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|  | **SOUTH DAKOTA BOARD OF REGENTS**  ACADEMIC AFFAIRS FORMS |
| Existing Courses: Minor Course Modifications |
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Use this form to request minor modifications of existing unique and common courses. Consult the system course database for information about existing courses before submitting this form. If the course revision is for an approved General Education course, please see the Revision to General Education Requirements Form.

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| DSU |  | Arts and Sciences |  |  |  | 10/20/2024 |
| **Institution** |  | **Division/Department** |  | **Originator** |  | **Date** |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  | Click here to enter a date. |
| **Department Chair** |  | **School/College Dean** |  | **Institutional Approval Signature** |  | **Date** |

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**Section 1. Existing Course Title and Description**

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| **Prefix & No.** | **Course Title** | **Credits** |
| Math 436/536 | Number Theory and Cryptography | 3 |

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| --- | --- |
| **Effective Date:** | 5/13/2025 |

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| **This course is a (*Place an “X” in the appropriate box*):** | | | | |
|  | **Unique Course (see section 2)** |  |  | **Common Course (see section 3)** | |

**Section 2. Unique Courses: Requested Minor Modifications**

***Place an “X” in the appropriate boxes*.**

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|  |  | **Current** |  | **New** |
|  | **Prefix change** |  | to |  |

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|  | **Course Number change** |  | to |  |

*NOTE: You may only change a unique course number to a number not currently used in “active” status at another university. Consult the system database.*

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|  | **Credit hours** |  | to |  |

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|  | **Course pre-requisites** | MATH 201 AND CSC 250 | to | ((MATH 201 or MATH 251) AND (CSC 150 or CSC 170)) |

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|  | **Course co-requisites** |  | to |  |

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|  | **Registration restriction** |  | to |  |

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|  | **Enrollment limitation** |  | to |  |

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|  | **Repeatable for additional credit** |  | to |  |

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|  | **Grading option** |  | to |  |

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|  | **Course title change** |  |

*NOTE: The Enrollment Services Center assigns the short, abbreviated course title that appears on transcripts. The short title is limited to 30 characters (including spaces); meaningful but concise titles are encouraged due to space limitations in the student information system.*

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|  | **Cross-listing and equating with** |  |

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|  | **Dual-listing at 400/500 level** |

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|  | **Course description (that does not change course content). Complete table below:** |

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| *Existing description:* |
| An introduction to Number Theory and Computational Number Theory and the mathematical foundations of cryptography (classical cryptography; public key cryptography; cryptosystems; cryptographic protocols).  Topics to be selected from divisibility theory; primes and their distribution; primarily testing; factorization and factorization algorithms; computations with large integers (FFT), theory of congruences and applications; Euler’s Theorem; primitive roots; quadratic reciprocity; arithmetic functions; Moebius inversion; zeta functions; introduction to cryptography; cryptographic  communications; and information security algorithms and protocols. |

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| *New description:* |
| This course explores the fundamental concepts of number theory and their applications in modern cryptography. Topics include divisibility, prime numbers, modular arithmetic, integer factorization, discrete logarithms, elliptic curves, zero-knowledge proofs, and cryptographic algorithms/protocols based on these principles. The course will cover the theoretical foundations, implementations, and practical aspects of cryptographic systems used to secure digital communication. |
| Note: Course descriptions are short, concise summaries that typically do not exceed 75 words. DO: Address the content of the course and write descriptions using active verbs (e.g., explore, learn, develop, etc.). DO NOT: Repeat the title of the course, layout the syllabus, use pronouns such as “we” and “you,” or rely on specialized jargon, vague phrases, or clichés. |

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|  | **Add course in x9x series** | |
| *CIP Code:* |  |

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| *New CIP Code for this university?* |  |  | Yes |  | No |

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| *Will this university’s sections of the course be limited to S/U (pass/fail)?* |

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|  |  | Yes |  | No |

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|  | **Delete Course (effective date):** | Click here to enter a date. |

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| **Justification for changes indicated in Section 2:** |
| Clean up and shortening of the course description to more better reflect the topics of Math 436. |

**Section 3. Common Courses: Requested Minor Modifications**

***Place an “X” in the appropriate boxes*.**

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|  |  | **Current** |  | **New** |
|  | **Credit hours (within variable limits)** |  | to |  |

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|  | **University specific co-requisites** |  | to |  |

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|  | **Cross-listing and equating with** |  |

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|  | **Dual-listing at 400/500 level** |

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|  | **Add course in x9x series** | |
| *CIP Code:* |  |

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| *New CIP Code for this university?* |  | Yes |  | No |

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| --- |
| *Will this university’s sections of the course be limited to S/U (pass/fail)?* |

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|  |  | Yes |  | No |

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|  | **x9x grading method** |  | to |  |

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| **Justification for changes indicated in Section 3:** |
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**Section 4. Department and Course Codes (Completed by University Academic Affairs)**

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| 1. **University department code:** |  |

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| 1. **Banner department code:** |  |

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| 1. **Change university department code to:** |  |