

# MINING ENGINEERING



Mining engineers find, develop and recover resources needed to support the daily needs of society, from the minerals that support our daily health to the materials used for roads, buildings, computers and cell phones. The mining engineering discipline requires a broad range of basic engineering skills along with the ability to apply specialized technical knowledge in the areas of geotechnical engineering, explosives engineering, mine ventilation, mine power systems, automation & control, environmental engineering and extractive metallurgy.

FOR MORE INFORMATION, VISIT:

[www.engr.uky.edu/explore/mining-engineering](http://www.engr.uky.edu/explore/mining-engineering)

## MINING ENGINEERING CURRICULUM SAMPLE

This is a sample list of classes a student will take to pursue a degree in mining engineering. In addition to the mining engineering curriculum, students must complete the pre-engineering requirements and general education coursework, called UK Core.

Note: This sample represents one of several paths to a mining engineering degree. Consult the departmental website for details on specific paths.

### Freshman Year

|                                       |           |
|---------------------------------------|-----------|
| Calculus I and II                     | 8         |
| Composition & Communication I and II  | 6         |
| Chemistry I and Physics I and Lab     | 9         |
| Engineering Exploration I and II      | 3         |
| Fundamentals of Engineering Computing | 2         |
| UK Core course                        | 3         |
| <b>Total hours</b>                    | <b>31</b> |

### Sophomore Year

|                                   |           |
|-----------------------------------|-----------|
| Calculus III and IV               | 7         |
| Elements of Mine Design           | 3         |
| Explosives and Blasting           | 2         |
| Fundamentals of Geology           | 3         |
| Deformable Solids and Lab         | 4         |
| Mine Safety and Health Management | 2         |
| Mining Engineering Fundamentals   | 3         |
| Physics II                        | 4         |
| Principles of Physical Geology    | 4         |
| Statics                           | 3         |
| <b>Total hours</b>                | <b>35</b> |

### Junior Year

|                                              |           |
|----------------------------------------------|-----------|
| Dynamics                                     | 3         |
| Electrical Circuits and Mining Machinery     | 3         |
| Introduction to Fluid Mechanics              | 4         |
| Intro to Mine Systems Analysis               | 3         |
| Minerals Processing                          | 3         |
| Mine Surveying                               | 2         |
| Mine Systems and Economics                   | 3         |
| Professional Development of Mining Engineers | 3         |
| Rock Mechanics                               | 4         |
| Surface Mine Design                          | 3         |
| UK Core Course                               | 3         |
| <b>Total hours</b>                           | <b>34</b> |

### Senior Year

|                                        |           |
|----------------------------------------|-----------|
| Environmental Control System Design    | 3         |
| Mine Design Project I and II           | 4         |
| Mine Plant Machinery                   | 3         |
| Minerals Processing Technical Elective | 3         |
| Mine Ventilation                       | 3         |
| Underground Mine Design                | 3         |
| Technical Elective                     | 3         |
| UK Core Courses                        | 6         |
| <b>Total hours</b>                     | <b>28</b> |

## PURSuing MINING ENGINEERING AT UK

The mining engineering program at the University of Kentucky is one of only 12 accredited programs in the United States. Faculty members are well-known and highly respected in their specialized areas throughout academia and the industry. This ensures that students will receive the highest-quality education and training from instructors with practical knowledge of the discipline. Hands-on instruction is provided in state-of-the-art laboratories that house modern equipment used in each of the specialty areas of mining engineering.

## CAREER PROSPECTS IN MINING ENGINEERING

Retirements and growth in the mineral sector over the next 5-10 years are expected to create many openings for talented mining engineering graduates at starting salaries in the range of \$60,000 to \$72,000. Due to the number of expected retirements, career advancement is sure to be faster than most other professions. Opportunities in the mining engineering profession will always be available because of the need to provide resources for the nation and the world in a safe and environmentally friendly manner.

## UNDERGRADUATE RESEARCH IN MINING ENGINEERING

Paid undergraduate research opportunities are available nationally and internationally. Students have the opportunity to work with faculty members in their labs in areas such as blasting, automation, mine ventilation, recycling and extracting rare-earth elements. Regardless of your interests, mining engineering provides numerous avenues for pursuing your passions.

The University of Kentucky's mining engineering program is accredited by the Engineering Accreditation Commission of ABET, [www.abet.org](http://www.abet.org).

**Revised August 2021.** Information subject to change. For the most up-to-date information on the UK College of Engineering, visit [www.engr.uky.edu](http://www.engr.uky.edu).