Restructuring of Undergraduate Curriculum

(to open any hyperlink in a new tab, hold Ctrl key and click the link)

I. Objectives for restructuring the curriculum

Motivation: Due to the current structure of our current CS curriculum with only 3 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.

A. To provide flexibility for CS students with additional elective course options to widen their skills

B. To streamline the prerequisite chain among CS courses

C. To fulfill the latest ACM guidelines

II. CS Undergraduate models from other schools considered by UGC

Within Florida: UCF USF UF

Outside Florida: Cornell Dartmouth Duke Princeton Purdue Stanford Maryland

III. List of proposed CS curriculum changes

(for a comprehensive view of these changes, visit flowchart links in Section IV below)

Changes for objective A: Core course reduction for
BS-in-CS both CS-track and SDD-track (6 courses), BA-in-CS (3 courses)

1) Replace CDA 3103 (Fundamentals) and CDA 4101 (Computer Org)
with a combined 3-credit course CDA 3XXX (Computer Architecture)
There is overlap between CDA 3103 and COT 3100 (Discrete Structures), and also between CDA 4101 and COP 4520 (Parallel Computing). ACM guidelines now identify the learning outcome for Computer Architecture as Exposure.

2) Move the following core courses to the elective list
COP 4555(Prog Lang), COP 4710(Database), CNT 4713(Netcentric),
COT 3541(Logic for CS) and MAD 3512(Theory of Alg)
All these courses are no longer in the primary core computing (ACM Core-Tier1) area and interested students can choose them from the elective course list.

Changes for objective B: List of prereq/coreq changes

Course	Change type	Current	Proposed	Syl Link	Syl Link
CDA 3xxx	New course		COP 3337 and (MAD 2104 or COT 3100)		New course
CEN 4010	Prereq	CGS 3095 and COP 3530 and COP 4710	CGS 3095 and COP 3337	Present	Modified
	Coreq	CNT 4713	None		
CIS 4911	Prereq	Permission of SP Coordinator	CEN 4010 and ~~COP 4338 and~~ Permission of SP Coordinator	Present	Modified
COP 4338	Title	Programming III	Systems Programming	Present	Modified
COP 4610	Prereq	CDA 4101 and COP 4338	CDA 3XXX and COP 4338	Present	Modified
MAD 3512	Prereq	MAD 2104 and COT 3420	COP 3530	Present	Modified

These course changes reduce the course dependency chain without significant compromise on needed prerequisite topics.

Changes for objective C:

1) Split the single pool of elective courses into three elective groups with the following list of 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 4710, CAP 4770, CEN 4021, CEN 4072, COP 4226

2) To fulfill ACM guidelines and to increase the breadth of knowledge, students are required to take at least 3 credits from each of the above three elective groups.
   Note that SDD track students are not required to take any course from Applications elective group as they would take both CEN 4021 and CEN 4072. Students must take all remaining required elective credits for their degree programs from these elective groups.

IV. Overview of the curriculum restructure (course flowcharts)

[Current and proposed flowcharts include embedded syllabus links for all SCIS courses]

BS-in-CS	CS Track	current	proposed	changes
	SDD Track	current	proposed	changes
BA-in-CS		current	proposed	changes
BS-in-IT-Software		current	proposed	changes

V. New 1-credit course on "Conference Participation, Community Outreach and Mentoring"

This course facilitates students' participation in professional conferences for underrepresented minorities in Computer Science/Information Technology, and to engage them in mentoring K-12 students for broadening participation from underrepresented groups. [Proposed by Cristy Charters]

Syllabus: IDC_2XXX