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|  | **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:** | **MS in Analytics** |
| **CURRENT SPECIALIZATION** *(If applicable)***:** |  |
| **CIP CODE:** | 11.0201 |
| **UNIVERSITY DEPARTMENT:** | **College of Business & Information Systems** |
| **BANNER DEPARTMENT CODE:** | **DBIS – 8I** |
| **UNIVERSITY COLLEGE:** | **Information Systems** |
| **BANNER COLLEGE CODE:** | **DINFS** |

**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 |  | 11/3/2023 |
| 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: 5/6/2024**
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. **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:** | **MS in Analytics and Applied Artificial Intelligence** |
|  | *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 approve of the program change? Please explain:**

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: 18** | | | |  | **Core courses: 18** | | | | |
| INFS | 762 | Data Warehousing and Data Mining | 3 |  | INFS | | 762 | Data Warehousing and Data Mining | 3 |
| INFS | 774 | Big Data Analytics | 3 |  | INFS | | 774 | Big Data Analytics | 3 |
| INFS | 772 | Programming for Data Analytics | 3 |  | INFS | | 772 | Programming for Data Analytics | 3 |
| STAT | 600 | Statistical Programming | 3 |  | STAT | | 600 | Statistical Programming | 3 |
| STAT | 601 | Modern Applied Statistics I | 3 |  | STAT | | 601 | Modern Applied Statistics I | 3 |
| STAT | 602 | Modern Applied Statistics II | 3 |  | STAT | | 602 | Modern Applied Statistics II | 3 |
| **Required courses: 12** | | | |  | **Required courses: 12** | | | | |
| ~~INFS~~ | ~~768~~ | ~~Predictive Analytics~~ | 3 |  |  | |  |  |  |
|  |  |  |  |  | INFS | | 784 | Artificial Intelligence Applications | 3 |
| INFS | 770 | ~~Advanced Data Mining Application~~ | 3 |  | INFS | | 770 | Advanced Machine Learning and Deep Learning Applications | 3 |
| Tracks: | | | |  | Tracks: | | | | |
| *~~Artificial Intelligence~~* | | | |  | *Remove Track* | | | | |
| ~~INFS~~ | ~~778~~ | ~~Deep Learning~~ |  |  |  | |  |  |  |
| ~~INFS~~ | ~~784~~ | ~~Artificial Intelligence Applications~~ |  |  |  | |  |  |  |
| *Information Systems (select two courses)* | | | |  | *Information Systems (select two courses)* | | | | |
| ~~INFS~~ | ~~720~~ | ~~System Analysis and Design~~ | 3 |  |  | |  |  |  |
| INFS | 724 | Project Management | 3 |  | INFS | | 724 | Project Management | 3 |
| ~~INFS~~ | ~~730~~ | ~~Web Application Development~~ | 3 |  |  | |  |  |  |
| INFS | 764 | Information Retrieval | 3 |  | INFS | | 764 | Information Retrieval | 3 |
| ~~INFS~~ | ~~756~~ | ~~Cloud Computing & Network Services~~ | 3 |  |  | |  |  |  |
| INFS | 766 | Advanced Databases | 3 |  | INFS | | 766 | Advanced Databases | 3 |
|  |  |  |  |  | INFS | | 768 | Predicative Analytics | 3 |
| INFS | 776 | Business Intelligence & Visualization | 3 |  | INFS | | 776 | Business Intelligence & Visualization | 3 |
|  |  |  |  |  | INFS | | 778 | Deep Learning: Theory & Algorithms | 3 |
| *Business (select two courses)* | | | |  | *Business (select two courses)* | | | | |
| *Healthcare Analytics (select two courses)* | | | |  | *Healthcare Analytics (select two courses)* | | | | |
| *General (select two courses from two different tracks)* | | | |  | *General (select two courses from two different tracks)* | | | | |
| 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:**

Analytics and AI have captured the attention of government agencies and business enterprises. Organizations have rushed to embrace data-driven decision making that entails cutting-edge AI informed analytics. We hence propose to modify our MS in Analytics program to better prepare the much-needed workforce for a new wave of the emerging AI-based industry of analytics. Over the years, DSU’s MSA program has been shifting its focus of teaching from traditional applied statistical modeling to contemporary AI informed analytics using machine learning and deep learning by adding new AI courses and incorporating AI topics in the existing courses. Currently, the MSA program has an AI track that includes two courses, INFS 784 AI Applications and INFS 778 Deep Learning. We are also teaching AI techniques such as machine learning, deep learning, recommender systems and so on in existing courses including INFS 762 Data warehousing and Data mining, INFS 768 Predictive Analytics, INFS 770 Advanced Data Mining, and INFS 776 Business Intelligence & visualization. We propose to change the program name from “Analytics” to “Analytics and Applied Artificial Intelligence” to reflect a synergy between analytics and AI in the curriculum of the program and help student recruitment. We also propose curriculum changes such as making INFS 784 Artificial Intelligence Application a core course of the program.