SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS

New Certificate

UNIVERSITY:	**SDSU**
TITLE OF PROPOSED CERTIFICATE:	**Pre-Construction Planning**
INTENDED DATE OF IMPLEMENTATION:	**2019-2020 Academic Year**
PROPOSED CIP CODE:	**52.2001**
UNIVERSITY DEPARTMENT:	**Construction & Operations Management**
UNIVERSITY DIVISION:	**Jerome J. Lohr College of Engineering**

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.

Barry H. Dunn

Institutional Approval Signature
President or Chief Academic Officer of the University

3/20/2019
Date

1. Is this a graduate-level certificate or undergraduate-level certificate?

Undergraduate Certificate ☒ Graduate Certificate ☐

2. What is the nature/purpose of the proposed certificate?

The purpose of the proposed certificate is to provide a foundational skill set in plan layout and development using CAD, construction materials, commercial building methods, pre-construction planning including the RSMeans cost index, and an understanding of building mechanical, electrical and plumbing systems. The certificate will prepare students to secure positions with design-build firms, lumberyards, and sub-contractors as estimators, schedulers, and/or site supervisor.

The certificate in Pre-Construction Planning uses four required lower – mid-level courses required in the A.S. in Construction Technology and B.S. in Construction Management programs. It is anticipated persons with a high-school diploma seeking to advance their career in the construction industry with a post-secondary credential would be interested in this certificate and, once completed, may be more likely to matriculate to an A.S. or B.S. degree program. This will benefit the university via enrollment growth.

There are no other similar certificates offered by universities in the state.

3. Provide a justification for the certificate program, including the potential benefits to students and potential workforce demand for those who graduate with the credential.

The purpose of the new certificate in pre-construction planning is to provide individuals currently working in the construction industry seeking positions other than skilled trades or site workers with an opportunity to earn a post-secondary credential in 12 credits. The SD BOR has established an attainment goal of 65% of South Dakotans aged 25-34 will have a credential or degree beyond high school by 2025.[1] This certificate is designed to address this goal. Additionally, the certificate can serve as a stepping stone to earning the A.S. in Construction Technology degree, another input to this BOR goal.

As to workforce demand, construction cost estimator positions are expected to grow 11% for the period 2016- 2026 adding 22,900 additional jobs according to the BLS Occupational Outlook Handbook.[2] The median salary for cost estimators is $63K per year and in South Dakota it is $53K per year, an attractive income. First line supervisors of construction trades is expected to grow faster than average at 10 – 14%: in South Dakota the projected growth rate is 9% for this period.[3] The average annual salary in South Dakota for a first-line construction supervisor is $63K as contrasted with the annual salary of $26K for a skilled trades position. The knowledge and skills attained via this certificate will support the growing need for entry-level estimators, supervisors, and schedulers in the construction industry.

4. Who is the intended audience for the certificate program?

The certificate will appeal to students in programs related to the built environment including architecture, interior design, landscape architecture, and construction technology. Additionally, the Pre-Construction Planning certificate will benefit persons currently working in the construction industry in South Dakota and across the US who want an online program to advance their career. These online students could ultimately enroll as degree-seeking students in the A.S. in Construction Technology or the B.S. in Construction Management programs.

A. Is the intent of certificate best described as a *stand-alone credential* option for students not seeking additional credentials (i.e., bachelor's or master's degree), a *value-added credential* that supplements a student's major field of study, or a *stackable credential* with credits that apply to a higher level credential (i.e., associate, bachelor's, or master's degree)? If all the credits in the certificate apply to program requirements in any associate, bachelor's, or graduate program, please list them.

The Pre-Construction Planning certificate is intended to be used for all three options. Persons working in the construction industry could complete the certificate as a credential for professional development needs (stand-alone). The certificate can supplement undergraduate programs affiliated with construction such as Interior Design, Landscape Architecture, or Community & Regional Planning for example (value-added). The courses in this certificate have been purposefully selected from the A.S. in Construction Technology and B.S. in Construction Management programs to serve as a gateway

[1] South Dakota 65% Attainment Goal (2015). Available at: https://www.sdbor.edu/administrative-offices/academics/Pages/SD-Attainment-Goal.aspx
[2] Occupational Outlook Handbook. (2018). Summary report for cost estimators. Available at: https://www.bls.gov/ooh/business-and-financial/cost-estimators.htm
[3] Occupational Information Network. (2018). Bureau of Labor Statistics. Summary report for construction supervisors. Available at: https://www.onetonline.org/link/summary/47-1011.00

credential to earn an undergraduate degree (stackable credential). The Construction Technology program was designed as a stackable degree to the B.S. in Construction Management.

All credits would apply to the Construction Technology and Construction Management programs.

B. What are the majors/degree programs from which students would likely enroll in the certificate program?

The certificate will benefit and appeal to students majoring in Architecture, Civil Engineering, Community and Regional Planning, Construction Management, Construction Technology, Interior Design, and Landscape Architecture.

5. 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):

Prefix	Number	Course Title	Credit Hours	New (yes, no)
CM	124	Construction Graphics	3	No
CM	216	Construction Methods & Materials	3	No
CM	232	Cost Estimating	3	No
CM	333	Mechanical, Electrical, & Plumbing Systems	3	No
		Subtotal	12	

A. List any prerequisites for the courses above.

Students will be able to complete CM 216 Construction Methods & Materials after completing MATH 102 College Algebra (SGR #5), MATH 103 Quantitative Literacy (SGR #5) or with department consent. CM 216 is a prerequisite to CM 232 Cost Estimating.

B. Certificate programs are typically are a subset of the curriculum offered in degree programs, include existing courses, and involve 9-12 credits for completion (including prerequisites).2 If the certificate includes new courses or more than 12 credit hours (including prerequisites), provide justification below.

The certificate consists of existing courses. The proposed certificate has a total of 15 credits since CM 216 will need students to complete the prerequisite course in MATH 102, MATH 103 or with department consent. MATH 102 and MATH 103 fulfill the SGR #5 requirement.

6. Student Outcome and Demonstration of Individual Achievement.

A. What specific knowledge and competencies, including technology competencies, will all students demonstrate before graduation?

Students will demonstrate knowledge and skill in using industry specific software for building pre-construction estimating and specifications, competency in construction documents, materials and methods of construction, and effective communication skills.

B. Complete Appendix A – Outcomes using the system form. *Outcomes discussed below should be the same as those in Appendix A.*

Upon completion of the Pre-Construction Planning certificate, successful students will:

1. understand how the materials, labor and methods of construction apply in a project.
2. understand project delivery methods.
3. demonstrate the ability to interpret plans, produce a quantity takeoff and a build schedule.

See Appendix A.

7. Delivery Location.[4]

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 program through distance technology (e.g., as an on-line program)?

	Yes/No	***Intended Start Date***
On campus	Yes	2019-2020 Academic Year

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

	Yes/No	***If Yes, identify delivery methods[5]***	***Intended Start Date***
Distance Delivery (online/other distance delivery methods)	Yes	019 Internet Synchronous 030 Blended/Hybrid	2019-2020 Academic Year

B. Complete the following chart to indicate if the university seeks authorization to deliver more than 50% but less than 100% of the certificate through distance learning (e.g., as an on-line program)? [6]

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

8. Cost, Budget, and Resources: Explain the amount and source(s) of any one-time and continuing investments in personnel, professional development, release time, time redirected from other assignments, instructional technology & software, other operations and maintenance, facilities, etc., needed to implement the proposed certificate. *Address off-campus or distance delivery separately.*

[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.
[5] Delivery methods are defined in AAC Guideline 5.5.
[6] This question responds to HLC definitions for distance delivery.

No additional resources are needed. The new certificate leverages existing Construction Technology and Construction Management courses that are offered on-campus each fall and spring semester.

The University will have offered three of the four courses in the certificate via distance delivery by summer 2019 (CM124, CM 216, CM232). The last course, CM333, is in the process of redesign for distance delivery using workload redirection from within the department. The CAD software used in CM 124 is a free download to students and faculty licenses are supported by campus IT, so will not be an added expense for students or the institution. The only other resource need that may arise is if distance section enrollments exceed established limits. In this unlikely situation, tuition and fees from an added section would offset the cost of the instructor.

Appendix A
Pre-Construction Planning Certificate - Student Learning Outcomes

	Required Courses				Elective Courses				
Individual Student Learning Outcomes	STAT 281* or STAT 381*	GE 385*	GE 469*	OM 460* or CEE 482*	BLAW 350	CM 473	MNET 367/L	OM 425	OM 462
Students will analyze and interpret technical data.	X	X					X	X	X
Students will identify, formulate, and solve broadly defined problems by applying math and/or technical knowledge relevant to the discipline		X		X					X
Students will demonstrate mastery in communication (written & oral) with a wide range of audiences.			X		X	X			
Students will demonstrate mastery in the integration of systems using analysis, design/development, and implementation tools		X					X		