



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

DO NOT TYPE IN THIS BOX	
Bulletin #:	<u>6</u>
Academic Year:	<u>2017-18</u>

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. COP 2 210 4
 Alpha Prefix 1st Digit Last 3 Digits "C"-lec-lab "L"-Lab Cr. Hrs.
3. Present Course Title Computer Programming I

PART II. FILL OUT CHANGE INFORMATION ONLY

Change Effective 01 / 01 / 2019

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

- 5a.

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

 5b. Change Credit Hours: From _____ To _____

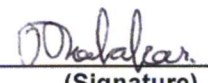

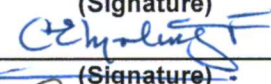
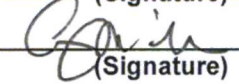
6. New Catalog Description/Major Topics (not to exceed 200 characters including spaces)
College of Medicine and College of Law: Attach description not exceeding 1,000 characters including spaces.
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7. New Prerequisite(s): MAC-1140 or MAC-1147 or MAC-2233 or MAC-2311 or Advisor's permission
 8. New Corequisite(s): _____

9. Explain Reclassification Request:
Concepts from MAC1140 (pre-calculus algebra) or other adv math courses, such as math functions and formalizing arithmetic sequences, will enable students to understand programming principles

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>30</u> / 20 <u>18</u>
	(Type name)	(Signature)	
	<u>prabakar@cis.fiu.edu</u>	<u>305-348-2033</u>	
	(Email address)	(Phone number)	
Chairperson (Dept./Div.)	<u>Mark Weiss</u>		<u>4</u> / <u>2</u> / 20 <u>18</u>
	(Type name)	(Signature)	
Chairperson (Curr. Comm.)	<u>Cora Martinez</u>		<u>4</u> / <u>5</u> / 20 <u>18</u>
	(Type name)	(Signature)	
College/School Dean	<u>John Volakis</u>		<u>4</u> / <u>9</u> / 20 <u>18</u>
	(Type name)	(Signature)	

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

Justification: Course change of COP-2210 (Computer Programming I)

The first programming course for Computer Science majors is COP-2210. Students without mathematical exposure find difficulty in understanding programming fundamentals. We have proposed MAC 1140 (Pre-Calculus Algebra) or MAC-1147 (Pre-Calculus Algebra & Trigonometry) or MAC-2233 (Calculus for Business) or MAC-2311 (Calculus I) as a prerequisite to COP 2210 so that students would have basic understandings of mathematical functions, arithmetic and geometric sequences, and variables. Additionally, an advisor can evaluate the mathematical proficiency with ALEKS score and waive the prerequisite requirement. This will enable them to learn programming principles effectively.

School of Computing and Information Sciences

Course Title: Computer Programming I

Date: 3/30/2018

Course Number: COP 2210

Number of Credits: 4

Subject Area: Programming	Subject Area Coordinator: Tim Downey email: downeyt@cs.fiu.edu
Catalog Description: A first course in computer science that uses a structured programming language to study programming and problem solving on the computer. Includes the design, construction and analysis of programs. Student participation in a closed instructional lab is required. This course will have additional fees.	
Textbook: Big Java by Cay Horstmann	
References:	
Prerequisites Courses: MAC-1140 or MAC-1147 or MAC-2233 or MAC-2311 or Advisor's permission	
Co-requisites Courses: Includes a closed lab component	

Type: Required Common Prerequisite

Prerequisites Topics:

- Mathematical functions
- Arithmetic and geometric sequences

Course Outcomes:

- O1. Be familiar with the concepts of Objects & Classes
- O2. Master the fundamental Java data types
- O3. Master the Java selection and iteration constructs
- O4. Be exposed to arrays
- O5. Master using String, ArrayList and Wrapper classes
- O6. Master analyzing problems and writing Java program solutions to those problems using the above features
- O7. Be exposed to software testing and interactive debugging
- O8. Master complex Boolean expressions in selection and iteration constructs
- O9. Master good programming practices
- O10. Master methods, method parameters, and parameter passing

(Subject Area Coordinator will provide a list of best programming practices for instructors as a reference)

School of Computing and Information Sciences
COP 2210
Programming I

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.	1, 2, 3, 4, 5
c) Demonstrate proficiency in problem solving and application of software engineering techniques	1, 2, 3, 4, 5
d) Demonstrate mastery of at least one modern programming language and proficiency in at least one other.	1, 2, 3, 4, 5
e) Demonstrate understanding of the social and ethical concerns of the practicing computer scientist.	
f) Demonstrate the ability to work cooperatively in teams.	
g) Demonstrate effective communication skills.	

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
COP 2210
Programming I

Outline

Topic	Number of Lecture Hours	Outcome
<ul style="list-style-type: none"> • Objects & Classes <ul style="list-style-type: none"> ○ Class variables ○ Defining a class 	5	O1, O5
<ul style="list-style-type: none"> • I/O with JOptionPane 	3	O1, O5
<ul style="list-style-type: none"> • Fundamental Java data types <ul style="list-style-type: none"> ○ Primitive types ○ Strings ○ Wrapper classes 	5	O2, O5
<ul style="list-style-type: none"> • Control structures <ul style="list-style-type: none"> ○ Selection ○ Iteration 	8	O3, O5
<ul style="list-style-type: none"> • Methods <ul style="list-style-type: none"> ○ Accessors & Mutators ○ Method parameters 	8	O1, O5
<ul style="list-style-type: none"> • ArrayLists 	8	O4, O5

Course Outcomes Emphasized in Laboratory Projects / Assignments

Outcome	Number of Weeks
	At least 7 assignments of 1.5 week duration are given In addition, students complete 10 1-hour in-lab exercises
O1	Assignments 1 & 2. All other assignments incidentally.
O2	Assignment 3.
O3	Assignments 5 & 6. Assignment 7 incidentally.
O4	Assignment 4. Assignments 5, 6 & 7 incidentally.
O5	Assignments 1 through 7

**School of Computing and Information Sciences
COP 2210
Programming I**

Oral and Written Communication:

None

Social and Ethical Implications of Computing Topics:

None

Approximate number of credit hours devoted to fundamental CS topics

Topic	Core Hours	Advanced Hours
Algorithms:	1.0	
Software Design:	1.0	
Computer Organization and Architecture:	0	
Data Structures:	0	
Concepts of Programming Languages:	1.0	

Theoretical Contents:

None

Problem Analysis Experiences:

None

Solution Design Experiences

7-8 Programming Assignments
10 1-hour Lab Exercises

School of Computing and Information Sciences
COP 2210
Programming I

The Coverage of Knowledge Units within Computer Science Body of Knowledge¹

Knowledge Unit	Topic	Lecture Hours
DS 2	Control structures (and/or, etc)	3
PF 1	Control structures	8
PF 3	ArrayLists	8
PF 5	I/O with JOptionPane	3
PL 4	Primitive and class types	2
PL 6	Objects & Classes	5
SE 2	Using APIs	1

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