













BS IN ENGINEERING SCIENCE CURRICULUM








	Math & Science Courses		Engineering Core
	LUC Core		Engineering Systems
	Engineering Design		Specialty Engineering Courses

FRESHMAN YEAR

FALL - 16 credit hours







	ENGR 101 Introduction to Engineering Design (4)
	MATH 161 Calculus I (4)
	BIOL 101 General Biology I
	BIOL 111 General Biology Lab (1)
	PHYS 111K College Physics I
	UNIV 101 First Year Seminar (1)

SPRING - 18 credit hours







	COMP 170 Object-Oriented Programming
	MATH 162 Calculus II (4)
	PHYS 112K College Physics II
	PHYS 126L College Physics Lab (1)
	UCWR 110 Writing Responsibility
	LUC Core
	ENGR 102 Freshman Seminar (1)

JUNIOR YEAR

FALL - 15 credit hours






	ENGR 312 Engineering Systems II
	ENGR 322 Chemical & Thermal Processes
	ENGR 323 Digital Electronics/Computer Engineering (2)
	ENGR 324 Mechanics
	ENGR 324L Core Engineering Lab (1)
	LUC Core

SPRING - 16 credit hours






	ENGR 313 Engineering Systems III
	ENGR 325 Materials Engineering
	ENGR 3xx Specialty Engineering I
	ENGR 3xxL Specialty Engineering I Lab (1)
	STAT 203 Statistics
	LUC Core

SOPHOMORE YEAR

FALL - 14 credit hours






	ENGR 201 Experiential Engineering
	MATH 263 Multivariate Calculus (4)
	CHEM 171 General Chemistry for ENGR
	CHEM 173 General Chemistry Lab for ENGR (1)
	LUC Core

SPRING - 14 credit hours





	ENGR 311 Engineering Systems I
	ENGR 321 Electronic Circuits & Devices (2)
	MATH 266 Differential Equations and Linear Algebra
	LUC Core
	LUC Core

SENIOR YEAR

FALL - 16 credit hours

	ENGR 38x Specialty Capstone Design I (4)
	ENGR 3xx Specialty Engineering II
	LUC Core
	LUC Core
	LUC Core

SPRING - 12 credit hours

	ENGR 39x Specialty Capstone Design II
	ENGR 3xx Specialty Engineering III
	LUC Core
	LUC Core

HANDS-ON LEARNING IN ENGINEERING SCIENCE



A Distinctive Program

- Industry leaders provide input to specialty courses, ensuring that students have relevant skills for summer internships.
- The curriculum focuses on system theory and engineering design—both are key areas that will set students apart when they graduate.
- Industry experts visit campus to meet with students and offer their insight. Brian Fitzpatrick, who started Google Chicago's engineering office, was a recent presenter.
- Full lectures have been eliminated from the curriculum to increase student engagement and learning.

Problem-Based Learning

Definition: Problem-based learning is an instructional method where relevant problems are introduced at the beginning of the instruction cycle and used to provide the context and motivation for the learning that follows.

Learning Outcomes: Improved performance and long-term retention (Strobel & vanBarneveld, *Interdisciplinary Journal of Problem-based Learning*, 2009, 3:44-58)

Curriculum Use: Freshman and Capstone design projects: ENGR 101, ENGR 38x, ENGR 39x

First Year Engineering Design

Definition: A freshman course that includes collaborative and team-based learning, experiential projects, and open-ended design.

Learning Outcomes: Engineering experiences shape confidence (Hutchison-Green, Follman, and Bodner, *Journal of Engineering Education*, 2008, 97:177-190). Increased retention (Fortenberry, et al., *Science*, 2007, 317:1175-76).

Curriculum Use: ENGR 101 Introduction to Engineering Design

