project Management Fundamental

CEN 420 Est., Scheduling & Control II
*Prerequisite: CEN 419*

CEN 422 Field Inspection and Safety
*Prerequisite: CEN 410*

### Construction Senior Project

(3 courses; 13.5 quarter units)

CEN 486A Construction Senior Project I
*Prerequisite: Completion of 10 core courses in construction program.*

CEN 486B Construction Senior Project II
*Prerequisite: CEN 486A*

CEN 486C Construction Senior Project III
*Prerequisite: CEN 486B*