

# B.S. in Mining Engineering

Four-Year Plan – 128 units

Catalog Year **2016-2017**

Below is the *advised sequence* of courses for this degree program

Course Number and Title	Units	Prerequisites
<b>1<sup>ST</sup> SEMESTER (FALL)</b>		<b>16 UNITS</b>
CHEM 151 General Chemistry I <b>or</b> CHEM 105A/106A	4	
ENGL 101 First-Year Composition	3	
ENGR 102 <b>or</b> ENGR 102A & B Introduction to Engineering	3	Concurrent enrollment or completion of MATH 122B or MATH 125
MATH 122A/B or MATH 125 Calculus I with Applications	5/3	Appropriate Math Placement
Tier I General Education (TRAD)	3	
<b>2<sup>ND</sup> SEMESTER (SPRING)</b>		<b>17 UNITS</b>
CHEM 152 General Chemistry II <b>or</b> MSE 110 <b>or</b> CHEM 105B/106B	4	CHEM 151 <b>or</b> CHEM 105A/106A
ENGL 102 First-Year Composition	3	ENGL 101
MATH 129 Calculus II	3	MATH 122B or 125 with C or better
PHYS 141 Introductory Mechanics	4	MATH 122B or MATH 125; Concurrent enrollment in MATH 129
Tier I General Education (INDV)	3	
<b>3<sup>RD</sup> SEMESTER (FALL)</b>		<b>19 UNITS</b>
CE 214 Statics	3	PHYS 141 <b>or</b> PHYS 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	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	
Tier 1 General Education (TRAD)	3	
<b>4<sup>TH</sup> SEMESTER (SPRING)</b>		<b>15 UNITS</b>
CE 215 Mechanics of Solids	3	CE 214
MATH 254 Intro to Ordinary Differential Equations	3	MATH 129 with C or better
MNE 210 Mineralogy and Petrology for Engineers	2	CHEM 151, CHEM 105A/106A
PHYS 241 Introductory Electricity and Magnetism	4	PHYS 141 <b>or</b> PHYS 161H
Tier I General Education (INDV)	3	

## Mine Operations Track

Advanced Standing is required for 3xx and 4xx courses (See advisor for requirements)

Course Number and Title	Units	Prerequisites
<b>5<sup>TH</sup> SEMESTER (FALL)</b>		<b>17 UNITS</b>
CE 218 Mechanics of Fluids	3	CE 214
MNE 422 Sustainable Resource Development	3	
MNE 426 Health & Safety	1	
MNE 427 Geomechanics	4	CE 215
MNE 430 Mine Examination and Valuation	3	MNE 205
MNE 444 Geopositioning for Mining Applications	3	
<b>6<sup>TH</sup> SEMESTER (SPRING)</b>		<b>16 UNITS</b>
MNE 204 Introduction to Electric Circuits & Mine Power Systems	1	PHYS 241 or PHYS 261
MNE 396A Technical Trends in Mineral Resource Engineering	1	
GEOS 304 Structural Geology	4	GEOS 251
MNE 419 Mine Planning Software (offered the week prior to start of the SPRING semester)	1	
MNE 436 Surface Mine Design	3	MNE 419
MNE 438 Underground Mine Design	2	MNE 419; MNE 427; MNE 430
MNE 476 Mine Ventilation	4	Co-requisite CE 218
<b>7<sup>TH</sup> SEMESTER (FALL)</b>		<b>15 UNITS</b>
MNE 411 Mineral Processing	3	CHEM 152
MNE 415 Rock Excavation	3	CE 215
MNE 407 Equipment Operations Technology	3	
MNE 498 Senior Capstone	1	MNE 436; MNE 438
Tier II General Education	3	
Technical Elective <span style="color: red;">Advisor approval needed</span>	2	
<b>8<sup>TH</sup> SEMESTER (SPRING)</b>		<b>13 UNITS</b>
MNE 402 Probability & Statistics	3	MATH 223.
MNE 447 Underground Construction	3	MNE 427
MNE 498 Senior Design	2	MNE 436; MNE 438
Technical Elective <span style="color: red;">Advisor approval needed</span>	2	
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.

## Geomechanics Track

Advanced Standing is required for 3xx and 4xx courses (See advisor for requirements)

Course Number and Title	Units	Prerequisites
<b>5<sup>TH</sup> SEMESTER (FALL)</b>		<b>17 UNITS</b>
CE 218 Mechanics of Fluids	3	CE 214
MNE 422 Sustainable Resource Development	3	
MNE 426 Health & Safety	1	
MNE 427 Geomechanics	4	CE 215
MNE 430 Mine Examination and Valuation	3	MNE 205
MNE 444 Geopositioning for Mining Applications	3	
<b>6<sup>TH</sup> SEMESTER (SPRING)</b>		<b>16 UNITS</b>
MNE 204 Introduction to Electric Circuits & Mine Power Systems	1	PHYS 241 or PHYS 261
MNE 396A Technical Trends in Mineral Resource Engineering	1	
GEOS 304 Structural Geology	4	GEOS 251
MNE 419 Mine Planning Software (offered the week prior to start of the SPRING semester)	1	
MNE 436 Surface Mine Design	3	MNE 419
MNE 438 Underground Mine Design	2	MNE 419; MNE 427; MNE 430
MNE 476 Mine Ventilation	4	Corequisite CE 218
<b>7<sup>TH</sup> SEMESTER (FALL)</b>		<b>14 UNITS</b>
CE 343 Geotechnical Engineering and Design	3	CE 215
CE 349 Soils Laboratory (offered Fall '16, '17, '19 & Spring '18, '19)	1	
MNE 407 Equipment Operations Technology	3	
MNE 415 Rock Excavation	3	CE 215
MNE 498 Senior Design	1	MNE 436; MNE 438
Tier II General Education	3	
<b>8<sup>TH</sup> SEMESTER (SPRING)</b>		<b>14 UNITS</b>
MNE 402 Probability & Statistics	3	MATH 223
MNE 447 Underground Construction	3	MNE 427
MNE 498 Senior Design	2	MNE 436; MNE 438
Technical Elective <span style="color: red;">Advisor approval needed</span>	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.

## Sustainable Resource Development Track

Advanced Standing is required for 3xx and 4xx courses (See advisor for requirements)

Course Number and Title	Units	Prerequisites
<b>5<sup>TH</sup> SEMESTER (FALL)</b>		<b>17 UNITS</b>
CE 218 Mechanics of Fluids	3	CE 214
MNE 422 Sustainable Resource Development	3	
MNE 426 Health & Safety	1	
MNE 427 Geomechanics	4	CE 215
MNE 430 Mine Examination and Valuation	3	MNE 205
MNE 444 Geopositioning for Mining Applications	3	
<b>6<sup>TH</sup> SEMESTER (SPRING)</b>		<b>16 UNITS</b>
MNE 204 Introduction to Electric Circuits & Mine Power Systems	1	PHYS 241 or PHYS 261
MNE 396A Technical Trends in Mineral Resource Engineering	1	
GEOS 304 Structural Geology	4	GEOS 251.
MNE 419 Mine Planning Software (offered the week prior to start of the SPRING semester)	1	
MNE 436 Surface Mine Design	3	MNE 419
MNE 438 Underground Mine Design	2	MNE 419; MNE 427; MNE 430
MNE 476 Mine Ventilation	4	Corequisite CE 218
<b>7<sup>TH</sup> SEMESTER (FALL)</b>		<b>15 UNITS</b>
MNE 411 Mineral Processing	3	CHEM 152
MNE 407 Equipment Operations Technology	3	
MNE 484 Industrial & Environmental Health	3	
MNE 498 Senior Design	1	MNE 436; MNE 438
Tier II General Education	3	
Technical Elective <span style="color: red;">Advisor approval needed</span>	2	
<b>8<sup>TH</sup> SEMESTER (SPRING)</b>		<b>13 UNITS</b>
MNE 402 Probability & Statistics	3	MATH 223
MNE 498 Senior Design	2	MNE 436; MNE 438
Technical Elective <span style="color: red;">Advisor approval needed</span>	5	
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.

## Mineral Processing Track

Advanced Standing is required for 3xx and 4xx courses (See advisor for requirements)

Course Number and Title	Units	Prerequisites
<b>5<sup>TH</sup> SEMESTER (FALL)</b>		<b>16 UNITS</b>
CE 218 Mechanics of Fluids	3	CE 214
MNE 411 Mineral Processing	3	CHEM 152
MNE 422 Sustainable Resource Development	3	
MNE 426 Health & Safety	1	
MNE 430 Mine Examination and Valuation	3	
MNE 444 Geopositioning for Mining Applications	3	
<b>6<sup>TH</sup> SEMESTER (SPRING)</b>		<b>16 UNITS</b>
MNE 204 Introduction to Electric Circuits & Mine Power Systems	1	PHYS 241 or PHYS 261
MNE 396A Technical Trends in Mineral Resource Engineering	1	
GEOS 304 Structural Geology	4	GEOS 251
MNE 419 Mine Planning Software (offered the week prior to start of the SPRING semester)	1	
MNE 436 Surface Mine Design	3	MNE 419
MNE 438 Underground Mine Design	2	MNE 419; MNE 427; MNE 430
MNE 476 Mine Ventilation	4	Corequisite CE 218
<b>7<sup>TH</sup> SEMESTER (FALL)</b>		<b>15 UNITS</b>
MNE 407 Equipment Operations Technology	3	
MNE 427 Geomechanics	4	CE 215
MNE 465 Hydrometallurgy	3	
MNE 498 Senior Design	1	MNE 436; MNE 438
Tier II General Education	3	
Tech Elective <span style="color: red;">Advisor approval needed</span>	1	
<b>8<sup>TH</sup> SEMESTER (SPRING)</b>		<b>14 UNITS</b>
MNE 402 Probability & Statistics	3	MATH 223
MNE 439 Chemistry of Flotation	3	MNE 411
MNE 450 Elements of Solution Mining	3	MNE 210 or CHEE 201 or MSE 222
MNE 498 Senior Design	2	MNE 436; MNE 438
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.