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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 — 3/21/2019
(Type Name) (Signature)
prabakar@cis.fiu.edu — 305-348-2033
(Email address) (Phone Number)

Chair (Dept./Div.) S.S. Iyengar — 3/21/2019
(Type Name) (Signature)

Chair (Curr. Comm.) Cesar Levy — ____/____/2019
(Type Name) (Signature)

College/School Dean John Volakis — ____/____/2019
(Type Name) (Signature)

NO HEARING REQUIRED. PLEASE SUBMIT ORIGINAL FORM.

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.

FLORIDA INTERNATIONAL UNIVERSITY
UNDERGRADUATE PROGRAM/CATALOG CHANGE PROPOSAL

FIU Undergraduate Catalog

Current (2018-2019)	Proposed
Bachelor of Science in Computer Science	**Bachelor of Science in Computer Science**
Degree Program Hours: 120	**Degree Program Hours: 120**
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. 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. 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.	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. 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. 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.
Lower Division	**Lower Division**
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:	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:
Common Prerequisite Courses and Equivalencies	**Common Prerequisite Courses and Equivalencies**
FIU Course(s) / **Equivalent Course(s)** 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]	**FIU Course(s)** / **Equivalent Course(s)** 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]
[1]Intro Programming in C, C++, JAVA, or equivalent language. Choose programming language required by the university to which the student wishes to transfer. *[2]Science course for science majors.*	*[1]Intro Programming in C, C++, JAVA, or equivalent language. Choose programming language required by the university to which the student wishes to transfer.* *[2]Science course for science majors.*
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. 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.	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. 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.
Required Courses **Common Prerequisites** 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	**Required Courses** **Common Prerequisites** 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

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PHY 2049	Physics with Calculus II	
PHY 2049L	General Physics Lab II	

[3]Two 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	

[3]Two 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 3502, 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.

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