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| S:\Communications\Logos and photos\SDBORLogos\final_sdbor_webreadyBW_trans.gif | **SOUTH DAKOTA BOARD OF REGENTS**ACADEMIC AFFAIRS FORMS |
| New Certificate |
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| --- | --- |
| **UNIVERSITY:** | DSU |
| **TITLE OF PROPOSED CERTIFICATE:** | **Cyber Security** |
| **INTENDED DATE OF IMPLEMENTATION:** | **1/6/2020** |
| **PROPOSED CIP CODE:** | **11.1003** Computer & Info Systems Security/Information Assurance |
| **UNIVERSITY DEPARTMENT:** |  |
| **UNIVERSITY DIVISION:** | **Beacom College** |

**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.*

|  |  |  |
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|  |  | 9/18/2019 |
| Institutional Approval Signature*President or Chief Academic Officer of the University* |  | Date |

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1. **Is this a graduate-level certificate or undergraduate-level certificate (*place an “X” in the appropriate box*)?**

|  |  |
| --- | --- |
| Undergraduate Certificate  |[ ]  Graduate Certificate |[x]

1. **What is the nature/purpose of the proposed certificate?**

The format of this certificate allows for the accumulation of a specific set of courses to constitute a degree of content mastery and provide an area of academic specialization. This certificate provides an adjunct area of study to the student’s internship or applied experience. With the ubiquitous presence of websites, mobile apps, and mission-critical data management systems, we need people prepared on every level: Pre-baccalaureate, baccalaureate, masters and doctoral level. The first and main purpose for this certificate is to better prepare society by producing more trained computer scientists, software engineers, programmers, and other computing professionals.

1. **Provide a justification for the certificate program, including the potential benefits to students and potential workforce demand for those who graduate with the credential.[[1]](#footnote-1)**

The need for the current South Dakota technology workforce to be bolstered with enhanced Cyber security skills is well understood. This certification is intended for those currently working in and holding BS degrees in security related technology areas to allow them to gain graduate level skills in Cyber Security.

Given the rapidly expanding internet of things and the plethora of devices hooked to the internet, with this credential learners will develop strategic knowledge of security models, risk assessment, secure systems development, crisis management, and legal, regulatory, and compliance issues. You’ll also gain tactical knowledge by examining access control, encryption, network security, and social engineering. This is a set of information that must be implemented to have a safer cyber world. In addition, this certificate as accomplishing at least five important tasks: (a) It will help create lifelong learners (as the workforce expects an increasingly diverse and changing set of skills, students are going back to school to upgrade their credentials. By basing educational programming around what students actually need, institutions can transform certificate students to lifelong learners. (b) This certificate helps DSU better align with workforce needs: produce graduates with tangible, workforce-ready skill sets. This certificate will help students gear up for employment upon completion, aligning their skills with what employers actually want. (c) This certificate program of study will be important to learners who are focused on workforce development and are concentrated in programs designed to prepare adult learners for specific workforce roles. (d) This certificate will help DSU meet its mission as a leader in the computer and cyber sciences.

1. **Who is the intended audience for the certificate program (including but not limited to the majors/degree programs from which students are expected)?**

Those holding a BS in a cyber security area or related fields such as CSC/EE/SE. Also those that have gained a more technical background through work or military and wish to expand into the Cyber security area.

1. **List the courses required for completion of the certificate in the table below (if any new courses are proposed for the certificate, please attach the new course requests to this form):[[2]](#footnote-2)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Prefix** | **Number** | **Course Title***(add or delete rows as needed)* | **Credit Hours** | **New****(yes, no)** |
| CSC | 748 | Software Exploitation (required) | **3** | No |
| INFA | 751 | Wireless Security (required) | **3** | No |
| ***Choose 6 credits of Electives*** |  |  |
| INFA | 723 | Cyrptography (elective) | 3 | No |
| INFA | 754 | Intrusion Detection (elective) | 3 | No |
| CSC | 538 | Defensive Network Security (elective) | 3 | No |
| CSC | 716 | Secure Software Engineering(elective) | 3 | No |
|  |  | Subtotal | **12** |  |

* **Two (2) electives can be choosen from the four courses listed.**
* **If the student has a weak security background then one elective will be required to be CSC 716.**
1. **Student Outcome and Demonstration of Individual Achievement.[[3]](#footnote-3)**
	1. **What specific knowledge and competencies, including technology competencies, will all students demonstrate before graduation**? *The knowledge and competencies should be specific to the program and not routinely expected of all university graduates.*

Several competencies and intended outcomes arise from this certificate: (a) develop skills in problem solving, algorithm development, design, and programming concepts; (b) develop skills in specific topics: sequence, selection, repetition, functions, and arrays; (c) develop skills in attack methodologies and techniques that lead to software vulnerabilities; (d) learn the principles of information assurance, with emphasis on current threats and vulnerabilities; (e) develop an information security plan to mitigate risk; (f) develop working knowledge of information security and assurance issues; develop an understanding of security policies, models, and mechanisms for confidentiality, integrity, and availability; (g) learn about advanced treatment of functions, data types such as arrays and structures, and files; (h) become proficient in object-oriented programming methodologies, including the introduction of Unified Modeling Language (UML).

* 1. **Complete Appendix A – Outcomes using the system form.** *Outcomes discussed below should be the same as those in Appendix A.*
1. **Complete the following charts to indicate if the university intends to seek authorization to deliver the entire certificate at any off-campus location (e.g., UC Sioux Falls, Capital University Center, Black Hills State University-Rapid City, etc.) or intends to seek authorization to deliver the entire certificate through distance technology (e.g., as an on-line program)?**[[4]](#footnote-4)

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| --- | --- | --- | --- |
|  | **Yes/No** | ***If Yes, list location(s), including the physical address*** | ***Intended Start Date*** |
| **Off-campus** | No |  | Click here to enter a date. |

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|  | **Yes/No** | ***If Yes, identify delivery methods*** | ***Intended Start Date*** |
| **Distance Delivery** | Yes | 018 | 8/19/2019 |

1. **Additional Information:** *Additional information is optional. Use this space to provide pertinent information not requested above. Limit the number and length of additional attachments. Identify all attachments with capital letters. Letters of support are not necessary and are rarely included with Board materials. The University may include responses to questions from the Board or the Executive Director as appendices to the original proposal where applicable. Delete this item if not used.*
1. For workforce related information, please provide data and examples; data sources may include but are not limited to the South Dakota Department of Labor, the US Bureau of Labor Statistics, Regental system dashboards, etc. [↑](#footnote-ref-1)
2. Regental system certificate programs typically are a subset of the curriculum offered in degree programs, include existing courses, and involve 9-12 credits for completion. Deviations from these guidelines require justification and approval. [↑](#footnote-ref-2)
3. Board Policy 2:23 requires certificate programs to “have specifically defined student learning outcomes.” [↑](#footnote-ref-3)
4. The accreditation requirements of the Higher Learning Commission (HLC) require Board approval for a university to offer programs off-campus and through distance delivery. [↑](#footnote-ref-4)