Cover Sheet: Request 15507

CSC Major Degree Requirements Update

Info

Process	Major Curriculum|Modify|Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Jeremiah Blanchard jblanch@cise.ufl.edu
Created	11/23/2020 3:30:46 PM
Updated	2/17/2021 1:33:47 PM
Description of request	The CISE Department proposes to update the undergraduate CSC major to bring it on par with national standards. Includes changes to critical tracking in addition to curriculum.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CLAS - Computer and Information Science and Engineering	Christina Gardner-McCune		11/23/2020
CSC-Major-Summary-Changes.docx					11/23/2020
College	Approved	CLAS - College of Liberal Arts and Sciences	Joseph Spillane		2/1/2021
CSC-Major-Curriculum-TrackChanges.docx					12/10/2020
Associate Provost for Undergraduate Affairs	Approved	PV - Associate Provost for Undergraduate Affairs	Casey Griffith		2/17/2021
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			2/17/2021
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
Academic Assessment Committee Notified					
No document changes					
College Notified					
No document changes					

Major|Modify_Curriculum for request 15507

Info

Request: CSC Major Degree Requirements Update
Description of request: The CISE Department proposes to update the undergraduate CSC major to bring it on par with national standards. Includes changes to critical tracking in addition to curriculum.
Submitter: Jeremiah Blanchard jblanch@cise.ufl.edu
Created: 11/23/2020 3:27:19 PM
Form version: 1

Responses

Major Name
Enter the name of the major. Example: "Mathematical Modeling"

Response:
Computer Science

Major Code
Enter the two-letter or three-letter major code.

Response:
CSC

Degree Program Name
Enter the name of the degree program in which the major is offered.

Response:
Bachelor of Science in Computer Science

Undergraduate Innovation Academy Program
Is this an undergraduate program in the Innovation Academy?

Response:
No

Effective Term
Enter the term (semester and year) that the curriculum change would be effective.

Response:
Fall

Effective Year

Response:
2021

Current Curriculum for Major

Response:
Uploaded as separate document

Proposed Curriculum Changes
Describe the proposed changes to the curriculum. If the change is to offer the program through UF Online, please explain and attach a letter of support from the Director of UF Online.

Response:
Uploaded as separate document

UF Online Curriculum Change
Will this curriculum change be applied to a UF online program as well?

Response:
Yes

Pedagogical Rationale/Justification
Describe the rationale for the proposed changes to the curriculum.

Response:
Computer Science is a rapidly evolving field. The CISE Department aims to bring the CSC major up to date with the national standards; specifically, CISE seeks to match the latest ACM standards detailed elaborated in the Computer Science 2013 (CS2013) And Computing Curricula 2020 (CC2020) national standards.

Impact on Enrollment, Retention, Graduation
Describe any potential impact of the curriculum changes on students who are currently in the major.

Response:
We expect that improving the CSC curriculum will substantially increase the chances of UF graduates in landing high impact, high paying jobs in the ever changing Computer Science field. With the new diversified curriculum, we expect higher enrollment, retention as well as graduation rates.

Assessment Data Review
Describe the Student Learning Outcome and/or program goal data that was reviewed to support the proposed changes.

Response:
We set up a curriculum review committee to study existing curriculum models and suggestions from a wide spectrum of stake holders. Briefly, this committee
- studied ACM CS2013 curriculum report
- studied ACM CC2020 curriculum report
- reviewed computer science curriculum of 15 schools (including top 10 schools as well as teaching schools)
- Conducted multiple town hall meetings and surveys with undergraduate students, industrial partners, and other faculty in the department.
We are attaching the full minutes of the curriculum review committee as a separate document.

Academic Learning Compact and Academic Assessment Plan

Describe the modifications to the Academic Learning Compact (for undergraduate programs) and Academic Assessment Plan that result from the proposed change.

Response:
We have proposed to replace one course and its lab (CHM 2045 - General Chemistry and CHM 2045L - General Chemistry Lab) which was a required course originally in the critical tracking with a state core gen-ed course. We do not anticipate any changes in the assessment plan.

Catalog Copy

Submitter agrees to prepare and upload document showing the catalog copy with the current and proposed curricula edited using the "track changes" feature in Word.

Response:
Yes

About this program

- College: College of Liberal Arts & Sciences
- Degree: Bachelor of Science in Computer Science
- Credits for Degree: 120

Overview

Computer science majors in CLAS take a solid foundation of core computer science courses while fulfilling requirements for a liberal arts education, including courses from the humanities, social and behavioral sciences, and the study of a foreign language. Questions about the major should be directed to a department advisor.

COURSEWORK FOR THE MAJOR

This major requires a minimum of 29 credits in foundation coursework, 35 credits in core coursework, and ~~6~~9 credits of major electives. ~~A student can transfer in a maximum of four courses toward required core or required major elective coursework.~~ Students must earn minimum grades of C in coursework for the major. An exit interview is required in the student's last semester.

A student can request to transfer in a maximum of <u>four</u> courses toward required core Computer Science or required Computer Science elective coursework, dependent upon courses being deemed equivalent by the Department. Course equivalency requests should begin with the department advising office, followed by the undergraduate coordinator.

~~Students must earn minimum grades of C in coursework for the major. An exit interview is required in the student's last semester.~~

Students may opt to take COP 3504C in lieu of COP 3502C and COP 3503C. If elected, students will need to complete an additional 4 credits to complete the degree program.

COMINATION DEGREE PROGRAM

The computer science combination-degree program is a joint program between the colleges of Engineering and Liberal Arts and Sciences and is coordinated by the Department of Computer and Information Science and Engineering.

PLACEMENT

Students who have scored at least a 4 or 5 on the AP Computer Science exam are eligible to start the programming fundamentals sequence with COP 3503<u>C</u>. Students will need to see an advisor in the major to adjust their degree audit.

Critical Tracking

Critical Tracking records each student's progress in courses that are required for entry to each major. Please note the critical-tracking requirements below on a per-semester basis.

Formatted: Font: (Default) Times New Roman

Commented [JB1]: Redundant (first sentence of next paragraph)

Commented [JB2]: Redundant (first paragraph)

Formatted: Font: (Default) Times New Roman

Commented [JB3]: Make COP3504 course option explicit

**For degree requirements outside of the major, refer to CLAS Degree Requirements:
[Structure of a CLAS Degree](#).**

Equivalent critical-tracking courses as determined by the State of Florida Common Course Prerequisites may be used for transfer students.

SEMESTER 1
- Complete MAC 4117 or MAC 2311
- 2.0 UF GPA required

SEMESTER 2
- Complete MAC 2311
- 2.0 UF GPA required

SEMESTER 3
- Complete MAC 2312
- 2.0 UF GPA required

SEMESTER 4
- Complete MAC 2313; and PHY 2053/PHY 2053L or PHY 2048/PHY 2048L
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

SEMESTER 5
- Complete COP 3502C (or COP 3504C); and PHY 2054/PHY 2054L or PHY 2049/PHY 2049L
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

SEMESTER 6
- Complete COP 3503C (or COP 3504C); and COT 3100
- 2.0 UF GPA required

SEMESTER 7
- Complete COP 3530
- 2.0 UF GPA required

SEMESTER 8
- Complete COP 4600
- 2.0 UF GPA required

Model Semester Plan

Students are expected to complete the writing requirement while in the process of taking the courses below. Students are also expected to complete the general education international (GE-N) and diversity (GE-D) requirements concurrently with another general education requirement (typically, GE-C, H, or S).

ENC 3246, MAC 2312, MAC 2313, PHY 2049, PHY 2049L, PHY 2054, PHY 2054L, STA 3032, MAS 3114, and MAS 4105 may count towards 3000 level or above electives outside of the major.

To remain on track, students must complete the appropriate critical-tracking courses, which appear in bold. These courses must be completed by the terms as listed above in the Critical Tracking criteria.

This semester plan represents an example progression through the major. Actual courses and course order may be different depending on the student's academic record and scheduling availability of courses. Prerequisites still apply.

Semester 1		
MAC 2311	Analytic Geometry & Calculus 1 (**Critical Tracking**; GE-M)	4
COP 3502C	Programming Fundamentals 1 (**Critical Tracking**)	~~3~~4
UF Quest 1 (GE-H + D/I)		3
State Core Gen Ed Composition; Writing Requirement		3
	Total	~~13~~14

Semester 2		
MAC 2312	Analytic Geometry & Calculus 2 (**Critical Tracking**; Gen Ed Mathematics)	4
PHY 2053 or PHY 2048	Physics 1 (**Critical Tracking**; State Core GE-P); or Physics with Calculus 1 (**Critical Tracking**; State Core GE-P)	3-4
PHY 2053L or PHY 2048L	Lab for Physics 1 (**Critical Tracking**; State Core GE-P) or Lab for Physics with Calc. 1 (**Crit. Tracking**; State Core GE-P)	1
COP 3503C	Programming Fundamentals 2	~~4~~3
COT 3100	Applications of Discrete Structures	3
	Total	~~14-15~~15-16

Summer after Semester 2	
State Core Social and Behavioral Sciences (GE-S)	3
State Core Humanities (GE-H)	3
State Core Biological Science (GE-B)	3
Total	9

Semester 3

~~State Core Gen Ed Social and Behavioral Sciences~~		~~3~~
MAC 2313	Analytic Geometry & Calculus 3 (**Critical Tracking**; GE-M)	4
PHY 2054 or PHY 2049	Physics 2 (**Critical Tracking**; State Core GE-P); or Physics with Calculus 2 (**Critical Tracking**; State Core GE-P)	3-4
PHY 2054L or PHY 2049L	Lab for Physics 2 (**Critical Tracking**; State Core GE-P); or Lab for Physics with Calc. 2 (**Crit. Tracking**; State Core GE-P)	1
CDA 3101	Introduction to Computer Organization	3
COP 3530	Data Structures and Algorithms	3~~4~~
	Total	14-15-~~16~~

Semester 4

~~CDA 3101~~	~~Introduction to Computer Organization~~	~~3~~
CEN 3031	Introduction to Software Engineering	3
MAS 3114 or MAS 4105	Computational Linear Algebra; or Linear Algebra	3-4
CIS 4301	Information & Database Systems 1	3
ENC 3246	Professional Communication for Engineers (Gen Ed Composition)	3
~~State Core Gen Ed Humanities (GE-H)~~		~~3~~
State Core Social and Behavioral Sciences with Diversity or International (GE-S + D/I)		~~6~~3
~~Elective~~		~~3~~
	Total	15-16

Semester 5

~~CDA 3101~~	~~Introduction to Computer Organization~~	~~3~~
~~ENC 3246~~	~~Professional Communication for Engineers (Gen Ed Composition)~~	~~3~~
COP 4600	Operating Systems	3
STA 3032	Engineering Statistics	3
Foreign Language		4-5
~~Elective~~		~~3~~
UF Quest 2 (GE-B or GE-S)		3

~~Gen Ed Biological Sciences (GE-B)~~		~~3~~
	Total	~~16-17~~13-14
Semester 6		
~~MAS 3114 or MAS 4105~~	~~Computational Linear Algebra; or Linear Algebra 1~~	~~3 or 4~~
~~EEL 3701C~~	~~Digital Logic and Computer Systems~~	~~4~~
COP 4020	Programming Language Concepts	3
COP 4XXX	Algorithm Abstraction and Design	3
~~Gen Ed Biological Sciences~~		~~3~~
Foreign language		3-5
General Elective		3
	Total	~~13-16~~12-14
Summer		
Pursue Internship/Co-op if desired		

Commented [JB23]: Replaceds by UF Quest 2 (GE-B)

Commented [JB24]: Moved from semester 6 to semester 4

Commented [JB25]: Removed from curriculum (no longer required)

Commented [JB26]: Added (degree requirement)

Commented [JB27]: Added (degree requirement)

Commented [JB28]: Moved from semester 6 to summer after semester 2

Commented [JB29]: Moved from semester 4 to semester 6

Semester 7		
~~CIS 4301~~	~~Information and Database Systems 1~~	~~3~~
~~COT 4501~~	~~Numerical Analysis: A Computational Approach~~	~~3~~
Technical Elective		3
Technical Elective		3
~~General Elective~~		~~3~~
Foreign language (if taking 4-3-3 sequence)		0-3
Gen Ed Humanities (GE-H)		3
Gen Ed Social and Behavioral Sciences (GE-S) or Biology (GE-B) – Area not taken in semester 5		3
	Total	12-15~~-18~~
Semester 8		
CIS 4914	Senior Project	3
~~STA 3032~~	~~Engineering Statistics~~	~~3~~

Commented [JB30]: Moved from semester 7 to 4

Commented [JB31]: Removed (no longer required)

Commented [JB32]: New degree requirement (additional technical elective)

Commented [JB33]: Removed due to credit adjustments (brings back to 120)

Commented [JB34]: Moved 3 credits from semester 4 to 7; adjusted for Quest option

COP 4600	Operating Systems (**Critical Tracking**)	3
General Electives		47
Technical Elective		3
Total		1613

Summary of CSC Undergraduate Curriculum Changes

- Increase the number of technical electives from 2 to 3 (+3).
- Remove **EEL 3701C** and **COT 4501** from the core course list (-7)
- Add **COP 4020** and **COP 4XXX** (Alg. Abs. & Des.) to the core course list (+6).
- Reduce the number of credits of **COP 3530** from 4 to 3 (-1).
- Increase the number of credits of **COP 3502C** from 3 to 4 (+1).
- Increase the number of credits of **COP 3503C** from 3 to 4 (+1).
- Reduce General Electives from 13 credits to 10 (-3).
- Allow **COP 3504C** to be taken instead of **COP 3502C** and **COP 3503C**; If elected, an addition 4 credits are required to complete the program.

Curriculum Changes have no net credit change; program remains 120 credit hours.

Degree Requirement - Full List

REQUIRED - FOUNDATIONAL

Course	Title	Cr.	ALTERNATIVE		*Crit.*	*Tr. Sem*
ENC3246	Prof. Comm. for Engineers	3				
MAC2311	Analytic Geom. & Calc 1	4				1-2
MAC2312	Analytic Geom. & Calc 2	4				3
MAC2313	Analytic Geom. & Calc 3	4				4
MAS3114	Comp. Linear Algebra	3				
PHY2048+L	Phys. with Calc 1 & Lab	4	PHY2053+L Physics 1 & Lab		5	4
PHY2049+L	Phys. with Calc 2 & Lab	4	PHY2054+L Physics 2 & Lab		5	5
STA3032	Engineering Statistics	3				
Total		*29*				*31*

REQUIRED - CORE

Course	Title	Cr.				Crit. Tr. Sem
COP3502C	Prog. Fundamentals I	4				5
COP3503C	Prog. Fundamentals II	4				6
COT3100	Appl of Discrete Struct	3				6
CIS4301	Info. and DB Systems 1	3				
COP3530	Intro. to Data Struct & Alg	3				7
CDA3101	Intro. to Comp. Org.	3				
CEN3031	Intro. to Software. Eng.	3				
COP4020	Prog. Lang. Concepts	3				
COP4XXX	Alg. Abs. & Design	3				
COP4600	Operating Systems	3				8
CIS4914	Senior Project	3				
Total Credits		*35*				

REQUIRED - MAJOR ELECTIVES

Any 4000-level or higher CISE course, beyond Core Req.	9
Total Credits	*9*

REQUIRED - GENERAL EDUCATION

COMPOSITION	3
BIOLOGICAL SCIENCE (GE-B)	6
HUMANITIES (GE-H)	9
SOCIAL SCIENCE (GE-S)	9
FOREIGN LANGUAGE	10
Total Credits	*37*

REQUIRED - GENERAL ELECTIVES

ELECTIVES	10
Total Credits	*10*

GRAND TOTAL	**120**