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

Fall 2020

**Electrical Engineering Flowchart**

<table>
<thead>
<tr>
<th>Crd Count</th>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Writing and Rhetoric I</td>
<td>ENC 1101</td>
</tr>
<tr>
<td>16</td>
<td>Writing and Rhetoric II</td>
<td>ENC 1102</td>
</tr>
<tr>
<td>15</td>
<td>Humanity I</td>
<td>(Group I)</td>
</tr>
<tr>
<td>16</td>
<td>Humanity II</td>
<td>(Group II)</td>
</tr>
<tr>
<td>16</td>
<td>Social Science II</td>
<td>(Group II)</td>
</tr>
<tr>
<td>15</td>
<td>Calculus III for Eng.</td>
<td>MAC 2283 or MAC 2313</td>
</tr>
<tr>
<td>16</td>
<td>Engineering Economy</td>
<td>EGN 3613</td>
</tr>
<tr>
<td>12</td>
<td>Concentration Elec.</td>
<td>EEE/EEL XXXX</td>
</tr>
<tr>
<td>15</td>
<td>Concentration Elec.</td>
<td>EEE/EEL XXXX</td>
</tr>
<tr>
<td>12</td>
<td>Legend:</td>
<td>Prereq (enforced)</td>
</tr>
<tr>
<td>11</td>
<td>Coreq (enforced)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Senior Design I</td>
<td>EEL 4920</td>
</tr>
<tr>
<td>2</td>
<td>Senior Design II</td>
<td>EEL 4921C</td>
</tr>
</tbody>
</table>

**Other Requirements (Must be completed for graduation):**

- GRW1: _____  GRW2: _____  Foreign Language: _____
- 9 Summer Credit Hours: _____  UCC: _____
- Total Credits: _____ / 128

- GL-F: _____  GL-D: _____  Concentration I: _____/9crd
- Concentration II: _____/9crd  Concentration Total: _____/42crd  CL: _____

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1 List of alternative courses can be found at: [https://acs.fiu.edu/offices-services/advising/university-core-curriculum-updated-6-17-20.pdf](https://acs.fiu.edu/offices-services/advising/university-core-curriculum-updated-6-17-20.pdf)

2 Students w/ 30 transfer credits may be able to substitute ENC 1101 & ENC 1102 with: 1) ENC 2304 and 2) one of the following: ENC 3213, ENC 3249, ENC 3311 or ENC 3314

3 Students w/ 30 transfer credits may be able to substitute SLS 1501 & EGN 1002 with an advisor approved 3-credit concentration elective

4 Prerequisite: MAC 1105 + MAC 1147 or (MAC 1114 + MAC 1140)

5 Prerequisite: Second year high school algebra or MAC 1105 College Algebra

6 Students who transfer in a UCC Art (that is not Public Speaking) can replace one 3-credit concentration elective with SPC 2608 – Public Speaking.

7 Students are required to complete at least 100 credits towards engineering degree, including ECE core courses and Computer Engineering Program Core before EEL 4920 registration.

8 EEL 4920 & EEL 4921C shall be taken during the student’s last two semesters prior to graduation. EEL 4921C shall be registered the semester right after taking EEL 4920, including Summer terms.

9 Satisfies CIVICS LEARNING (CL) requirement.

10 Starting in Fall 2010 Freshman and Transfer Students will have to complete 6 credit hours (2 classes) that will satisfy the Global Learning Requirement.  Indicates critical courses for progress.
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 4611 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
- EEL 4510 Intro to DSP
- EEL 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
- EEL 4510 Intro to Digital Signal Processing

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

Other
- EEL 4015 Electrical Design in Buildings

Embedded System Software
- EEL 3370 C++ Prog. For Embedded 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.
- TCN 4431 Principles of Network Management 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

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)
- 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

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