SOUTH DAKOTA BOARD OF REGENTS

Academic and Student Affairs
Consent

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SUBJECT
New Specialization Requests – DSU – Computer Science & Cyber Education Specialization and Educational Technology Specialization – MSEd in Educational Technology

CONTROLLING STATUTE, RULE, OR POLICY
BOR Policy 2.3.2 – New Programs, Program Modifications, and Inactivation/Termination

BACKGROUND / DISCUSSION
Dakota State University (DSU) requests authorization to offer both a Computer Science & Cyber Education specialization and an Educational Technology specialization within the MSEd in Educational Technology. The Computer Science & Cyber Education specialization will equip South Dakota teachers to teach in the Governor's Cyber Academy (GCA) by credentialing them in secondary computer science education. The South Dakota Department of Education is in the process of creating and approving K-8 Computer Science Standards. The Educational Technology specialization will give teachers the confidence and skills to use technology in the classroom to enhance learning as well as address the workforce demand for career and technical education teachers.

IMPACT AND RECOMMENDATION
DSU requests authorization to offer the specializations on campus and online. DSU does not request additional state resources. Nine new courses will be required for Computer Science & Cyber Education specialization, and four new courses will be required for the Educational Technology specialization. Three of the new courses are required for the core curriculum of the program and will apply to both specializations.

Board office staff recommends approval of the program.

ATTACHMENTS
Attachment I – New Specialization Request Form: DSU – Computer Science & Cyber Education Specialization – MSEd in Educational Technology
Attachment II – New Specialization Request Form: DSU – Educational Technology Specialization – MSEd in Educational Technology

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DRAFT MOTION 20240626_6-D(1):
I move to authorize DSU to offer a Computer Science & Cyber Education specialization and an Educational Technology specialization within the MSEd in Educational Technology program, as presented.

SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS

New Specialization

Use this form to propose a new specialization within an existing degree program. Specializations provide students with an alternative to the primary format of the major or it may be one of several tracks within a broad major. Specializations contain courses within the discipline(s) of the existing program. Specializations appear in the institutional catalog and on the transcript. Majors that offer specializations typically have one-third to two-thirds of the credits in common with the remaining course work fulfilling the requirements of the specialization(s) offered. The Board of Regents, Executive Director, and/or their designees may request additional information about the proposal. After the university President approves the proposal, submit a signed copy to the Executive Director through the system Chief Academic Officer. Only post the New Specialization Form to the university website for review by other universities after approval by the Executive Director and Chief Academic Officer.

UNIVERSITY:	DSU
TITLE OF PROPOSED SPECIALIZATION:	**Computer Science and Cyber Education**
NAME OF DEGREE PROGRAM IN WHICH SPECIALIZATION IS OFFERED:	**MSEd, Educational Technology**
BANNER PROGRAM CODE:	**DEDT**
INTENDED DATE OF IMPLEMENTATION:	**5/6/2024**
PROPOSED CIP CODE:	**13.0501**
UNIVERSITY DEPARTMENT:	**Education**
BANNER DEPARTMENT CODE:	**DEDU**
UNIVERSITY DIVISION:	**College of Education**
BANNER DIVISION CODE:	**DED 8E**

☒ Please check this box to confirm that:

- The individual preparing this request has read AAC Guideline 2.6, which pertains to new specialization requests, and that this request meets the requirements outlined in the guidelines.
- This request will not be posted to the university website for review of the Academic Affairs Committee until it is approved by the Executive Director and Chief Academic Officer.

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.

_____	3/1/2024
Institutional Approval Signature	Date
President or Chief Academic Officer of the University	

Note: In the responses below, references to external sources, including data sources, should be documented with a footnote (including web addresses where applicable).

1. **Level of the Specialization (*place an "X" in the appropriate box*):**

        Baccalaureate ☐   Master's ☒   Doctoral ☐

2. **What is the nature/purpose of the proposed specialization? Please include a brief (1-2 sentence) description of the academic field in this specialization.**

The computing and technology challenges that teachers face today are much different than they were nearly twenty-five years ago when MSET began. It is time that our program again looks ahead to prepare educators for emerging needs and opportunities. This generation of our degree program prepares teachers to know, teach, and apply neo-global digital skills in cyber security, data privacy (social media), artificial intelligence, cloud computing, and learning analytics (et al.) while remaining anchored to standards-based learning outcomes. Additionally, the introduction of two specializations (18 cr. hrs.), Educational Technology and Computer Science & Cyber Education, creates a stronger disciplinary foundation for educators to offer new opportunities to their students. The specialization in Computer Science & Cyber Education will equip South Dakota teachers to teach in the Governor's Cyber Academy (GCA) by credentialing them in secondary computer science education. The South Dakota Department of Education is in the process of creating and approving K-8 Computer Science Standards, which will impact over 150 accredited public and accredited non-public schools In 2023, the South Dakota Department of Education published a K-8 enrollment of 106,164 for public and non-public schools (https://doe.sd.gov/ofm/enrollment.aspx). These changes provide an opportunity to train teachers to implement the upcoming K-8 Computer Science Standards.These changes aim to foster innovative, competent professionals prepared to lead in the computer-science sector, which is what the South Dakota Board of Regents has encouraged graduate programs at its member institutions to do.

In terms of teaching the courses in these specializations, DSU will not have to add additional faculty. The new courses will be taught by existing faculty members that have expertise in the appropriate areas. To accommodate the increased workload for the faculty members teaching these new graduate courses, it is possible that adjunct faculty members will need to be utilized to teach one or two undergraduate courses.

3. **Provide a justification for the specialization, including the potential benefits to students and potential workforce demand for those who graduate with the credential.** *For workforce related information, please provide data and examples. Data may include, but are not limited to the South Dakota Department of Labor, the US Bureau of Labor Statistics, Regental system dashboards, etc. Please cite any sources in a footnote.*

    This specialization will be included on a student's transcript. This specialization highlights students' skills in computer and cyber education. The Computer Science and Cyber Education specialization will help to address the teacher shortage in computer science. Based on data from the Computer Science Teachers Association (CSTA) survey

conducted in 20221, there aren't enough teachers qualified to teach computer science courses in many schools. This survey had 2,238 participants and the first recommendation, based on the data collected, was to: "Recruit, retain, and diversify the pool of CS teachers. There are not enough CS teachers to meet the needs across schools, particularly for those serving marginalized communities."

Some additional data to support this claim of a lack of qualified CS teachers comes from the Trends in the State of Computer Science in U.S. K-12 Schools conducted by Google and Gallup in 2016[2]. This survey data came from 4,357 participants which included students, parents, and teachers. Below are some of the key findings that speak to the need for more CS teachers:

Schools report a lack of qualified teachers and funds as key barriers to offering CS. Additionally, schools continue to report that they have too many other classes that support required testing for students, which may immobilize some schools from adding CS offerings, especially in lower grade levels. Sixty-three percent of K-12 principals and 74% of superintendents who do not have CS in their school or district say a reason they do not offer CS is the lack of teachers available at their school with the necessary skills to teach it. Additionally, at least half of principals and superintendents (50% and 55%, respectively) note that they must devote most of their time to other courses that are related to testing requirements.

High school principals without CS classes are more likely to cite a lack of qualified teachers (22%) and lack of student demand (19%) as the main reason for not offering CS than they are to cite too many classes related to testing requirements (14%).

This data comes from surveys conducted nationally. Because this is an online program, we have the potential to attract students from across the country to help meet the workforce demand for more qualified CS teachers.

As schools continue to expand their offerings in computer science and cyber, this shortage will increase and teachers with these qualifications will be in high demand. Additionally, students that complete this specialization will be able to teach dual credit computer science courses as well as potentially teach courses in the Governors Cyber Academy which will help address workforce demand at DSU as well as other BOR institutions.

4. **List the proposed curriculum for the specialization (including the requirements for completing the major – <mark>highlight courses in the specialization</mark>):**

Prefix	Number	Course Title *(add or delete rows as needed)*	Credit Hours	New (yes, no)
Required Courses			**12**	
CET	720	Leadership and Evaluation of Educational Technology	3	No
CET	722	Instructional Design for Interactive Learning	3	Yes
CET	726	Visual Design for Learning	3	Yes
CET	785	Research Methods in Educational Technology	3	Yes

[1] 2022 Moving Towards a Vision of Equitable Computer Science – Survey Results. Retrieved from: https://members.csteachers.org/documents/en-us/1d16f7a7-e39b-4ebd-a5fa-b8cf82e6f029/1/.

[2] Google Inc. & Gallup Inc. (2016). Trends in the State of Computer Science in U.S. K-12 Schools. Retrieved from http://goo.gl/j291E0

Computer Science and Cyber Education Specialization			**18**	
CSC	611	Cyber Leadership and Ethics	3	Yes
CSC	613	Artificial Intelligence for Educators	3	Yes
CSC	617	Cybersecurity for Educators	3	Yes
CSC	626	Computer Programming for Educators	3	Yes
CSC	653	Hardware and Networking for Educators	3	Yes
CSC	683	Cybersecurity Practicum	3	Yes

Total number of hours required for completion of specialization	18
Total number of hours required for completion of major	30
Total number of hours required for completion of degree	30

5. Delivery Location

Note: The accreditation requirements of the Higher Learning Commission (HLC) require Board approval for a university to offer programs off-campus and through distance delivery.

A. Complete the following charts to indicate if the university seeks authorization to deliver the entire program on campus, at any off campus location (e.g., UC Sioux Falls, Capital University Center, Black Hills State University-Rapid City, etc.) or deliver the entire specialization through distance technology (e.g., as an on-line program)?

	Yes/No	*Intended Start Date*
On campus	Yes	**Fall 2024**

	Yes/No	*If Yes, list location(s)*	*Intended Start Date*
Off campus	No		Choose an item. Choose an item.

	Yes/No	*If Yes, identify delivery methods* *Delivery methods are defined in AAC Guideline 5.5.*	*Intended Start Date*
Distance Delivery (online/other distance delivery methods)	Yes	D15 Online Asynchronous; D01 Face to Face	**Fall 2024**

B. Complete the following chart to indicate if the university seeks authorization to deliver more than 50% but less than 100% of the specialization through distance learning (e.g., as an on-line program)? *This question responds to HLC definitions for distance delivery.*

	Yes/No	*If Yes, identify delivery methods*	*Intended Start Date*
Distance Delivery (online/other distance delivery methods)	No		Choose an item.

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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.

Rebecca S. Hoey	3/1/2024
Institutional Approval Signature	Date
President or Chief Academic Officer of the University	

Note: In the responses below, references to external sources, including data sources, should be documented with a footnote (including web addresses where applicable).

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This specialization will be included on a student's transcript. This specialization highlights students' skills in technology integration which are in high demand by schools. According to the International Society for Technology's 2023 Research Study, 56% of teachers aren't confident using technology in the classroom[1]. We know that as schools continue to invest in technology, teachers with the skills to use the technology effectively will be in a position to fill jobs and use technology in ways that impact learning and potentially improve student achievement.

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[1] 2023 ISTE Research Study: Transforming Teacher Education. Retrieved from: https://1818747.fs1.hubspotusercontent-na1.net/hubfs/1818747/2023_ISTEWhitePaper_TransformTeacherEd_web.pdf

Additionally, according to the US Bureau of Labor Statistics "14,800 openings for career and technical education teachers are projected each year, on average, over the decade."[2] This Educational Technology Specialization will equip teachers with the skills and qualifications to step into these career and technical education positions.

This Educational Technology specialization would give teachers the confidence and skills to use technology in the classroom to enhance learning as well as address the workforce demand for career and technical education teachers.

4. **List the proposed curriculum for the specialization (including the requirements for completing the major – <mark>*highlight courses in the specialization*</mark>):**

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Educational Technology Specialization			**18**	
CET	756	Intro to Instructional Programming		No
CET	741	Learning Science in Online Education	3	Yes
CET	751	Technology Hardware and Networking Essentials OR	3	No
CET	753	Network Management in Education Institutions		No
Choose 9 credits from the following:			9	
CET	532	Esports Foundations and Systems	3	No
CET	723	Inclusive STEM Instruction	3	No
CET	725	Emerging Technologies in Education	3	No
CET	721	Web Authoring	1	No
CET	792	Topics	1-3	No
CSC courses listed in the Computer Science and Cyber Education Specialization (CSC 611, CSC 613, CSC 617, CSC 626, CSC 653 or CSC 683)			3-9	Yes

Total number of hours required for completion of specialization	18
Total number of hours required for completion of major	30
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5. **Delivery Location**

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[2] Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Career and Technical Education Teachers,
at https://www.bls.gov/ooh/education-training-and-library/career-and-technical-education-teachers.htm (visited *April 17, 2024*).

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