BS Degrees in ESE

**Requirements for General Engineering**

**Year 1**
- **Fall**
  - CSE 131 Computer Science I (3 Credits)
  - ESE 105 Intro to Electrical and Systems Engineering (3 Credits)
- **Spring**
  - ESE 205 Intro to Engineering Design (3 Credits)
  - ESE 217 Diff. Eqs. and Dynamical Sys. (3 Credits)
  - Math 132 Calculus II (3 Credits)
  - Phys 191 Physics I (4 Credits)
  - Chem 111A General Chemistry Laboratory I (2 Credits)
  - ESE 2180 Linear Alg. and Comp. Ansys. (3 Credits)

**Year 2**
- **Fall**
  - ESE 230 Intro to Electric & Electronic Circuits (4 Credits)
  - ESE 2190 Vector Calc. and Dynamics (3 Credits)
  - Math 233 Calculus III (3 Credits)
  - Phys 192 Physics II (4 Credits)
  - Chem 151 General Chemistry Laboratory II (3 Credits)
  - ESE 260 Intro to Digital Logic (3 Credits)
- **Spring**
  - ESE 326 Probability and Statistics (3 Credits)
  - Math 135 Calculus III (3 Credits)
  - Phys 193 Physics II (4 Credits)
  - Chem 152 General Chemistry Laboratory II (3 Credits)
  - ESE 232 Intro to Electronic Circuits (3 Credits)

**Elective Areas**
- Devices and Circuits
- Optics and Photonics
- Quantum Engineering
- Imaging and Signal Processing
- Control, CPS and IoT
- Dynamics and Data
- Optimization and Theory of Learning

**General Requirements**
- EE and SSE
- EE Requirements
- SSE Requirements

**EE and SSE Requirements**
- EE Capstone Design (3 Credits)
- EE 4480 or 4481 Control Laboratory Systems (3 Credits)
- ESE 499 Systems Capstone Design (3 Credits)
- ESE 330 Engineering Electromagnetics Principles (3 Credits)
- ESE 441 Control Systems (3 Credits)
- ESE 4031 or 415 Optimization (3 Credits)

**Elective Topics**
- 45 units
- 120 Units Total