BSEE Curriculum Effective Fall 2017
THE BSEE CURRICULUM 2017-

• More flexibility - More Electives – More Decisions

• Electives are offered early – Junior Year
  • Critical decisions must be made @ the start of the Junior Year
  • Advisor Role key to success

• THREE EE COURSE CATEGORIES
  • REQUIRED CORE
  • ELECTIVE CORE
  • TECH ELECTIVES (ORGANIZED IN TECHNICAL TRACKS)
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SUM: 15  14  15  16  9  14  16  15  14
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**YEAR 1: 15**

**YEAR 2: 14**

**YEAR 3: 15**

**YEAR 4: 16**

**SUM: 16**

**TOTAL: 60**

**ELECTIVE CORE:** 15 credits

**ELECTIVE:** 14 credits

**TECHNICAL ELECTIVE:** 15 credits

**TOTAL ELECTIVE:** 44 credits

**TOTAL CREDITS:** 60
THREE COURSE CATEGORIES

• REQUIRED CORE
  • All students must take (FOUNDATION)

• ELECTIVE CORE
  • Take a subset of courses (4 out of 6) (BREADTH)
  • Elective Core courses serve as Gateway Courses to Tech Elective *Tracks*

• TECH ELECTIVES (ORGANIZED IN TECHNICAL TRACKS)
  • Select Upper Level EE Courses under Tracks
BSEE: EE Course “Flow”

• **Required CORE**
Courses required by all students (FOUNDATIONAL)

• **Elective Core**
A selection/subset of courses that will expand foundation and define “gateways” to Tracks (BREADTH)

• **Technical Electives**
Elective courses to be taken under various tracks (DEPTH)
REQUIRED CORE

YEAR 1
- EGN 3420 ENG ANALYSIS (4)
- EEE 3394 EE SCIENCE I (3)
- EEL 3705 FUND DIG CIRCTS (3)

YEAR 2
- EGN 3373 ELEC SYS I (3)
- EEL 3472 EE SCIENCE II (4)
- EEL 2161 EE COMP METH PROGR w C (3)

YEAR 3
- EGN 3374 ELEC SYS II (3)
- EEL 4102 SIG & SYS (3)
- EEL 3115L LAB I (1)

YEAR 4
- ELECTIVE CORE (3)
- ELECTIVE CORE (3)
- TECHNICAL ELECTIVE (3)

SUM
- TECH ELEC LAB (1)
- TOTAL CREDITS: 15 14 15 16 9 14 16 15 14
REQUIRED CORE (2018- )

YEAR 1
- EGN 3420 ENG ANALYSIS (4)
- EEE 3394 EE SCIENCE I (3)
- EEL 3705 FUND DIG CIRCTS (3)

YEAR 2
- EGN 3373 ELEC SYS I (3)
- EEL 3472 EE SCIENCE II (4)
- EEL 3705L FUND DIG CIRCTS LAB (1)
- EEL 2161 EE COMP METH PROGR w C (3)

YEAR 3
- ELECTIVE CORE (3)
- TECHNICAL ELECTIVE (3)
- EEL 4906 DESIGN I (3)
- TECH ELEC LAB (1)

YEAR 4
- ELECTIVE CORE (3)
- TECHNICAL ELECTIVE (3)
- EEL 4914 DESIGN II (3)
- TECH ELEC LAB (1)

YEAR 1 SUM
- ELS #1 (1)

YEAR 2 SUM
- ELS #2 (1)

YEAR 3 SUM
- ELS #3 (1)

YEAR 4 SUM
- ELS #4 (1)

TOTAL CREDITS
- YEAR 1: 14
- YEAR 2: 15
- YEAR 3: 14
- YEAR 4: 16
- SUM: 9
REQUIRED CORE:

1. **EEL 3705** Fundamentals of Digital Circuits (3)
2. **EEL 3705L** Fund of Dig Circuits Lab (1)
3. **EGN 3420** Engineering Analysis (4)
5. **EEL 3472C** Electrical Engineering Science II – Electromagnetics (4)
6. **EEL 2161** Programming with C (3)
7. **EGN 3373** Introduction to Electrical Systems I (3)
8. **EGN 3374** Introduction to Electrical Systems II (3)
9. **EEL 4102** Signals and Systems (3)
10. **EEL 3161C** Computer Tool Lab (1)
11. **EEL 3115L** Laboratory I (1)
ELECTIVE CORE

CHOSE 4 of 6***
1. EEE 3302 Electronics I (Bio)
2. EEL 4512C Intro to Communication Systems (Comms)
3. EGN 3375 Electromechanical Systems (E, P, & S)
4. EEL 4657 Linear Control Systems (M, R, & E)
5. EEE 4351C Semiconductor Devices (Nano)
6. EEL 4423C Wireless Circuits & Systems Design Laboratory (Wireless)

***Elective EE Core Courses are “Gateway Courses” into Technical Tracks; students must choose 2 tracks as their areas of concentration:

TRACKS:
1. Bioelectrical Systems (EEE 3302)
2. Communication Systems (EEL 4512C)
3. Energy, Power and Sustainability (EGN 3375)
5. Micro and Nano-scale Systems (EEE 4351C)
6. Wireless Systems (EEL 4423C)
## TECHNICAL ELECTIVES

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**Credits:**
- Year 1: 15
- Year 2: 14
- Year 3: 15
- Year 4: 16
- Total: 78

**Notes:**
- Year 4 includes TECHNICAL ELECTIVE (3) and TECHNICAL ELECTIVE (3) for a total of 6 credits.
TECHNICAL ELECTIVES:

1. Choose two technical tracks as areas of concentration;
2. Select at least two 3-credit hour courses and one 1-credit laboratory from each selected track.
3. Remaining Tech Electives can be any upper level EE course listed in the USF catalog or offered as a special topics course.
4. One Technical Elective can be taken outside the EE Dept. (within the Engineering College) with prior departmental approval.

TRACKS:

1. Bioelectrical Systems
2. Communication Systems
3. Energy, Power and Sustainability
4. Mechatronics, Robotics and Embedded Systems
5. Wireless Systems
6. Micro and Nano-scale Systems
## EE @ A Recap

### EE CORE

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### Elective EE Core

- EEL 3161 COMP LAB (1)
- TECH ELEC LAB (1)

### Technical Electives

- TECH ELEC LAB (1)
- TECHNICAL ELECTIVE (3)
- TECHNICAL ELECTIVE (3)
- TECHNICAL ELECTIVE (3)
- TECHNICAL ELECTIVE (3)
- TECHNICAL ELECTIVE (3)
- TECHNICAL ELECTIVE (3)
- TECHNICAL ELECTIVE (3)
Bioelectrical Systems
EEE 4260C Bioelectricity
EEE 4271 Bioelectronics
EEE 4410 System on a Chip
EEE 4506 Biomedical Image Processing
EEL 3116L Laboratory II

Communication Systems
EEL 4595 Mobile and Personal Communication
EEL 4727C Digital Signal Processing with Field Programmable Gate Arrays
EEL 4756 Digital Signal Processing
EEL 4936 Wireless Communications Lab(3)
(Special Electrical Engineering Topics 1)
EEL 4743L Microprocessor Lab (1)
EEL 4423C Wireless Circuits & Systems Design Lab (3)

Micro and Nano-scale Systems
EEE 3302 Electronics I
EEE 4301 Electronics II
EEL 4567 Electro-Optics
EEE 4274 MEMS I: Chemical/Biomedical Sensors and Microfabrication
EEEL 4359 Analog CMOS/VLSI Design
EEL 3116L Lab II

Wireless Circuits and Systems
EEL 4420 RF & Microwave Measurements
EEL 4421 RF/Microwave Circuits I
EEL 4422 RF/Microwave Circuits II
EEL 4461 Antenna Theory
EEL 4935 Monolithic Microwave Integrated Circuit Design

Mechatronics, Robotics & Embedded Systems
EEL 3100 Network Analysis
EEL 4740 Embedded Systems
EEL 4744 Microprocessor Principles and Applications
EGN 3060 Mechatronics for Innovation
EEE 4149 Embedded Systems
EEL 4657L Linear Control Systems Laboratory
EEL 4743L Microprocessor Laboratory

Energy, Power and Sustainability
EEL 4212 Energy Delivery Systems
EEL 4214 Electric (Utility) Distribution Systems
EEL 4224 Electric Machines and Drives
EEL 4241 Power Electronics
EEL 4251 Power System Analysis
EEL 4252 Power Systems II
EEL 4271 Power System Protection
EEL 4283 Sustainable Energy
EEL 4295 Power Quality
EEL 4206L Electromechanical Energy System Laboratory

NOTE: Lab courses shown in red
The PHYSICS II Question

- Is Physics II and its lab required?
  - No
- Is EE Science II (4 credits) required
  - Yes

- If you have completed Physics II (and lab) you will be given credit for a tech elective.
- Physics II cannot replace EE Science II
FAQ’s

• **Q:** Where can we find “Track” Information?
  • **A:** Brief descriptions for each technical track will be posted online, along with charts/tables and other departmental handouts available to students.

• **Q:** Can we switch Concentration Tracks after the initial choice?
  • **A:** Yes, if one can switch and still meet the 2 course plus 1 lab requirement.

• **Q:** Will Tech Electives be offered every semester?
  • **A:** A tentative schedule with a list of technical electives (offered in the Fall and Spring semesters) will be available at the department’s website to allow students to develop their plans.

• **Q:** Are there any new GPA requirements?
  • **A:** GPA requirements currently remain the same. Please check UG USF Catalog for latest information.
FAQ’s

• **Q:** I have a GE HOLD what does it mean/What do I do?
  • **A:** A GE Hold generally means you are a new EE student and must attend an Info Session and/or see an advisor. *You must also read and sign the EE Dept’s Academic Integrity Policy*

• **Q:** I get PRE-REQ ERROR when trying to register?
  • **A:** You either do not have the pre-req for a class or you are currently taking it. After you verify you should be eligible to sign up for the class, send an email to ENG-EEAdvising@usf.edu

• **Q:** I get a MAJOR REQUIREMENT error?
  • **A:** This means the student is not yet in the EE department; you must fill out required paperwork for admission to EE (visit ESS) and send an email to ENG-EEAdvising@usf.edu
FAQ’s

• **Q:** I have sent an email but haven’t heard back and it’s been almost 2 hours 😊
• **A:** If your email is not answered within three days, please follow up.

• **Q:** I tried to sign up for Comm. for Engineers (or Stats, or Engin. Econ) and the system won’t let me; can you please sign me up?
• **A:** EE can only sign you up for EE courses; if you want to get into a non EE class, you will need to get in touch with the specific department.

• **Q:** Are “D”s accepted?
• **A:** The minimum acceptable grade for the BSEE is a “C”.

**Department of Electrical Engineering**
FAQ’s

• **Q:** Can I petition to drop a class (and receive a “W”) after the final exam? 😊
• **A:** No late drops are approved, unless there are documented extraneous circumstances

• **Q:** Is a “B” required for EGN 3373?
• **A:** No

• **Q:** I received an email about completing the planner in OASIS; is this required?
• **A:** Yes
FAQ’s

• Q: What is the 5-year program?
  • A: An “accelerated” route to earn an MSEE degree; must meet minimum GPA requirements; can “double count” two courses for BSEE and MSEE (must be graduate level courses); more info at the EE website

• Q: I am graduating in ### semester; what should I do?
  • A: You must complete a graduation checkoff list and email to ENG-EEAdvising@usf.edu the semester prior to graduation. Your degreeworks will be reviewed and you will be notified accordingly. You must also officially apply online.

• Q: Does the department offer any Certificates?
  • A: Yes !!!! Visit our website 😊
FAQ’s

• Q: I am trying to sign up for a course, but can’t find it in OASIS; what’s wrong?

• A: If you can’t find a course in OASIS, it is because the course is not being offered, or the class has reached capacity (full); but double check the CRN anyway.
FAQ’s

• **Q:** What is the difference between an advisor and a faculty mentor?
  
  • Advisors can guide you through course registration, permitting and other processes – i.e. the logistics of registration/graduation (forms, applications, etc.).
  
  • Faculty mentors offer academic and professional/career guidance (help choose tech electives etc.); they will not be doing degree audits, issuing permits or signing forms that the university requires.
EMAILS

• All Advising related emails must be sent to: ENG-EEAdvising@usf.edu
• Keep emails short and professional 😊
• SUBJECT: UNDERGRADUATE ADVISING – “etc.”
• Clearly state your problem/issue (GE Hold or similar)
• Always include your U#
• If asking to be added to a course(s) always include CRN#
• Make sure you have no time conflicts before requesting to be added to a class
Advising Process

- Students meet with an Academic Advisor to sign the Academic Integrity Agreement and obtain curriculum flowcharts/degree works planning.

- Students select Faculty Mentors based on their program track* and voluntarily set up times to meet by emailing ENG-EEAdvising@usf.edu.

- Faculty Mentors will keep track of meetings if for their own records, but official documentation will be maintained with department level advising meetings.

- Students apply for graduation through the Academic Advisor, who will coordinate the certification of the degree with Student Services.

*Students who are unsure of which track to select should meet with Dr. Ferekides or Dr. Moreno.
MUST VISIT WEBSITES

• Department:
  https://www.usf.edu/engineering/ee/undergraduate/curriculum.aspx

• UG Catalog:
  http://ugs.usf.edu/catalog/?catyr=1819&category=toc

• COURSE Inventory
  • https://www.systemacademics.usf.edu/course-inventory/

• IEEE for Job Search
  • https://www.ieee.org