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| A blue and white logo  Description automatically generated | **SOUTH DAKOTA BOARD OF REGENTS**  ACADEMIC AFFAIRS FORMS |
| Substantive Program Modification Form |
|  |  |

Use this form to request minor changes in existing programs (majors, minors, certificates, or specializations).

|  |  |
| --- | --- |
| **UNIVERSITY:** | DSU |
| **CURRENT PROGRAM DEGREE:** | **Master of Science** |
| **CURRENT PROGRAM MAJOR/MINOR:** | **Computer Science** |
| **CURRENT SPECIALIZATION** *(If applicable)***:** |  |
| **CIP CODE:** | **11.1003** |
| **UNIVERSITY DEPARTMENT:** | **Computer Science** |
| **BANNER DEPARTMENT CODE:** | **DCSC** |
| **UNIVERSITY COLLEGE:** | **College of Computer and Cyber Sciences** |
| **BANNER COLLEGE CODE:** | **DCSI** |

**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.*

|  |  |  |
| --- | --- | --- |
| A picture containing text  Description automatically generated |  | 4/23/2024 |
| 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*):**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Total credits required within the discipline |  | Total credits of supportive course work |
|  |  |  |  |
|  | Total credits of elective course work |  | Total credits required for program |
|  |  |  |  |
|  | Program name |  | Existing specialization |
|  |  |  |  |
|  | CIP Code |  | Other (explain below) |
|  | Modification requiring Board of Regents approval  *Must have prior approval from Executive Director or designee* | | |

1. **Effective date of change: 5/13/2024**
2. **Program Degree Level (*place an “X” in the appropriate box*):**

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

1. **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 may require updating related articulation agreements, site approvals, etc.* |

1. **Is the program being modified associated with a current articulation agreement?**

|  |  |  |  |
| --- | --- | --- | --- |
| Yes |  | No |  |

* 1. **If yes, will the articulation agreement need to be updated with the partner institution following the approval of the program change? Please explain:**

The articulation agreement does need to be updated as the agreement specifies the number of credits students may transfer. This is not affected by these proposed modifications.

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** | | | 15 |  | | **Core** | | | 9 |
| ~~CSC~~ | ~~705~~ | ~~Design and Analysis of Algs.~~ | ~~3~~ |  | |  |  |  |  |
| ~~CSC~~ | ~~712~~ | ~~Data Structures~~ | ~~3~~ |  | |  |  |  |  |
| ~~CSC~~ | ~~720~~ | ~~Data Structures~~ | ~~3~~ |  | |  |  |  |  |
|  |  |  |  |  | | CSC | 718 | OS & Parallel Programming | 3 |
| CSC | 722 | Machine Learning Funds. | 3 |  | | CSC | 722 | Machine Learning Funds. | 3 |
| CSC | 786 | Cyber Problems | 3 |  | | CSC | 786 | Cyber Problems | 3 |
|  |  |  |  |  | |  |  |  |  |
| **Choose 15 credits of elective courses or one of the specializations. Electives must be approved by advisor.** | | | |  | | **Choose 21 credits of elective courses or one of the Specializations. Electives must be approved by advisor.** | | | |
| **CSC Elective Based** | | | 15 |  | | **CSC Elective Based** | | | 21 |
| ~~CSC~~ | ~~718~~ | ~~OS & Parallel Programming~~ | ~~3~~ |  | |  |  |  |  |
|  |  |  |  |  | | CSC | 705 | Design and Analysis of Algs. | 3 |
|  |  |  |  |  | | CSC | 712 | Data Structures | 3 |
|  |  |  |  |  | | CSC | 720 | Theory of Computation | 3 |
| CSC | 770 | Software Engineering Mgmt. | 3 |  | | CSC | 770 | Software Engineering Mgmt. | 3 |
| CSC INFA INFS | 500-799 | Electives | 9 |  | | CSC INFA INFS | 500-799 | Electives | 9 |
|  |  |  |  |  | |  |  |  |  |
| **Cyber Operations Spec.** | | | 15 |  | | **Cyber Operations Spec.** | | | 21 |
| ~~CSC~~ | ~~718~~ | ~~OS & Parallel Programming~~ | ~~3~~ |  | |  |  |  |  |
| CSC | 723 | ML for Cybersecurity | 3 |  | | CSC | 723 | ML for Cybersecurity | 3 |
| CSC | 748 | Software Exploitation | 3 |  | | CSC | 748 | Software Exploitation | 3 |
| CSC | 773 | Mobile Comm & Adv Netsec | 3 |  | | CSC | 773 | Mobile Comm & Adv Netsec | 3 |
| INFA | 723 | Cryptography | 3 |  | | INFA | 723 | Cryptography | 3 |
|  |  |  |  |  | | CSC  CSC | 705 or 720 | Design and Analysis of Algs.  Or  Theory of Computation | 3 |
|  |  |  |  |  | | CSC INFA INFS | 500-799 | Electives | 6 |
|  |  |  |  |  | |  |  |  |  |
| **AI Specialization** | | | 15 |  | | **AI Specialization** | | | 21 |
| ~~CSC~~ | ~~502~~ | ~~Math. Foundations of AI~~ | ~~3~~ |  | |  |  |  |  |
| ~~CSC~~ | ~~547~~ | ~~Artificial Intelligence~~ | ~~3~~ |  | |  |  |  |  |
|  |  |  |  |  | | CSC | 702 | Mathematics of AI | 3 |
|  |  |  |  |  | | CSC  CSC | 705 or 720 | Design and Analysis of Algs.  Or  Theory of Computation | 3 |
| CSC INFS INFA | 500-799 | Approved Electives:  CSC 578, 579, 723, 791, 792, 794  INFS 768, 772, 784 | 9 |  | | CSC INFS INFA | 500-799 | Approved Electives:  CSC 578, 579, 723, 761, 726, 727, 789, 791, 792, 794  INFS 768, 772, 784 | 15 |
|  |  | Total Hours Required | 30 |  | |  |  | Total Hours Required | 30 |

1. **Explanation of the Change:**

The core courses have been modified to allow smoother transitions for students from undergraduate cyber operations and computer science programs into the MSCS programs.

* With reduction to the core, the CSC Elective based option is adding the CSC theory and coding courses as requirements.
* Allowing students to choose either CSC 705 or 720 reduces CSC theory for students in the Cyber Operations specialization and gives flexibility with the opportunity to take electives.
* Adding new courses created for the MSAI program as part of the electives for the AI Specialization and reducing the number of 500 level cross-listed courses.