



**SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS**

Intent to Plan for a New Program

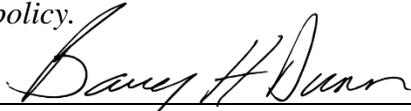
UNIVERSITY:	SDSU
DEGREE(S) AND TITLE OF PROGRAM:	Bachelor of Science (B.S.) in Concrete Industry Management
INTENDED DATE OF IMPLEMENTATION:	2021-2022 Academic Year

Please check this box to confirm that:

- The individual preparing this request has read [AAC Guideline 2.4](#), which pertains to new intent to plan requests for new programs, 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 intent to plan, that I believe it to be accurate, and that it has been evaluated and approved as provided by university policy.



President of the University

12/15/2020

Date

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

South Dakota State University (SDSU) requests authorization to develop a proposal to offer a B.S. in Concrete Industry Management. The Concrete Industry Management (CIM) program will fill a growing need for technical managers in the concrete industry. The program produces graduates grounded in business management who are knowledgeable of concrete applications, properties of materials, are prepared to manage people, finances, and production systems as well as market products and services related to the concrete industry.¹

The demand for graduates with a B.S. in Concrete Industry Management has outstripped supply as there are currently only four CIM undergraduate programs in the nation: Middle Tennessee State University, New Jersey Institute of Technology, California State University – Chico, and Texas State University. The University does not request new state resources to offer the program. The CIM North Central Region Patrons Group in concert with the National Steering Committee for Concrete Industry Management programs saw the need for a program in the upper Midwest and sent out an RFP to future potential universities to house an expansion program in summer 2020. SDSU was selected as the recipient for over \$1M in targeted funds over five years to launch the next Concrete Industry Management program.

¹ <https://www.concretedegree.com/the-cim-program/>

- 2. What is the need for the proposed program (e.g., Regental system need, institutional need, workforce need, etc.)? What is the expected demand for graduates nationally and in South Dakota (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.)? Please cite any sources in a footnote.**

As this new program will primarily serve concrete industry management workforce needs for the North Central Region (South Dakota, North Dakota, Minnesota, Wisconsin, Iowa, Illinois, Michigan, Nebraska, and Missouri), U.S. Bureau of Labor Statistics national data ² is presented here.

Sector	Timeframe	Avg. Change in Demand
Precast Concrete Products	2000 – 2020	+3.1% per year
Concrete Pipe Manufacturing	2000 – 2020 For 2020	+3.6% per year 7.2% per month
Pre-stressed Concrete Bridge Beams	2018 – 2020	8.6% per year
Other Concrete Product Manufacturing	2010 – 2020	3.4% per year

The demand for Concrete Industry Management program graduates is very strong and, based on the most recent CIM Annual Report for 2018-2019³ there were 472 students enrolled at the four institutions with the CIM degree, had 69 graduates, and an average 80% industry retention rate in the five years following graduation. The compelling reason for the National Steering Committee to establish a new CIM program at SDSU is current and forecast demand for program graduates in the Midwest region.

- 3. How would the proposed program benefit students?**

The demand for managers in the concrete industry is strong and growing particularly as the current managerial workforce reaches retirement age and replacements are needed. The proposed CIM program will provide a career path for students interested in concrete applications in construction, concrete product manufacturing, industrial sales, and supply chain management. The North Central Region Patrons Group is especially interested in a high quality learning experience at a reasonable cost and is making a substantial commitment to cover resource needs to launch the new program at SDSU to fund faculty, lab equipment, and scholarships for students in addition to hiring a recruiter to bring students to SDSU for the CIM program. It is anticipated most CIM students will be from South Dakota, consistent with current enrollment trends at SDSU.

- 4. How does the proposed program relate to the university’s mission as provided in South Dakota Statute and Board of Regents Policy, and to the current Board of Regents Strategic Plan 2014-2020?**

South Dakota State University’s mission is to “*provide undergraduate and graduate programs of instruction in the liberal arts and sciences and professional education in agriculture, education, engineering, human science, nursing and pharmacy, and other courses or programs as the Board of Regents may determine.*” (SDCL 13-58-1)⁴

² <https://beta.bls.gov/dataQuery/find?q=concrete+industrial-organizational&q=concrete>

³ <https://www.concretedegree.com/about/cim-annual-report/>

⁴ https://sdlegislature.gov/Statutes/Codified_Laws/DisplayStatute.aspx?Type=Statute&Statute=13-58-1

Furthermore, Board-approved programs currently include “...*programs in the agricultural sciences, aviation, education, engineering and technology, human sciences, humanities and liberal arts, nursing, performing and visual arts, pharmaceutical sciences, physical and biological sciences, and social sciences.*” (Board Policy 1:10:2)⁵

A Bachelor of Science in Concrete Industry Management supports the South Dakota Board of Regents Strategic Plan 2014-2020⁶ goals and relevant action steps:

Goal 1: Student Success

- Grow the number of undergraduate and graduate degrees awarded.
 - Encourage campuses to create innovative programs to attract and retain in SD, more non-resident students.

Goal 2: Academic Quality and Performance

- Grow the number of students participating in experiential learning.
- Increase the number of accredited programs.⁷

Goal 3: Research and Economic Development

- Increase the number of graduates from STEM programs.
 - Encourage development of academic programs and certificates that align with existing and future state workforce needs.

Goal 4: Affordability and Accountability

- Reduce education and related spending per degree.
 - Identify new and innovative ways to deliver high-quality academic courses and programs that create new markets and reduce cost.

- 5. Do any related programs exist at other public universities in South Dakota? If a related program already exists, explain the key differences between the existing programs and the proposed program, as well as the perceived need for adding the proposed new program. Would approval of the proposed new program create opportunities to collaborate with other South Dakota public universities? A list of existing system programs are available through the university websites and the [RIS Reporting: Academic Reports Database](#). If there are no related programs within the Regental system, enter “None.”**

There are no related programs at other public universities in South Dakota. The B.S. in Construction Management at SDSU is related to the proposed Concrete Industry Management program. The Construction Management (CM) program prepares graduates for careers in commercial, heavy, and residential construction as entry-level estimators, site supervisors, and/or project managers. Concrete Industry Management program graduates, however, are more focused on business operations within ready-mix, pre-cast manufacturing, and concrete product sales. The Concrete Industry Management program will leverage some courses in the CM curriculum as there are some common knowledge and skill sets. Concrete Industry Management students will be required to earn the Management minor and the CIM program will have a discrete group of core courses in materials, concrete plant management, industry-based internships, and concrete systems supply chains.

⁵ <https://www.sdbor.edu/policy/documents/1-10-2.pdf>

⁶ https://www.sdbor.edu/the-board/agendaitems/Documents/2014/October/16_BOR1014.pdf

⁷ The CIM program outcomes have been designed to meet the requirements for future Association of Technology, Management, and Applied Engineering (ATMAE) accreditation.

- 6. Do related programs exist at public colleges and universities in Minnesota, North Dakota, Montana, and/or Wyoming? If a related program exists, enter the name of the institution and the title of the program; if no related program exists, enter “None” for that state. Add additional lines if there are more than two such programs in a state listed.**

	Institution	Program Title
<i>Minnesota</i>	None	
<i>North Dakota</i>	None	
<i>Montana</i>	None	
<i>Wyoming</i>	None	

There are currently only four Concrete Industry Management undergraduate programs in the nation: Middle Tennessee State University, New Jersey Institute of Technology, California State University – Chico, and Texas State University.

- 7. Are students enrolling in this program expected to be new to the university or redirected from other existing programs at the university?**

Most students in the Concrete Industry Management program will be new to the university. The North Central Patrons Group will be hiring a regional recruiter for the program to bring students from the surrounding states to SDSU for the CIM degree. Likewise, the University will use the talents of the Jerome J. Lohr College of Engineering recruiter to raise awareness of and recruit for the CIM program within the state. As retaining students at SDSU is high priority, some construction management, civil engineering, and other SDSU students may choose to change their major to CIM.

- 8. What are the university’s expectations/estimates for enrollment in the program through the first five years? What are the university’s expectations/estimates for the annual number of graduates from the program after the first five years? Provide an explanation of the methodology the university used in developing these estimates.**

Concrete Industry Management (B.S.)	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>Year 6</i>
Projected Declared Majors	20	45	65	90	120	150
Graduates			15	30	40	50

The CIM North Central Patrons group will provide recruitment support for the new program and, based on previous new program launches, the table shows a conservative estimate for program growth and graduation rates at SDSU. The National Steering Committee also provided empirical data on demand and graduation rates for its flagship program at Middle Tennessee State University. MTSU spring 2020 CIM graduates received four or more employment offers on average and their throughput rates were estimated at 75% of students graduating in four years, based on conversations with faculty at MTSU.

- 9. Complete the following charts to indicate if the university intends to seek 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)?**

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.

	Yes/No	Intended Start Date
On campus	Yes	2021-2022 Academic Year

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

	Yes/No	If Yes, identify delivery methods <i>Delivery methods are defined in AAC Guideline 5.5.</i>	Intended Start Date
Distance Delivery (online/other distance delivery methods)	No		
Does another BOR institution already have authorization to offer the program online?	No	If yes, identify institutions:	

10. What are the university’s plans for obtaining the resources needed to implement the program? Indicate “yes” or “no” in the columns below.

	Development/ Start-up	Long-term Operation
Reallocate existing resources ⁸	Yes	Yes
Apply for external resources <i>If checking this box, please provide examples of the external funding identified below.</i>	Yes	Yes
Ask Board to seek new State resources <i>Note that requesting the Board to seek new State resources may require additional planning and is dependent upon the Board taking action to make the funding request part of their budget priorities. Universities intending to ask the Board for new State resources for a program should contact the Board office prior to submitting the intent to plan.</i>	No	No
Ask Board to approve a new or increased student fee	No	No

SDSU competed with five regional universities in the upper Midwest and, based on the selection committee’s evaluation, SDSU had the best facility/lab resources in place to start a new Concrete Industry Management program, were impressed with the enthusiasm demonstrated by SDSU administration and its stakeholders, and SDSU had the ability to launch the CIM program as early as fall 2021 seen as a competitive advantage. SDSU was selected by the National Steering Committee to be the next site for a full-funded Concrete Industry Management (B.S.) program based on the site evaluation and discussions with the evaluation team. The National Steering Committee and the North Central Patrons Group will provide, at minimum, \$200,000 per year for five years to SDSU to start the program. Funding in year one will cover salary/benefits for a new CIM Program Coordinator/Director who will teach selected program courses and perform outreach with regional industry. Lab equipment and facilities startup needs will also be covered. In years two through four, additional faculty

⁸ We will be reassigning underutilized office space in Solberg Hall to accommodate CIM faculty and will leverage existing COE lab equipment for the new program. External funds will be used for facilities updates and purchases of new lab equipment.

and lab support staff will be added as demand increases for courses, lab sections, student group travel to competitions, and intern placement. SDSU will request a new CIM course prefix and to apply an existing discipline fee. The \$84.40/credit hour discipline fee currently applies to all Jerome J. Lohr College of Engineering programs. As the CIM program enrollment grows, it will generate credit hours and discipline fees that can offset donor contributions, some of which will be reassigned to scholarships for CIM students with remaining discipline fees to support salary and benefits for program staff. Limited funding for scholarships and ongoing program needs will likely continue beyond year five of the program launch relative to the concrete industry patrons' capability to fundraise for this specific purpose. This has been the funding model for current CIM programs at other institutions.

11. Curriculum Example: Provide (as Appendix A) the curriculum of a similar program at another college or university. The Appendix should include required and elective courses in the program. Catalog pages or web materials are acceptable for inclusion. Identify the college or university and explain why the selected program is a model for the program under development.

The curriculum is being developed based on an in-depth review of the four existing CIM degree programs at Middle Tennessee State University⁹, New Jersey Institute of Technology¹⁰, California State University – Chico¹¹, and Texas State University¹². An example plan of study from Texas State University is included in Appendix A.

⁹ <https://www.mtsu.edu/programs/concrete-industry/>

¹⁰ <https://appliedengineering.njit.edu/academics/cim>

¹¹ <https://www.csuchico.edu/cim/>

¹² <https://www.txstate.edu/technology/cim/>

Appendix A
Curriculum Example: Texas State University

Additional information regarding the B.S. in Concrete Industry Management may be found at <https://www.txstate.edu/technology/cim/>.



Undergraduate Curriculum

Academic Year 2020 - 2021

The following is a sample four-year program indicating required courses and recommended semesters. While it is not required to complete the courses in this order, all course prerequisites must be met before registering for a sequential course.

First Year			
Freshman Fall		Freshman Spring	
CSM 1260, Intro to Construction and Concrete	2	PHYS 1315, General Physics I	3
CHEM 1335, Engineering Chemistry	3	PHYS 1115, Physics I Lab	1
CHEM 1135, Engineering Chemistry Lab	1	MATH 2321, Calculus for Life Science	3
MATH 2417, Pre-Calculus	4	POSI 2310, Principles of American Government	3
ENG 1310, College Writing I	3	ENG 1320, College Writing II	3
US 1100, University Seminar	1		
Total	14	Total	13
Second Year			
Sophomore Fall		Sophomore Spring	
CSM 2313, Architecture Design I - Construction Documents	3	CIM 3420, Concrete Properties and Testing	4
MATH 2328, Elementary Statistics	3	TECH 2351, Statics and Strength of Materials	3
ACC 2361, Intro. to Financial Accounting	3	ACC 2362, Intro. to Managerial Accounting	3
COMM 1310, Fundamentals of Human Communication	3	POSI 2320, Functions of American Government	3
HIST 1310, History of the US to 1877	3	HIST 1320, History of the US, 1877 to Date	3
Total	15	Total	16
Second Year, Summer Session			
TECH 2190, Internship, 1 credit			

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Third Year			
Junior Fall		Junior Spring	
CIM 3330, Concrete Construction Methods	3	CIM 3366, Application of Concrete in Construction	3
CIM 3340, Understanding the Concrete Construction System	3	CIM 4330, Management of Concrete Products - Ordering & Delivering	3
MGT 3303, Management of Organizations	3	MKT 3343, Principles of Marketing	3
ECO 2314, Principles of Microeconomics	3	ECO 2315, Principles of Macroeconomics	3
ART, DAN, MU, or TH 2313, Intro. to Fine Arts	3	PHIL 1305 or 1320, Critical Thinking or Ethics and Society	3
Total	15	Total	15
Fourth Year			
Senior Fall		Senior Spring	
CIM 4398, Capstone	3	CIM 4499, Capstone II	4
CIM 4310, Senior Concrete Lab	3	CSM 4380, Construction Safety	3
CSM 4369, Construction Contracts, Liability and Ethics	3	CIM 4340, Concrete Problems: Diagnosis, Prevention, Dispute Resolution	3
CSM 3368, Construction Finance	3	BLAW 2361, Legal Environment of Business	3
TECH 3364, Quality Assurance	3	ENG 2310-2360, English Literature	3
Total	15	Total	16

Total Credits = 120