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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:** | **BS in Computer Science** |
| **CIP CODE:** |  |
| **UNIVERSITY DEPARTMENT:** | **Beacom College of Computer & Cyber Sciences** |
| **UNIVERSITY DIVISION:** | **Beacom College of Computer & Cyber 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.*

|  |  |  |
| --- | --- | --- |
|  |  | 2/12/2020 |
| 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:** 5/8/2020
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.** |
|  |  |  |  |  |  | |  |  |  |
| General Education | | | 30 |  | General Education | | | | 30 |
| \*Majors who test directly into MATH 123 or MATH 201 will not need to complete MATH 114, but must take 3 credits of general electives. | | |  |  | \*Majors who test directly into MATH 123 or MATH 201 will not need to complete MATH 114, but must take 3 credits of general electives. | | | |  |
|  | | |  |  |  | | | |  |
| Required Courses | | | 57 |  | Required Courses | | | | 57 |
| CSC | 105 | Intro to Computers | 3 |  | CSC | | 105 | Intro to Computers | 3 |
| CSC | 150 | Computer Science I | 3 |  | CSC | | 150 | Computer Science I | 3 |
| CSC | 234 | Software Security | 3 |  | CSC | | 234 | Software Security | 3 |
| CSC | 250 | Computer Science II | 3 |  | CSC | | 250 | Computer Science II | 3 |
| CSC | 260 | Object Oriented Design | 3 |  | CSC | | 260 | Object Oriented Design | 3 |
| CSC | 285 | Networking I | 3 |  | CSC | | 285 | Networking I | 3 |
| CSC | 300 | Data Structures | 3 |  | CSC | | 300 | Data Structures | 3 |
| CSC | 310 | Adv Data Structures | 3 |  | CSC | | 310 | Adv Data Structures | 3 |
| CSC | 314 | Assembly Language | 3 |  | CSC | | 314 | Assembly Language | 3 |
| CSC | 404 | Foundations of Computation | 3 |  | CSC | | 404 | Foundations of Computation | 3 |
| CSC | 410 | Parallel Computing | 3 |  | CSC | | 410 | Parallel Computing | 3 |
| CSC | 456 | Operating Systems | 3 |  | CSC | | 456 | Operating Systems | 3 |
| CSC | 461 | Programming Languages | 3 |  | CSC | | 461 | Programming Languages | 3 |
| CSC | 470 | Software Engineering | 3 |  | CSC | | 470 | Software Engineering | 3 |
| CSC | 482 | Algorithms & Optimization | 3 |  | CSC | | 482 | Algorithms & Optimization | 3 |
| CIS 332 Systems Analysis & Design Or  CSC 321 Information Security Management | | | 3 |  | CIS 332 Systems Analysis & Design Or  CSC 321 Information Security Management | | | | 3 |
|  |  |  |  |  |  | |  |  |  |
| CIS/CSC 300-400 electives | | | 9 |  | CIS/CSC 300-400 electives | | | | 9 |
|  | Select three 300-400 level CIS/CSC courses. (CIS 275 allowed ; CIS 350 not allowed) | |  |  |  | | Select three 300-400 level CIS/CSC courses. (CIS 275 allowed ; CIS 350 not allowed) | |  |
|  |  |  |  |  |  | |  |  |  |
| Support Courses | | | 19 |  | Support Courses | | | | 19 |
| MATH | 123 | Calculus I | 4 |  | MATH | | 123 | Calculus I | 4 |
| MATH | 201 | Intro to Discrete Math | 3 |  | MATH | | 201 | Intro to Discrete Math | 3 |
|  |  |  |  |  |  | |  |  |  |
| MATH | 281 | Intro to Statistics | 3 |  | MATH | | 281 | Intro to Statistics | 3 |
|  | or |  |  |  |  | | or |  |  |
| MATH | 381 | Into to Prob & Stats |  |  | MATH | | 381 | Into to Prob & Stats |  |
|  |  |  |  |  |  | |  |  |  |
| MATH | 316 | Discrete Mathematics | 3 |  | MATH | | 316 | Discrete Mathematics | 3 |
| Math Electives | | | 6 |  | Math Electives | | | | 6 |
| ~~Math 125 or Math 200-level or above. (except Math 341/342)~~ | | |  |  | MATH courses from the BS in Mathematics Major Core & Information System specialization:  MATH 125, MATH 204, MATH 225, MATH 282, MATH 315. MATH 318. MATH 321, MATH 361, MATH 381, MATH 413, MATH 418, MATH 436, MATH 437, MATH 471, MATH 475, MATH 492, CSC 402 | | | |  |
|  |  |  |  |  |  | |  |  |  |
| Students choose one of the two specializations or Electives | | | |  | Students choose one of the two specializations or Electives | | | | |
|  |  |  |  |  |  | |  |  |  |
| Artificial Intelligence/Machine Learning Specialization | | | 12 |  | Artificial Intelligence/Machine Learning Specialization | | | | 12 |
| CSC | 447 | Artificial Intelligence | 3 |  | CSC | | 447 | Artificial Intelligence | 3 |
| CSC | 483 | Machine Learning Fund | 3 |  | CSC | | 383 | Machine Learning Fund | 3 |
| Pick 6 credits from this list | | | 6 |  | Pick 6 credits from this list | | | | 6 |
| CIS | 368 | Predictive Analytics | 3 |  | CIS | | 368 | Predictive Analytics | 3 |
| CIS | 372 | Programming for Analytics | 3 |  | CIS | | 372 | Programming for Analytics | 3 |
| ~~CIS~~ | ~~474~~ | ~~Business Intelligence and Big Data~~ | ~~3~~ |  |  | |  |  |  |
| ~~CSC~~ | ~~486~~ | ~~Data Mining Methods~~ | ~~3~~ |  |  | |  |  |  |
|  |  |  |  |  | CSC | | 402 | Mathematical Foundations of Artificial Intelligence | 3 |
|  |  |  |  |  | CSC | | 457 | Generative Deep Learning | 3 |
|  |  |  |  |  | CSC | | 458 | Reinforcement Learning | 3 |
|  |  |  |  |  |  | |  |  |  |
| Software Engineering Specialization | | | 12 |  | Software Engineering Specialization | | | | 12 |
| CIS | 275 | Web Application Programming I | 3 |  | CIS | | 275 | Web Application Programming I | 3 |
| CIS | 375 | Web Application Programming II | 3 |  | CIS | | 375 | Web Application Programming II | 3 |
| Pick 6 credits from this list | | | 6 |  | Pick 6 credits from this list | | | | 6 |
| CIS | 476 | Web Development Environments | 3 |  | CIS | | 476 | Web Development Environments | 3 |
| CSC | 443 | Scripting for Network Administration | 3 |  | CSC | | 443 | Scripting for Network Administration | 3 |
| CSC | 451 | Mobile Development Environments | 3 |  | CSC | | 451 | Mobile Development Environments | 3 |
| CSC | 455 | Software Development Environments & Tools | 3 |  | CSC | | 455 | Software Development Environments & Tools | 3 |
|  |  |  |  |  |  | |  |  |  |
| Electives | | | 2-14 |  | Electives | | | | 2-14 |
|  |  |  |  |  |  | |  |  |  |
| Total number of hours required for major, minor, or specialization | | | 57 |  | | Total number of hours required for major, minor, or specialization | | | 57 |
| Total number of hours required for degree | | | 120 |  | | Total number of hours required for degree | | | 120 |

1. **Explanation of the Change:**

Math electives must be from the list of courses allowed as part of the BS in Mathematics Major Core & Information System specialization. This change is needed to close a loophole and provide advising guidance to students & faculty.

Adjustments to the Artificial Intelligence / Machine Learning Specialization reflect the development of new specialized courses. This is a natural evolution as the area grows and matures. This change also matches courses in the AI minor.