Mining Engineering

College of Engineering

Mining engineering requires a broad knowledge of sciences and other fields of engineering in its practice after graduation. The curriculum below meets the requirements for a Bachelor of Science in Mining Engineering, provided the student satisfies the graduation requirements of the College of Engineering.

Admission to the program is selective. Students should refer to the UK *Bulletin* for general information concerning admission and graduation requirements.

Freshman Year

First Semester	Hours
CHE 105 General College Chemistry I	3
CS 221 First Course in Computer Science for Engineers	2
ENG 101 Writing I	3
MA 113 Calculus I	4
MNG 101 Introduction to Mining Engineering	1
University Studies*	3

Second Semester	
CHE 107 General College Chemistry II	3
ENG 102 Writing II	3
MA 114 Calculus II	4
MNG 264 Mining Methods	3
PHY 231 General University Physics	4
PHY 241 General University Physics Laboratory	1

Sophomore Year

First Semester	Hours
ECO 201 Principles of Economics I	3
EM 221 Statics	3
MA 213 Calculus III	4
MNG 331 Explosives and Blasting	2
PHY 232 General University Physics	4
PHY 242 General University Physics Laboratory	1

Second Semester	
EM 302 Mechanics of Deformable Solids	3
MA 214 Calculus IV	3
ME 220 Engineering Thermodynamics I	3
MNG 211 Mine Surveying	2
MNG 291 Mineral Reserve Modeling	2
MNG 303 Deformable Solids Laboratory	1
MNG 332 Mine Plant Machinery	3

Junior Year

First Semester	Hours
COM 199 Presentational Communication Skills	1
EE 305 Electrical Circuits and Electronics	3
GLY 220 Principles of Physical Geology	4
ME 330 Fluid Mechanics	3
MNG 301 Minerals Processing	3
MNG 302 Minerals Processing Laboratory	1
MNG 371 Professional Development of Mining Engineers	3

Second Semester	
EM 313 Dynamics	3
GLY 230 Fundamentals of Geology I	3
MNG 335 Introduction to Mine Systems Analysis	3
MNG 463 Surface Mine Design and Environmental Issues	3
Minerals Processing Technical Elective***	3
University Studies*	3

Senior Year

First Semester	Hours
MNG 341 Mine Ventilation	3
MNG 431 Mines Systems Engineering and Valuation	4
MNG 551 Rock Mechanics	4
MNG 591 Mine Design Project I	1
University Studies*	3

Second Semester	
MNG 592 Mine Design Project II	3
Supportive Elective**	3
Technical Electives†	6
University Studies*	3

*To be selected from University Studies areas in Social Sciences (6 credits), Humanities (6 credits), and Cross-Cultural (3 credits) in consultation with the academic advisor. Of these totals, 3 credits of Social Sciences are fulfilled by ECO 201. A minimum of 15 credits in the humanities and social sciences are required.

**The supportive elective is to be chosen from any University course outside the student's major excluding more elementary versions of required courses such as precalculus mathematics.

***The Mineral Processing Technical Elective is to be chosen between MNG 575, Coal Preparation Design, and MNG 580, Mineral Processing Plant Design.

†Courses recommended as technical electives are listed below. These courses must be chosen with the approval of the student's advisor to ensure that the curriculum includes sufficient engineering design content.

Technical Electives: Of the two technical electives in the undergraduate program, students are required to select at least one from departmental courses. The remaining course, chosen with the approval of the student's advisor, can be used to fulfill specific educational goals.

MNG 511 Mine Power System Design
MNG 561 Mine Construction Engineering I
MNG 563 Simulation of Industrial Production Systems
MNG 572 Advanced Coal Preparation
MNG 575 Coal Preparation Design
MNG 581 Geostatistics
MNG 599 Topic in Mining Engineering
BAE 438G Fundamentals of Groundwater Hydrology
CE 441 Fluid Mechanics II
CE 471G Soil Mechanics
GLY 450G Sedimentary Geology
GLY 585 Hydrogeology
PLS 501 Reclamation of Disturbed Land