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| S:\Communications\Logos and photos\SDBORLogos\final_sdbor_webreadyBW_trans.gif | **SOUTH DAKOTA BOARD OF REGENTS**  ACADEMIC AFFAIRS FORMS |
| Minor Program Modification |
|  |  |

Use this form to request minor changes in existing programs (majors, minors, certificates, or specializations). The university Vice President for Academic Affairs approves minor program modifications and they are included in the Annual Minor Program Modification Summary form.

|  |  |
| --- | --- |
| **UNIVERSITY:** | DSU |
| **PROGRAM TITLE:** | **MS Computer Science** |
| **CIP CODE:** | **11.1003** |
| **UNIVERSITY DEPARTMENT:** | **Computer and Cyber Sciences** |
| **UNIVERSITY DEPARTMENT CODE:** | **DCSC** |
| **UNIVERSITY DIVISION:** | **Beacom College of Computer and Cyber Sciences** |
| **UNIVERSITY DIVISION CODE:** | **DCOC** |

**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.*

|  |  |  |
| --- | --- | --- |
|  |  | 3/4/2022 |
| 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*):**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Course *deletions* that do not change the nature of the program, or distribution of courses in the program, or change of total credit hours required |  | Course *additions* that do not change the nature of the program, or distribution of courses in the program, or change of total credit hours required |
|  |  |  |  |
|  | Revised courses in the program. |  |  |

1. **Effective date of change: 5/9/2022**
2. **Program Degree Level (*place an “X” in the appropriate box*):**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Associate |  | Bachelor’s |  | Master’s |  | Doctoral |  |

1. **Category (*place an “X” in the appropriate box*):**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Certificate |  | Specialization |  | Minor |  | Major |  |

1. **Primary Aspects of the Modification (*add lines or adjust cell size as needed*):**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Existing Curriculum* | | | | *Proposed Curriculum (highlight changes)* | | | | | |
| **Pref.** | **Num.** | **Title** | **Cr.**  **Hrs.** |  | **Pref.** | | **Num.** | **Title** | **Cr. Hrs.** |
| **Core Courses 15** | | | |  | **Core Courses 15** | | | | |
| CSC | 705 | Dsgn and Analysis of Algs | 3 |  | CSC | | 705 | Design and Analysis of Al | 3 |
| ~~CSC~~ | ~~710~~ | ~~Str and Dsgn of Prog Lang~~ | ~~3~~ |  |  | |  |  |  |
|  |  |  |  |  | CSC | | 712 | Data Structures | 3 |
| ~~CSC~~ | ~~718~~ | ~~OS and Parallel Programm~~ | ~~3~~ |  |  | |  |  |  |
| CSC | 720 | Theory of Computation | 3 |  | CSC | | 720 | Theory of Computation | 3 |
| CSC | 722 | Mach Learn Fundamentals | 3 |  | CSC | | 722 | Mach Learn Fundamentals | 3 |
|  |  |  |  |  | CSC | | 786 | Cyber Problems | 3 |
|  | | | |  |  | | | | |
| **Choose general electives or specialization** | | | |  | **Choose general electives or specialization** | | | | |
| **General Elective 15** | | | |  | **General Elective 15** | | | | |
| CSC / INFA / INFS | 600 - 799 |  | 15 |  | CSC / INFA / INFS | | 500 - 799 |  | 12 |
|  |  |  |  |  | CSC | | 718 | OS and Parallel Programming | 3 |
|  |  |  |  |  |  | |  |  |  |
| **Cyber Operations Specialization 15** | | | |  | **Cyber Operations Specialization 15** | | | | |
|  |  |  |  |  | CSC | | 718 | OS and Parallel Programm | 3 |
| CSC | 723 | Mach Learn for CybSec | 3 |  | CSC | | 723 | Mach Learn for CybSec | 3 |
| CSC | 748 | Software Exploitation | 3 |  | CSC | | 748 | Software Exploitation | 3 |
| CSC | 773 | Mobile Com & Adv NetSec | 3 |  | CSC | | 773 | Mobile Com & Adv NetSec | 3 |
| ~~CSC~~ | ~~786~~ | ~~Cyber Problems~~ | ~~3~~ |  |  | |  |  |  |
| INFA | 723 | Cryptography | 3 |  | INFA | | 723 | Cryptography | 3 |
|  |  |  |  |  |  | |  |  |  |
|  | | | |  | **Artificial Intelligence Specialization 15** | | | | |
|  |  |  |  |  | CSC | | 502 | Math Found. Of AI | 3 |
|  |  |  |  |  | CSC | | 547 | Artificial Intelligence | 3 |
|  |  |  |  |  | CSC / INFS / INFA | | Approved AI courses \*\* | | 9 |
|  |  |  |  |  | \*\* Approved AI courses include CSC 578, 579, 723, 768, 791, 792, 794 and INFS 772, 778, 784, 791, 792. | | | | |
| Total number of hours required for major, minor, or specialization | | | 30 |  | | Total number of hours required for major, minor, or specialization | | | 30 |
| Total number of hours required for degree | | | 30 |  | | Total number of hours required for degree | | | 30 |

1. **Explanation of the Change:**

The changes have been made to achieve two primary goals:

1. Create a common core that reflects the required knowledge required by all students in the MSCS program.
2. Define relevant courses required for the different specializations.

The following changes are proposed:

1. All Specializations
   1. The Programming Languages Requirement. CSC 710 Structure and Design of Programming Languages (PL) will no longer be a requirement, but students are still required to get PL experience in either CSC 461 or CS 561:
      1. Students may opt to take CSC 461 Programming Languages. Students having already taken this course or course equivalent from another institution will thus have met the requirement. Some graduate students may opt to take this undergraduate version of the course to free up graduate credits for other elective courses.
      2. Students may opt to take CSC 561 as 3 graduate credits to apply towards the MSCS degree.
   2. Adding CSC 786 Cyber Problems. We are adding this course as somewhat of a capstone course to strengthen the core graduate experience. Students will work on projects that are akin to research and may even publish their works in academic journals or other mediums.
2. MSCS General Electives
   1. Change 600-799 to 500-799 to allow select 500 level courses to be included.
3. Cyber Operations Specialization
   1. CSC 718 Operating Systems and Parallel Programming has been removed from the core and listed as a Special Requirement in order to better streamline the Core Courses to be the same among all specializations.
   2. CSC 786 Cyber Problems has been removed from the Special Requirements and listed as a Core Requirement in order to better streamline the Core Courses to be the same among all specializations.
4. The Artificial Intelligence new specialization documentation is working it’s way through the Board approval cycle and should be on the March BOR agenda.