# Concentrations

## Power / Energy
- EEL 4213: Power Systems I
- EEL 4213L: Energy Conversion Laboratory
- EEL 4214: Power II
- EEL 4215: Power III
- EEL 4241: Power Electronics
- EEL 5285C: Sustainable and Renewable Energy Source and Their Utilization

## Autonomous Systems, Control & Robotics
- EEL 3657: Control Systems I
- EEL 3664: Intro to Autonomous Systems
- EEL 4211: Control Systems II
- EEL 4611L: Systems Lab
- EEL 4658: Industrial Control Systems
- EEL 4664: Sensors, Perception & Robotic Manipulation
- EGN 3311: Statics
- EGN 3321: Dynamics

## Integrated Nano-Technology
- EEE 3303: Electronics I *(CpE Only)*
- EEE 3303L: Electronics I Lab *(CpE Only)*
- EEE 3396: Intro to Solid State Devices
- EEE 4304: Electronics II
- EEE 4304L: Electronics II Lab
- EEE 4314: Integrated Circuits & Systems
- EEE 4314L: Integrated Circuits Lab
- EEE 4421C: Intro to Nanofabrication

## Communications
- EEL 3514: Communication Systems
- EEL 3514L: Communication Systems Lab
- EEL 4421: Intro to RF Circuit Design
- EEL 4461C: Antennas
- EEE 4510: Intro to DSP
- EEE 4515: Advanced Comm. Systems
- EEL 4595C: Intro to Wireless Comm. w/ USRP App.

## Bio-Engineering
- EEE 3303: Electronics I *(CpE Only)*
- EEE 3303L: Electronics I Lab *(CpE Only)*
- EEL 4140: Filter Design
- EEE 4421C: Intro to Nanofabrication
- BME 4503C: Medical Instrumentation: App & Design
- EEE 4510: Intro to Digital Signal Processing

## Computer Architecture & Microprocessor Design
- EEE 4343: Intro to Digital Electronics
- EEL 4709C: Computer Design *(EE Only)*
- EEL 4746: Microprocessors I
- EEL 4746L: Microprocessors I Lab
- EEL 4747: Microprocessors II *(RISC)*
- EEL 4747L: Microprocessors II *(RISC)* Lab

## Other
- EEL 4015: Electrical Design in Buildings

### Embedded System Software
- EEL 3370: C++ Prog. for Embed. Systems *(EE Only)*
- EEL 4730: Program. Embedded Systems *(EE Only)*
- EEL 4734: Embedded Operating Systems
- EEL 4740: Embedded Computing *(EE Only)*
- EEL 4831: Embedded GUI Programming

### Networking & Security
- TCN 4081: Telecommunication Network Security
- TCN 4211: Telecommunication Networks
- TCN 4212: Telecomm. Network Analysis & Des. and Control Standards
- EEE 4717: Intro to Security of IoT

### Cybersecurity
- EEL 4802: Intro to Digital Forensics Engineering
- EEL 4804: Intro Malware Reverse Engineering
- EEL 4806: Ethical Hacking & Countermeasures
- EEL 4808: Intro to Mobile Forensics

### Digital Forensics
- EEL 4802: Intro to Digital Forensics Engineering
- EEL 4804: Intro Malware Reverse Engineering
- EEL 4806: Ethical Hacking & Countermeasures
- EEE 4750: Intro to Image & Video Forensics
- EEE 4752: Intro to Network Forensics & Incident Resp.
- EEE 4754: Intro to Mobile Forensics

### Artificial Intelligence and Big Data
- CNT 3143: IoT & Analytics w/ Cloud Services
- CNT 4145: Sensor IoT Analytics
- CNT 4147: IoT & Sensor Big Data Analytics
- CNT 4149: Sensor & IoT Data Ana. w/ Deep Learning
- CNT 4151: IoT & Sensor Data Visualization
- CNT 4153: IoT Applied Machine Learning
- CNT 4155: IoT & Sensor Programming w/ Python

### Internet of Things
- COP 4610: Operating Systems Principles
- COP 4655: Mobile Application Development
- EEE 4510: Intro to Digital Signal Processing
- EEE 4717: Intro to Security of IoT
- EEL 4740: Embedded Computing *(EE Only)*
- TCN 4211: Telecommunication Networks

### Data System Software
- COT 3100: Discrete Structures *(EE Only)*
  - *(Alternative: MAD 2104 – Discrete Math *(EE Only)*)
- COP 2210: Programming I
- COP 3337: Programming II
- COP 3530: Data Structures
- COP 4338: Systems Programming
- COP 4610: Operating Systems Principles
- COP 4655: Mobile Application Development

### Entrepreneurship
- EEL 4933: Engineering Entrepreneurship
- EEL 4062: Engineering Business Plan Development
- EEL 4063: Economic Decision-making in Engineering

**Concentrations:**
- Student must complete at minimum 9 credits or 3 courses to satisfy an area of concentration, including any lab corequisite course as applicable
- Student must complete 2 concentrations
- Electrical Engineering student must complete minimum of 42 concentration credits which cannot be from courses found in ECE Core and Electrical Engineering Program Core
- Computer Engineering student must complete minimum of 34 concentration credits which cannot be from courses found in ECE Core and Computer Engineering Program Core

**NOTE:** Any student found to be taking any course without its prerequisite or co-requisite will be dropped from the course without a refund.

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