LONG SIGNATURE SHEET

UNC CHARLOTTE

Proposal Number: ITCS 10-15-10

Proposal Title   Revision of MS program in Computer Science

Originating Department   Computer Science

TYPE OF PROPOSAL: UNDERGRADUATE_____   GRADUATE_X___   UNDERGRADUATE & GRADUATE___
(Separate proposals sent to UCCC and Grad. Council)

DATE RECEIVED	DATE CONSIDERED	DATE FORWARDED	ACTION	SIGNATURES
.			Approved	**DEPARTMENT CHAIR** KHCh for W.R.
Oct 18, 10	Oct 18, '10	Oct 19, 10	Approved	**COLLEGE CURRICULUM COMMITTEE CHAIR**
10/18/10	10/18/10	10/19/10	Approved	**COLLEGE FACULTY CHAIR**
18Oct10	19 Oct10	19 Oct 10	Approved	**COLLEGE DEAN**
			Approved	**UNDERGRADUATE COURSE & CURRICULUM COMMITTEE CHAIR** (for undergraduate courses)
10-26-10	11-2-10	11-2-10	Approved	**GRADUATE COUNCIL CHAIR** (for graduate courses) Rob Roy M. Grugor
			Approved	**FACULTY GOVERNANCE SECRETARY** (noting Faculty Council approval on Consent Calendar)
				FACULTY EXECUTIVE COMMITTEE (if decision is appealed)

Revised 12/10/09
OAA/jdp

I. Heading and Proposal Number

A. University of North Carolina at Charlotte

Revised; Graduate

Course and Curriculum Proposal from: Department of Computer Science

B. Proposal Number ITCS 10-15-10

C. Title: Revision of MS program in Computer Science

II. Content of Proposal

A. Proposal Summary and Catalog Copy

1. Summary

The Department of Computer Science proposes to modify the core requirements in the MS program in Computer Science program from taking two courses in the core category to taking three courses in the core category. Two of the courses are specified and the third course is selected from a list.

The Department of Computer Science also proposes to modify the concentration requirements to add a requirement for a study report.

2. Proposed Catalog Copy

I.   Core Requirement

All students must take three courses* from the Core Category. The following two courses are required:

        ITCS 6112 Software System Design and Implementation
        ITCS 6114 Algorithms & Data Structures

The third course may be selected from:

        ITCS 5102 Survey of Programming Languages
        ITCS 6182 Computer System Architecture

The three courses taken to satisfy the core requirement must each be passed with an "A" or a "B" grade.

III. Area of Concentration

Each student must take at least three related courses (9 hours) to form an area of concentration. The area of concentration may differ from the Course Categories; students are encouraged to have their areas of concentration aligned with faculty research areas. The three courses forming the student's area of concentration must have the written approval of the student's academic advisor. Core courses cannot be used in area of concentration. At least two of the three courses forming an area of concentration should be from the Department of Computer Science. The three courses taken to satisfy the concentration requirement must each be passed with an "A" or a "B" grade. In addition to the nine hours of course work, a written study report on a subject in the area must be submitted to and be approved by the academic advisor to complete the concentration requirement.

B. Justification

1. The proposal to alter the core requirements addresses the need for all students to have specific core computer science knowledge and skills at the graduate level. Previously, students could freely choose two courses from a list of core category courses. The proposal keeps the original list of core category courses but requires students to take two specific courses in the list and additionally a third course selected from the remaining core category courses. This change will strengthen the core computer science knowledge and skills by increasing the core courses from two to three courses and make it possible to conduct SACS student learning outcomes in core Computer Science knowledge and skills for all students.

    The proposed addition of a study report to the concentration requirement students addresses the need to assess the in-depth knowledge in the concentration. Each student may choose a concentration area and a set of courses to satisfy the concentration requirement in consultation with his adviser. Students have large range of choices in the courses they can take. The study report strengthens the concentration requirement and makes it possible to conduct SACS student learning outcomes covering in-depth Computer Science knowledge for all students.

2. There are no changes required to prerequisites or courses, and no new courses are proposed. The existing Computer Science MS degree requirement that courses taken to satisfy the core and concentration requirements must each be passed with an "A" or a "B" grade continues and now applies to three courses taken in the core category. Increasing the core from two courses to three courses will reduce the number of Computer Science electives from three courses to two courses. (This assumes a student uses a breadth course also as a concentration course, which is allowed. For all practical purposes, one breadth course will be used in a concentration but if not, the number of electives is reduced to one course.)

3. There are no changes to course numberings.

4. The required course ITCS 6114 provide students with the core knowledge in data structures and algorithms, which is central throughout computer science. The required course ITCS 6112 provides students with skills and techniques involved in the planning and implementation of large software systems. These skills are also applicable throughout the Computer Science profession. Other centrally important topics for computer Science students are covered in the remaining core courses. The choice of one course from a list of three courses provides some flexibility for the background and interest of students.

   The addition of a study report improves the concentration requirement by requiring students to demonstrate in writing their knowledge in their chosen sub-area of Computer Science. It will require the students bring together their knowledge and skills gained from the three concentration courses. The study report will be evaluated by the student's academic adviser or another faculty member. Attachment A provides a rubric for assessing the study report. The study report will be graded on the 1-5 scale according to the rubric. If the average score of the 4 items on the rubric is below 3, the student has to rewrite and resubmit the study report.

C. Impact

1. This proposal affects students in the MS program in Computer Science only.

2. It is expected that the department will continue to offer the core category courses on the same schedule and frequency as currently.

D. Resources Required

   1. Personal - none
   2. Physical Facility - none
   3. Equipment and Supplies - none.
   4. Computer – none
   5. Audio-Visual – none
   6. Other Resources – none
   7. Funding - none

E. Consultation with the Library and Other Departments or Units

1. Library Consultation is attached.

2. No other departments were consulted.

F. Initiation and Consideration of the Proposal

1. The graduate committee of the Department of Computer Science approved this proposal and it was unanimously supported by the Department faculty on October 15, 2010.

G. Attachments

1. Rubric for Evaluating Knowledge Demonstrated in Study Report in a Concentration Area
2. Library Consultation

Attachment G-2

Rubric for Evaluating Knowledge Demonstrated in Study Report in a Concentration Area

	Poor 1	Needs Improvement 2	Acceptable 3	Good 4	Excellent 5
Familiarity with Terminology	Demonstrates only minimal understanding of basic terminology in the area	Demonstrates understanding of some basic terminology in the area	Demonstrates understanding of most of the basic terminology in the area	Demonstrates understanding of most of the terminology in the area	Demonstrates thorough understanding of all relevant terminology in the area
Depth of Concepts	Demonstrates only minimal understanding of the core concepts	Demonstrates some understanding of the core concepts	Demonstrates understanding of most of the core concepts and some advanced concepts	Demonstrates understanding of all core and most advanced concepts in the area	Demonstrates thorough understanding of core and advanced concepts in the area
Up-to-date Knowledge	Knowledge shown in the study report is incorrect or outdated	Knowledge shown in the study report is correct but somewhat outdated	Knowledge shown in the study report is correct and up-to-date	Knowledge shown in the study report is up-to-date and thorough	Knowledge shown in the study report is thorough, profound, and of the state-of-the-arts
Literature and References	No references or references cited are somewhat inappropriate for subject	References cited are appropriate but somewhat limited; or citations are incomplete	Sufficient number of references for depth / complexity of report; citations are adequate	Near complete list of references for subject of report; citations are near complete	Thorough list of references with complete citations and annotations

Consultation on Library Holdings

To: Barry Wilkinson
College of Computing and Informatics

From: Reese Manceaux

Date: October 18, 2010

Subject: **Revision of Master's of Science program in Computer Science**
Core Courses: (existing classes)
ITCS 6112 – Software System Design and Implementation
ITCS 6114 - Algorithms & Data Structures
ITCS 5102 – Survey of Programming Languages
ITCS 6182/8182 Computer Systems Architecture

Summary of Librarian's Evaluation of Holdings:

Evaluator: Reese A. Manceaux   **Date:** 10/18/10

Check One: 1. Holdings are superior
                  2. Holdings are adequate (Please see comments) YES
                  3. Holdings are adequate only if Dept. purchases additional items.
                  4. Holdings are inadequate

Comments:

This is a proposal for a revision of the MS program in Computer Science. The department will increase from two core courses to three. No new courses have been added. There is an added requirement for a study report.

A small sampling of subject searching in the Atkins Library online catalog reveals the following holdings in support of these courses. (See the table that follows). A search of the related subjects retrieved over x pertinent items.

The Library has electronic access to periodicals and other electronic resources (e-books from NetLibrary & Skillport) that support these courses. Skillport, in particular, has an enormous catalog of computer related literature; especially up-to-date programming language books. In addition, the library has many electronic databases such as EBSCO databases, Springer Link, ACM Digital Library, IEEE Explore and Compendex (many with links to full text articles) supporting the overall Computing and Informatics programs. The collection, especially if supported by ongoing purchases, is quite adequate to support this program.

Atkins Library Holdings in Areas Related to

Software System Design
Algorithms & Data Structure
Programming Languages
Computer Systems Architecture

Library of Congress Subject Headings	Books Ebooks	After Year 2000	Journals
System Design	254	50	9
Computer Software Development	252	102	7
Computer Algorithms	179	59	7
Data Structures (Computer Science)	121	24	2
Programming Languages – Electronic Computers	388	39	17
Computer Architecture	322	52	16
TOTAL	**1516**	**326**	**58**

Reese A. Manceaux

Evaluator's Signature

October 18, 2010