SOUTH DAKOTA BOARD OF REGENTS

Academic and Student Affairs
Consent

AGENDA ITEM: 5 – A (5)
DATE: April 2-3, 2025

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SUBJECT

New Program Request – SDSMT – Minor in Creativity and Collaboration in STEM

CONTROLLING STATUTE, RULE, OR POLICY

BOR Policy 2.3.2 – New Programs, Program Modifications, and Inactivation/Termination

BACKGROUND / DISCUSSION

South Dakota School of Mines & Technology (SDSMT) requests authorization to offer a minor in Creativity and Collaboration in STEM. The proposed minor will provide students in STEM majors the opportunity to grow their skillset beyond the technical aspects of their disciplines. This interdisciplinary minor will include courses in five categories: 1) Art and Music, 2) Culture and Literature, 3) Collaboration, 4) Communication, and 5) Understanding People.

IMPACT AND RECOMMENDATION

SDSMT plans to offer the minor in Creativity and Collaboration in STEM on campus and online. SDSMT does not request new state resources. No new courses will be required. SDSMT estimates 14 students enrolled and 6 graduates by the fourth year of the program.

Board office staff recommends approval.

ATTACHMENTS

Attachment I – New Program Request Summary: SDSMT – Minor in Creativity and Collaboration in STEM

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DRAFT MOTION 20250402_5-A(5):

I move to authorize SDSMT to offer a minor in Creativity and Collaboration in STEM, as presented.

SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS

New Baccalaureate Degree Minor

Use this form to propose a new baccalaureate degree minor (the minor may include existing and/or new courses. An academic minor within a degree program enables a student to make an inquiry into a discipline or field of study beyond the major or to investigate a particular content theme. Minors provide a broad introduction to a subject and therefore develop only limited competency. Minors consist of a specific set of objectives achieved through a series of courses. Course offerings occur in a specific department or may draw from several departments (as in the case of a topical or thematic focus). In some cases, all coursework within a minor proscribed; in others cases, a few courses may form the basis for a wide range of choices. Regental undergraduate minors typically consist of 18 credit hours. Proposals to establish new minors as well as proposals to modify existing minors must recognize and address this limit. 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 Baccalaureate Degree Minor Form to the university website for review by other universities after approval by the Executive Director and Chief Academic Officer.

UNIVERSITY:	SDSM&T
TITLE OF PROPOSED MINOR:	**Creativity and Collaboration in STEM**
DEGREE(S) IN WHICH MINOR MAY BE EARNED:	**BS**
EXISTING RELATED MAJORS OR MINORS:	**None**
INTENDED DATE OF IMPLEMENTATION:	**Fall 2025**
PROPOSED CIP CODE:	**30.9999**
UNIVERSITY DEPARTMENT:	**Humanities, Arts, and Social Sciences**
BANNER DEPARTMENT CODE:	**MHSS**
UNIVERSITY DIVISION:	**4L**
BANNER DIVISION CODE:	**4L**

☒ **Please check this box to confirm that:**

- The individual preparing this request has read AAC Guideline 2.3.2.2.D, which pertains to new baccalaureate degree minor 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.

President of the University

Click here to enter a date.

Date

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

1. **Do you have a major in this field (*place an "X" in the appropriate box*)?** ☐ *Yes* ☒ *No*

2. **If you do not have a major in this field, explain how the proposed minor relates to your university mission and strategic plan, and to the current Board of Regents Strategic Plan 2014-2020.**

   South Dakota School of Mines and Technology (SDSMT) requests authorization to offer a baccalaureate minor in Creativity and Collaboration in STEM. This minor will prepare students for professional success in their careers by broadening and enhancing their skillsets in creative thinking, collaboration, and communication within the context of their STEM education, which is the focus of our university. For students in engineering majors with limited electives, this minor will provide an opportunity to round out their technical skills with in-demand professional competencies.

   The Creativity and Collaboration in STEM Minor will support Goal 4: Workforce and Economic Development of the South Dakota Board of Regents' Strategic Plan 2022-2027 by equipping students with competencies that employers are looking for in today's college graduates. The proposed minor would also advance our university mission to "educate scientists and engineers to address global challenges, innovate to reach our creative potential, and engage in partnerships to transform society" and will contribute to the SDSMT Strategic Plan 2023-2028 in Pillar 1: Academic and Co-Curricular Excellence, especially Objective 1.1: "Offer distinctive academic programs that are responsive to industry needs and prepare graduates to solve global challenges and serve as leaders in an increasingly competitive interconnected world." Skills in communication, teamwork, and critical thinking are rated as the most important career readiness competencies for recent graduates by employers and they tend to rate the proficiency of graduates as lower in these areas than graduates rate themselves as reported in the National Association of Colleges and Employers' Job Outlook 2024 Report.[1] This minor will support students' growth in problem-solving, ability to work in a team, and communication skills, which were the top three most highly sought attributes on recent graduates' resumes in 2024 according to the National Association of Colleges and Employers.[2] Furthermore, as reported by Forbes earlier this year, "Approximately 73% of organizations surveyed in the World Economic Forum's Future of Jobs Survey reported that creative thinking skills was a top priority for them when considering talent as we move into the future, agreeing that this skill set is increasing in relevance and importance."[3]

[1] https://www.naceweb.org/career-readiness/competencies/recruiters-and-students-have-differing-perceptions-of-new-grads-proficiency-in-competencies
[2] https://www.naceweb.org/talent-acquisition/candidate-selection/the-key-attributes-employers-are-looking-for-on-graduates-resumes
[3] https://www.forbes.com/sites/rachelwells/2024/01/28/70-of-employers-say-creative-thinking-is-most-in-demand-skill-in-2024/

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

The purpose of the Creativity and Collaboration in STEM Minor is to give students in STEM majors the opportunity to grow their skillset beyond the technical aspects of their disciplines. This interdisciplinary minor will include courses in five categories: 1) Art and Music (ART, ARTH, MUS), 2) Culture and Literature (ENGL, HUM, PHIL), 3) Collaboration (PSYC), 4) Communication (ENGL), and 5) Understanding People (PSYC, SOC).

Many universities have begun to implement minors aimed at enhancing creativity and collaboration, especially among STEM students. Colorado School of Mines offers a Minor in Culture, Creativity, and Communication which has a large range of course options across disciplines to provide flexibility for students.[4] Embry-Riddle Aeronautical University now offers the Humanistic STEM minor to encourage students to develop creative-problem solving skills, communication, and engage multiple perspectives.[5] Other relevant examples of universities offering minors to support students' growth in creativity and/or collaboration skills include Stony Brook University's STEM in Literature and Culture Minor, Indiana University of Pennsylvania's Minor in Professional Teamwork and Leadership, and Colorado State University-Pueblo's Creative Wellness minor. [6,7,8]

4. How will the proposed minor benefit students?

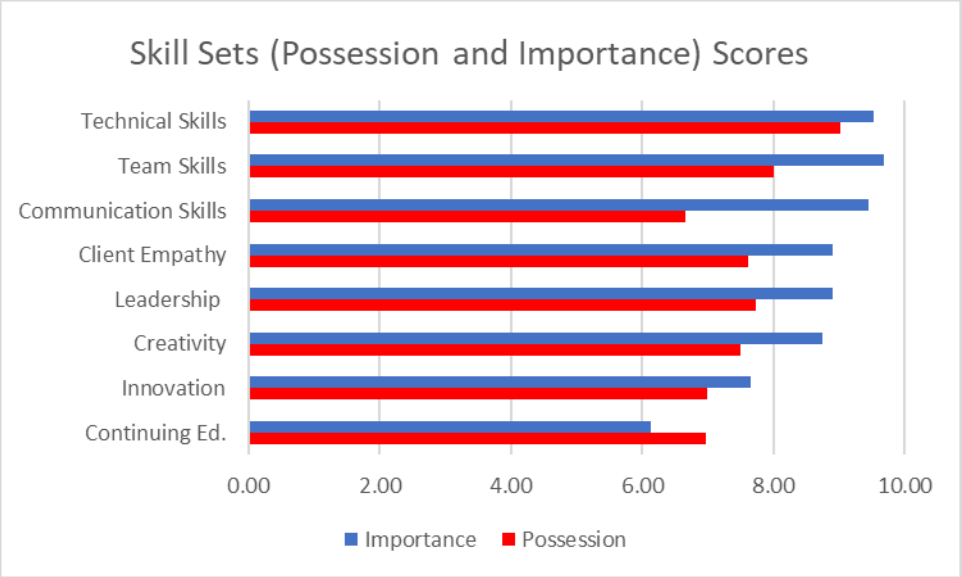
The proposed Creativity and Collaboration in STEM Minor will benefit students by offering them a tangible way to develop and showcase a broader set of competencies that complement their technical skillset and are valued and sought after by employers. Having this minor on a student's resume will set them apart by signaling that they will bring more to their work than technical proficiency and have the potential to adapt and grow throughout their career. As mentioned previously, competencies in creativity, collaboration, and communication are rated as the most important by employers and are the attributes they seek out when hiring recent graduates.[1] According to the American Management Association, "Today's workforce needs to be able to navigate a continuous stream of information, trends, and practices in a fast-paced, competitive global economy. Today's workforce needs creativity, collaboration skills, communication skills, and the ability to think critically. *These* are the sought-after skills today's business demands—*these* are the skills that **define success**." [9] Furthermore, in a recent Harris Poll survey, more than 75% of employers reported prioritizing creative thinking when deciding on who to hire, more than half of recent college graduates wish they had developed their creative skills more in college, and 85% of hiring managers think the changes brought about by artificial intelligence in the workplace will only increase the need

[4] https://catalog.mines.edu/undergraduate/programs/HASS/#minorstext
[5] https://catalog.erau.edu/worldwide/arts-sciences/minors/humanistic-stem/
[6] https://www.stonybrook.edu/sb/bulletin/current/academicprograms/slc/
[7] https://www.iup.edu/team-leadership/professional-teamwork-and-leadership-minor/
[8] https://catalog.csupueblo.edu/college-of-humanities-arts-and-social-sciences/psychology/creative-wellness-minor/
[9] https://www.amanet.org/resources/success-skills/

for creative thinking among employees.[10] This minor offers a way for our STEM students, especially those in engineering programs for whom there are generally few opportunities to take electives in non-technical subjects, especially at the upper-level, to continue to develop these "success skills" throughout their academic career at Mines.

5. **Describe the workforce demand for graduates in related fields, including national demand and demand within 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.*

   The proposed minor is not specific to any particular occupation or career field, but the skills it would enhance are in demand across industries and labor markets. In a survey of employers at our university's career fair in 2023 (administered as part of an NSF IUSE funded program), there was little difference in how important technical skills were rated by employers for our graduates to have compared to how they rated our graduates' technical proficiency. However, three of the largest gaps between importance and skill proficiency were found for communication skills, team skills, and creativity (see figure below).



   Furthermore, in data from the National Association of College Employers' 2023 Student Survey and Job Outlook 2024 Survey, there are clear gaps in how employers view the proficiency of recent graduates in these skills and how new graduates view their own competencies. For example, whereas 79.4% of recent graduates rated themselves as very or extremely proficient in communication, only 55.2% of employers rated recent graduates as such. Similarly, 86.9% of new graduates rated themselves as very or extremely proficient in teamwork, but employers rated only 78.1% of recent graduates as such.[1]

   Finally, in a May 2023 survey of 1,010 employers conducted by the American Association of Colleges and Universities, it was found that at least 75% of employers looked for evidence of skills in communication, critical and creative thinking, problem-solving, and teamwork when

[10] https://www.businesswire.com/news/home/20240904329233/en/Canva-Report-Reveals-Creativity-Is-Crucial-for-Career-Success-but-Graduates-Are-Falling-Short

making hiring decisions.[11] The same report found that the importance of creative and innovative thinking in identifying strong job candidates has increased substantially among employers from 2018 to 2023 (from 64% rating it as very important to 76%); similar trends are also seen for ability to solve complex problems and ability to work with people from different backgrounds.

6. **Provide estimated enrollments and completions in the table below and explain the methodology used in developing the estimates (*replace "XX" in the table with the appropriate year*).**

	Fiscal Years*			
	1st	2nd	3rd	4th
Estimates	FY XX	FY XX	FY XX	FY XX
Students enrolled in the minor (fall)	**3**	**6**	**10**	**14**
Completions by graduates	**0**	**0**	**3**	**6**

*Do not include current fiscal year.

We used the following methodology to estimate enrollments and completions. We held a focus group to collect feedback on this minor from students with a range of majors. Of the ten students who participated, most expressed interest in the minor and two asked for further details on it. We also conducted a survey, which was sent to a random sample of 300 undergraduates at SDSMT. Seventeen students completed the survey, of whom 23.5% (4) stated they would be somewhat or very likely to consider pursuing this minor if it were offered. Furthermore, 64% (11) reported a somewhat or very positive impression of this minor based on the information provided. In looking at enrollment for upper-level Music (317) and Art (492) courses as a leading indicator, we usually have about 30 students per year in these classes so if only about 15% of them pursued the minor, it would be about 5 students per year. Based on these figures, and a conservative approach, we estimate the minor starting with 3 students and growing steadily from there based on increased awareness and perceived benefit.

7. **What is the rationale for the curriculum? Demonstrate/provide evidence that the curriculum is consistent with current national standards.**

The proposed Creativity and Collaboration in STEM Minor is designed to offer our STEM students the opportunity to bolster skills in creativity, collaboration, and communication that will benefit them professionally and personally. The minor will be composed entirely of courses that we currently offer regularly and is designed with flexibility in mind in order to maximize the ability of students to find a path through the minor that works for their interests and goals. The curriculum is responsive to workforce needs, as discussed above,[1,3,10,11] and is comparable to a growing number of interdisciplinary minors offered at other universities that aim to enhance creativity and/or collaboration. For example, the Minor in Culture, Creativity, and Communication at Colorado School of Mines features a similar degree of flexibility and interdisciplinarity, though our proposed minor has more focus on collaboration and more options in art and music.[12] Additional examples include Embry-Riddle Aeronautical University's Humanistic STEM Minor[13] and Indiana University of Pennsylvania's Professional Teamwork

[11] https://dgmg81phhvh63.cloudfront.net/content/user-photos/Research/PDFs/AACU-2023-Employer-Report.pdf
[12] https://catalog.mines.edu/undergraduate/programs/HASS/#minorstext
[13] https://catalog.erau.edu/worldwide/arts-sciences/minors/humanistic-stem/

and Leadership Minor.[14] As well, there is increasing recognition of the value of the arts for fostering students' creative thinking and collaboration skills, well-roundedness, and wellbeing at STEM-focused universities.[15]

8. Complete the tables below. Explain any exceptions to Board policy requested.
Minors by design are limited in the number of credit hours required for completion. Minors typically consist of eighteen (18) credit hours, including prerequisite courses. In addition, minors typically involve existing courses. If the curriculum consists of more than eighteen (18) credit hours (including prerequisites) or new courses, please provide explanation and justification below.

A. Distribution of Credit Hours

Creativity and Collaboration in STEM	Credit Hours	Percent
Required Category 1 (Art and Music)	6	33.33%
Required Category 2 (Culture and Literature)	3	16.67%
Required Category 3 (Collaboration)	3	16.67%
Required Category 4 (Communication)	3	16.67%
Required Category 5 (Understanding People)	3	16.67%
Total	18*	100%

*Note: 9 of the 18 total credit hours must be at the 300/400 level.

B. Required Courses in the Minor

N/A

9. Elective Courses in the Minor: List courses available as electives in the program. Indicate any proposed new courses added specifically for the minor.

Students will choose 6 hours from Category 1, and then 3 hours from each of Categories 2-5, as indicated below. Students must complete 9 hours out of the 18 hours required for the minor at the 300/400 level.

Category 1: Select 6 credits from the following list. Credits: 6

Prefix	Number	Course Title	Prerequisites for Course	Credit Hours	New (yes, no)
ART	111	Drawing I	None	3	No
ART	121	Design I 2D	None	3	No
ART	261	Photography I	None	3	No
ART	492	Topics	None	3	
ARTH	100	Art Appreciation	None	3	

[14] https://www.iup.edu/team-leadership/professional-teamwork-and-leadership-minor/
[15] https://www.insidehighered.com/news/students/academics/2023/04/25/where-stem-and-arts-live-harmony

ARTH	211	History of World Art I	None	3	
ARTH	321	Modern and Contemporary Art	None	3	
MUS	117	Music in Performance I	None	1	
MUS	317	Music in Performance II	None	1	

Category 2: Select 3 credits from the following list. Credits: 3

Prefix	Number	Course Title	Prerequisites for Course	Credit Hours	New (yes, no)
ENGL	300	Environmental Literature and Culture	None	3	No
ENGL	392	Topics	None	3	No
HUM	200	Connections: Humanities and Technology	None	3	No
HUM	375	Computers and Society	None	3	No
PHIL	233	Philosophy and Literature	None	3	No

Category 3: Select 3 credits from the following list. Credits: 3

Prefix	Number	Course Title	Prerequisites for Course	Credit Hours	New (yes, no)
PSYC	310	Leadership in Context	None	3	No
PSYC	319	Teams and Team Building	None	3	No

Category 4: Select 3 credits from the following list. Credits: 3

Prefix	Number	Course Title	Prerequisites for Course	Credit Hours	New (yes, no)
ENGL	279	Communication in the STEM Workplace	ENGL 101*	3	No
ENGL	289	STEM Communication for Technical and Public Audiences	ENGL 101*	3	No

Category 5: Select 3 credits from the following list. Credits: 3

Prefix	Number	Course Title	Prerequisites for Course	Credit Hours	New (yes, no)
PSYC	101	General Psychology	None	3	No
PSYC	102	Psychology of Personal Growth	None	3	No
PSYC	351	Psychology of Mind and Body	None	3	No
PSYC	392	Topics	None	3	No
SOC	100	Introduction to Sociology	None	3	No
SOC	492	Topics	None	3	No

***Pre-requisites Note:** ENGL 101 is a pre-requisite for some of the courses in the minor; all undergraduate degrees at South Dakota Mines require ENGL 101 (or an equivalent course), so students will complete the necessary pre-requisites as part of their degree.*

Catalog Note: No more than six credits from this minor may overlap with the specific required credits of a student's declared major.

A. What are the learning outcomes expected for all students who complete the minor? How will students achieve these outcomes? *Complete the table below to list specific learning outcomes—knowledge and competencies—for courses in the proposed program in each row. Label each column heading with a course prefix and number. Indicate required courses with an asterisk (*). Indicate with an X in the corresponding table cell for any student outcomes that will be met by the courses included. All students should acquire the program knowledge and competencies regardless of the electives selected. Modify the table as necessary to provide the requested information for the proposed program.*

	Program Courses that Address the Outcomes				
Individual Student Outcome (Same as in the text of the proposal)	ART 111 121 261 492 ARTH 100 211 321 MUS 117 317	ENGL 300 392 HUM 200 375 PHIL 233	PSYC 310 319	ENGL 279 289	PSYC 101 102 351 392 SOC 100 492
Demonstrate creative thinking and expression through interpretation and/or production of artistic works.	X	X			
Build and maintain collaborative relationships to work effectively toward common goals, while appreciating diverse viewpoints and shared responsibilities.			X	X	
Communicate effectively with a range of audiences through various means.		X		X	
Demonstrate self and social awareness.			X		X

10. What instructional approaches and technologies will instructors use to teach courses in the minor? *This refers to the instructional technologies and approaches used to teach courses and NOT the technology applications and approaches expected of students.*

The courses in this minor will employ various instructional approaches/technologies to support students in achieving the stated learning outcomes. Most of the courses will be offered face-to-face and include multiple instructional strategies such as lectures, active learning, project-based learning, and discussion.

11. 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., USD Community Center for Sioux Falls, Black Hills State University-Rapid City, Capital City Campus, etc.) or deliver the entire program through distance technology (e.g., as an online program)?

	Yes/No	***Intended Start Date***
On campus	Yes	**Fall 2025**

	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 2.4.3.B.*	***Intended Start Date***
Distance Delivery (online/other distance delivery methods)	Yes	Online Asynchronous; HyFlex	**Fall 2025**
Does another BOR institution already have authorization to offer the program online?	No	**If yes, identify institutions:**	

B. Complete the following chart to indicate if the university seeks authorization to deliver more than 50% but less than 100% of the minor through distance learning (e.g., as an online 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. Choose an item.

12. Does the University request any exceptions to any Board policy for this minor? Explain any requests for exceptions to Board Policy. *If not requesting any exceptions, enter "None."*

None

13. 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 minor. *Address off-campus or distance delivery separately.*

There is no need for any additional resources, financial or otherwise, to enable us to implement the proposed minor. The Department of Humanities, Arts, and Social Sciences currently regularly offers the courses in the proposed minor with existing faculty and campus resources.

14. New Course Approval: New courses required to implement the new minor may receive approval in conjunction with program approval or receive approval separately. Please check the appropriate statement (*place an "X" in the appropriate box*).

☐ YES,
the university is seeking approval of new courses related to the proposed program in conjunction with program approval. All New Course Request forms are included as Appendix C and match those described in section 7.

☒ NO,
the university is not seeking approval of all new courses related to the proposed program in conjunction with program approval; the institution will submit new course approval requests separately or at a later date in accordance with Academic Affairs Guidelines.

15. 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.*

None