

ENGINEERING

Department of ENGINEERING

Mission Statement

The engineering program prepares graduates to be engineering leaders who are able to coordinate multidisciplinary teams to research, design, and implement solutions with consideration of standard procedures, ethical practices, contemporary technologies, and the impact on creation for God-honoring service to the profession, community, and world.

Engineering Major Bachelor of Science

Students in the Engineering major learn to apply fundamental knowledge of mathematics, science, and engineering to the creative development of solutions to complex technical problems. The core curriculum provides students with an understanding of ideas that have shaped human thinking in engineering and the humanities, arts, and sciences. This broad perspective gives students the context to comprehend the intentions of God’s plan for human activity and realize the environmental, economic, ethical, sustainability, social, and safety impact of their engineering designs on creation and mankind. Graduates are well prepared to pursue employment in industry and to pursue graduate studies in engineering and related fields. The degree is granted upon completion of credits specified on pages 48–49 (40 credits must be successfully completed in 3000- or 4000-level courses).

- **Scientific & Quantitative Literacy** courses in core curriculum: mathematics course MAT2122; natural science course PHY1201.
- Engineering students must have a laptop computer capable of running applications in Windows (see department-specific recommendations on theROCK).

Engineering Core	46 cr
CHE1021 Principles of Chemistry I	4
MAT2122 Calculus and Analytic Geometry II	
<small>(SEE SCIENTIFIC & QUANTITATIVE LITERACY REQUIREMENT ABOVE)</small>	
MAT3223 Calculus and Analytic Geometry III	4
MAT3252 Calculus-based Statistics	4
MAT3335 Differential Equations with Applied Linear Algebra	4
PHY1201 Engineering Physics I	
<small>(SEE SCIENTIFIC & QUANTITATIVE LITERACY REQUIREMENT ABOVE)</small>	
PHY1202 Engineering Physics II	4
EGR1005 Introduction to Engineering	4
EGR2105 Statics and Dynamics	4
EGR2206 MATLAB	2
EGR2207 Thermodynamics	4
EGR3115 Materials Science	4
EGR4311 Engineering Design I [WCE]	4
EGR4312 Engineering Design II [OCE]	4

Concentration 34 cr
Select a concentration. Requirements are listed below.

Civil Engineering Concentration (34 cr)	
EGR2205 Mechanics of Materials	4
EGR2145L Surveying Fundamentals	2
EGR3225 Fluid Mechanics	4
EGR3245 Structural Analysis	4
EGR3246L Materials Laboratory for Civil Engineering	2
EGR3347 Geotechnical Engineering	4
EGR3348L Soils and Concrete Laboratory	2
SCI1010 Environmental Science	4
SCI1010L Environmental Science Laboratory	0
Technical Electives	.8
Select from EGR-prefix courses at the 3000 or 4000 level. Students may not receive credit toward the major for both EGR3246L and EGR3326L. A maximum combined 4 credits allowed from EGR4841 and EGR4995.	

Electrical Engineering Concentration (34 cr)	
COS2201 C Programming	2
EGR2107 Introduction to Electronics and Electrical Circuits	3
EGR2107L Electronics and Electrical Circuits Laboratory	1
EGR3215 Control Systems	4
EGR3235 Electronic Devices	4
EGR3236L Digital Electronics Laboratory	2
EGR3237L Electromagnetic Laboratory	2
EGR3337 Signals & Systems	4
EGR3338L Communication Systems Laboratory	2
MAT3226 Applications in Digital Logic	2
Technical Electives	.8
Select from EGR-prefix courses at the 3000 or 4000 level. Students may not receive credit toward the major for both EGR3246L and EGR3326L. A maximum combined 4 credits allowed from EGR4841 and EGR4995.	

Mechanical Engineering Concentration (34 cr)

EGR2107	Introduction to Electronics and Electrical Circuits	.3
EGR2107L	Electronics and Electrical Circuits Laboratory	. . . .1
EGR2125L	Design and Manufacturing Laboratory	. . . . .2
EGR2205	Mechanics of Materials	. . . . .4
EGR3215	Control Systems	. . . . .4
EGR3225	Fluid Mechanics	. . . . .4
EGR3326L	Materials Laboratory for Mechanical Engineering	. .2
EGR3327	Heat and Mass Transfer	. . . . .4
EGR3328L	Thermal-Fluids Laboratory	. . . . .2
Technical Electives		.8

Select from EGR-prefix courses at the 3000 or 4000 level or EGR4339. Students may not receive credit toward the major for both EGR3246L and EGR3326L. A maximum combined 4 credits allowed from EGR4841 and EGR4995.

General Engineering Concentration (34 cr)

EGR2107	Introduction to Electronics and Electrical Circuits	.3
EGR2107L	Electronics and Electrical Circuits Laboratory	. . . .1
EGR2205	Mechanics of Materials	. . . . .4
EGR3215	Control Systems	. . . . .4

Select one of the following:

COS2201	C Programming	. . . . .2
EGR2125L	Design and Manufacturing Laboratory	. . . . .2
EGR2145L	Surveying Fundamentals	. . . . .2

Technical Electives20

Select from EGR-prefix courses at the 3000 or 4000 level or EGR4339. Students may not receive credit toward the major for both EGR3246L and EGR3326L. A maximum combined 4 credits allowed from EGR4841 and EGR4995.