Geological Engineering Curriculum

Freshman Fall
___CHEM 112 General Chemistry I 3
___MATH 123 Calculus I 4
___ENGL 101 Composition I 3
___GE 120 Intro to Engineering 2
___Humanities or Soc Sciences Elective(s) 6
TOTAL 18

Freshman Spring
___CHEM 112L General Chem I Lab 1
___CHEM 114 General Chemistry II 3
___MATH 125 Calculus II 4
___PHYS 211 University Physics I 3
___GEOE 221 Geology for Engineers 3
___CEE 117 Computer Aided Design and Interpretation in Civil Engr. 2
TOTAL 16

Sophomore Fall
___EM 214 Statics 3
___MATH 225 Calculus III 4
___MEM 201 Mine Surveying 2
___PE Physical Education 1
___PHYS 213 University Physics II 3
___Humanities or Soc Sciences Elective(s) 3
TOTAL 16

Sophomore Spring
___ENGL 279 Technical Communications I 3
___EM 321 Mechanics of Materials 3
___GEOL 212 Mineralogy/Crystallography 3
___MATH 321 Differential Equations 4
___PE Physical Education 1
___Humanities or Soc Sciences Elective(s) 3
TOTAL 17

Junior Fall
___ENGL 289 Tech Communications II 3
___GEOL 331 Stratigraphy & Sedimentation 3
___GEOL 341 Elementary Petrology 3
___CEE 346 Geotechnical Engineering 3
___MET 320 Met Thermodynamics 4
TOTAL 16

Junior Spring
___GEOE 322 Structural Geology 3
___GEOE 324 Engineering Geophysics I 3
___EM 328 Applied Fluid Mechanics 3
___Approved Elective1 3
___MINE 302 Mineral Economics and Finance 3
___Humanities or Soc Sciences Elective(s) 1
TOTAL 16

Summer
___GEOE 410 Engineering Field Geology 6
TOTAL 6

Senior Fall
___GEOE 466 Engr and Envr Geology 3
___GEOE 475 Ground Water 3
___GEOE 461 Petroleum Production2 3
___GEOE 464 Geol Engr Design Project I 3
___GEOL 316 Intro to GIS 3
TOTAL 15

Senior Spring
___MINE 411 Rock Mechanics I 4
___Professional Electives3 6
___GEOE 465 Geol Engr Design Project II 3
___Humanities or Soc Sciences Elective(s) 3
TOTAL 16
136 credits required for graduation

Curriculum Notes
1 Approved Elective. Must be a course approved by the Department of Geology and Geological Engineering.
2 Students interested in mineral exploration may substitute GEOE 451 for GEOE 461.
3 Professional Electives. Students may choose two of the following courses:
GEOE 451 Economic Geology
GEOE 425 Engineering Geophysics II
GEOE 462 Drilling Engineering
GEOE 482 Applied Geomorphology
ENVE 326 Environmental Engineering Process Fundamentals
ENVE 421 Environmental Systems Analysis
CEE 337 Engineering Hydrology
CEE 347 Geotechnical Engineering II
CEE 437 Watershed and Floodplain Modeling
CEE 447 Foundation Engineering
CEE 474 Engineering Project Management
ME 351 Mechatronics and Measurement Systems (cross-listed with EE 351)
MEM 433 Computer Applications in Geoscience Modeling
MINE 440 Environmental and Reclamation Practices in the Mining Industry
MINE 450 Rock Slope Engineering
MINE 471 Theory and Application of Explosives

Additional course work in mathematics and statistics is encouraged. MATH 381 and MATH 382 are recommended statistics courses; MATH 432 is recommended for students interested in numerical modeling of partial differential equations.