FLORIDA GULF COAST UNIVERSITY

U.A. WHITAKER COLLEGE OF ENGINEERING

U.A. Whitaker College of Engineering

Software Engineering Program Guidebook

AY2019-2020

Welcome to the 2019-2020 Academic Year at Florida Gulf Coast University (FGCU) and U.A. Whitaker College of Engineering.

The Software Engineering Program Guidebook is designed to assist you with the standards, policies, procedures, and guidelines that will help you have a positive academic experience. Please be aware that the policies, guidelines, and forms contained in this Software Engineering Program Guidebook remain under review and any section or part may be revised without notice or obligation during your tenure in the program.

It is your responsibility to read the FGCU University Academic Catalog 2019-2020, FGCU Student Guidebook, and the Student Code of Conduct and to follow all guidelines, rules, and regulations as they relate to FGCU, The U.A. Whitaker College of Engineering, and the Software Engineering Program.

I hope this year is rewarding and successful for you.

Sincerely,

Huzefa Kagdi, Ph.D.
Chair and Professor
Software Engineering
U.A. Whitaker College of Engineering

Contents

Introduction

College of Engineering Vision and Mission

Vision

To provide the best value in high-quality engineering education.

Mission

To produce engineering leaders in selected disciplines with strong technical competence and professional skills to meet the challenges of Southwest Florida and beyond.

Software Engineering Overview

Software Engineering is the engineering discipline that utilizes a systematic approach to the development, production, operation, and maintenance of software. The Bachelor of Science degree in Software Engineering (SE) at FGCU prepares students in the theory and methods of systematic and rigorous construction of software for industrial, scientific and commercial applications. Software plays an increasingly important role in our daily life. It is a fast growing field. According to the Bureau of Labor Statistics' Occupational Outlook Handbook 2010-11 Edition, more than 270, 900 new software engineer positions will be created over the 2010 to 2020 period.

Software Engineering students complete core courses including traditional Computer Science courses and specific Software Engineering courses. Computer Science courses include object-oriented programming, data structures and algorithms, operating systems, and computer organization and networking. Software Engineering courses include software engineering fundamentals, software requirements engineering, software architecture and design, software testing, and team-oriented senior software engineering projects. Further specialized courses in real-time embedded systems, data acquisition and control, simulation and modeling, intelligent systems, and computer graphics are among the possible SE electives. In addition, students can take electives in computer information systems. Software Engineering students build on general education courses with a significant component in math and physics as prerequisites for upper level courses.

Software Engineering Mission

The mission of the B.S. Software Engineering degree program is to:

- deliver graduates with a high quality education in engineering and computer science who are well prepared for careers as valuable contributors in application software development, system software development, as well as for further graduate study
- while providing an entrepreneurial, interdisciplinary, and service oriented environment and curriculum, and
- valuing diversity and professionalism in our field, and collaboration across the engineering and computing disciplines.

Program Educational Objectives and Student Outcomes

The Software Engineering Program has formulated the following Program Educational Objectives, which describe the career and professional accomplishments that our B.S. Software Engineering degree program is preparing graduates to attain. In support of these objectives, the faculty have also identified the following Student Outcomes, which describe what students are expected to know and be able to do by the time of graduation. Program Educational Objectives.

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.

Student Outcomes

Graduates of the Software engineering program will attain:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Software Engineering Program Requirements

Program specific requirements as well as general education and university requirements are included in the University Academic Catalog. Links to the specific pages in the catalog are listed below.

The General Education Program Website is located here. **To prevent or minimize excess hours, select general education courses that satisfy common prerequisite requirements for your intended major.**

Program requirements for the B.S. program can be found within the University Academic Catalog, located here. This link provides program specific information including:

- Common Prerequisites
- Engineering Common Core
- Required Courses in the Major
- Restricted Electives
- University Requirements
- Additional Electives
- Additional Graduation Requirements

Timely Progression Toward Degree

The U.A. Whitaker College of Engineering uses academic milestones to monitor academic progress throughout the major. This monitoring ensures that students are on track for graduation in a timely fashion. In addition, transfer students must meet mapping guidelines to be accepted into their majors. A sample schedule for the Software Engineering Program is provided below. This sample schedule serves as a general guideline to help the student build a full schedule each term.

Missing a milestone will result in registration holds. Students are allowed no more than two milestone non-compliance issues in the Software Engineering Program. The first missed milestone in the major results in a hold being placed on the student's account, requiring students to meet with their advisor for additional assistance prior to registration for the subsequent semester. At this time, remaining milestone deadlines may be adjusted per the student's plan to graduation. If a student is in non-compliance with the milestones for a second time, a hold is placed on the student's account and the student will be required to meet with an advisor to change majors.

For the B.S. in Software Engineering, the following milestones must be successfully completed, along with maintaining an overall GPA of 2.0 or higher at all times. Note that the semester number refers to the number of semesters after a student enters the U.A. Whitaker College of Engineering.

- Meet with an engineering academic advisor and have a smart plan on file by the end of Semester 1. Smart plans will be completed with the advisor and available to the student through Canvas.
- Complete MAC 2311 and COP 1500, both with a minimum grade of "C" by the end of the summer following Semester 2.
- Complete COP 2006 and MAC 2312, both with a minimum grade of "C" by the end of Semester 4.
- Complete COP 2001 with a minimum grade of "C" by the end of Semester 6.
- Complete COP 3530 and CEN 3031, both with a minimum grade of "C" by the end of Semester 7.
- Make a graduation check appointment with advising by the beginning of Semester 7.
- Apply for graduation per the University deadline during Semester 7.

Sample Course Schedule

Freshman Year				
Course	Course Title	Credit	Prerequisites	Milestones
Fall (Semester 1)				
COP 1500	Intro to Computer Science	3	**MAC 1105**	Overall GPA ≥ 2.00 Meet with academic advisor and have a smart plan on file.
ENC 1101	Composition I (W)	3		
MAC 2311	Calculus I	4	**MAC 1147**	
XXX XXXX	Science for Science Majors	4		
	Total	**14**		

Spring (Semester 2)				
XXX XXXX	Humanities	3		Overall GPA ≥ 2.00
MAC 2312	Calculus II	4	MAC 2311	
ENC 1102	Composition II (W)	3	ENC 1101	
XXX XXXX	Social Science	3		
	Total	**13**		

Summer				
XXX XXXX	Social Science STATE CORE (recommend ECO 2013)	3		Overall GPA ≥ 2.00 Complete MAC 2311 and COP 1500 with a "C" or better
XXX XXXX	Humanities	3		
XXX XXXX	Humanities	3		
	Total	**9**		

Sophomore Year				
Fall (Semester 3)				
COP 2006	Intro to Programming	3	COP 1500, MAC 2311	Overall GPA ≥ 2.00
STA 2037 / STA 2023	Statistics w/ Calculus OR Statistical Methods	3	MAC 2311 /MAC 1105 (for STA 2023)	
XXX XXXX	Math or Science elective	3		
PHY 2048C	General Physics I w/lab	4	MAC 2311	
	Total	**13**		

Spring (Semester 4)				
COP 2001	Programming Methodology	3	COP 2006, MAC 2312	Overall GPA ≥ 2.00 Complete MAC 2312 and COP 2006 with a "C" or better
CDA 3104	Computer Org & Assem Lang Prog	3	**PHY 2048C, COP 2006**	
PHY 2049C	General Physics II w/lab	4	PHY 2048C, MAC 2312	
MAD 3107	Discrete Mathematics	3	MAC 2312	

	Total	13		

Junior Year

Fall (Semester 5)

EGN 3641C	Engineering Entrepreneurship	3	CDA 3200	
IDS 3920	University Colloquium	3	Junior standing	
CEN 3031	Software Engng Fundamentals	3	COP 2001, STA 2037 or STA 2023	Overall GPA ≥ 2.00
COP 3003	Object-Oriented Programming	3	COP 2001	
XXX XXXX	Unrestricted Elective	4		
	Total	**16**		

Spring (Semester 6)

CEN 3073	Software Specifications	3	CEN 3031, EGN 3641C	
COP 3530	Data Structures & Algorithms	3	COP 3003, MAD 3107	
COP 3710	Intro to Data Engineering	3	COP 3003	Overall GPA ≥ 2.00
XXX XXXX	SE Elective	3		
CEN 3071	Software Security	3	COP 3003	Complete COP 2001 with a "C" or higher
	Total	**15**		

Senior Year

Fall (Semester 7)

CEN 4065	Software Architecture & Design	3	CEN 3073, COP 3530, CEN 3071	Overall GPA ≥ 2.00 Complete COP 3530 and CEN 3031 with a grade of "C" or higher
CNT 4104	Software Proj Comp Networks	3	COP 3530, CEN 3071. CEN 3073	Make appointment for graduation check with advising
COP 4610	Operating Systems	3	COP 3530, CDA 3104	
XXX XXXX	SE Elective	3		
XXX XXXX	Unrestricted Elective	3		Apply for graduation prior to University deadline
	Total	**15**		

Spring (Semester 8)

CEN 4935	Senior Software Engineering Proj	3	CNT 4101	
CEN 4072	Software Testing	3	CEN 3073	Overall GPA ≥ 2.00
XXX XXXX	SE Elective	3		
XXX XXXX	SE Elective	3		
	Total	**12**		

Course Repeat Policy

An undergraduate Software Engineering degree requires 120 semester credit hours for graduation. In order to ensure that students remain on track for a timely graduation, the program has implemented a course repeat policy as described below. For the purposes of this policy, Software Engineering majors must earn a grade of "C" or better in all classes listed in: common program prerequisites, engineering common core, required courses in the major and restricted electives. Withdrawals and grade forgiveness are considered non-progression, and are subject to the course repeat policy.

Within Software Engineering, students may not exceed three repeats in total for all required courses in the program. In addition, students are only allowed a single repeat for **one** of the following core pre-requisite courses: Calculus I, Calculus II, General Physics I and COP 2006, Introduction to Programming. Lastly, for all other required courses, students may not exceed two repeats for any single course.

Advising

Academic advising by designated WCE advisors is provided to maintain the standards of the program and to guide each student. The purpose of academic advising is to assist the student in his/her academic progression throughout the program. Additional information can be found here.

Academic advisors also provide the following services for students:

- Academic advising and program information for current and potential students
- Referral to faculty mentors and campus resources for career planning
- Communication regarding internship opportunities
- Orientation for students applying for admission to the school
- Assistance with issues related to registration and academic standing
- Evaluation of academic transcripts and articulation of transfer credits
- Maintenance of academic advising records and degree audits
- Certification of graduation

Students are expected to take primary responsibility to meet with their academic advisor on a regular basis to insure completion of all requirements for graduation.

In addition to academic advising, all students are assigned faculty mentor. Students are required to meet with their faculty mentor prior to registering for classes each semester starting in the term the student is enrolled in COP 2006. Faculty mentors provide career specific guidance including:

- Service Learning Opportunities
- How to Establish relationships with Faculty and Industry
- Internships
- Technical Electives
- SMART Plan Updates
- Undergraduate Research & Lab Work

- Career Goals
- Plans after Graduation
    - Graduate School
    - Job Search

Standards of Conduct

All students are expected to demonstrate honesty in their academic pursuits. In safeguarding the essential professional standards of honesty and integrity, faculty are compelled to apply academic sanctions which can be as severe as dismissal from the Software Engineering Program. The University policies regarding Standards of Conduct can be found on the Dean of Students' Office website under Student Resources, it can also be found here.

Appeal Process - Grades

In accordance with University guidelines, students may appeal the following:
- Grades or other academic action taken by an instructor.
- Grades resulting from an instructor's:
    - Alleged deviation from established and announced grading policy.
    - Alleged errors in application of grading procedures.
    - Alleged lowering of grades for non-academic reasons.

Please refer to the FGCU Office of Judicial Affairs for the complete Student Grade Appeals process for DEPARTMENT LEVEL, COLLEGE LEVEL and FINAL APPEAL, available online here.

Attendance and Punctuality

An expectation of professional practice is that students attend all classes, laboratory experiences, class demonstrations, field trips and other academic experiences. Responsibility and accountability for meeting course obligations is a fundamental component of professionalism.

In Classroom:

Students assume responsibility for attending all classes, however in the event a class period is missed, the student is responsible for all material covered and all announcements. Further, punctuality and attentiveness is courteous behavior exemplified by:
- Being on time and remaining for the entire class period.
- Remaining in the classroom until a break or end of the period
- Turning off cell phone and other communication devices.

Civility

The learning environment (classroom, laboratories, field trips, hallways, offices etc.) in which students gain knowledge, values, and competencies is co-created by all who enter into this environment. Students in the U.A. Whitaker College of Engineering conform to, and express

themselves in conventional patterns of social behavior. Such behavior is consistently expressed through social politeness, keen sensitivity, respect, and courteous treatment to others.

E-mail Policy

E-mail is an important communication tool used in the U.A. Whitaker College of Engineering. Upon admission to FGCU, all students are assigned an e-mail address that is accessible from any computer via the web page located at FGCU Webmail.

The FGCU assigned eagle e-mail address is the **only** address used by U.A. Whitaker College of Engineering faculty to communicate with students via e-mail. Students are responsible and accountable for information sent via this e-mail address and should frequently check e-mails. Faculty in the U.A. Whitaker College of Engineering may use email to communicate information, announcements, and memoranda. Course information such as assignments, handouts, and schedule changes may also be communicated through the email function in the Canvas Learning Management System.

Students should contact the FGCU Computing Services Helpdesk at Trackit@fgcu.edu or (239) 590-1188 for issues with email. The ability to receive and read e-mail, open attachments, and access online information is vital to success in the FGCU College of Engineering.

Grading System

In the U.A. Whitaker College of Engineering, a grade of "C" or better constitutes satisfactory progression. A grade of C- does not constitute satisfactory course completion. It is the responsibility of the student to read and understand the course syllabus and grading policy for each class.

Student Grievance Procedure

The university grievance procedure can be found here.

Undergraduate Student Workload Policy

The Software Engineering program is rigorous and demanding of time, energy, and talent. When making decisions about employment, students are to carefully consider workload expectations of credit hours registered for at FGCU. For example, a 3 credit hour course requires 3 hours classroom plus an additional 9-10 hours study time each week. **Students are expected to make realistic employment decisions as the hours worked outside of university are not an excuse for failing to meet academic and practice performance standards, and Software Engineering Program schedules for classes.**

General Information

Canvas

"Canvas" is the name of the FGCU Learning Management System. Information about Canvas and the log-in page can be found here.

College Forms

The following U.A. Whitaker College of Engineering forms can be found online here.

- Request to Change Major/Minor/Catalog Year
- Course Withdrawal Form
- Grade Forgiveness Applications
- Request for Dual Major/Degree
- WCE Appeal for Late Withdrawal Without Academic Penalty
- WCE Incomplete Grade Agreement Form

Confidentiality and Privacy Rights

Cognizance of, and respect for, rights and privileges of others is an expectation of all within the helping professions. Faculty honor and respect the student's privacy rights and conform to FERPA requirements. Students honor, respect, and maintain confidences and privacy of clients and conform to HIPPA requirements. All student-client encounters, written, oral, or other, obligate confidentiality under all circumstances. For written assignments, only client initials are used as identifiers.

Disability Accommodations Services

Florida Gulf Coast University, in accordance with the Americans with Disabilities Act and the university's guiding principles, will provide classroom and academic accommodations to students with documented disabilities. If you need to request an accommodation in this class due to a disability, or you suspect that your academic performance is affected by a disability, please contact the Office of Adaptive Services. The Office of Adaptive Services is located in the Wellness Building. The phone number is 239-590-7956 or TTY 239-590-7930

Distance-Learning

Information on distance learning courses and technology requirements is available online here.

Name and Address Change

It is the student's responsibility to report any name or address change to the Office of the Registrar.

Scholarships

FGCU offers University Foundation Scholarships awarded on the basis of academic achievement, financial need, and/or other specifications set by donors. To apply for FGCU Foundation Scholarships, students must fill out the online scholarship application. The application will be

available on-line annually between November 15th and March 1st for the following academic year. Useful link for scholarship information is available here.

Service Learning

Information on service learning at FGCU is available online here.

Student Observance of Religious Holidays

All students at Florida Gulf Coast University have a right to expect that the University will reasonably accommodate their religious observances, practices, and beliefs. Students, upon prior notification to their instructors, shall be excused from class or other scheduled academic activity to observe a religious holy day of their faith. Students shall be permitted a reasonable amount of time to make up the material or activities covered in their absence. Students shall not be penalized due to absence from class or other scheduled academic activity because of religious observances. Where practicable, major examinations, major assignments, and University ceremonies will not be scheduled on a major religious holy day. A student who is to be excused from class for a religious observance is not required to provide a second party certification of the reason for the absence.