GLY 1000C is being replaced by GLY 1010C Physical Geology for the proposed program Environmental Geology B.S. In anticipation of this new program's approval, the catalog copies for affected majors have been prepared by ACS as informational items for the University Undergraduate Curriculum Team.

Software Engineering (B.S.)

U.A. Whitaker College of Engineering

Department of Bioengineering and Software Engineering

https://www.fgcu.edu/eng/softwareengineering/softwareengineering-bs.aspx

(239) 590-7390

~~2018~~2019-~~2019~~ 2020 Catalog Year

The Bachelor of Science in Software Engineering prepares students in the theory and methods of systematic and rigorous construction of software for industrial, scientific, and commercial applications.

Software engineering concerns the design, implementation, testing and maintenance of software. Software engineers design and develop many types of software, including business applications, embedded systems, computer games, operating systems, and networks. According to the 2014 Occupational Outlook Handbook from the Bureau of Labor Statistics, employment of software engineers is projected to grow 17 percent from 2014 to 2024, much faster than the average.

The FGCU B.S. Software Engineering degree program will produce graduates who:

- successfully enter chosen careers in application software development, system software development, and/or graduate studies,
- practice life-long learning in their professions, adapting to the rapidly changing technological world.

Program Progression And Additional Graduation Requirements

Students admitted to Florida Gulf Coast University as a degree seeking student in good academic standing may declare a major in engineering. All engineering majors must satisfy the academic milestones as described in the student guidebook. Refer to the Software Engineering (B.S.) Student Guidebook for further information on milestones.

- In addition to the program requirements, students must complete:
- Complete a minimum of 120 credits, with at least 48 credits at the upper division (3-4000 level).

- Complete a minimum of 30 of the last 60 credits at FGCU, including 12 credit hours in the major. Also CEN 4065 and CEN 4935 must be taken at FGCU.
- Earn a cumulative GPA of 2.0 for all coursework attempted at FGCU.
- Satisfy College-Level Skills and foreign language entrance requirements.
- Satisfy Service Learning requirement. See www.fgcu.edu/connect/

Program Requirements

1. **FGCU General Education Program** (https://www.fgcu.edu/general_education/)
   To prevent or minimize excess hours, select general education courses that satisfy common prerequisite requirements for your intended major.

2. **Common Prerequisites**
   For this major, common prerequisite courses with an asterisk (*) require prior knowledge and skills demonstrated through degree acceleration programs (e.g., the College Board's Advanced Placement Program [AP], International Baccalaureate Program [IB], College-Level Examination Program [CLEP], Advanced International Certificate of Education Program [AICE]); dual enrollment; placement exam; or college coursework.

   FGCU Course: *COP 1500 Intro to Computer Science (3) Minimum grade of C

   Acceptable Substitute: COPX500 or COP X000

   [Prerequisites of MAT 1033 minimum grade of C then MAC 1105 Minimum grade of C; or relevant accelerated credit; or placement exam]

   FGCU Course: COP2006 Introduction to Programming (3) Minimum grade of C
   Acceptable Substitute: COP X250, COP X253, or COP X800

   FGCU Course: *MAC 2311 Calculus I (4) Minimum grade of C
   Acceptable Substitute: MACX311
   [Prerequisites of MAT 1033 minimum grade of C then MAC 1105 minimum grade of C then MAC 1147 minimum grade of C; or relevant accelerated credit; or placement exam]

   FGCU Course: MAC 2312 Calculus II (4) Minimum grade of C
   Acceptable Substitute: MACX312

   FGCU Course: PHY 2048C General Physics w/Lab I (4) Minimum grade of C

FGCU Course: PHY 2049C Gen'l Physics w/Lab II (4) Minimum grade C
Acceptable Substitute: [(PHYX048 and PHYX048L)] and [(PHYX049 and PHYX049L)] or (PHYX048C and PHYX049C)

FGCU Course: *STA 2023 Statistical Methods (3) or *STA 2037 Statistics with Calculus (3) Minimum grade of C
Acceptable Substitute: STAX023 or STAX037
[For STA 2023 Prerequisites of MAT 1033 minimum grade of C; or relevant accelerated credit; or placement exam]
[For STA 2037 Prerequisites of MAT 1033 minimum grade of C then MAC 1105 minimum grade of C then MAC 1147 minimum grade of C then MAC 2311 minimum grade of C; or relevant accelerated credit; or placement exam]

Math Electives (6-7 credits) from the following:
FGCU Course: MAC 2313 Calculus III (4)
FGCU Course: MAP 2302 Differential Equations (3)
FGCU Course: MHF 2191 Mathematics Foundations (3)
FGCU Course: MHF 2310 Symbolic Logic (3)

Science Electives (4 credits) from the following:
FGCU Course: BSC 1010C Gen'l Biology I w/Lab (4)
FGCU Course: BSC 1011C Gen'l Biology II w/Lab (4)
FGCU Course: *CHM 1045C General Chem w/Lab I (4)
[Prerequisites of MAT 1033 minimum grade of C then MAC 1105 minimum grade of C; or relevant accelerated credit; or placement exam]
FGCU Course: CHM 1046C General Chem w/Lab II (4)
FGCU Course: GLY ~~1000C~~ 1010C Physical Geology (4)

3. **Required Courses in the Major (45 credits)**
   A minimum grade of C is required in each course.

   CDA 3104 Comp Org'n Assem Lang Prog (3)
   CEN 3031 Software Engng Fundamentals (3)
   CEN 3078 Software Security (3)
   CEN 3073 Software Specifications (3)
   CEN 4072 Software Testing (3)
   CEN 4065 Software Architecture & Design (3)
   CEN 4935 Senior Software Engr Project (3)
   CNT 4104 Software Proj Comp Networks (3)
   COP 2001 Programming Methodology (3)

COP 3003 Object-Oriented Programming (3)
COP 3530 Data Structures & Algorithms (3)
COP 3710 Intro to Data Engineering (3)
COP 4610 Operating Systems (3)
EGN 3641C Engineering Entrepreneurship (3)
MAD 3107 Discrete Mathematics (3)

4. **Restricted Electives (12 credits)**
   A minimum grade of C is required in each course.

   Select 12 credits from the following:
   BME 3506C Circuits for Bioengineers (3)
   BME 3507C Signals Syst Bioengineers (3)
   CAP 4662 Introduction to Robotics (3)
   CAP 4730 Computer Graphics (3)
   CAP 4770 Knowledge Disc. & Data Mining (3)
   CAP 4830 Simulation & Modeling (3)
   CDA 3200 Digital Systems (3)
   CDA 4150 Computer Architecture (3)
   CDA 4170 Data Acquis & Control Systems (3)
   CEN 3213 Embedded Systems Programming (3)
   CEN 4083 Intro. to Cloud Computing (3)
   CEN 4216 Cyberphysical Systems (3)
   CEN 4930 Special Topics in Software Engineering (3)
   COP 4908 Independent Study (3)
   COP 4931 Special Topics in Computer Science (3)

   See college advisor for approval of additional courses.

5. **University Requirements (3 credits)**
   IDS 3920 University Colloquium (3)

6. **Additional Electives -** as needed to reach total credits required for the degree

TOTAL CREDITS REQUIRED: 120