



DO NOT TYPE IN THIS BOX

Bulletin #: 6
Academic Year: 2018-19

FLORIDA INTERNATIONAL UNIVERSITY UNDERGRADUATE PROGRAM PROPOSAL

Changes to an Undergraduate Degree Program

INSTRUCTIONS: Please Type. Fill out this form **completely**.

School/College Engineering and Computing

Div./Dept. School of Computing and Information Sciences

Degree Title: Bachelor of Science in Computer Science

B.A. B.S. Other Bachelor's _____

Proposed Implementation Date: 1/6/2020

PROPOSAL REQUESTED BY:

Faculty Contact Nagarajan Prabakar 3 / 21 / 20 19

(Type Name)

(Signature)

prabakar@cis.fiu.edu

305-348-2033

(Email address)

(Phone Number)

Chair (Dept./Div.) S.S. Iyengar 3 / 21 / 20 19

(Type Name)

(Signature)

Chair (Curr. Comm.) Cesar Levy 3 / 21 / 20 19

(Type Name)

(Signature)

College/School Dean John Volakis 3 / 25 / 20 19

(Type Name)

(Signature)

NO HEARING REQUIRED. PLEASE SUBMIT ORIGINAL FORM.

DO NOT TYPE IN THIS BOX

Bulletin #: _____
Academic Year: _____

CHANGES TO UNDERGRADUATE DEGREE PROGRAM

PLEASE SUBMIT THIS FORM WITH YOUR PROPOSAL

Please fill out the coversheet in its entirety.

The proposal must include the following elements using the current undergraduate catalog:

- I. List old Degree prescribed courses, other requirements, credits and page number (left column)
- II. List new Degree prescribed courses, other requirements and credits (right column)
- III. Include a brief rationale for the change

CHECK LIST

- | | Yes | No |
|---|-------------------------------------|-------------------------------------|
| 1. Do all courses exist in the current catalog? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. If courses are not in the current catalog, are they proposed in the same Curriculum Committee Bulletin as this proposal? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. If courses are not in the current catalog or proposed in this same bulletin, were they approved in a previous curriculum bulletin? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, attach a separate sheet indicating each course number, name, Bulletin number and Bulletin date. | | |
| If the answers to 1, 2, and 3 are no, do not submit the proposal. Address the course issues first. | | |
| 4. Do courses listed have the correct course prefixes, official titles, course numbers and number of credits? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 5. Are all courses to be added or changed taught in the same proposing departments? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 6. Are courses to be deleted taught in the same proposing department? | <input type="checkbox"/> | <input type="checkbox"/> |
| If the answer to #5 or #6 is no, do you have the written approval/acknowledgment of the other department(s)? (You must have written approval before submitting this document.) | | |
| | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. The written approval(s)/acknowledgment(s) must be attached. | | |
| 8. Does this change affect the courses measuring Student Learning Outcomes (SLO) or Program Outcomes (PO) for the program (for a copy of the assessment reports, please send a request to assessment@fiu.edu)? | | |

If yes, please submit revised SLO and PO to assessment@fiu.edu.

Bachelor of Science in Computer Science

Justification for Program Changes

Due to the current structure of our current CS curriculum with only three elective courses, students are unable to take a cross-section of courses that expose them to emerging technologies, thereby reducing their placement opportunities.

The emphasis of the FIU's initiative on 4-year graduation rates requires the reduction in the length of the pre-requisite chain of courses in order for students to fulfill their graduation requirements.

These changes allow students to take nine elective courses and reduce the prerequisite chain by one course.

Subject: Re: Request for prereq change to MAD-3512

From: Laura De Carli <decarlil@fiu.edu>

Date: 4/4/2019, 3:28 PM

To: Sitharama Iyengar <iyengar@cs.fiu.edu>

CC: Nagarajan Prabakar <prabakar@cis.fiu.edu>, Geoffrey Smith <smithg@cis.fiu.edu>, George Kafkoulis <kafkouli@fiu.edu>, John Zweibel <zweibelj@fiu.edu>, Mark Allen Weiss <weiss@cs.fiu.edu>, Shu-Ching Chen <chens@cs.fiu.edu>, Taje Ramsamujh <ramsamuj@fiu.edu>, Walter Van Hamme <vanhamme@fiu.edu>, "William Anderson Jr." <andersow@fiu.edu>

Dear Dr. Iyengar,

Thank you for your email. Since you and Dr. Weiss have confirmed that SCIS has no plans to create and then require a duplicate of MAD-3512, we do not object to the removal of MAD 3512 from the CS's list of required courses.

Best regards

Laura De Carli
Professor and Chair
Florida International University
Mathematics and Statistics, DM 418
Miami (FL) 33199
web: faculty.fiu.edu/~decarlil

On Thu, Apr 4, 2019 at 11:14 AM Sitharama Iyengar <iyengar@cs.fiu.edu> wrote:

Dear All,

After the review and discussions on the status of MAD 3512, there will not be a MAD 3512 alternate class created.

Thanks to all for your inputs.

Best,

Ram Iyengar

S.S. Iyengar, Ph.D.

ACM Fellow, IEEE Fellow, AAAS Fellow, NAI Fellow. AIMBE Fellow

Distinguished University Professor

Director and Ryder Professor

FIU | Computing &
Information Sciences

School of Computing & Information Sciences

Florida International University

Office: 305-348-3947

Fax: 305-348-3549

Email: iyengar@cs.fiu.edu

URLs: [Home Page](#), [Google Scholar](#), [Department](#), [College](#), [University](#)

Think differently, go beyond what is expected. Do something great with the opportunity you are given.

Be WorldsAhead.

**FLORIDA INTERNATIONAL UNIVERSITY
UNDERGRADUATE PROGRAM/CATALOG CHANGE PROPOSAL**

FIU Undergraduate Catalog

Current (2018-2019)	Proposed																																																
<p>Bachelor of Science in Computer Science Degree Program Hours: 120</p> <p>The Bachelor of Science program in Computer Science is accredited by the Computing Accreditation Commission (ABET), 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 – Telephone (410) 347-7700.</p> <p>Students must follow regular University admission procedures and upon admission declare their specific major as Computer Science. Two tracks are available in the program. The Computer Science track should be followed by the student who intends to continue to graduate study in computer science. The Software Design and Development track may be followed by the student who intends to pursue a software engineering career.</p> <p>All required courses must be completed with a grade of "C" or better. All students must participate in SCIS assessment activities and successfully complete an exit interview prior to graduation.</p> <p>Lower Division</p> <p>Students must complete the following courses as part of their course work, preferably during the first 60 credits and complete COP 2210 with a grade of "C" or higher:</p> <p>Common Prerequisite Courses and Equivalencies</p> <table border="0"> <thead> <tr> <th style="text-align: left;"><u>FIU Course(s)</u></th> <th style="text-align: left;"><u>Equivalent Course(s)</u></th> </tr> </thead> <tbody> <tr> <td>COP 2210</td> <td>COPXXXX¹</td> </tr> <tr> <td>MAC 2311</td> <td>MACX311 or MACX281</td> </tr> <tr> <td>MAC 2312</td> <td>MACX312 or MACX282</td> </tr> <tr> <td>PHY 2048, PHY 2048L</td> <td>PHYX048/X048L or PHYX048C</td> </tr> <tr> <td>PHY 2049, PHY 2049L</td> <td>PHYX049/X049L or PHYX049C</td> </tr> <tr> <td>XXXXXXX³</td> <td>XXXXXXX²</td> </tr> </tbody> </table> <p>¹Intro Programming in C, C++, JAVA, or equivalent language. Choose programming language required by the university to which the student wishes to transfer.</p> <p>²Science course for science majors.</p> <p>Courses which form part of the statewide articulation between the State University System and the Florida College System will fulfill the Lower Division Common Prerequisites.</p> <p>For generic course substitutions/equivalencies for Common Program Prerequisites offered at community colleges, state colleges, or state universities, visit: https://flvc.org. Search Program Listing by Alphabetic Order.</p> <p>Required Courses</p> <p>Common Prerequisites</p> <table border="0"> <tr> <td>COP 2210</td> <td>Computer Programming I</td> </tr> <tr> <td>MAC 2311</td> <td>Calculus I</td> </tr> <tr> <td>MAC 2312</td> <td>Calculus II</td> </tr> <tr> <td>PHY 2048</td> <td>Physics with Calculus I</td> </tr> <tr> <td>PHY 2048L</td> <td>General Physics Lab I</td> </tr> </table>	<u>FIU Course(s)</u>	<u>Equivalent Course(s)</u>	COP 2210	COPXXXX ¹	MAC 2311	MACX311 or MACX281	MAC 2312	MACX312 or MACX282	PHY 2048, PHY 2048L	PHYX048/X048L or PHYX048C	PHY 2049, PHY 2049L	PHYX049/X049L or PHYX049C	XXXXXXX ³	XXXXXXX ²	COP 2210	Computer Programming I	MAC 2311	Calculus I	MAC 2312	Calculus II	PHY 2048	Physics with Calculus I	PHY 2048L	General Physics Lab I	<p>Bachelor of Science in Computer Science Degree Program Hours: 120</p> <p>The Bachelor of Science program in Computer Science is accredited by the Computing Accreditation Commission (ABET), 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 – Telephone (410) 347-7700.</p> <p>Students must follow regular University admission procedures and upon admission declare their specific major as Computer Science. Two tracks are available in the program. The Computer Science track should be followed by the student who intends to continue to graduate study in computer science. The Software Design and Development track may be followed by the student who intends to pursue a software engineering career.</p> <p>All required courses must be completed with a grade of "C" or better. All students must participate in SCIS assessment activities and successfully complete an exit interview prior to graduation.</p> <p>Lower Division</p> <p>Students must complete the following courses as part of their course work, preferably during the first 60 credits and complete COP 2210 with a grade of "C" or higher:</p> <p>Common Prerequisite Courses and Equivalencies</p> <table border="0"> <thead> <tr> <th style="text-align: left;"><u>FIU Course(s)</u></th> <th style="text-align: left;"><u>Equivalent Course(s)</u></th> </tr> </thead> <tbody> <tr> <td>COP 2210</td> <td>COPXXXX¹</td> </tr> <tr> <td>MAC 2311</td> <td>MACX311 or MACX281</td> </tr> <tr> <td>MAC 2312</td> <td>MACX312 or MACX282</td> </tr> <tr> <td>PHY 2048, PHY 2048L</td> <td>PHYX048/X048L or PHYX048C</td> </tr> <tr> <td>PHY 2049, PHY 2049L</td> <td>PHYX049/X049L or PHYX049C</td> </tr> <tr> <td>XXXXXXX³</td> <td>XXXXXXX²</td> </tr> </tbody> </table> <p>¹Intro Programming in C, C++, JAVA, or equivalent language. Choose programming language required by the university to which the student wishes to transfer.</p> <p>²Science course for science majors.</p> <p>Courses which form part of the statewide articulation between the State University System and the Florida College System will fulfill the Lower Division Common Prerequisites.</p> <p>For generic course substitutions/equivalencies for Common Program Prerequisites offered at community colleges, state colleges, or state universities, visit: https://flvc.org. Search Program Listing by Alphabetic Order.</p> <p>Required Courses</p> <p>Common Prerequisites</p> <table border="0"> <tr> <td>COP 2210</td> <td>Computer Programming I</td> </tr> <tr> <td>MAC 2311</td> <td>Calculus I</td> </tr> <tr> <td>MAC 2312</td> <td>Calculus II</td> </tr> <tr> <td>PHY 2048</td> <td>Physics with Calculus I</td> </tr> <tr> <td>PHY 2048L</td> <td>General Physics Lab I</td> </tr> </table>	<u>FIU Course(s)</u>	<u>Equivalent Course(s)</u>	COP 2210	COPXXXX ¹	MAC 2311	MACX311 or MACX281	MAC 2312	MACX312 or MACX282	PHY 2048, PHY 2048L	PHYX048/X048L or PHYX048C	PHY 2049, PHY 2049L	PHYX049/X049L or PHYX049C	XXXXXXX ³	XXXXXXX ²	COP 2210	Computer Programming I	MAC 2311	Calculus I	MAC 2312	Calculus II	PHY 2048	Physics with Calculus I	PHY 2048L	General Physics Lab I
<u>FIU Course(s)</u>	<u>Equivalent Course(s)</u>																																																
COP 2210	COPXXXX ¹																																																
MAC 2311	MACX311 or MACX281																																																
MAC 2312	MACX312 or MACX282																																																
PHY 2048, PHY 2048L	PHYX048/X048L or PHYX048C																																																
PHY 2049, PHY 2049L	PHYX049/X049L or PHYX049C																																																
XXXXXXX ³	XXXXXXX ²																																																
COP 2210	Computer Programming I																																																
MAC 2311	Calculus I																																																
MAC 2312	Calculus II																																																
PHY 2048	Physics with Calculus I																																																
PHY 2048L	General Physics Lab I																																																
<u>FIU Course(s)</u>	<u>Equivalent Course(s)</u>																																																
COP 2210	COPXXXX ¹																																																
MAC 2311	MACX311 or MACX281																																																
MAC 2312	MACX312 or MACX282																																																
PHY 2048, PHY 2048L	PHYX048/X048L or PHYX048C																																																
PHY 2049, PHY 2049L	PHYX049/X049L or PHYX049C																																																
XXXXXXX ³	XXXXXXX ²																																																
COP 2210	Computer Programming I																																																
MAC 2311	Calculus I																																																
MAC 2312	Calculus II																																																
PHY 2048	Physics with Calculus I																																																
PHY 2048L	General Physics Lab I																																																

Formatted: Tab stops: 3.06", Left

Formatted: Tab stops: 3.06", Left

PHY 2049 Physics with Calculus II
 PHY 2049L General Physics Lab II
³Two additional one-semester courses in natural science; each of these should be a course designed for science or engineering majors. A list of additional approved courses is available through the School of Computing and Information Sciences.

Upper Division Requirements

At least 50% of the upper division credits required for the BS in Computer Science must be taken at FIU.

Courses Required for the Degree: (both tracks)

Third and Fourth Years

CGS 1920	Introduction to Computing	1
	or	
COP 1000	Computer Science for Everyone	3
	or	
IDC 1000	Intro to Computer Programming	3
MAD 2104	Discrete Mathematics	3
	or	
COT 3100	Discrete Structures	3
ENC 3249	Professional and Technical Writing for Computing	3
COT 3541	Logic for Computer Science	3
MAD 3512	Introduction to Theory of Algorithms	3
STA 3033	Introduction to Probability and Statistics for CS	3
CGS 3095	Technology in the Global Arena – GL	3
COP 3337	Computer Programming II	3
COP 4338	Computer Programming III	3
CDA 3103	Fundamentals of Computer Systems	3
COP 3530	Data Structures	3
COP 4555	Principles of Programming Languages	3
COP 4710	Database Management	3
CDA 4101	Structured Computer Organization	3
CEN 4010	Software Engineering I	3
CNT 4713	Net-centric Computing	3
COP 4610	Operating Systems Principles	3
*CIS 4911	Senior Project	3

Additional required courses for SDD track

CEN 4021	Software Engineering II	3
**CEN 4072	Fundamentals of Software Testing	3

*Options for CIS 4911:

- Students may enroll in a special section of CIS 4911 by registering in IDS 4918, which is administered and graded by the Senior Project Coordinator;

* -CIS4911 for SDD-track students must be a software engineering-focused project.

**With the permission of an SCIS UG advisor students can register for CEN 5064 Software Design and then substitute CEN 5064 for CEN 4072.

Computer Science Electives

CS-track students must complete three courses from the list of elective courses.

SDD-track students must complete one course from the list of elective courses in addition to CEN 4021 and CEN 4072. The list of elective courses is maintained by the School of Computing and Information Sciences.

NOTE: Graduate courses can also be used to satisfy elective requirements. Please see adviser for approval. Graduate courses are subject to graduate fees.

Remarks: The following courses are not acceptable for credit toward graduation, unless a student has passed the

PHY 2049 Physics with Calculus II
 PHY 2049L General Physics Lab II
³Two additional one-semester courses in natural science; each of these should be a course designed for science or engineering majors. A list of additional approved courses is available through the School of Computing and Information Sciences.

Upper Division Requirements

At least 50% of the upper division credits required for the BS in Computer Science must be taken at FIU.

Courses Required for the Degree: (both tracks)

Third and Fourth Years

CGS 1920	Introduction to Computing	1
	or	
COP 1000	Computer Science for Everyone	3
	or	
IDC 1000	Intro to Computer Programming	3
MAD 2104	Discrete Mathematics	3
	or	
COT 3100	Discrete Structures	3
ENC 3249	Professional and Technical Writing for Computing	3
COT 3541	Logic for Computer Science	3
MAD 3512	Introduction to Theory of Algorithms	3
STA 3033	Introduction to Probability and Statistics for CS	3
CGS 3095	Technology in the Global Arena – GL	3
COP 3337	Computer Programming II	3
COP 4338	Computer Systems Programming III	3
CDA 3103	Fundamentals of Computer Systems	3
CDA 3XXX	Computer Architecture	3
COP 3530	Data Structures	3
COP 4555	Principles of Programming Languages	3
COP 4710	Database Management	3
CDA 4101	Structured Computer Organization	3
CEN 4010	Software Engineering I	3
CNT 4713	Net-centric Computing	3
COP 4610	Operating Systems Principles	3
*CIS 4911	Senior Project	3

Additional required courses for SDD track

CEN 4021	Software Engineering II	3
**CEN 4072	Fundamentals of Software Testing	3

*Options for CIS 4911:

- Students may enroll in a special section of CIS 4911 by registering in IDS 4918, which is administered and graded by the Senior Project Coordinator;

* -CIS4911 for SDD-track students must be a software engineering-focused project.

**With the permission of an SCIS UG advisor students can register for CEN 5064 Software Design and then substitute CEN 5064 for CEN 4072.

Computer Science Elective Groups

The list of courses for each elective group is maintained by the School of Computing and Information Sciences. The lists include the following elective courses:

Foundations: CAP 4506, CAP 4534, COP 4555, COT 3541, COT 4521, MAD 3305, MAD 3401, MAD 3512, MAD 4203, MHF 4302

Systems: CAP 4453, CDA 4625, CEN 4083, CNT 4713, COP 4520, COP 4604, COP 4710, COP 4722

Applications: CAP 4104, CAP 4630, CAP 4641, CAP

course before declaring a Computer Science major: CGS 2060, CGS 3300, CGS 2100, COP 3175, MAC 2233, STA 1013, STA 2023, STA 2122, STA 3123, QMB 3200, ESI 3161.

4710, CAP 4770, CEN 4021, CEN 4072, COP 4226,

CS-track students must complete three courses from the list of elective courses, one course from each of the three elective groups and must complete six additional elective courses from these elective groups.

SDD-track students must complete one course from the Foundations group, one course from Systems group, and must complete five additional elective courses from these elective groups. list of elective courses in addition to CEN 4021 and CEN 4072. The list of elective courses is maintained by the School of Computing and Information Sciences.

NOTE: Graduate courses can also be used to satisfy elective requirements. Please see adviser for approval. Graduate courses are subject to graduate fees.

Remarks: The following courses are not acceptable for credit toward graduation, unless a student has passed the course before declaring a Computer Science major: CGS 2060, CGS 3300, CGS 2100, COP 3175, MAC 2233, STA 1013, STA 2023, STA 2122, STA 3123, QMB 3200, ESI 3161.

Formatted: Font: Not Bold

Formatted: Font: Not Bold

Rationale: Please see the attached justification to this program catalog change proposal.