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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.*

|  |  |  |
| --- | --- | --- |
|  |  | 4/20/2022 |
| 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:** Summer 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.** |
|  |  |  |  |  |  |  |  |  |
| 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  CIS 424 Software Dev with Agile Meth  Or  CSC 321 Information Security Management | | | 3 |  | CIS 332 Systems Analysis & Design  Or  CIS 424 Software Dev with Agile Meth  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. () | |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| 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 courses from the BS in Mathematics Major Core & Information System specialization:  CSC 402, 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 | | | |  | MATH courses from the BS in Mathematics Major Core & Information System specialization:  CSC 402, 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 | | | |
|  |  |  |  |  |  |  |  |  |
| 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 | 247 | Intro to Artificial Intelligence | 3 |
| CSC | 386 | Machine Learning Fund | 3 |  | CSC | 386 | Machine Learning Fund | 3 |
| CSC | 447 | Artificial Intelligence | 3 |  | CSC | 447 | Artificial Intelligence | 3 |
| Pick 6 credits from this list | | | 6 |  | Pick 3 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 |
| CSC | 402 | Math Foundations of AI | 3 |  | CSC | 402 | Math Foundations of AI | 3 |
| CSC | 478 | Generative Deep Learning | 3 |  | CSC | 478 | Generative Deep Learning | 3 |
| ~~CSC~~ | ~~479~~ | ~~Reinforcement Learning~~ | ~~3~~ |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Software Engineering Specialization | | | 12 |  | Software Engineering Specialization | | | 12 |
| ~~CIS~~ | ~~275~~ | ~~Web Application Programming I~~ | ~~3~~ |  |  |  |  |  |
| ~~CIS~~ | ~~375~~ | ~~Web Application Programming II~~ | ~~3~~ |  |  |  |  |  |
|  |  |  |  |  | CSC | 334 | Web Development | 3 |
|  |  |  |  |  | CSC  CSC | 494  498 | Internship  Or  Undergrad Research/Scholarship | 3 |
| Pick 6 credits from this list | | | 6 |  | Pick 6 credits from this list | | | 6 |
|  |  |  |  |  | CIS | 338 | Project Management | 3 |
| CIS | 424 | SW Dev with Agile Meth | 3 |  | CIS | 424 | SW Dev with Agile Meth | 3 |
| CSC | 376 | Web Development Envi | 3 |  | CSC | 376 | Web Development Envi | 3 |
| CSC | 443 | Scripting for Network Admin | 3 |  | CSC | 443 | Scripting for Network Admin | 3 |
| CSC | 451 | Mobile Development Env | 3 |  | CSC | 451 | Mobile Development Env | 3 |
| CSC | 455 | SW Dev Env & Tools | 3 |  | CSC | 455 | SW Dev Env & 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:**

There are 3 changes to the program:

* The courses listed as exceptions to the CIS/CSC 300/400 list are no longer allowed. CIS 275 is replaced by CSC 334. CSC 363 has changed to CSC 163 so it does not need to be excluded.
* In the Artificial Intelligence specialization, student will complete CSC 247. This course was created last year to support the BS in AI and fits well here. CSC 479 can be removed as it would not be a viable option as the only 3-credit course to pick.
* In the Software Engineering specialization, CSC 334 replaces CIS 275/375 as it has in the other BS programs. CIS 338 provides students with experience managing projects. Requiring CSC 494/498, students will apply software engineering skills in real world situations. This experience will give the students an opportunity to work on a large project.