Computer Engineering Flowchart

Crd Count

15		

Writing and Rhetoric I [1]
ENC 1101

First Year Experience [2]
SLS 1501

Calculus I for Eng. [3, 10]
MAC 2281 or MAC 2311

CHM 1045 & L - Gen. Chemistry & Lab [4,10]
or
BSC 2010 & L – Gen. Biology & Lab

Social Science I [0]
(Group I)
Suggested: AMH 2020
American History 1850 to Pr

16   **31**

Writing and Rhetoric II [1]
ENC 1102

Social Science II [0]
(Group II)
Suggested: EGS 1041
Tech, Humans, & Society

Calculus II for Eng. [10]
MAC 2282 or MAC 2312

Physics with Calculus I [10]
PHY 2048

Engineering Orientation [2]
EGN 1002

15   **46**

Humanity I [0]
(Group I)

Calculus III for Eng. [10]
MAC 2283 or MAC 2313

Physics with Calculus II & Lab [10]
PHY 2049 & L

Software Techniques
EEL 2880

16   **62**

Humanity II [0]
(Group II)
Suggested: WOH 2001
World Civilizations

Evaluation of Eng. Data
ESI 3215

Differential Equations [10]
MAP 2302

Circuits Analysis & Circuits Lab ☆
EEL 3110C

Public Speaking
SPC 2608 [5]

16   **78**

Engineering Economy
EGN 3613

C++ Programming for Embedded Systems
EEL 3370

Introduction to Linear Systems ☆
EEL 3120

Programming Embedded Systems
EEL 4730

Logic Design I & Lab ☆
EEL 3712 & L

12   **90**

COT 3100 – Discrete Structures
or
MAD 2104 – Discrete Math

Signals & Systems
EEL 3135

Concentration II
EEE/EEL XXXX

Computer Design
EEL 4709C

15   **105**

Concentration Elec.
EEE/EEL XXXX

Concentration Elec.
EEE/EEL XXXX

Concentration I
EEE/EEL XXXX

Concentration II
EEE/EEL XXXX

Embedded Computing
EEL 4740

12   **117**

Legend:

Concentration Elec.
EEE/EEL XXXX

Concentration I
EEE/EEL XXXX

Concentration II
EEE/EEL XXXX

*SEE (6)

Senior Design I [6]
EEL 4920

→ Prereq (enforced)

11   **128**

- - → Coreq (enforced)

Concentration Elec.
EEE/EEL XXXX

Concentration I
EEE/EEL XXXX

Concentration Elec.
EEE/EEL XXXX

Senior Design II [7]
EEL 4921C

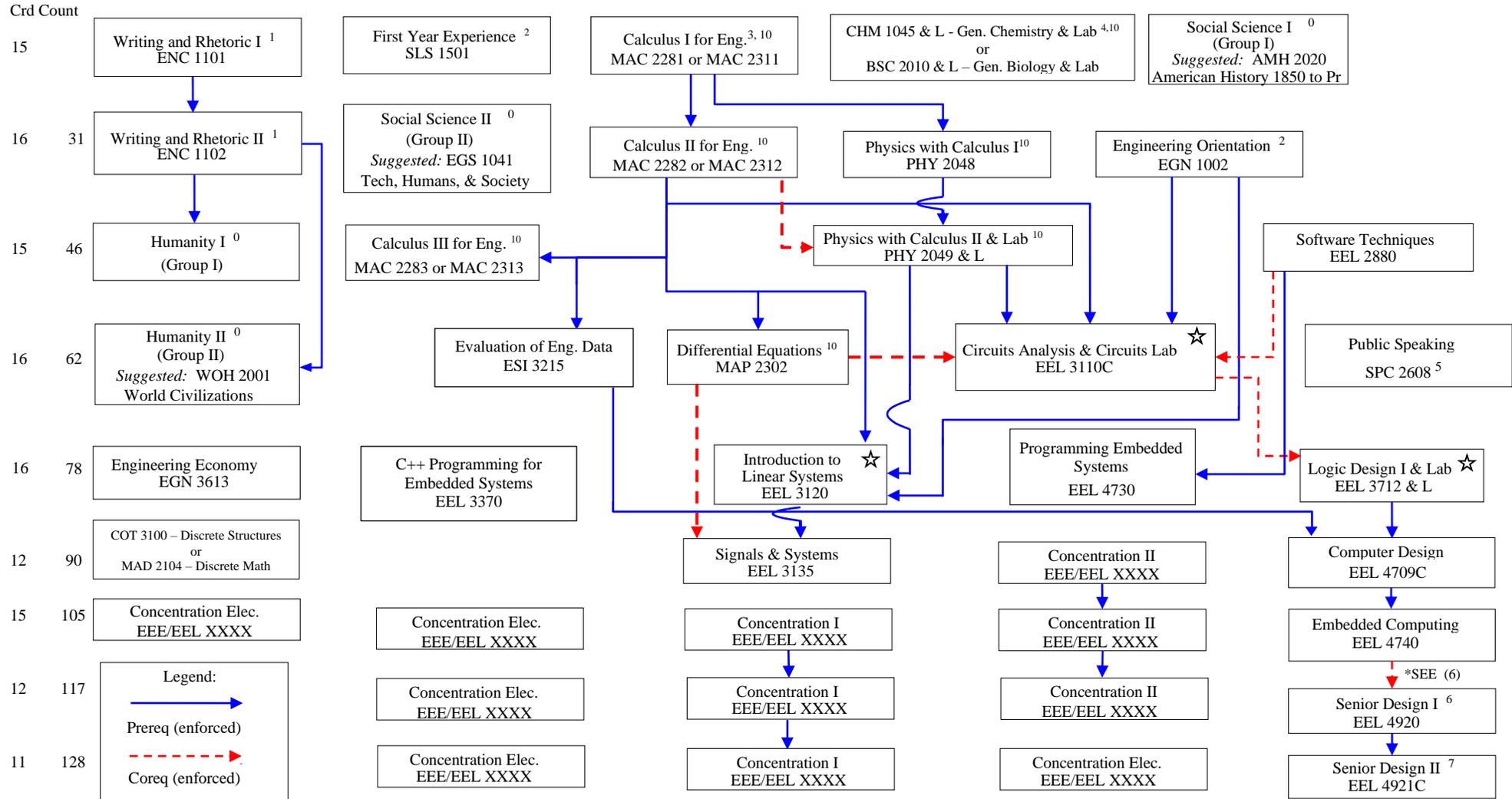**Other Requirements (Must be completed for graduation):**

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

GL-F:_____   GL-D:_____   Concentration I: ____/9crd   Concentration II: ____/9crd   Concentration Total: ____/34crd   CL: _____

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[0] List of alternative courses can be found at: https://acs.fiu.edu/offices-services/advising/university-core-curriculum-updated-6-17-20.pdf [1] 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 [2] Students w/> 30 transfer credits may be able to substitute SLS 1501 & EGN 1002 with an advisor approved 3-credit concentration elective [3] Prerequisite: MAC 1105 + MAC 1147 or (MAC 1114 + MAC 1140) [4] Prerequisite: Second year high school algebra or MAC 1105 College Algebra [5] Students who transfer in a UCC Art (that is not Public Speaking) can replace one 3-credit concentration elective with SPC 2608 – Public Speaking. [6]**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**. [7] 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. [8] Satisfies CIVICS LEARNING (CL) requirement. [9] Students entering FIU in Fall 2020 or later. [10]**Students who are unsuccessful in passing common prerequisites after two attempts will be advised to change their major into an area where they can be successful. Drops after the add/drop period, which result in a DR grade, are considered an attempt in the course and count as an unsuccessful enrollment.**

*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

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 3303C — Electronics I and Lab *(CpE Only)*
- EEE 3396 — Intro to Solid State Devices
- EEE 4304C — Electronics II and Lab
- EEE 4314 — Integrated Circuits & Systems
  EEE 4314L — Integrated Circuits Lab
- EEE 4421C — Intro to Nanofabrication
- EEE 4393C — Wearable Electronics

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
- EEL 4515 — Advanced Comm. Systems
- EEL 4595C — Intro to Wireless Comm. w/ USRP App.

Bio-Engineering

- EEE 3303C — Electronics I and 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
- EEE 4393C — Wearable Electronics

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++ Programming 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)*
  - *(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

<u>**NOTE:**</u> **Any student found to be taking any EEL, EEE, TCN, or CNT course without its prerequisite or co-requisite will be dropped from the course without a refund.**