# B.S. Electrical Engineering (Entrepreneurship Minor)
## Plan of Study

* arrow indicates that the two courses can be interchanged

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<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Spring</th>
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<tbody>
<tr>
<td>1</td>
<td>FYEX Foundation for College Success</td>
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<tr>
<td></td>
<td>ENGR 100 (FYE) Introduction to Engineering Design</td>
<td>PHYS 211 Classical Physics I</td>
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<td>ENGR 175 Introduction to Electrical &amp; Computer Engineering</td>
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<td></td>
<td>MATH 113 Calculus I</td>
<td>MATH 114 Calculus II</td>
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<td>CORE requirement</td>
<td>CISC 130 Introduction to Programming &amp; Problem Solving in the Sciences</td>
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<td>CORE requirement</td>
<td>ENTR 220 Entrepreneurial Thinking</td>
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January-term

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<tr>
<td>2</td>
<td>ENGR 230 Digital Design (Lab)</td>
<td>ENGR 240 Circuit Analysis (Lab)</td>
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<td>MATH 200 Multi-Variable Calculus</td>
<td>MATH 210 Introduction to Differential Equations &amp; Systems</td>
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<td>PHYS 212 Classical Physics II</td>
<td>PHYS 225 Application of Modern Physics (Lab)</td>
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<td>CORE requirement</td>
<td>ENTR 250 Fundamentals of Innovation</td>
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<tr>
<td>3</td>
<td>ENGR 340 Signals &amp; Systems</td>
<td>ENGR 410 Control Systems &amp; Automation (Lab)</td>
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<td>ENGR 345 Electronics I (Lab)</td>
<td>ENGR 346 Electronics II</td>
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<td>ENGR 331 Applications of Microprocessors (Lab)</td>
<td>ENGR XXX Engineering Elective 1</td>
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<td>ENTR XXX Entrepreneurship Elective</td>
<td>ENTR 330 Environmental Sustainability &amp; Innovation</td>
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<tr>
<td>4</td>
<td>ENGR 480 Engineering Design Clinic I</td>
<td>ENGR 481 Engineering Design Clinic II</td>
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<td>PHYS 341 Electricity &amp; Magnetism</td>
<td>ENGR 342 Electromagnetic Fields &amp; Waves</td>
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<td>ENGR XXX Engineering Elective 2</td>
<td>ENGR XXX Engineering Elective 3</td>
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<tr>
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<td>ENTR XXX Entrepreneurship Elective</td>
<td>CORE requirement</td>
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January-term

* 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

Entrepreneurship Minor Requirements:
- ENTR 220 Entrepreneurial Thinking (4 credits)
- ENTR 250 Fundamentals of Innovation (4 credits)

*ENTR 330 Entrepreneurship Sustainability (4 credits) – also counts as engineering elective

Choose two elective courses:
- ENTR 340 Social Entrepreneurship (4 credits)
- ENTR 348 Franchise Management (4 credits)
- ENTR 349 Family Business Ownership (4 credits)
- ENTR 360 Creativity & Change (4 credits)
- ENTR 370 Entrepreneurial Financial Resource Management (4 credits)
- ENTR 371 Silicon Valley & Entrepreneurial Thinking (4 credits)
- ENTR 380 Entrepreneurship in Practice (4 credits)
- ENTR 490 Topics (4 credits)

Or choose one elective course and one from the list below:
- MUSC 363 Emerging Models in Music Industry (4 credits)
- MUSC 480 Music Business Seminar (4 credits)
- SOWK 430 Development & Fundraising for Social Service Agencies (4 credits)

Any 300-level Opus College of Business course, with approval from Entrepreneurship department chair

*Courses with asterisk are requirements for both the Electrical Engineering degree and the Entrepreneurship minor

20 Entrepreneurship Minor Credits (4 credits included in the electrical engineering major requirements)

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