GEOLOGICAL ENGINEERING (BSGE)

Description

The B.S. degree in geological engineering prepares students for productive careers as professional geological engineers engaged in continuous professional growth along their chosen career paths or prepares students for admission into graduate degree programs or professional schools.

Minimum Total Credit Hours: 132

Goals/Mission Statement

The educational goals of the Bachelor of Science in Geological Engineering program are an outgrowth of and consistent with The University of Mississippi Mission. While recognizing that the primary intent is to prepare graduates whose careers will serve the state of Mississippi, it is our objective to prepare graduates who will also serve the needs of the nation and the world in geological engineering and related fields. Past graduates of the program have found professional positions in a range of industries including

1. geotechnical,
2. geoenvironmental,
3. geospatial information science and technology,
4. graduate education, and
5. earth resources extraction.

Future graduates are expected to serve the same range of industries.

Geological Engineering Program Educational Objectives

The Geology & Geological Engineering Department at the University of Mississippi is dedicated to graduating geological engineers who within 3-5 years after graduation will be able to:

1. Practice geological engineering related to geotechnical, geoenvironmental, geospatial information science, or earth resources.
2. Pursue additional education, research and development, or other means of advancing their knowledge and mastery of subjects related to the discipline.
3. Conduct themselves in a responsible, professional and ethical manner.
4. Participate as leaders in activities that support service, stewardship, and economic development of the region, state and nation.

Student Outcomes

Students of the Bachelor of Science in Geological Engineering program will demonstrate achievement of the following student outcomes:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Degree Requirements

The academic regulations for this degree program, as entered in the University of Mississippi Catalog, are in effect for the current or selected academic year and semester. The University of Mississippi reserves the right to

1. change or withdraw courses;
2. change rules for registration, instruction, and graduation; and
3. change other regulations affecting the student body at any time.

General Education

Code	Title	Hours
Select one of the following First Year Writing I courses:		3
WRIT 1000	Introduction to College Writing	
WRIT 1010	First-Year Writing I	
HONR 1010	Freshman Honors I	
Select one of the following First Year Writing II courses:		3
WRIT 1020	First-Year Writing II	
LIBA 1020	First Year Seminar	
HONR 1020	Freshman Honors II	
Select three hours of fine arts from the following: [1]		3
Art History (ARTH)		
Music (MUSC)		
Dance (DANC)		
Theatre Arts (THEA)		
LIBA 1300	Introduction to the Fine Arts	
LIBA 2040	Interdisciplinary Arts	
LIBA 3140	Advanced Interdisciplinary Arts	
MUSC 1010	Introduction to Music Literature	
MUSC 1020	Fundamentals of Music Theory	
MUSC 1030	Introduction to Music	
MUSC 1040	Introduction to World Music Cultures	
MUSC 1050	Music Theory and Analysis I	
DANC 2000	Dance Appreciation	
THEA 2010	Appreciation of the Theatre	
THEA 2020	Introduction to Cinema	
Select six hours of humanities courses from the following:		6
AAST 2010	African American Experience I	
AAST 2020	African American Experience II	
Classics (CLSC)		

	English (ENGL 2220-2226)	
	ISOM 2010 Introduction to Gender Studies	
	ISOM 2020 Introduction to Queer Studies	
	History (HIST)	
	LIBA 2020 Interdisciplinary Humanities	
	LIBA 3050 Humanities and the Experience of War	
	LIBA 3120 Advanced Interdisciplinary Humanities	
	Philosophy (PHIL)	
	Religion (RELG)	
	Southern studies (SSTU 1000-level)	
	HONR 1010 Freshman Honors I [2]	
	HONR 1020 Freshman Honors II [2]	
Select three hours of social sciences courses from the following:		3
	Anthropology (ANTH)	
	Economics (ECON)	
	Political science (POLS)	
	Psychology (PSYC)	
	Sociology (SOCY)	
	LIBA 2030 Interdisciplinary Social Sciences	
	LIBA 3130 Advanced Interdisc Social Science	
	HONR 1010 Freshman Honors I	
	HONR 1020 Freshman Honors II	
ECON 3100	Engineering Economy	3
Total Hours		**21**

[1] Studio and workshop courses cannot be used to satisfy this requirement

[2] if not being used to fulfill composition requirements

General Education II

Code	Title	Hours
MATH 2611	Unified Calculus & Analytic Geometry I	3
MATH 2612	Unified Calculus & Analytic Geometry II	3
MATH 2613	Unified Calculus & Analytic Geometry III	3
MATH 2614	Unified Calculus & Analytic Geometry IV	3
MATH 3530	Elementary Differential Equations	3
CHEM 1050	General Chemistry I	3
CHEM 1060	General Chemistry II	3
CHEM 1051	General Chemistry Laboratory I	1
CHEM 1061	General Chemistry Laboratory II	1
PHYS 2110	Physics for Science & Engineering I	3
PHYS 2120	Physics for Science & Engineering II	3
PHYS 2111	Lab Physics for Science & Engineering I	1
PHYS 2121	Lab Physics for Science & Engineering II	1
Total Hours		**31**

Major Requirements

Code	Title	Hours
CSCI 1051	Programming for Engineering and Sciences	3
or CSCI 1056	Programming in Python	
ENGR 1010 & ENGR 1110	Engineering Fundamentals and Engineering Fundamentals Lab	3
ENGR 3090	Statics	3
ENGR 3100	Engineering Analysis I	3
ENGR 3120	Mechanics of Materials	3
ENGR 3210	Thermodynamics	3
ENGR 3230	Fluid Mechanics	3
ENGR 3400	Engineering Geology	4
GEOL 1030	Earth Dynamics	4
GEOL 1060	Earth History	2
GEOL 2250	Mineralogy & Elementary Petrology	5
GEOL 3140	Sedimentology and Stratigraphy	4
GEOL 3030	Structural and Tectonic Geology	4
GEOL 3050	Geomorphology	3
GEOE 3010	Geological Eng. Design Field Camp 1	3
GEOE 3050	Geomechanics	3
GEOE 4010	Geological Eng. Design Field Camp 2	3
GEOE 4050	Engineering Geophysics	3
GEOE 4200	Subsurface Site Characterization	4
GEOE 4210	Geological Engineering Design	4
GEOE 4500	Hydrogeology	4
GEOE 4700	Intro. to Geographic Information System	3
Select one of the following:		3
CIVE 3031	Soil Mechanics I	
CIVE 4072	Water Resources Engineering	
ENGR 3600	Electric Circuit Theory	
Select one geological engineering technical elective of the following:		3
GEOE 4150	Petroleum Geology	
GEOE 5030	Environmental Geochemistry	
GEOE 5270	Geophysics I	
GEOE 5100	Remote Sensing	
GEOE 5110	Spatial Analysis	
GEOE 5130	Economic Geology	
CIVE 3070	Environmental Engineering I	
CIVE 3025	Intermediate Dynamics	
ENGR 3130	Introduction to Materials Science	
	or an additional course from the Engineering Science Elective list. Please see department for advice.	
Total Hours		**80**

School of Engineering GPA

Must be at least a 2.0