

# B.S. IN MINING ENGINEERING

## CATALOG YEAR 2019-2020

Below is the *advised sequence* of courses for this degree program and prerequisites as of 12/18/18.

The official degree requirements and prerequisites found in the University General Catalog and the prerequisites are subject to change.

COURSE NUMBER AND TITLE	UNITS	PREREQUISITES
<b>1<sup>ST</sup> SEMESTER</b>		
MATH 122A/B or MATH 125 Calculus I with Applications	5/3	Appropriate Math Placement
CHEM 151 General Chemistry I or CHEM 161/163	4	Appropriate Math Placement
ENGL 101 or ENGL 107 or 109H First-Year Composition	3	
ENGR 102A/B Introduction to Engineering or ENGR 102	3	ENGR102A: MATH 113 or 120R & CHEM 151; Concurrent enrollment or completion of MATH 122B or 125
Tier I General Education	3	
<b>2<sup>ND</sup> SEMESTER</b>		
MATH 129 Calculus II	3	MATH 122B or 125 with C or better
CHEM 152 General Chemistry II or CHEM 162/164 or MSE 110 Solid State Chemistry	4	For Both: CHEM 151 or 161/163
ENGL 102 or 108 First-Year Composition	3	ENGL 101 or 107
PHYS 141 Introductory Mechanics or PHYS 161H	4	MATH 122B or 125 or appropriate Math Placement Level
Tier I General Education	3	
<b>3<sup>RD</sup> SEMESTER</b>		
CE 214 Statics	3	PHYS 141 or 161H; MATH 129
GEOS 251 Physical Geology	4	
MATH 223 Vector Calculus	4	MATH 129 with C or better
MNE 205 Introduction to Mining Engineering	3	Recommend: MATH 120R or higher
MNE 296A Mineral Resource Engineering Topics	1	
MNE 297A Underground Mine Safety ( <b>offered the week prior to start of the fall semester</b> )	1	Recommend: MNE 205
Tier 1 General Education	3	
<b>4<sup>TH</sup> SEMESTER</b>		
CE 215 Mechanics of Solids	3	CE 214
MATH 254 Intro to Ordinary Differential Equations	3	MATH 129 or 223 with C or better
MNE 210 Mineralogy and Petrology for Engineers (Spring Only)	3	CHEM 151 or 161/163; CHEM 152 or 162/164
MNE 204 Introduction to Electric Circuits & Mine Power Systems	3	PHYS 141
Tier I General Education	3	

# MINE OPERATIONS TRACK

## COURSE NUMBER AND TITLE

## UNITS

**CURRENT PREREQUISITES FOR UPPER DIVISION COURSES CAN BE FOUND IN THE UA GENERAL CATALOG**

**ADVANCED STANDING IS REQUIRED FOR 3XX AND 4XX COURSES (SEE ADVISOR FOR REQUIREMENTS)**

### 5<sup>TH</sup> SEMESTER

CE 218 Mechanics of Fluids	3
MNE 422 Sustainable Resource Development	3
MNE 426 Health & Safety	1
MNE 427 Geomechanics	4
MNE 430 Mine Examination and Valuation	3
MNE 444 Geopositioning for Mining Applications	3

### 6<sup>TH</sup> SEMESTER

MNE 396A Technical Trends in Mineral Resource Engineering	1
MNE 419 Mine Planning Software ( <b>offered the week prior to start of the SPRING semester</b> )	1
MNE 436 Surface Mine Design	3
MNE 438 Underground Mine Design	2
MNE 476 Mine Ventilation	4
Technical Elective- See major advisor for approval	3

### 7<sup>TH</sup> SEMESTER

MNE 411 Mineral Processing	3
MNE 415 Rock Excavation	3
MNE 407 Equipment Operations Technology	3
MNE 498 Senior Capstone	1
GEOS 304 Structural Geology	4
**SIE 305 Introduction to Engineering Probability and Statistics or CE 310 Probability and Statistics in Civil Engineering	3

### 8<sup>TH</sup> SEMESTER

MNE 447 Underground Construction	3
MNE 498 Senior Design	2
Technical Elective- See major advisor for approval	2
Tier II General Education	3
Tier II General Education	3

\*Tier I and II General Education Courses must meet University general education requirements. One course must be recognized by the university as meeting the Diversity Requirement.

\*\*SIE 305 offered Fall & Spring, CE 310 offered Fall only

# GEOMECHANICS TRACK

## COURSE NUMBER AND TITLE

## UNITS

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**ADVANCED STANDING IS REQUIRED FOR 3XX AND 4XX COURSES (SEE ADVISOR FOR REQUIREMENTS)**

### 5<sup>TH</sup> SEMESTER

CE 218 Mechanics of Fluids	3
MNE 422 Sustainable Resource Development	3
MNE 426 Health & Safety	1
MNE 427 Geomechanics	4
MNE 430 Mine Examination and Valuation	3
MNE 444 Geopositioning for Mining Applications	3

### 6<sup>TH</sup> SEMESTER

MNE 396A Technical Trends in Mineral Resource Engineering	1
MNE 419 Mine Planning Software ( <b>offered the week prior to start of the SPRING semester</b> )	1
MNE 436 Surface Mine Design	3
MNE 438 Underground Mine Design	2
MNE 476 Mine Ventilation	4
Technical Elective – See major advisor for approval	4

### 7<sup>TH</sup> SEMESTER

MNE 407 Equipment Operations Technology	3
MNE 415 Rock Excavation	3
MNE 498 Senior Design	1
GEOS 304 Structural Geology	4
**SIE 305 Introduction to Engineering Probability and Statistics or CE 310 Probability and Statistics in Civil Engineering	3

### 8<sup>TH</sup> SEMESTER

MNE 447 Underground Construction	3
MNE 498 Senior Design	2
MNE 417 Tailings Storage Facility Design (Planning, Design & Analysis) or CE 343 Soil Mechanics	3
MNE 417 L Tailings Storage Facility Design Lab or CE 349 Soils Laboratory (Offered Spring '19 and Fall '19)	1
Tier II General Education	3
Tier II General Education	3

\*Tier I and II General Education Courses must meet University general education requirements. One course must be recognized by the university as meeting the Diversity Requirement.

\*\*SIE 305 offered Fall & Spring, CE 310 offered Fall only

# SUSTAINABLE RESOURCE DEVELOPMENT TRACK

## COURSE NUMBER AND TITLE

## UNITS

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**ADVANCED STANDING IS REQUIRED FOR 3XX AND 4XX COURSES (SEE ADVISOR FOR REQUIREMENTS)**

### 5<sup>TH</sup> SEMESTER

CE 218 Mechanics of Fluids	3
MNE 422 Sustainable Resource Development	3
MNE 426 Health & Safety	1
MNE 427 Geomechanics	4
MNE 430 Mine Examination and Valuation	3
MNE 444 Geopositioning for Mining Applications	3

### 6<sup>TH</sup> SEMESTER

MNE 396A Technical Trends in Mineral Resource Engineering	1
MNE 419 Mine Planning Software ( <b>offered the week prior to start of the SPRING semester</b> )	1
MNE 436 Surface Mine Design	3
MNE 438 Underground Mine Design	2
MNE 476 Mine Ventilation	4
Technical Elective – See major advisor for approval	2

### 7<sup>TH</sup> SEMESTER

MNE 411 Mineral Processing	3
MNE 407 Equipment Operations Technology	3
MNE 484 Industrial & Environmental Health	3
MNE 498 Senior Design	1
GEOS 304 Structural Geology	4
**SIE 305 Introduction to Engineering Probability and Statistics or CE 310 Probability and Statistics in Civil Engineering	3

### 8<sup>TH</sup> SEMESTER

MNE 498 Senior Design	2
Technical Elective- See major advisor for approval	6
Tier II General Education	3
Tier II General Education	3

\*Tier I and II General Education Courses must meet University general education requirements. One course must be recognized by the university as meeting the Diversity Requirement.

\*\*SIE 305 offered Fall & Spring, CE 310 offered Fall only

# MINERAL PROCESSING TRACK

## COURSE NUMBER AND TITLE

## UNITS

**CURRENT PREREQUISITES FOR UPPER DIVISION COURSES CAN BE FOUND IN THE UA GENERAL CATALOG**

**ADVANCED STANDING IS REQUIRED FOR 3XX AND 4XX COURSES (SEE ADVISOR FOR REQUIREMENTS)**

### 5<sup>TH</sup> SEMESTER

CE 218 Mechanics of Fluids	3
MNE 411 Mineral Processing	3
MNE 427 Geomechanics	4
MNE 426 Health & Safety	1
MNE 430 Mine Examination and Valuation	3
MNE 444 Geopositioning for Mining Applications	3

### 6<sup>TH</sup> SEMESTER

MNE 396A Technical Trends in Mineral Resource Engineering	1
MNE 419 Mine Planning Software ( <b>offered the week prior to start of the SPRING semester</b> )	1
MNE 436 Surface Mine Design	3
MNE 438 Underground Mine Design	2
MNE 476 Mine Ventilation	4
Technical Elective – See major advisor for approval	2

### 7<sup>TH</sup> SEMESTER

MNE 407 Equipment Operations Technology	3
MNE 422 Sustainable resource Development	3
MNE 465 Hydrometallurgy	3
MNE 498 Senior Design	1
GEOS 304 Structural Geology	4
**SIE 305 Introduction to Engineering Probability and Statistics or CE 310 Probability and Statistics in Civil Engineering	3

### 8<sup>TH</sup> SEMESTER

MNE 439 Chemistry of Flotation	3
MNE 450 Elements of Solution Mining	3
MNE 498 Senior Design	2
Tier II General Education	3
Tier II General Education	3

\*Tier I and II General Education Courses must meet University general education requirements. One course must be recognized by the university as meeting the Diversity Requirement.

\*\*SIE 305 offered Fall & Spring, CE 310 offered Fall only