**Computer Engineering Physics Track Flowchart**

**Cred Count**

- 15
  - Writing and Rhetoric I
    - ENC 1101
  - First Year Experience
    - SLS 1501
  - Calculus I for Eng.
    - MAC 2281 or MAC 2311
  - CHM 1045 & L - Gen. Chemistry & Lab
    - or BSC 2010 & L – Gen. Biology & Lab
  - Social Science I
    - Group I
      - Suggested: AMH 2020 or American History 1850 to Present

- 16
  - Writing and Rhetoric II
    - ENC 1102
  - Social Science II
    - (Group II)
    - Suggested: EGS 1041
      - Tech, Humans, & Society
  - Calculus II for Eng.
    - MAC 2282 or MAC 2312
  - Physics with Calculus I
    - PHY 2048

- 15
  - Humanity I
    - (Group I)
  - Physics with Calculus II & Lab
    - PHY 2049 & L

- 16
  - Humanity II
    - (Group II)
    - Suggested: WOH 2001
      - World Civilizations
  - Engineering Orientation
    - EGN 1002
  - C Prog for Emb. Syst.
    - EEL 2880
  - Public Speaking
    - SPC 2608

- 16
  - Engineering Economy
    - EGN 3613
  - Signals & Systems
    - EEL 3155
  - Concentration Elec.
    - EEE/EEL XXXX

- 12
  - COT 3100 – Discrete Structures
    - or MAD 2104 – Discrete Math
  - Concentration Elec.
    - EEE/EEL XXXX
  - Concentration Elec.
    - EEE/EEL XXXX

- 15
  - Concentration Elec.
    - EEE/EEL XXXX
  - Advanced Physics Lab
    - PHY 4821
  - Quantum Mechanics I
    - PHY 4604

- 11
  - Concentration Elec.
    - EEE/EEL XXXX
  - Differential Equations
    - MAP 2302
  - Circuits Analysis & Circuits Lab
    - EEL 3110 & EEL 3110L

Legend:

- Prereq (enforced)
- Coreq (enforced)

**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: __/9erdd
- Physics Concentration: __/23erdd
- Concentration Total: ___/34erdd
- CL: __________

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1. List of alternative courses can be found: [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) then 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 arts (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 Programming 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. Students entering FIU in Fall 2020 or later.
11. 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 any course without its prerequisite or co-requisite will be dropped from the course without a refund.

Fall 2020 Rev 06/30/2020
## 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 4411: 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
- 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: 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 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 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)*
  - *(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

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