

DEC 09 2008

UNDERGRADUATE CURRICULUM PROPOSAL COVER SHEET

REGISTRATION

Title of Proposal: Revision of Computer Science (B.S.): Information Security and Assurance (ISA) Concentration

Check One: Full Proposal X or Information Item _____

Effective Date for Curricular Offering: Fall 2009

FROM: Li Yang, Computer Science and Engineering, X- 4392 Li-Yang@utc.edu
(proposal originator: include spokesperson's name, department, office number, telephone, e-mail)

Does this require new resources from the originating department or other department? No
Please attach explanation if yes.

Faculty of the originating department approved this proposal on 12/02/2008 (date),
by a vote of 9 aye votes; 0 nay votes; 0 abstentions: 2 eligible voting members absent

The following have examined this proposal:

Dept Head/Director: [Signature] ✓ approve neutral disapprove*

College Curriculum Committee Date: _____ Vote: _____ Signature of Chair: _____

Spokespersons for Affected Departments:

[Signature] ✓ approve neutral disapprove*
(name, department, date)

_____ approve neutral disapprove*
(name, department, date)

_____ approve neutral disapprove*
(name, department, date)

Dean/Director: [Signature] ✓ approve neutral disapprove*

University Registrar: [Signature] Comments: _____

Provost: [Signature] ✓ approve neutral disapprove*
1-21-09

*Those who disapprove may attach an explanation.

ACTIONS on this proposal:

Faculty Council Curriculum Committee

Date the proposal was considered _____

Vote of the body: _____

Accepted as information item (indicate date) _____

Approved as submitted (*indicate date*)

Approved with amendments (amendments indicated
and transmitted to all signatories above, date):

Signature of Chair:

Proposal for Revision of Computer Science (B.S.): Information Security and Assurance (ISA) Concentration

A. A Rationale for the change

We are planning to seek ABET accreditation of this concentration in 2010. The New ABET Criteria (Criterion 5.b in the Appendix) from 2008 require any Computer Science major/concentration to have at least 15 hours of Math and 30 hours of Math and Science in total to be accredited. Currently, the ISA concentration has 17 hours of Math and 12 hours of Science. We need one more 3-hour science course to align with New Abet Criteria. Therefore, we replace Legal Assistant Studies 170 (3 hours) with one more science course (3 hours) to be aligned with the New Abet Criteria.

Also we need to let students choose from more upper level computer science electives.

B. An analysis

B.1 Pedagogical consequences

This proposal prepares our undergraduate ISA concentration to be accredited by ABET in 2010. There is no extra economic requirement.

B.2 how the proposal relates to requirements and resources in other departments or programs

This proposal does not require any additional resource from other departments.

C. Comparison of requirements in old and new degree programs

	Old	Hours	New	Hours
General Education (Other than Mathematics and Sciences)	No change	27	No change	27
	English 121, 122	6	English 121, 122	6
	Fine Arts/Humanities	6	Fine Arts/Humanities	6
	Behavioral Science	6	Behavioral Science	6
	Culture and Civilization	9	Culture and Civilization	9
Mathematics	No change	17	No change	17
	Math 151/152	4	Math 151/152	4
	Math 161/162	4	Math 161/162	4
	Math 212	3	Math 212	3
	Math 303	3	Math 303	3
	Math 307	3	Math 307	3

Science		12		15
	Chemistry/Biology sequence	8	Chemistry/Biology sequence	8
	Additional Science	4	Additional Science	4
			Additional Science	3
Information Security Core	No change	15	No change	15
	CPSC 375	3	CPSC 375	3
	CPSC 426	3	CPSC 426	3
	CPSC 444	3	CPSC 444	3
	CPSC 415	3	CPSC 415	3
	CPSC 462	3	CPSC 462	3
CS Core	No change	40	No change	40
	CPSC 150			
	CPSC 160			
	CPSC 251			
	CPSC 261			
	CPSC 305			
	CPSC 306			
	CPSC 312			
	CPSC 335			
	CPSC 351			
	CPSC 385			
	CPSC 450			
	CPSC 460			
	CPSC 490r/495r			
Criminal Justice		3		0
	LAS 170		Delete LAS 170	
Electives		6		6
	6 hours of Computer Science electives chosen from CPSC 431, 440, 454, 461, 472, 484		6 hours of upper division (300 or 400-level) Computer Science electives	
Total	No change	120	No change	120

C. The Original Text to be Modified

Computer Science (B.S.): Information Security and Assurance Concentration

General Education (see 65-68 for list of approved courses)

Rhetoric and Composition: Two approved courses in rhetoric and composition (6 hours)

Mathematics: Mathematics 151/152* (4 hours)

Statistics: Math 307 or Engineering 222 (3 hours)

Natural Sciences: One 2-semester laboratory science sequence chosen from: Biology 121, 122; Chemistry 121/123 or 125, 122/124; Physics 103/183, 104/184 (8 hours)

Humanities and Fine Arts: Computer Science 385* and one approved fine arts course (6 hours)

Cultures and Civilizations: Option A: Western Humanities I and II and Nonwestern Cultures and Civilizations OR Option B: World Civilizations I, II, III (9 hours total)

Behavioral & Social Sciences: Criminal Justice 110* and one additional approved behavioral or social science course (6 hours)

Major and related courses

Computer Science core courses: 150, 160, 251, 261, 305, 306, 312, 335, 351, #385, 450,460, 490r or 495r

Information Security core courses: 375, 415, 426, 444, and 462

6 hours of Computer Science electives chosen from CPSC 431, 440, 454, 461, 472, 484.

Criminal Justice 110#, Legal Assistant Studies 170

Mathematics 151/152#, 161/162, 212, 303, 307 or Engineering 222

One additional 1-semester laboratory science course chosen from: Biology 121, 122; Chemistry 121/123 or 125, 122/124; Geology 111/181, 112/182; Physics 230/280, 231/281, 232/282 (4 hours)

All majors must attain a minimum grade of C in all Computer Science and Information Security core courses as a condition for graduation.

2.0 average required in all major and related mathematics, computer science, information security courses.

Minimum of 39 hours of 300 and 400 level courses

Electives to complete 120 hours.

Students must be admitted as Pre-Computer Science majors and meet all UTC admission criteria.

also satisfies general education requirements.

* also satisfies requirements in the major.

D. The Proposed Text Revision

General Education (see 65-68 for list of approved courses)

Rhetoric and Composition: Two approved courses in rhetoric and composition (6 hours)

Mathematics: Mathematics 151/152* (4 hours)

Statistics: Math 307 or Engineering 222 (3 hours)

Natural Sciences: One 2-semester laboratory science sequence chosen from: Biology 121, 122; Chemistry 121/123 or 125, 122/124; Physics 103/183, 104/184 (8 hours)

Humanities and Fine Arts: Computer Science 385* and one approved fine arts course (6 hours)

Cultures and Civilizations: Option A: Western Humanities I and II and Nonwestern Cultures and Civilizations OR Option B: World Civilizations I, II, III (9 hours total)

Behavioral & Social Sciences: Criminal Justice 110* and one additional approved behavioral or social science course (6 hours)

Major and related courses

Computer Science core courses: 150, 160, 251, 261, 305, 306, 312, 335, 351, #385, 450,460, 490r or 495r

Information Security core courses: 375, 415, 426, 444, and 462

6 hours of upper division (300 or 400-level) Computer Science electives

Criminal Justice 110#

Mathematics 151/152#, 161/162, 212, 303, 307 or Engineering 222

One additional 1-semester laboratory science course chosen from: Biology 121, 122; Chemistry 121/123 or 125, 122/124; Geology 111/181, 112/182; Physics 230/280, 231/281, 232/282 (4 hours)

One additional natural science course (3 hours)

Appendix: New Abet Accreditation Criteria

We include new abet accreditation criteria in the following:

5. Curriculum

Note: One year of study refers to the amount of course work that a student would complete in an average year of fulltime enrollment. For a traditional four-year program using standard semester units, one year refers to 30 semester credits. For programs using standard quarter units, one year refers to 45 quarter credits. One year is measured similarly in programs using other units to measure course work.

Criterion

The program's requirements are consistent with its educational objectives and are designed in such a way that each of the program outcomes can be achieved. The curriculum combines technical and professional requirements with general education requirements and electives to prepare students for a professional career and further study in the computing discipline associated with the program, and for functioning in modern society. The technical and professional requirements include at least one year of up-to-date coverage of basic and advanced topics in the computing discipline associated with the program. In addition, the program includes mathematics appropriate to the discipline beyond the pre-calculus level. For each course in the major required of all students, its content, expected performance criteria, and place in the overall program of study are published.

For Computer Science Programs:

Students have the following amounts of course work or equivalent educational experience.

- a. *Computer science: One and one-third years that includes:*
 1. *coverage of the fundamentals of algorithms, data structures, software design, concepts of programming languages and computer organization and architecture. [CS]*
 2. *an exposure to a variety of programming languages and systems. [CS]*
 3. *proficiency in at least one higher-level language. [CS]*
 4. *advanced course work that builds on the fundamental course work to provide depth. [CS]*
- b. *One year of science and mathematics:*
 1. *Mathematics: At least one half year that must include discrete mathematics. The additional mathematics might consist of courses in areas such as calculus, linear algebra, numerical methods, probability, statistics, number theory, geometry or symbolic logic. [CS]*
 2. *Science: A science component that develops an understanding of the scientific method and provides students with an opportunity to experience this mode of inquiry in courses for science and engineering majors that provide some exposure to laboratory work. [CS]*