Bachelor of Science in Computer Engineering

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**SEMI - CORE Course Options**
Select FOUR of the following:
- CDA 4210 Intro to VLSI 
- CNT 4104 Intro to Data Communications 
- CDA 4204 CAD-Based Computer Design  
- CNT 4713 Computer Network Projects  
- CDA 4102 Structured Computer Arch 
- CDA 4630 Intro to Embedded Systems 
- CEN 4214 Software-Hardware Co-Design 
- CEN 4400 Intro Cptr Sys Perf Eval 

**Technical Electives:**
To be chosen from CS and CE upper division courses that are not in the CE core.
- CAP 4028 Intro to Game Programming 
- CAP 4034 Computer Animation 
- CAP 4401 Digital Image Processing 
- CAP 4630 Intro to Artificial Intelligence 
- CAP 4770 Data Mining & Mach Intelligence 
- CEN 4214 Software-Hardware Co-Design 
- CEN 4910 SW Engineering Project 
- CNT 4403 Intro to Data & Network Security 
- COP 3540 Intro to Database Structures 
- COP 3813 Intro to Internet Computing 
- COP 4814 Web Services 
- COP 4020 Programming Languages 
- COP 4331 Object-Oriented Design & Prog. 
- COP 4367 Graphical App. Development 
- COP 4593 Component Prog. with .NET 
- COP 4703 Applied Database Systems 
- COP 4854 Cutting Edge Web Tech 
- COT 4400 Design & Analysis of Algorithms 
- COP 4814 Web Services 
- COP 4020 Programming Languages 
- COP 4331 Object-Oriented Design & Prog. 
- COP 4367 Graphical App. Development 
- COP 4593 Component Prog. with .NET 
- COP 4703 Applied Database Systems 
- COP 4854 Cutting Edge Web Tech 
- COT 4400 Design & Analysis of Algorithms 
- MAP 4260 Intro to Queuing Theory 

**Other Requirements:**
- A Grade of "C" or Better is Required in all Courses 
- At least 124 Credits Total 
- Gordon Rule Math/Writing Across Curriculum 
- At least 45 Upper Division Credits 
- At least 3 credits from FAU 

**Foreign Language Admission Requirement**
- Students who do not take ENG 1002 before they have earned 30 credits must replace it with Software-Hardware CoDesign, CEN 4214. 
- Course can only be taken during senior year. The senior project must indicate substantial amount of work in the CSE areas either in a multi-disciplinary / single-discipline project.
- Course Required for admission to MSCS program (see advisor and catalog for more details) 

Requirements to Declare Computer Engineering Major: Must obtain a minimum grade of "C" & a GPA of 2.5 or greater in MAC2311 & MAC2312 or PHY2048

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**Legend:**
- Pre-Requisite 
- Pre- or Co- 
- Science & Math 
- Core Courses 
- Engineering Fund. Courses 
- IFP Requirements

This flowchart is reviewed periodically and is subject to change as new requirements become necessary to educate engineers. The information is intended to inform and is not a replacement for a degree audit conducted with an academic advisor.

Rev 9/16
### Foundations of Written Communication

(6 credit hours required – Writing Across the Curriculum - WAC)

- **Enc 1101** College Writing I (REQUIRED)
- **Enc 1102** College Writing II

**The following courses below may be substituted for ENC 1102:**

- **Enc 1930** University Honors Seminar in Writing (Permit Only)
- **Enc 1939** Special Topic: College Writing
- **Enc 2452** Honors Composition for Science

### Foundations of Science & the Natural World

(6 credit hours required - One of the courses must have a lab)

Student must take two of the following courses, one must be from group A.

- **Bsc 1005** Life Science (3 credits including Lab)
- **Bsc 1010** Biology Principles (4 credits including Lab & Dis)
- **Bsc 2085** Anatomy & Physiology 1 (4 credits including Lab) *
- **Chm 1020** Contemporary Chemical Issues
- **Chm 2045 & L** General Chemistry 1 (4 cr. w/ Lab) *(REQUIRED)
- **Esc 2000** Blue Planet (online course)
- **Ast 2002** Introduction to Astronomy (P/F)
- **Phy 2048 & L** General Physics 1 (5 cr. w/ Lab) *(REQUIRED)
- **Phy 2053** College Physics 1 (4 credits) ***

**Group B**

- **Chm 2032 & L** Chemistry for Health Sciences (4 credits including Lab)
- **Chm 2038** Chemistry in Modern Life (P/F)
- **Egr 2831** Nature: Inter. of Sci., Eng., & the Humanities
- **Gly 2100** History of Earth and Life
- **Met 2010 & D** Weather and Climate
- **Phy 2049 & L** General Physics 2 (5 cr. w/ Lab) *(REQUIRED)
- **Psc 2121** Physical Science

### Foundations of Mathematics & Quantitative Reasoning

(6 credit hours required – Grade of “C” or higher is required)

Student must take two of the following courses, one must be from group A.

- **Mac 1105** College Algebra
- **Sta 2023** Introductory Statistics
- **Mac 2311** Calc. w/Analytic Geometry 1 (4 credits) *(REQUIRED)
- **Mac 2312** Calc. w/Analytic Geometry 2 (4 credits) *(REQUIRED)

**Group A**

- **Mac 1106** Math for Liberal Arts 1
- **Mac 1107** Math for Liberal Arts 2
- **Mac 1140** Precalculus Algebra
- **Mac 1147** Precalculus Algebra & Trigonometry (5 credits)
- **Mac 2233** Methods of Calculus
- **Mac 2312** Calc. w/Analytic Geometry 2 (4 credits) *(REQUIRED)

**Group B**

- **Phi 2102** Logic

**Note:** Students must take at least one course with the prefix MAC or MGF.

### Foundations of Society & Human Behavior

(6 credit hours required)

Student must take two of the following courses, one must be from group A.

- **Amh 2010** United States History Since 1877 (P/F)
- **Ant 2000** Introduction to Anthropology
- **Amh 2020** United States History to 1877 (P/F)
- **Eco 2013** Macroeconomic Principles §
- **Pos 2041** Government of the United States
- **Psych 1102** Introduction to Psychology
- **Syg 1000** Sociological Perspectives
- **Syg 2010** Social Problems
- **Syg 2051** Designing the City

**History Department**

- **Amh 2010** United States History Since 1877 (P/F)
- **Amh 2020** United States History to 1877 (P/F)

**Anthropology Department**

- **Ant 2000** Introduction to Anthropology

**Economics Department**

- **Eco 2013** Macroeconomic Principles §
- **Ecp 2002** Contemporary Economic Issues

**Political Science Department**

- **Pos 2041** Government of the United States

**Psychology Department**

- **Psych 1102** Introduction to Psychology

**Sociology Department**

- **Syg 1000** Sociological Perspectives
- **Syg 2010** Social Problems

**Exceptional Student Education Department**

- **Eex 2091** Disability and Society

**Geosciences Department**

- **Evr 2017** Environment and Society

**Public Administration Department**

- **Pad 2258** Changing Environment of Soc., Bus., & Gov’t

**Sociology Department**

- **Syg 2790** Race, Class, Gender, and Sexuality
- **Syg 2010** Social Problems

**Urban & Regional Planning Department**

- **Ur 2051** Designing the City
Students must attain grades of "C" or higher. 12 credits of writing (WAC) and 6 credits of mathematics are required. 

Please note: 
Students must take four (4) WAC courses. Two (2) courses are to be taken from Foundations of Written Communication. We strongly recommend the two additional WAC courses come from these courses: PHI 2010, WOH 2012, LIT 2010, LIT 2030, LIT 2040 and LIT 2070. See advisor for additional details.

(D) = Discussion, (L) = Lab
Courses indicating a (D) or (L) are linked with a lecture, a lab, and/or a discussion. If you select one of these courses, you must register for the lecture, lab, and/or discussion. You must attend the lecture, lab, and/or discussion.

Elective Credits
The number of elective credits allowed varies by major. Please consult with an academic advisor to determine the number of elective credits required for your major. Certain majors do not allow any electives.
FOREIGN LANGUAGE (4-8 credits) – REQUIRED only for COMPUTER SCIENCE MAJOR

Students with more than one year of a foreign language in high school should enroll in the second half of the beginners foreign language class (ARA/CHI/FRE/GER/HBR/ITA/JPN/LAT/SPN 1121) or a higher level course. Proficiency for a first-level course can be earned by successfully completing a second-level course. For questions related to this requirement, consult an academic advisor. CLEP exam credits meet this requirement: see the catalog.

- **NOTE:** Native Speakers of a foreign language must consult the Languages, Linguistics, and Comparative Literature Department regarding this requirement.
- **NOTE:** Honors Seminars SHALL BE ACCEPTED AS MEETING THE WAC/GRW REQUIREMENT. See the University Advising Services Office for details.

FREE ELECTIVES: Engineering students **DO NOT** have any electives. Engineering students must stick to the core curriculum.

**MAJOR REQUIREMENTS**

(All required major courses must earn a “C” or better)

- EGN 1002 & L Fundamentals of Engineering **[Must be taken freshman year]** (NOT required for Computer Science majors)
- SPC 2608 Public Speaking (Required for Computer Science & Geomatics majors **ONLY**)

**SCIENCE REQUIREMENTS BY MAJOR**

(All required science courses must earn a “C” or better)

**Civil, Electrical, Geomatics, Mechanical, Ocean, and Computer Engineering:**
- CHM 2045 & L General Chemistry 1 (4 cr. w/Lab) ‡ (REQUIRED)
- PHY 2048 & L General Physics 1 (5 cr. w/ Lab) ** (REQUIRED)
- PHY 2049 & L General Physics 2 (5 cr. w/ Lab) (REQUIRED)

**Civil Engineering majors must also choose 1 from:**
- BSC 1010 & L & D Biological Principles (4 credits including Lab & Discussion)
- GLY 2010C Physical Geology (4 cr. including Lab) (RECOMMENDED)

**Computer Science:**
- PHY 2048 & L General Physics 1 (5 cr. w/ Lab) ** (REQUIRED)
- PHY 2049 & L General Physics 2 (5 cr. w/ Lab) (REQUIRED)

**Computer Science majors must also choose 1 from:**
- CHM 2045 & L General Chemistry 1 (4 cr. w/Lab) ‡
- BSC 1010 & L & D Biological Principles (4 credits including Lab & Discussion)
- GLY 2010C Physical Geology (4 cr. including Lab)

**REQUIREMENT INFORMATION**

- **NOTE:** All Engineering and Computer Science students should take Physics I (PHY 2048 & PHY 2048L) with Calculus II (MAC 2312) in the same semester.
- **NOTE:** Students must receive a minimum grade of “C” and overall GPA of 2.5 or greater in a combination of the math and physics courses below. Calculation of the GPA will be based on the highest grade earned. Advance placement (AP) – a score of 5 is equivalent to an “A” and a score of 4 is equivalent to a “B”.

- **Electrical and Computer Engineering:** MAC 2311 & MAC 2312 = 2.5 GPA or MAC 2311 & PHY 2043 or PHY 2048 = 2.5 GPA.
- **Ocean, Mechanical, Civil, Environmental & Geomatics Engineering:** MAC 2311 & PHY 2043 or PHY 2048 = 2.5 GPA.
- **Computer Science:** COP 2220 & MAC 1140 & MAC 1114 = 2.5 GPA or COP 2220 & MAC 1147 = 2.5 GPA.

Incoming Freshman and students transferring with less than 30 credits contact:

Nicole Raymond
University Advising Services
Phone: (561) 297-3064

Transfer students or students with more than 30 credits contact:

College of Engineering & Computer Science
Phone: (561) 297-2780
Email address: engineering-advising@fau.edu