Bachelor of Science in Electrical Engineering

Student Planning Guide: Fall 2013 – Study Abroad

	Fall	Winter	Spring
Freshman	MATH 11 Calculus I	MATH 12 Calculus II	MATH 13 Calculus
	CHEM 11 Chemistry I	PHYS 31 Physics for Engineers I	PHYS 32 Physics for Engineers II
	Culture and Ideas I	Culture and Ideas II	ELEN 20 Energy and Nanotechnology
	Critical Thinking and Writing I	ELEN 21 – Intro to Logic Design	Critical Thinking and Writing II
	ENGR 1 Intro to Engr (2 units)		
	Fall	**Winter**	**Spring**
Sophomore	ELEN 50 Circuits I	ELEN 100 Circuits II	ELEN 110 Linear Systems
	COEN 44 Applied Programming	ELEN 33 Dig. Syst. Architecture	ELEN 115 Electronic Circuits
	MATH 14 Calculus IV	AMTH 106 Differential Equations	COEN 12 Data Structures
	PHYS 33 Physics for Engineers III	PHYS 34 Physics for Engineers IV	University Core
	Fall	**Winter**	**Spring**
Junior	**Study Abroad** Satisfies Professional Development (Note 3)	Math/Science Elective (Note 1)	AMTH 108 Probability and Statistics
		MECH 121 Thermodynamics	Technical Elective 2
		Technical Elective 1	Technical Elective 3
		University Core	University Core
			ELEN 192 Intro to Sr. Design (2 units)
	Fall	**Winter**	**Spring**
Senior	ELEN 194 Design Project I (2 units)	ELEN 195 Design Project II (2 units)	ELEN 196 Design Project III (2 units)
	ELEN 104 Electromagnetics	ELEN Advanced Core (Note 2)	Elective
	CENG 41 Mechanics I	Elective	Elective
	University Core	University Core	University Core
	ENGL 181 Eng. Comm. (2 units)	ENGL 182A Eng. Comm. (1 unit)	ENGL 182B Eng. Comm. (1 unit)

Humanities & Social Science | Math & Science | Major | Technical Elective | Study Abroad

Note 1: Science Elective may be CHEM 12, BIOL 21, PHYS 113, PHYS 121, MATH 105, or MATH 123

Note 2: ELEN Advanced Core course may be ELEN 116, 130, 133, 141, 151, or 153

Note 3: Professional development is satisfied by one of the following: COOP Study Abroad, ENGR 110, minor in Engineering or Science, Combined BS/MS program, 5th technical elective

Note 4: If a COOP experience is selected for spring, courses other than 192 may be moved to senior year elective slots

Program Overview:

University Core†* (13 courses)

- Critical Thinking and Writing (2)
- Culture and Ideas (3)
- Religion, Theology and Culture (3)
- Ethics (1)
- Diversity (1)
- Advanced Writing (3)

** Additional courses may be needed for Core Pathway and Experiential Learning requirements*

† Some courses may satisfy two core requirements.

Electrical Engineering Program

- **Required courses in science, engineering and ELEN core are shown on the four year plan**
- **Technical Electives**

Select three technical electives from the following options:

- Upper-division electrical engineering elective courses
- COEN 120, 122, 146
- First-year graduate level electrical engineering coursework approved by the advisor

(2-unit graduate courses count as one-half of an undergraduate course)

- **Elective Emphasis Areas:**

- Communications, Wireless
- Digital and Embedded Systems
- Robotics, Mechatronics, Control
- Energy Systems
- Digital Signal Processing
- Nanostructures, Semiconductors
- Analog, Power Electronics
- Digital Electronics
- General Electrical Engineering

At least one course must be selected from each of the three categories:

Design Team Emphasis (D)	**Advanced Mathematics Emphasis (M)**	**Computer-Aided Design Emphasis (C)**
116 Electronic Circuits II	105 Electromagnetics II	112 Modern Network Synthesis and Design
117 Electronic Circuits III	112 Modern Network Synthesis and Design	116 Electronic Circuits II
123 Mechatronics	118 Fund. of Computer Aided Circuit Simulation	117 Electronic Circuits III
127 Advanced Logic Design	130 Control Systems	118 Fund. of Computer Aided Circuit Simulation
144 RF and Microwave Components	131 Introduction to Robotics	123 Mechatronics
152 Semiconductor Devices and Technology	133 Digital Signal Processing	127 Advanced Logic Design
153 Digital Integrated Circuit Design	134 Applications of Signal Processing	131 Introduction to Robotics
156 Introduction to Nanotechnology	141 Communication Systems	133 Digital Signal Processing
161 Bioinstrumentation	144 RF and Microwave Components	141 Communication Systems
162 BioSignals and Processing	156 Introduction to Nanotechnology	153 Digital Integrated Circuit Design
164 Introduction to Power Electronics	160 Chaos Theory, Metamathematics and the Limits of Knowledge: A Scientific Perpective on Religion	164 Introduction to Power Electronics
182 Energy Systems Design		180 Introduction to Information Storage
184 Power Systems Analysis		

- ***Professional Development***

Select one of the following options:

- Four or more units in a study abroad program that does not duplicate other coursework
- Cooperative education experience with enrollment in ELEN 188 and ELEN 189
- Two units in ENGR 110 (Engineering Projects for the Community)
- Preparation for graduate study in electrical engineering with completion of four or more additional units of upper-division or graduate-level courses
- Completion of an approved minor or second major in any field of engineering or science
- Peer education experience

- ***Electives (as needed)***

To meet requirements for minimum units, university core, minor, graduate courses, or for personal interest