1. **Degree/Major Title:**

   B.S. Software Engineering

2. **Contact person:** Lisa Zidek

   **College:** Engineering

   **Department/School:** Bioengineering and Software Engineering

   **Telephone:** 239-590-7392

3. **Briefly describe the proposed revision(s).**

   The majority of the proposed revisions are prerequisite changes. One request is a "course clean-up" due to discrepancies between banner, the catalog, and the CMS. The final request is to remove a course that is no longer taught.

4. **Effective date:** Fall 2014

   Changes are effective in the fall of the year. Exceptions are approved only in unusual circumstances with adequate justification.

5. **Briefly explain the rationale for the proposed revision.**

   Link the proposed revision to assessment and institutional effectiveness activities (feedback from students, market demands, program evaluation, resource allocation, etc.).

   CDA 4150, Computer Architecture, should have COMP 2001, Programming Methodology, as a prerequisite. The course is also changing from required to an elective. This course was a required course in Computer Science. Although the topic is relevant for Software Engineering, it is not a required course and will be retained as a restricted elective in the major.

Degree/MajorRevision Proposal – Revised – 3-26-13
The prerequisites for CEN 4935, Senior Software Engr Project, have been revised to better suit the needs of Software Engineering Senior Design, in particular as the program transitions from Computer Science to Software Engineering. The current catalog copy also lists an incorrect course number for one of the prerequisites.

A prerequisite for CEN4065 has been added to better prepare the student with additional data structures before taking the Software Architecture and Design course.

The proposed change for CNT 4104, Software Proj Comp Networks, is to remove COP3003 as a prerequisite and replace it with COP 3530, Data Structures and Algorithms. This change will better prepare the students with the skills and background needed for this course.

CEN 3073 Software Specifications has discrepancies between FGCU systems such as Banner, GullFline, CMS... This course change is being submitted to assist with course clean-up.

COP 2550 is being removed. This course has not been offered in the previous 3 years and there are no plans to offer it in the future since it was part of the Computer Science degree, which has been discontinued.

6. Describe additional library resources needed to support this revision? Explain rationale for response, even if answer is None.
   No additional library resources are required to support these changes.

7. Describe additional faculty resources needed to support this revision? Explain rationale for response, even if answer is None.
   The current faculty is sufficient to support these changes.

8. Describe additional technology, facility, laboratory, or other resources needed to support this revision?
   Explain rationale for response, even if answer is None.
   No additional technology or other resources are required to support these changes.

9. What impact will the proposed revision have on other colleges, units, or programs?
   These changes will not have an impact on any other colleges, units or programs.

10. New courses:
   ☑ No new courses are required.
   ☐ New courses are needed. List prefix/number/title below. Complete a Course Add Form for each from the Curriculum Management System - https://midas.fgcu.edu/acadaff/scns/.

11. Change to existing courses:
   ☑ No existing courses are being changed.
   ☐ Existing courses are being changed. List prefix/number/title below. Complete a Course Change Form for each from the Curriculum Management System - https://midas.fgcu.edu/acadaff/scns/.

   CDA 4150 Computer Architecture
   CEN 4935 Senior Software Engr Project
   CEN 4065 Software Architecture & Design
   CNT 4104 Software Proj Comp Networks
   CEN 3073 Software Specifications

12. Termination of existing courses:
   ☐ No existing courses are being deleted from the FGCU course inventory.
   ☑ Courses are being terminated. List prefix/number/title below. Complete a Course Terminate Form for each course from the Curriculum Management System - https://midas.fgcu.edu/acadaff/scns/.

Degree/Major Revision Proposal – Revised – 3-26-13
COP 2550 Programming Systems

13. **What impact will the proposed revision have on the progression or sequencing of courses in this degree program?**

   Please provide evidence in the form of a degree curriculum map, a listing of required and restricted elective courses in the major and their prerequisites or other form appropriate for your program (consult with College Curriculum Team Chair for additional information).

14. **Catalog copy:**
   
   See Instructions above.

15. **Additional remarks:**

   COMMON PREAM CHANGE - CATALOG COPY - SEE ATTACHED 3/29/14 EMAILS

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**APPROVALS** (required prior to submission)

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<th>Department/Program Chair/Director</th>
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<th>College Curriculum Committee Chair</th>
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<td>Richard Boll</td>
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Does another department or unit provide related expertise or offer similar courses?  
☐ No  ☐ Yes (If yes, have the other department complete the following. Attach a separate sheet if needed.)

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☐ Supports this proposal  ☐ Does not support this proposal  ☐ Defers Recommendation

**Authorizing signature:** ________________  
**Date:** ________________

**Comments:**

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Degree/Major Revision Proposal – Revised – 3-26-13
Software Engineering (B.S.)
U.A. Whitaker College of Engineering
Department of Bioengineering and Software Engineering
http://www.fgcu.edu/eng/sebs/index.asp
(239) 590-7390

2013-2014, 2014-2015 Catalog Year

The Bachelor of Science in Software Engineering (SE) 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 2012-2013 Occupational Outlook Handbook from the Bureau of Labor Statistics, employment of software engineers is projected to grow 30 percent from 2010 to 2020, much faster than the average.

The U.A. Whitaker College of Engineering will apply to the Engineering Accreditation Commission of ABET, Inc. for accreditation of the B.S. in Software Engineering after the first students graduate in May 2015.

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 Admission Requirements

Degree-seeking students are classified as pre-majors prior to formal acceptance into a U.A. Whitaker College of Engineering (WCE) major. As pre-majors, students may enroll in:

- Lower level (1000-2999) courses to satisfy General Education and Common Program Prerequisite requirements;
- Lower level electives; and
- COP1500 from the Engineering Common Core courses, if course pre-requisites are met.
Pre-majors may not enroll in any upper level (3000-4999) Required Courses for the Major without meeting the course pre-requisites and prior approval, where appropriate, by the WCE Academic Advisor.

Admission to Florida Gulf Coast University does not guarantee acceptance into a WCE major. Students are accepted into a WCE major upon satisfaction of the following:

- Admission to FGCU as a degree seeking student in good academic standing.
- Attendance at a Freshman Transition Workshop or Transfer Student Orientation session.
- Completion of Calculus I with a minimum grade of C or higher. Exceptions may be made for AP/IB credit with approval of the WCE Academic Advisor.
- Submission of the U.A. Whitaker College of Engineering Application for Acceptance into a Major upon completion of the above steps 1 through 3 before the start of registration in any given semester.

**Program Requirements**

1. **FGCU General Education Program (GEP) (36 hrs)**
   Refer to the General Education Program for more information.

   A. Communication (6 hrs)
      1. ENC 1101 (3)
      2. ENC 1102 (3)
   B. Mathematics (6 hrs)
      1. STA 2037 or STA 2023 (3)
      2. MAC 2311
   C. Humanities (9 hrs)
      1. HUM 2510 (3)
   D. Social Sciences (6-9 hrs)
   E. Natural Sciences (6-9 hrs)
      1. PHY 2048C
      2. PHY 2049C

   Note: At least one Natural Sciences course must include a laboratory or field component. Courses meeting this requirement contain a “C” or “L” in their course numbers. Each combined lecture and laboratory course (marked with a C) is equivalent to taking the lecture and laboratory separately.

2. **Common Prerequisites (11 hrs)**

   - COP 1500 Introduction to Computer Science (3)
   - MAC 2311 Calculus I (GEP)
   - MAC 2312 Calculus II (4)
   - PHY 2048C General Physics I (GEP)
   - PHY 2049C General Physics II (GEP)
3. **Required Courses in the Major (51 hrs)**

- CDA 3104 Computer Org & Assem Lang Prog (3)
- CDA 3200 Digital Systems (3)
- CEN 3031 Software Engng Fundamentals (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 2006 Introduction to Programming (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)
- XXX XXXXX Math/Science Electives (3)

*The Math/Science Elective must be approved by the Academic Advisor for software engineering in consultation with the faculty.

4. **Restricted Electives (6 hrs)**

Select 6 hours from the following:

- BME 3506C Circuits for Bioengineers (3)
- BME 3507C Signals Syst Bioengineers (3)
- CAP 3611 Computation & Neural Systems (3)
- CAP 4730 Computer Graphics (3)
- CAP 4830 Simulation & Modeling (3)
- CDA 4150 Computer Architecture (3)
- CDA 4170 Data Acquis & Control Systems (3)
- CEN 3213 Embedded Systems Programming (3)
- COP 2550 Programming Systems (3)
- COP 4908 Independent Study (3)
- COP 4931 Special Topics in Computer Science (3)

See college advisor for approval of additional courses.
1. **University Requirements (3 hrs)**
   - IDS 3920 University Colloquium (3)

2. **Unrestricted Electives (13 hrs)**

**TOTAL SEMESTER HOURS REQUIRED: 120 HRS**

**Additional Graduation Requirements**

- Complete a minimum of 120 credit hours, with at least 48 hours at the upper division (3-4000 level).
- Earn a Grade of C or higher in the Common Prerequisites, Required Courses in the Major, and Restricted Electives.
- Complete a minimum of 30 of the last 60 credit hours at FGCU, including 12 credit hours in the major.
- Earn a cumulative GPA of 2.0 for all coursework attempted at FGCU.
- Satisfy Communication and Computation Skills and foreign language entrance requirements.
- Satisfy Service Learning requirement. See [www.fgcu.edu/connect/](http://www.fgcu.edu/connect/)

**Transfer Notes and Acceptable Substitutes**

The following substitutions are acceptable for common prerequisites and must be completed with a grade of C or higher:

- **COP 1500**: may substitute COP XXXX or Introductory Programming in Ada, C, C++, or PASCAL or equivalent language (3)
- **MAC 2311**: may substitute MAC X311 (4)
- **MAC 2312**: may substitute MAC X312 (4)
- **PHY 2048C**: may substitute PHY X048C or PHY 2048 and PHY 2048L
- **PHY 2049C**: may substitute PHY X049C or PHY 2049 and PHY 2049L
- **STA 2023 or STA 2037**: may substitute STA X023 or STA 2037
- **XXXXXXXX**: may substitute any Science course for Science majors (4)

For All Majors: Students are strongly encouraged to select required lower division electives that will enhance their general education coursework and that will support their intended baccalaureate degree program. Students should consult with an academic advisor in their major degree area.

Transfer credit will normally be accepted from regionally accredited institutions. Transfer credit received by The Office of Admissions will be evaluated for appropriate credit toward specific requirements in the student's degree program. Registration assistance will be provided at transfer orientation based on the evaluation of official transcripts and degree applicable transfer credit.
Admitted students may view transfer credit and access a Degree Evaluation in the Student Records section of the Gulfline Accounts. Degree evaluation instructions may be found at this link: http://www.fgcu.edu/OCI/cappstudents.html