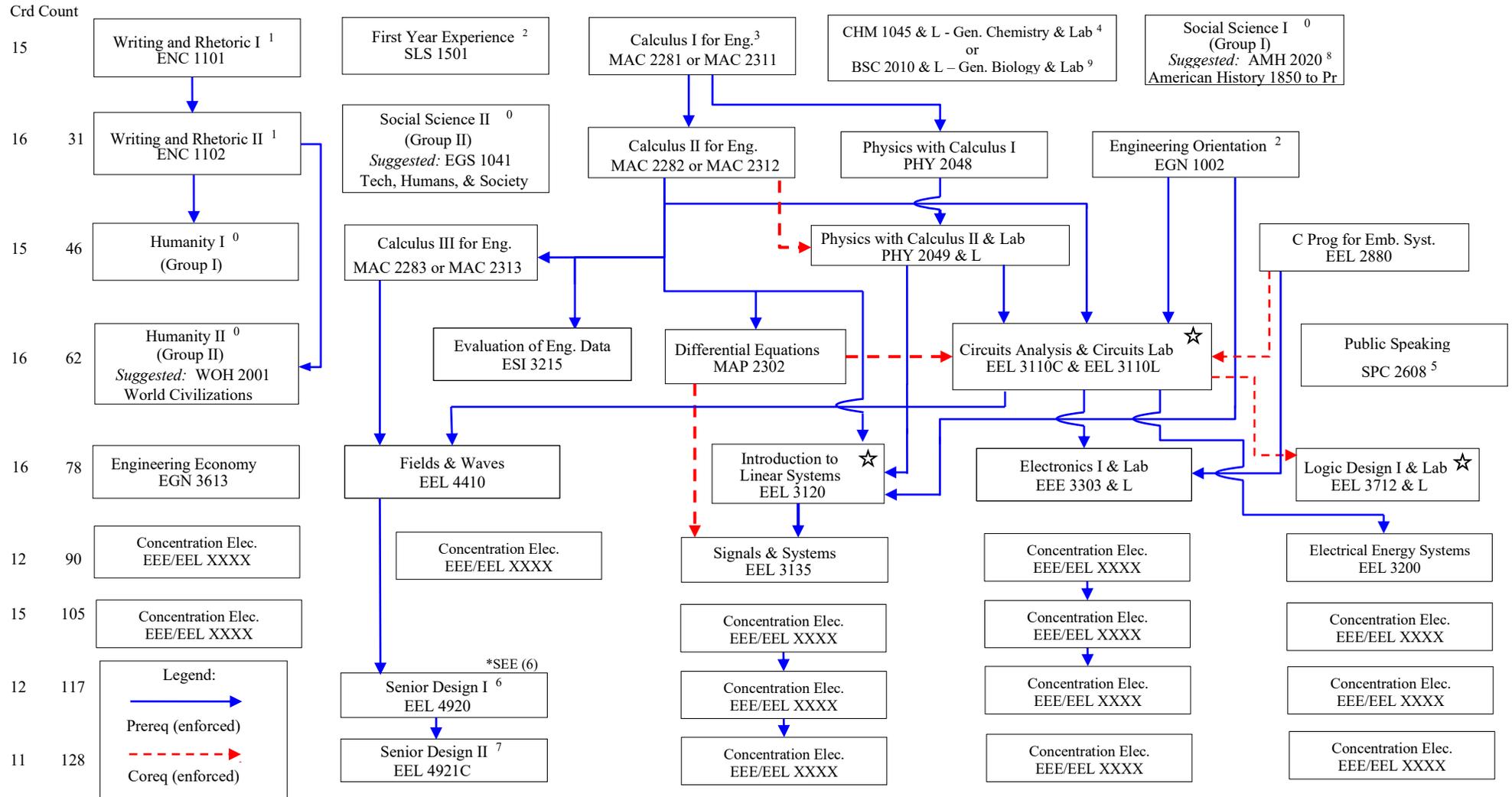


# Electrical Engineering Flowchart



<b>Other Requirements (Must be completed for graduation):</b>							
GRW1: _____	GRW2: _____	Foreign Language: _____	9 Summer Credit Hours: _____	UCC: _____	Total Credits: ____ / 128		
GL-F: _____	GL-D: _____	Concentration I: ____/9crd	Concentration II: ____/9crd	Concentration Total: ____/39 crd	CL: _____		

<sup>0</sup> List of alternative courses can be found at: <https://acs.fiu.edu/offices-services/advising/university-core-curriculum-updated-6-17-20.pdf>  
<sup>1</sup> Students w/> 30 transfer credits may be able to substitute ENC 1101 & ENC 1102 with: 1) ENC 2304 and 2) then one of the following: ENC 3213, ENC 3249, ENC 3311 or ENC 3314  
<sup>2</sup> Students w/> 30 transfer credits may be able to substitute SLS 1501 & EGN 1002 with an advisor approved 3-credit concentration elective  
<sup>3</sup> Prerequisite: MAC 1105 + MAC 1147 or (MAC 1114 + MAC 1140)  
<sup>4</sup> Prerequisite: Second year high school algebra or MAC 1105 College Algebra  
<sup>5</sup> Students who transfer in a UCC Art (that is not Public Speaking) can replace one 3-credit concentration elective with SPC 2608 – Public Speaking.  
<sup>6</sup> **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.**  
<sup>7</sup> 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.  
<sup>8</sup> Satisfies CIVICS LEARNING (CL) requirement. <sup>9</sup> Students entering FIU in Fall 2020 or later.  
 \*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.  
**NOTE: Any student found to be taking anycourse without its prerequisite or co-requisite will be dropped from the course without a refund.**

# Concentrations

<p><b>Power / Energy</b></p> <ul style="list-style-type: none"> <li>EEL 4213 Power Systems I</li> <li>EEL 4213L Energy Conversion Laboratory</li> <li>EEL 4214 Power II</li> <li>EEL 4215 Power III</li> <li>EEL 4241 Power Electronics</li> <li>EEL 4005 Measurements and Instrumentation in EE</li> <li>EEL 4495 Intro. to Applied Electromagnetics</li> </ul> <p><b>Autonomous Systems, Control &amp; Robotics</b></p> <ul style="list-style-type: none"> <li>EEL 3657 Control Systems I</li> <li>EEL 3664 Intro to Autonomous Systems</li> <li>EEL 4611 Control Systems II</li> <li>EEL 4611L Systems Lab</li> <li>EEL 4658 Industrial Control Systems</li> <li>EEL 4664 Sensors, Perception &amp; Robotic Manipulation</li> <li>EGN 3311 Statics</li> <li>EGN 3321 Dynamics</li> </ul> <p><b>Integrated Nano-Technology</b></p> <ul style="list-style-type: none"> <li>EEE 3303C Electronics I &amp; Lab (<i>CpE Only</i>)</li> <li>EEE 3396 Intro to Solid State Devices</li> <li>EEE 4304C Electronics II &amp; Lab</li> <li>EEE 4393C Wearable Electronics</li> <li>EEE 4421C Intro to Nanofabrication</li> <li>EEL 4005 Measurements and Instrumentation in EE</li> <li>EEE 4314 &amp; 4314L Integrated Circuits and Lab</li> </ul> <p><b>Communications</b></p> <ul style="list-style-type: none"> <li>EEL 3514 Communication Systems</li> <li>EEL 3514L Communication Systems Lab</li> <li>EEL 3580 Intro to Wireless Comm. Systems</li> <li>EEL 4413 Wave Prop. For Wireless Communication</li> <li>EEL 4421 Intro to RF Circuit Design</li> <li>EEL 4461C Antennas</li> <li>EEE 4510 Intro to DSP</li> <li>EEL 4515 Advanced Comm. Systems</li> <li>EEE 4550 Intro to Radar Systems</li> <li>EEL 4583 Basics of RF Systems</li> </ul> <p><b>Bio-Engineering</b></p> <ul style="list-style-type: none"> <li>EEE 3303C Electronics I &amp; Lab (<i>CpE Only</i>)</li> <li>EEL 4140 Filter Design</li> <li>EEE 4393C Wearable Electronics</li> <li>EEE 4421C Intro to Nanofabrication</li> <li>EEE 4510 Intro to Digital Signal Processing</li> <li>BME 4503C Medical Instrumentation: App &amp; Design</li> </ul> <p><b>Computer Architecture &amp; Microprocessor Design</b></p> <ul style="list-style-type: none"> <li>EEE 4343 Intro to Digital Electronics</li> <li>EEL 4709C Computer Design (<i>EE Only</i>)</li> <li>EEL 4746 Microcomputers I</li> <li>EEL 4746L Microcomputers I Lab</li> <li>EEL 4747 Microcomputers II (RISC)</li> <li>EEL 4747L Microcomputers II (RISC) Lab</li> </ul> <p><b>Entrepreneurship</b></p> <ul style="list-style-type: none"> <li>EEL 4933 Engineering Entrepreneurship</li> <li>EEL 4062 Engineering Business Plan Development</li> <li>EEL 4063 Introduction to Business Decisions</li> <li>EEL 4090C Technical Sales for Engineers</li> </ul> <p><b>Other</b></p> <ul style="list-style-type: none"> <li>EEL 4015 Electrical Design in Buildings</li> <li>EEL 4476 Radiation Detection and Meas. in ECE</li> </ul>	<p><b>Embedded System Software</b></p> <ul style="list-style-type: none"> <li>EEL 3370 C++ Prog. For Embedded Systems (<i>EE Only</i>)</li> <li>EEL 4730 Program. Embedded Systems (<i>EE Only</i>)</li> <li>EEL 4734 Embedded Operating Systems</li> <li>EEL 4740 Embedded Computing (<i>EE Only</i>)</li> <li>EEL 4831 Embedded GUI Programming</li> </ul> <p><b>Networking &amp; Security</b></p> <ul style="list-style-type: none"> <li>TCN 4081 Telecommunication Network Security</li> <li>TCN 4211 Telecommunication Networks</li> <li>TCN 4212 Telecomm. Network Analysis &amp; Des.</li> <li>EEE 4717 Intro to Security of IoT</li> </ul> <p><b>Cybersecurity</b></p> <ul style="list-style-type: none"> <li>EEL 4802 Intro to Digital Forensics Engineering</li> <li>EEL 4804 Intro Malware Reverse Engineering</li> <li>EEL 4806 Ethical Hacking &amp; Countermeasures</li> </ul> <p><b>Cyber Defense</b></p> <ul style="list-style-type: none"> <li>TCN 4211 Telecommunication Networks</li> <li>TCN 4081 Telecommunication Network Security</li> <li>EEL 4802 Intro to Digital Forensics Engineering</li> <li>EEL 4804 Intro Malware Reverse Engineering</li> <li>EEL 4806 Ethical Hacking &amp; Countermeasures</li> <li>EEL 4730 Program. Embedded Systems (<i>EE Only</i>)</li> <li>EEL 4734 Embedded Operating Systems</li> </ul> <p><b>Digital Forensics</b></p> <ul style="list-style-type: none"> <li>EEL 4802 Intro to Digital Forensics Engineering</li> <li>EEL 4804 Intro Malware Reverse Engineering</li> <li>EEL 4806 Ethical Hacking &amp; Countermeasures</li> <li>EEE 4750 Intro to Image &amp; Video Forensics</li> <li>EEE 4752 Intro to Network Forensics &amp; Incident Resp.</li> <li>EEE 4754 Intro to Mobile Forensics</li> </ul> <p><b>Artificial Intelligence and Big Data</b></p> <ul style="list-style-type: none"> <li>CNT 3143 IoT &amp; Analytics w/ Cloud Services</li> <li>CNT 4145 Sensor IoT Analytics</li> <li>CNT 4147 IoT &amp; Sensor Big Data Analytics</li> <li>CNT 4149 Sensor &amp; IoT Data Ana. w/ Deep Learning</li> <li>CNT 4151 IoT &amp; Sensor Data Visualization</li> <li>CNT 4153 IoT Applied Machine Learning</li> <li>CNT 4155 IoT &amp; Sensor Programming w/ Python</li> </ul> <p><b>Internet of Things</b></p> <ul style="list-style-type: none"> <li>COP 4610 Operating Systems Principles</li> <li>COP 4655 Mobile Application Development</li> <li>EEE 4510 Intro to Digital Signal Processing</li> <li>EEE 4717 Intro to Security of IoT</li> <li>EEL 4740 Embedded Computing (<i>EE Only</i>)</li> <li>TCN 4211 Telecommunication Networks</li> </ul> <p><b>Data System Software</b></p> <ul style="list-style-type: none"> <li>COT 3100 Discrete Structures (<i>EE Only</i>) <ul style="list-style-type: none"> <li>(Alternative: MAD 2104 – Discrete Math (<i>EE Only</i>))</li> </ul> </li> <li>COP 2210 Programming I</li> <li>COP 3337 Programming II</li> <li>COP 3530 Data Structures</li> <li>COP 4338 Systems Programming</li> <li>COP 4610 Operating Systems Principles</li> <li>COP 4655 Mobile Application Development</li> </ul>
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**Concentrations:**

- Student must satisfy at least two (2) concentrations via 9 credits (or ~3 courses) minimum each.
- Electrical Engineering student must complete minimum of 39 concentration credits not found in ECE Core and Electrical Engineering Program Core.
- Computer Engineering student must complete minimum of 34 concentration credits not 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. **Fall 2023 Rev 04/30/2023**