



**FLORIDA INTERNATIONAL UNIVERSITY
UNIVERSITY CURRICULUM COMMITTEE**
Proposal for a Course Change

DO NOT TYPE IN THIS BOX
Bulletin #: _____
Academic Year: _____

PART I. FILL OUT THIS SECTION COMPLETELY

1. School/College Engineering and Computing
 Div./Dept. in Which Taught School of Computing and Information Sciences
2. CEN 4 021 _____ 3
 Alpha 1st Last 3 "C"-lec-lab Cr. Hrs.
 Prefix Digit Digits "L"-Lab
3. Present Course Title Software Engineering II

PART II. FILL OUT CHANGE INFORMATION ONLY

Change Effective 1 / 6 / 2020

- 4a. New Course Title _____
- b. New Abbreviated course Title *(for computer class schedules, transcripts)*
LIMITED TO 25 Characters (including spaces)

- 5a.

New Alpha Prefix	New 1st Digit	New Last 3 Digits	Change "C"-lec-lab "L"-Lab

5b. Change Credit Hours: From _____ To _____

6. New Catalog Description/Major Topics *(not to exceed 200 characters including spaces)*
College of Medicine and College of Law: Attach description not exceeding 1,000 characters including spaces.
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7. New Prerequisite(s): CEN 4010 and COP 3530
8. New Corequisite(s): None

9. Explain Reclassification Request:
- The current "Prereq: CEN-4010" will be insufficient since CEN-4010 does not have COP3530 as its prerequisite. Hence the new prereq will ensure that students would be well prepared for CEN-4021.

10. Does this proposed change impact the assessment process of a program or certificate? If yes, then send notification to assessment@fiu.edu.

PROPOSAL REQUESTED BY:

Faculty Contact	<u>Nagarajan Prabakar</u>		<u>3</u> / <u>21</u> / 20 <u>19</u>
	<small>(Type name)</small>	<small>(Signature)</small>	
	<u>prabakar@cis.fiu.edu</u>	<u>305-348-2033</u>	
	<small>(Email address)</small>	<small>(Phone number)</small>	
Chairperson (Dept./Div.)	<u>S.S. Iyengar</u>		<u>3</u> / <u>21</u> / 20 <u>19</u>
	<small>(Type name)</small>	<small>(Signature)</small>	
Chairperson (Curr. Comm.)	<u>Cesar Levy</u>		/ / 20 <u>19</u>
	<small>(Type name)</small>	<small>(Signature)</small>	
College/School Dean	<u>John Volakis</u>		/ / 20 <u>19</u>
	<small>(Type name)</small>	<small>(Signature)</small>	

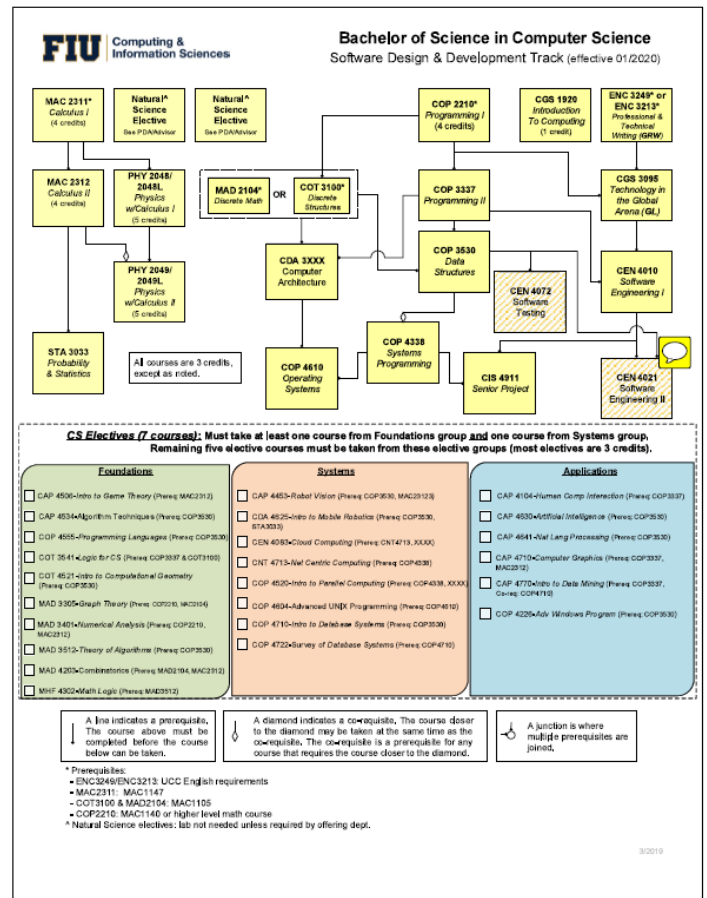
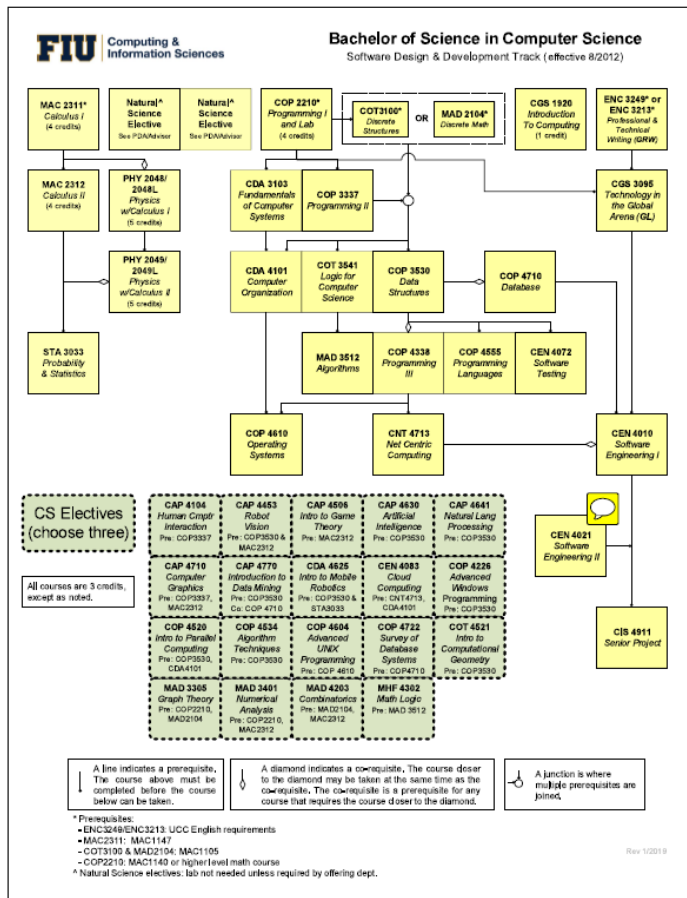
Submit one original form. Attach one copy of the course justification and course syllabus: course description, objectives, learning outcomes, major topics and textbooks.

CEN-4021 Software Engineering II

Course Change Justification

Software-Engineering-II course requires advanced programming skills (COP-3530) and Software Engineering basics (CEN-4010). The current “Prereq: CEN-4010” requirement will be insufficient since the new CEN-4010 does not have COP-3530 as its prereq as in the left flowchart (present curriculum model) below. Hence the proposed “Prereq: CEN-4010 and COP-3530” will ensure that students would be well prepared for CEN-4021 as shown in the right flowchart (restructured new curriculum model) below.

This course change will enable students will increase the passing rate of students in this course.



School of Computing and Information Sciences

Course Title: Software Engineering II

Date: 03/19/19

Course Number: CEN 4021

Number of Credits: 3

Subject Area: Software Engineering	Subject Area Coordinator: Peter Clarke email: clarkep@cis.fiu.edu
Catalog Description: Issues underlying the successful development of large scale software projects: Software Architectures; Software Planning and Management; Team Structures; Cost Estimation	
Textbook: Frank Tsui, "Managing Software Projects". Jones and Bartlett, ISBN 0-7636-2546-3.	
References: The Mythical Man-Month: Essays on Software Engineering, Addison-Wesley Pub. The CHAOS Report: http://www.projectsmart.co.uk/docs/chaos-report.pdf COCOMO II Definition Manual: http://sunset.usc.edu/research/COCOMOII/Docs/modelman.pdf	
Prerequisites Courses: CEN 4010 and COP 3530	
Corequisites Courses: None	

Type: Elective for Computer Science; Required for Software Design and Development Track

Prerequisites Topics:

- Software Development Life Cycle
- Requirements specifications
- Software Design and implementation

Course Outcomes:

1. Master techniques of planning and monitoring the progress of a software project
2. Master software project cost estimation techniques
3. Be familiar with software architectures
4. Be familiar with software development team structures

School of Computing and Information Sciences
CEN 4021
Software Engineering II

Relationship between Course Outcomes and Program Outcomes

BS in CS: Program Outcomes	Course Outcomes
a) Demonstrate proficiency in the foundation areas of Computer Science including mathematics, discrete structures, logic and the theory of algorithms	
b) Demonstrate proficiency in various areas of Computer Science including data structures and algorithms, concepts of programming languages and computer systems.	
c) Demonstrate proficiency in problem solving and application of software engineering techniques	1, 2, 3, 4,
d) Demonstrate mastery of at least one modern programming language and proficiency in at least one other.	
e) Demonstrate understanding of the social and ethical concerns of the practicing computer scientist.	
f) Demonstrate the ability to work cooperatively in teams.	1, 4
g) Demonstrate effective communication skills.	1, 4

Assessment Plan for the Course & how Data in the Course are used to assess Program Outcomes

Student and Instructor Course Outcome Surveys are administered at the conclusion of each offering, and are evaluated as described in the School's Assessment Plan:
<http://www.cis.fiu.edu/programs/undergrad/cs/assessment/>

School of Computing and Information Sciences
CEN 4021
Software Engineering II

Outline

Topic	Number of Lecture Hours	Outcome
<ul style="list-style-type: none"> • Introduction <ul style="list-style-type: none"> ○ Project Management Knowledge Areas ○ Project Management Process Groups 	3	1
<ul style="list-style-type: none"> • Project Organizational Structure <ul style="list-style-type: none"> ○ Functional Structure ○ Project Structure ○ Matrix Structure 	3	4
<ul style="list-style-type: none"> • Project Integration Management <ul style="list-style-type: none"> ○ Project Management Knowledge Areas ○ Project Management Process Groups ○ Change Control 	3	1
<ul style="list-style-type: none"> • Project Scope Management <ul style="list-style-type: none"> ○ Scope Planning and Project Selection <ul style="list-style-type: none"> ▪ Net Present Value ▪ Payback Analysis ▪ Weighted Scoring ○ Project Charter <ul style="list-style-type: none"> ▪ Work Breakdown structure ▪ Gantt Charts 	6	1
<ul style="list-style-type: none"> • Project Time Management <ul style="list-style-type: none"> ○ Activity Definition and Sequencing ○ Network Diagrams ○ Critical Path Method ○ PERT 	6	1
<ul style="list-style-type: none"> • Cost Estimation <ul style="list-style-type: none"> ○ Cost Estimation Models ○ Size Estimation ○ COCOMO I ○ COCOMO II 	6	2
<ul style="list-style-type: none"> • Quality Assurance <ul style="list-style-type: none"> ○ Inspections and Reviews ○ Software process assessment 	3	1
<ul style="list-style-type: none"> • Software Architectures <ul style="list-style-type: none"> ○ Pipes and Filters ○ Object-Oriented Event-Driven ○ Repositories ○ N-tier ○ Client Server 	6	3

School of Computing and Information Sciences
CEN 4021
Software Engineering II

Course Outcomes Emphasized in Laboratory Projects / Assignments

Outcome	Number of Weeks
1. Software Project Charter Outcomes: 1	3
2. Software Project Cost Estimate Outcomes: 2	3
3. Schedule Tracking: Outcomes: 2	3

Oral and Written Communication:

Written Reports		Oral Presentations	
Number Required	Approx. Number of pages for each	Number Required	Approx. Time for each
3	20	2	20-25 minutes per group (5 minutes per student)

Social and Ethical Implications of Computing Topics:

No significant coverage

Topic	Class time	Student Performance Measures

School of Computing and Information Sciences
CEN 4021
Software Engineering II

Approximate number of credit hours devoted to fundamental CS topics

Topic	Core Hours	Advanced Hours
Algorithms:		
Software Design:		0.5
Computer Organization and Architecture:		
Data Structures:		
Concepts of Programming Languages:		

Theoretical Contents

Topic	Class time

Problem Analysis Experiences

Software Project Charter

Solution Design Experiences

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School of Computing and Information Sciences
CEN 4021
Software Engineering II

The Coverage of Knowledge Units within Computer Science Body of Knowledge¹

Knowledge Unit	Topic	Lecture Hours
SE 4	Software life-cycle and process models	3
SE 8	Team management: Roles and responsibilities in a software team, Project tracking, Team problem resolution; Project scheduling; Software measurement and estimation techniques; Risk analysis; Software quality assurance; Software configuration management.	27

¹See <http://www.computer.org/education/cc2001/final/chapter05.htm> for a description of Computer Science Knowledge units