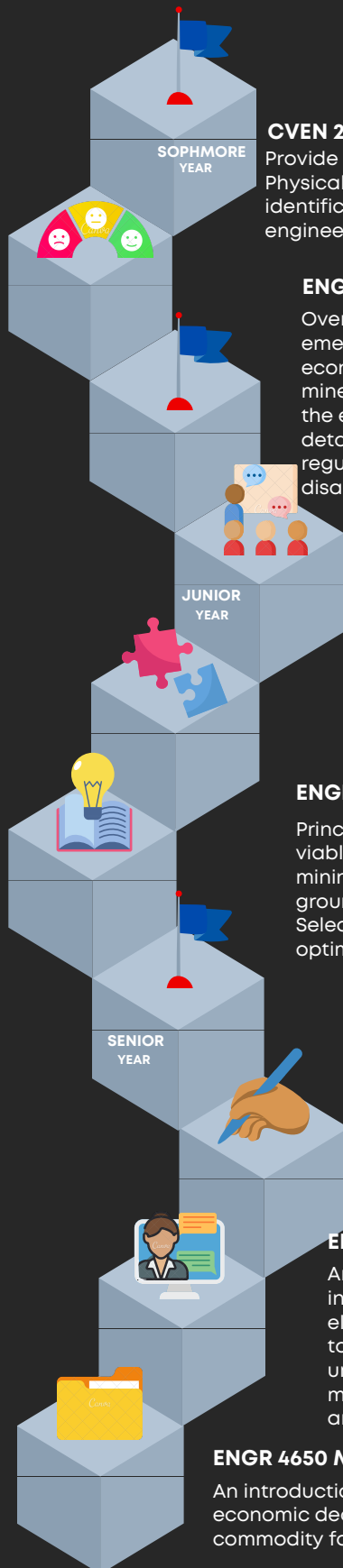


# Mining Engineering Minor



Check the website  
or Scan the QR  
code for more info!



## CVEN 2430 Engineering Geology

Provide engineers from multiple disciplines with the background of a classic Physical Geology course and how it applies to engineering. Includes mineral identification. Laboratories emphasize the recognition, description and engineering evaluation of ores and their hosts. In class labs. Field trip required.

*Prerequisites: NA  
Credits: 3*

## ENGR 2610 Introduction to Mining

Overview of current surface and underground mining practices, new and emerging technology, mining terminology, health and safety, and mining economics. The concept of sustainable development as it relates to a minerals venture is introduced, and the interrelationships between mining, the environment, societal needs, and governance are discussed. A detailed study of health and safety principles, practices, analyses, regulations, risks and hazards recognition, mitigation and control, and disaster prevention in the mining industry.

*Prerequisites: Introduction to Engineering  
Credits: 3*

## CVEN 3450 Rock Mechanics

Applications of the fundamental principles of mechanics to engineering problems of equilibrium, strength, and stiffness of rock materials. Review of in-situ stresses, laboratory and field instrumentation, rock, and rock mass properties. Introduction to rock fragmentation and ground control; pillar design, roof span design, rock reinforcement, surface subsidence, slope stability, and violent failure. In class labs. Field trip required.

*Prerequisites: ENGR 2130 Mechanics of Materials  
Credits: 3*

## ENGR 3610 Surface and Underground Methods

Principles of planning, designing, constructing, and operating economically viable surface or underground mines. Cost-effective mining methods: placer mining, strip mining, open pit mining, quarrying, and blasting. Fundamentals of ground control, dewatering techniques, and mine ventilation will be discussed. Selection of equipment for surface and underground mining operations and optimization of mine performance will be considered.

*Prerequisites: CVEN 2430 Geology, ENGR 2610 Intro to Mining Eng, CVEN 3450 Rock Mechanics  
Credits: 3*

## ENGR 4610 Mine Ventilation

Introduction of subsurface ventilation systems including ventilating sections, blowing and exhaust, and a face setup. Fundamentals of thermodynamics, impeller theory, fan laws, and ventilation (fan) economics will be discussed.

*Prerequisites: Fluids Mechanics CVEN 3100  
Credits: 3*

## ENGR 4630 Mineral Processing and Resource Recovery

An introductory course in mineral processing highlighting unit operations involved, including comminution, sizing, froth flotation, gravity separation, electrostatic separation, magnetic separation, and flocculation. Other topics discussed include the remediation of contaminant effluents and the unit operations associated with recycling post-consumer materials using mineral processing techniques, and an overview of reclamation techniques and impoundments /tailings dam construction.

*Prerequisites: ENGR 2610 Intro to Mining Engineering  
Credits: 3*

## ENGR 4650 Mineral Economics & Feasibility

An introduction to the concepts of the time value of money and the application of economic decision criteria to mineral project evaluation, investment situations, commodity forecasting, macroeconomic impacts and risks, and projects.

*Prerequisites: ENGR 2610 Intro to Mining Engineering  
Credits: 3*