

# B.S. ELECTRICAL ENGINEERING

## Plan of Study

Year 1	<b>Fall</b>		<b>Spring</b>	
	FYEX Foundation for College Success			
	ENGR 100 (FYE) Introduction to Engineering Design			
	ENGR 175 Introduction to Electrical & Computer Engineering		PHYS 211 Classical Physics I	
	MATH 113 Calculus I		MATH 114 Calculus II	
	CORE requirement		↔ CISC 130 Introduction to Programming & Problem Solving in the Sciences	
	CORE requirement		CORE requirement	
	<b>January-term</b>		<b>Summer</b>	
CORE requirement		↔		
Year 2	<b>Fall</b>		<b>Spring</b>	
	ENGR 230 Digital Design (Lab)		ENGR 240 Circuit Analysis (Lab)	
	MATH 200 Multi-Variable Calculus		↔ MATH 210 Introduction to Differential Equations & Systems	
	PHYS 212 Classical Physics II		PHYS 225 Application of Modern Physics (Lab)	
	CORE requirement		CORE requirement	
	<b>January-term</b>		<b>Summer</b>	
	CORE requirement		↔	
Year 3	<b>Fall</b>		<b>Spring</b>	
	ENGR 340 Signals & Systems		ENGR 410 Control Systems & Automation (Lab)	
	ENGR 345 Electronics I (Lab)		ENGR 346 Electronics II	
	ENGR 331 Applications of Microprocessors (Lab)		↔ ENGR XXX Engineering Elective 1	
	CORE requirement		CORE requirement	
	<b>January-term</b>		<b>Summer</b>	
Year 4	<b>Fall</b>		<b>Spring</b>	
	ENGR 480 Engineering Design Clinic I		ENGR 481 Engineering Design Clinic II	
	PHYS 341 Electricity & Magnetism		ENGR 342 Electromagnetic Fields & Waves	
	ENGR XXX Engineering Elective 2		ENGR XXX Engineering Elective 3	
	CORE requirement		CORE requirement	
	<b>January-term</b>		<b>Summer</b>	

\* arrow indicates that the two courses can be interchanged

\* this illustrates just one example of how all courses could be taken within a 4-year plan

## **Complete Course Listing:**

### **Engineering Courses:**

ENGR 100 – Introduction to Engineering Design (2 credits)  
ENGR 175 – Introduction to Electrical & Computer Engineering (2 credits)  
ENGR 230 – Digital Design (4 credits)  
ENGR 240 – Circuit Analysis (4 credits)  
ENGR 331 – Applications of Microprocessors (4 credits)  
ENGR 340 – Signals & Systems (4 credits)  
ENGR 342 – Electromagnetic Fields & Waves (4 credits)  
ENGR 345 – Electronics I (4 credits)  
ENGR 346 – Electronics II (4 credits)  
ENGR 410 – Control Systems and Automation (4 credits)  
ENGR 480 – Engineering Design Clinic I (4 credits)  
ENGR 481 – Engineering Design Clinic II (4 credits)  
ENGR Electives –THREE technical elective courses as approved by the program.

**Two of the elective courses must be from ONE track.**

### **Power Track:**

ETLS 744 Power Systems and Smart Grids [required in track] (3 credits)  
ETLS 746 Power Electronics (3 credits)  
ETLS 747 Electrical Machines and Vehicles (3 credits)  
ETLS 748 Renewable Energy and the Future (3 credits)  
ETLS 750 Smart Distribution Systems (3 credits)

### **Signal Processing & Communications Track:**

ETLS 620 Analog Communications (3 credits)  
ETLS 621 Digital Communications (3 credits)  
ETLS 675 Digital Signal Processing (3 credits)  
ETLS 676 Real Time DSP (3 credits)  
ETLS 810 Advanced Control Systems (3 credits)

### **Embedded Systems Track:**

ENGR 330 Microprocessor Architectures (4 credits)  
ENGR 431 Embedded Systems (4 credits)  
ENGR 432 Current Trends in Computing Systems (4 credits)

### **Physics Track:**

PHYS 215 Modern Physics (4 credits)  
PHYS 347 Optics (4 credits)  
OR four credits of physics electives as approved by the chair  
56 Engineering Credits

### **Allied Requirements:**

MATH 113 – Calculus I (4 credits)  
MATH 114 – Calculus II (4 credits)  
MATH 200 – Multi-Variable Calculus (4 credits)  
MATH 210 – Introduction to Differential Equations and Systems (4 credits)  
PHYS 211 – Classical Physics I (4 credits)  
PHYS 212 – Classical Physics II (4 credits)  
PHYS 225 – Applications of Modern Physics (4 credits)  
PHYS 341 – Electricity & Magnetism (4 credits)  
CISC 130 – Introduction to Programming and Problem Solving in the Sciences (4 credits)  
40 Allied Requirement Credits

### **University of St. Thomas Core Curriculum:**

FYEX Foundation for College Success (1 credit)  
Language and Culture (0-8 credits)  
Literature and Writing (4 credits)  
Philosophy and Theology (12 credits)  
Social Analysis (4 credits)  
Fine Arts (4 credits)  
Historical Studies (4 credits)  
Integrations in the Humanities (8 credits)  
*Some of these courses must satisfy the flagged requirements; check your degree evaluation*  
45 Core Curriculum Credits

