

SOUTH DAKOTA BOARD OF REGENTS

Academic and Student Affairs

AGENDA ITEM: 6 – M (2)

DATE: March 28-30, 2017

SUBJECT: USD Program Modification – Accelerated Track: MS in Computer Science

The University of South Dakota seeks to add an accelerated pathway for their Master’s degree in Computer Science (Attachment I). Computer science has been identified as a field with critical workforce needs, and the U.S. Department of Labor has predicted a critical shortage of skilled computer scientists in the next 5-10 years. As workforce demands for highly skilled computer scientists are growing, especially in the areas of Software Development, Data Analysis, Computer Networks and Security, the Accelerated Master’s program will enable USD’s students to enter the highly skilled workforce quicker.

Existing Program: Substantive Program Modification

- Computer Science (MS) – request to change total credits required for the program and add accelerated program option

This request has been reviewed by the system Vice President for Academic Affairs and the Executive Director recommends approval.

DRAFT MOTION 20170328_6-M(2): I move to approve USD’s program modification request to change the total credits required for the program as well as add an accelerated option for the M.S. in Computer Science program.



SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS
Substantive Program Modification Program

UNIVERSITY:	University of South Dakota
CURRENT PROGRAM TITLE:	Computer Science, M.S.
CIP CODE:	11.0101
UNIVERSITY DEPARTMENT:	Computer Science
UNIVERSITY DIVISION:	Arts & Sciences

University Approval

To the Board of Regents and the Executive Director: I certify that I have read this proposal, that I believe it to be accurate, and that it has been evaluated and approved as provided by university policy.

 Vice President of Academic Affairs or
 President of the University

 Date

1. This modification addresses a change in (place an "X" in the appropriate box):

<input type="checkbox"/> Total credits required within the discipline	<input type="checkbox"/> Total credits of supportive course work
<input type="checkbox"/> Total credits of elective course work	<input checked="" type="checkbox"/> Total credits required for program
<input type="checkbox"/> Program name	<input type="checkbox"/> Existing specialization
<input type="checkbox"/> CIP Code	<input checked="" type="checkbox"/> Other (explain below) Add accelerated program option.

2. Effective date of change:

3. Program Degree Level (place an "X" in the appropriate box):

Associate Bachelor's Master's Doctoral

4. Category (place an "X" in the appropriate box):

Certificate Specialization Minor Major

5. If a name change is proposed, the change will occur (place an "X" in the appropriate box):

- On the effective date for all students
- On the effective date for students new to the program (enrolled students will graduate from existing program)

Proposed new name: _____

Reminder: Name changes impact require updating any related articulation agreements, site approvals, etc.

7. Primary Aspects of the Modification (add lines as needed):*Existing Curriculum**Proposed Curriculum (highlight changes)***Computer Science, M.S.**

N/A

Prof.	Num.	Title	Cr. Hrs.	Prof.	Num.	Title	Cr. Hrs.
Core Course Work: 12 credit hours from the following				Core Course Work: 18 credit hours from the following			
CSC	705	Design/Analyze Comp Algorithms	3	CSC	705	Design/Analyze Comp Algorithms	3
CSC	721	Distributed Systems	3	CSC	721	Distributed Systems	3
CSC	725	Operating Systems and Architecture	3	CSC	725	Operating Systems and Architecture	3
CSC	731	Compiler Construction	3	CSC	731	Compiler Construction	3
CSC	735	Advanced Human Factors in Computer Systems	3	remove			
CSC	741	Real Time Systems	3	remove			
CSC	742	Usability Testing	3	remove			
CSC	751	Programming Science	3	remove			
CSC	762	Adv. Comp. Networks & Security	3	CSC	762	Adv. Comp. Networks & Security	3
CSC	765	Software Design and Development	3	CSC	765	Software Design and Development	3
CSC	785	Information Storage and Retrieval	3	CSC	785	Information Storage and Retrieval	3
CSC	790	Graduate Seminar	3	CSC	790	Graduate Seminar	3
Plan A (thesis)				Plan A (thesis)			
CSC	798	Thesis	4-6	CSC	798	Thesis	6
4 credit hours required				6 credit hours required			
Plan B (no thesis) students choose 6 additional credit hours from the core (total 18 cr.)				Plan B (no thesis) students choose 18 credit hours from the core			
Elective Work: 15 credit hours from the following, with at least 9 cr. to be taken in CSC				Elective Work: Plan A takes 6 credit hours, Plan B takes 15 credit hours from the following			
CSC	511	Simulation	3	CSC	511	Simulation	3
CSC	524	Digital Electronics and Microprocessors	3	CSC	524	Digital Electronics and Microprocessors	3
CSC	525	High Performance Computing	3	CSC	525	High Performance Computing	3
CSC	533	Computer Graphics	3	CSC	533	Computer Graphics	3
CSC	535	Human Factors in Computing Systems	3	CSC	535	Human Factors in Computing Systems	3
CSC	545	Introduction to Theory of Computation	3	CSC	545	Introduction to Theory of Computation	3
CSC	547	Artificial Intelligence	3	CSC	547	Artificial Intelligence	3
CSC	556	Operating Systems	3	CSC	556	Operating Systems	3
CSC	561	Programming Languages	3	CSC	561	Programming Languages	3
CSC	570	Software Engineering	3	CSC	570	Software Engineering	3
CSC	571	Numerical Analysis - 1	3	CSC	571	Numerical Analysis - 1	3
CSC	572	Numerical Analysis - 2	3	CSC	572	Numerical Analysis - 2	3
CSC	575	Operations Research	3	CSC	575	Operations Research	3
CSC	581	Systems Analysis	3	CSC	581	Systems Analysis	3
CSC	584	Database Management Systems	3	CSC	584	Database Management Systems	3
CSC XXXX	5xx 6xx 7xx	Graduate coursework in Computer Science or in another discipline with the department's approval	6	CSC XXXX	5xx 6xx 7xx	Graduate coursework in Computer Science or in another discipline with the department's approval	6

				<p>Accelerated Master's Program: BS/MS</p> <p>Up to 9 credits applied toward the B.S. program may be used to satisfy graduate credits. The following restrictions apply:</p> <p>a. The courses must be taken at the 500/600 level as an undergraduate. Courses taken at the 500/600-level can be applied to both the B.S. and M.S. degrees. Dual-listed courses must be taken at the 500-level.</p> <p>b. The student must apply to, and be admitted to, the accelerated program prior to taking courses to be credited toward the accelerated program.</p> <p>c. No courses taken prior to admission to the accelerated program may be counted toward an accelerated graduate degree. No exceptions to this policy will be approved.</p> <p>d. Courses that are "double counted" must be approved by the department chair for inclusion in the program of study prior to registration for the course or the credits will not be applied toward the accelerated graduate degree. No exceptions to this policy will be approved.</p> <p>e. Only courses taken at the student's home institution are eligible for dual credit. No transferred courses from other institutions will be allowed to count toward the accelerated master's degree.</p> <p>f. To fulfill the undergraduate required courses, graduate courses on the same topic areas must be taken.</p>
Total number of hours required for degree	31-33		Total number of hours required for degree	30-33

8. Explanation of the Change:

Computer science has been identified as a field with critical workforce needs. In fact, the U.S. Department of Labor has predicted a critical shortage of skilled computer scientists in the next 5-10 years. As workforce demands for highly skilled computer scientists are growing, especially in the areas of Software Development, Data Analysis, Computer Networks and Security, the Accelerated Master's program will enable USD's students to more quickly enter the highly skilled workforce. (See enclosed table.)

The current national IEEE/ACM standard identified the current core knowledge areas that we expect all computer science students should study. The outdated courses are removed from the list of core courses for all graduate students.

Current trends in computer science require the Master Thesis to be done in two semesters with 6cr. Furthermore, the 31cr. requirement forces the Plan A students to take another 3cr. course because most of our courses have 3cr.