SOUTH DAKOTA BOARD OF REGENTS

Academic and Student Affairs
Consent

AGENDA ITEM: 6 – B (5)
DATE: June 26-27, 2024

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SUBJECT

New Program Request – SDSU – Minor in Surface Mount Technology

CONTROLLING STATUTE, RULE, OR POLICY

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

BACKGROUND / DISCUSSION

South Dakota State University (SDSU) requests authorization to offer a minor in Surface Mount Technology. The proposed minor will provide knowledge and skills in manufacturing processes, materials and methods for production of printed circuit boards, quality control and inspection of processes and products, lean processes, and SMT processes and methods. The minor addresses the need for people with expertise in surface mount technology in the production of printed electronic circuit boards for use in a wide variety of electronically controlled products.

IMPACT AND RECOMMENDATION

SDSU plans to offer the minor in Surface Mount Technology on campus. SDSU does not request new state resources. Two new courses will be required. SDSU estimates 20 students enrolled and 10 graduates by the fourth year of the program.

Board office staff recommends approval.

ATTACHMENTS

Attachment I – New Program Request Summary: SDSU – Minor in Surface Mount Technology

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DRAFT MOTION 20240626_6-B(5):

I move to authorize SDSU to offer a minor in Surface Mount Technology, as presented.

SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS

New Baccalaureate Degree Minor

UNIVERSITY:	**SDSU**
TITLE OF PROPOSED MINOR:	**Surface Mount Technology**
DEGREE(S) IN WHICH MINOR MAY BE EARNED:	**Any**
EXISTING RELATED MAJORS OR MINORS:	**Electrical Engineering, Mechanical Engineering**
INTENDED DATE OF IMPLEMENTATION:	**Fall 2024**
PROPOSED CIP CODE:	**15.0616**
UNIVERSITY DEPARTMENT:	**Construction and Concrete Industry Management**
BANNER DEPARTMENT CODE:	**SCCM**
UNIVERSITY DIVISION:	**Jerome J Lohr College of Engineering**
BANNER DIVISION CODE:	**3E**

☒ **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.

Barry H Dunn

President of the University — Date: 4/25/24

1. **Do you have a major in this field?** ☐ 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 State University (SDSU) requests authorization to offer a baccalaureate minor in Surface Mount Technology. SDBOR Policy 1.2.5 states South Dakota State University's mission is to offer academic programs in the liberal arts and sciences and professional education in agriculture, education, engineering, home economics, business economics, nursing, and pharmacy. The Surface Mount Technology Minor supports the educational

mission of SDSU by providing a needed area of professional education in a necessary engineering technique utilized in regional manufacturing. The program would be unique in the region and would meet a present need expressed by industry.

The minor will contribute to the South Dakota Board of Regents *Strategic Plan 2022-2027* Goal 4: Workforce and Economic Development the "Public post-secondary and higher education serves as a critical pipeline for the workforce locally in South Dakota and as well as nationally and globally."

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 minor in Surface Mount Technology (SMT) will provide knowledge and skills in manufacturing processes, materials and methods for production of printed circuit board, quality control and inspection of processes and products, lean processes, and SMT processes and methods. The minor addresses the need for people with expertise in surface mount technology in the production of printed electronic circuit boards for use in a wide variety of electronically controlled products.

4. How will the proposed minor benefit students?

Students earning a minor in Surface Mount Technology would be able to pursue careers in printed circuit board manufacturing, a rapidly expanding career area due to the increasing number of integrated circuit chips used in modern products. Regional manufacturers desire students with these skills and presently offer a premium to individuals with this background.

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.*

Surface Mount Technology is the process used to manufacture printed circuit boards. Surface Mount Technology is a $6 Billion business of which the United States has a 28% share. The trend in smaller consumer electronics, SMART (Self-Monitoring, Analysis, and Reporting Technology), and the increase in Internet of Things (IoT) devices is driving manufacturers to incorporate more and smaller printed circuits into products. Surface Mount Technology makes it possible to manufacture these (Research Nester, 2024).[1] At present, Indeed has more than 700 positions being advertised for Surface Mount Technician and over 250 for Surface Mount Engineer. Salaries for Technicians range from $15 to over $65 per hour and for Engineers the range is $80,000 to over $250,000 per year.[2]

[1] Research Nester – Surface Mount Technology market report (2024) https://www.researchnester.com/reports/surface-mount-technology-market/5253?gad_source=1&gclid=Cj0KCQjwwYSwBhDcARIsAOyL0fhORCxHEJIdvJUh2saIBYQG7LsWbzFlVJgoyV3wKkIRxJ3DB9GYPYsaAu5GEALw_wcB Accessed March 25, 2024

[2] Indeed.com (2024) SMT Technician search https://www.indeed.com/q-smt-technician-jobs.html?aceid=&gad_source=1&gclid=Cj0KCQjwwYSwBhDcARIsAOyL0fhekV41Ij4j7mVTxC8XYhqN3VsijuFMgwZSpOegivM3Q49o4QOntWkaAs2nEALw_wcB&gclsrc=aw.ds&vjk=7babf12f016cab44 Accessed March 1, 2024

Indeed.com (2024) SMT Engineer search https://www.indeed.com/jobs?q=smt+engineer&l=&vjk=dcd8a04cfa199f5f Accessed March 1, 2024.

There is one school in the United States that teaches Surface Mount Technology, Rochester Institute of Technology, as a minor (RIT, 2024).[3] Local industry approached SDSU to ask if the university could offer something similar to Rochester's program as they have only been able to hire one individual, a Rochester Institute of Technology graduate, with this education or experience and prior to hiring that person, they were unaware that there were any educational programs offered in the content area. Presently, the industries hire Mechanical and Electrical Engineering students then provide training on the job. A recent meeting was held to determine interest in forming a Surface Mount Technology Technical Education consortium among the regional companies that would benefit from this training with the effort being spearheaded by Daktronics. There were over 25 people in attendance representing 8 regional companies and the national Surface Mount Technology Association with additional companies noting that they support the idea but were unable to attend the meeting on short notice. From this meeting, there was an estimate of at least 50 employees needed among the regional industries to meet their present needs. With the current move in the United States to domesticate circuit board and semiconductor manufacturing through the CHIPS act, there will be an increase in need.

6. Provide estimated enrollments and completions in the table below and explain the methodology used in developing the estimates.

	Fiscal Years*			
	1st	**2nd**	**3rd**	**4th**
Estimates	**FY 25**	**FY 26**	**FY 27**	**FY 28**
Students enrolled in the minor (fall)	8	16	20	20
Completions by graduates	0	4	8	10

*Do not include current fiscal year.

The Jerome J. Lohr College of Engineering anticipates student enrollment in the minor in year one at 8 students and growing to 20 students by year four. Estimated enrollments are based on a survey of current engineering student employees of Daktronics. Of the employed student engineers, half noted an interest in a minor in Surface Mount Technology if it was available. These values do not include any individuals who would be interested in the program who work at other regional manufacturers or incoming students. Students in Electrical Engineering and Mechanical Engineering would be interested in this minor especially if they are interested in pursuing a career in the manufacturing sector.

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

The curriculum follows the basic guidelines presented by the Surface Mount Technology Association and consortium members and mirrors some features of the Rochester Institute of Technology's program. The curriculum was presented to the Surface Mount Technology consortium and to Surface Mount Technology Association president to share with the association.

8. Complete the tables below. Explain any exceptions to Board policy requested.

[3] Rochester Institute of Technology Surface Mount Electronics Manufacturing Minor (2024) https://www.rit.edu/study/surface-mount-electronics-manufacturing-minor Accessed March 1, 2024.

Minors by design are limited in the number of credit hours required for completion. Minors typically consist of eighteen (18) credit hours, <u>including</u> 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

Surface Mount Technology Minor	Credit Hours	Percent
Requirements in minor	18	100%
Electives in minor	0	0%
Total	18	

B. Required Courses in the Minor

Prefix	Number	Course Title	Prerequisites for Course *Include credits for prerequisites in subtotal below.*	Credit Hours	New (yes, no)
GE	101	Introduction to Engineering and Technical Professions	None	1	No
MNET OR ME	231 OR 121-121L	Manufacturing Processes (2 cr.) Production and Fabrication Processes and Lab (1, 1 cr.)	MNET 231: None ME 121-121L: None	2	No
MNET	367	Production Strategy	MNET 150 or MNET 231 or ET 232 or ME 121	2	No
MNET	367L	Production Strategy Lab	None	1	
MNET	467	Principles of Surface Mount Technology	MNET 367 and OM 462	3	Yes
MNET	469	Immersive Experience in Surface Mount Technology	MNET 467	3	Yes
OM	462	Quality Management	STAT 281 or STAT 381	3	No
STAT OR STAT	281 381	Introduction to Statistics (3 cr.) Introduction to Probability and Statistics (3 cr.)	STAT 281: MATH 103 or MATH 114 or MATH 115 or MATH 120 or MATH 121 or MATH 123 or MATH 125 or math placement (High School GPA is 3.55 or higher, Math Index 1300 or higher, Accuplacer AAF 250-300 or Accuplacer SDCalculus 1-15, Challenge Index 1300 or higher, or ALEKS PPL 61) STAT 381: MATH 125	3 (3-5)	No
			Subtotal	18	

*Credit hours in parentheses ( ) indicate prerequisite courses not counted in the minor requirements. The net number of prerequisites not counted is 3-5 credits. These prerequisites

are fundamental to SGR #5 general education coursework. MATH 103, MATH 114, MATH 115, MATH 120, MATH 121, MATH 123, MATH 125, and STAT 281 are all approved as courses for SGR #5.

9. What are the learning outcomes expected for all students who complete the minor? How will students achieve these outcomes?

At the completion of the Surface Mount Technology minor, students will be able to:

- Describe the Institute of Printed Circuits (IPC) standards and printed circuit board structure and materials.
- Describe manufacturing processes and methods including LEAN, Screen Printing, Component Pick and Place, Soldering and Test procedures.
- Describe and demonstrate quality control methods and processes used in Printed Circuit board manufacture.
- Identify different types of machines used in manufacturing printed circuit boards.
- Students will be able to demonstrate the use of statistical tests used in manufacturing processes.

	Program Courses that Address the Outcomes						
Individual Student Outcome	GE 101	MNET 231	MNET 367	MNET 467	MNET 569	OM 462	STAT 281 or STAT381
Students will be able to describe the Institute of Printed Circuits (IPC) standards and printed circuit board structure and materials.			x	x			
Students will be able to describe manufacturing processes and methods including LEAN, Screen Printing, Component Pick and Place, Soldering and Test procedures.	x	x	x				
Students will be able to describe and demonstrate quality control methods and processes used in Printed Circuit board manufacture.			x	x	x		
Students will be able to identify different types of machines used in manufacturing printed circuit boards.		x	x	x			
Students will be able to demonstrate the use of statistical tests used in manufacturing processes.					x	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.*

Instructional approaches will include face-to-face lecture and hands-on activities.

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	2024-2025 Academic Year

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

	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)	No		
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		

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."*

The university requests an exception to the Board policy that limits minors to a total of 18 credits, including prerequisites. The Surface Mount Technology Minor will require students to complete prerequisites that are fundamental to SGR #5 general education coursework. The program requires students to complete either STAT 281 or STAT 381. Prerequisites to complete STAT 281 include MATH 103 or MATH 114 or MATH 115 or MATH 120 or MATH 121 or MATH 123 or MATH 125 or math placement (High School GPA is 3.55 or higher, Math Index 1300 or higher, Accuplacer AAF 250-300 or Accuplacer SDCalculus 1-15, Challenge Index 1300 or higher, or ALEKS PPL 61). STAT 381 would require the prerequisite MATH 125. MATH 103, MATH 114, MATH 115, MATH 120, MATH 121, MATH 123, MATH 125, and STAT 281 are all approved as courses for SGR #5. The minor is intended for Electrical Engineering and Mechanical Engineering students. MATH 125 is a required course in both majors.

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.*

SDSU does not request new state resources. The development of course material will be supported by the Surface Mount Technology Education consortium. Daktronics has pledged to allow use of one of its manufacturing lines by teachers and students in the hands-on portion of the courses. The minor would be offered with a combination of existing courses and two new courses. The department has an established connection and working relationship with Daktronics.

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.

☒ 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.

Appendix A
Corresponding Curriculum Requests – New Course Requests

SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS

New Course Request

SDSU	**Jerome J. Lohr College of Engineering/Department of Construction and Concrete Industry Management**
Institution	**Division/Department**
Dennis D. Hedge	4/24/2024
Institutional Approval Signature	**Date**

Section 1. Course Title and Description

Prefix & No.	Course Title	Credits
MNET 467	Principles of Surface Mount Technology	3
MNET 567	Principles of Surface Mount Technology	3

Course Description

This course introduces students to automated surface mount technology circuit board assembly. Students will be provided an overview of the print, placement, reflow, and inspections processes involved. In depth discussion of process parameters, typical defects and how to correct them will be presented.

MNET 467 Pre-requisites or Co-requisites

Prefix & No.	Course Title	Pre-Req/Co-Req?
MNET 367	Production Strategy	Pre-Req
OM 462	Quality Management	Pre-Req

Registration Restrictions

None

Section 2. Review of Course

2.1. Will this be a unique or common course?

☒ Unique Course

Prefix & No.	Course Title	Credits
MNET 231	Manufacturing Processes	3
MNET 367	Production Strategy	3

Provide explanation of differences between proposed course and existing system catalog courses below:
MNET 231 and MNET 367 are introductory courses that cover a wide range of manufacturing processes and strategies. The proposed course, MNET 467-567 Principles of Surface Mount Technology, will introduce students to automated surface mount technology circuit board assembly.

Section 3. Other Course Information

3.1. Are there instructional staffing impacts?

☒ No. Schedule Management, explain below: The Surface Mount Technology Education consortium will be providing guest speakers and access to an industrial manufacturing process line for course activities. SDSU will provide an instructor to coordinate the course.

3.2. Existing program(s) in which course will be offered: Surface Mount Technology Graduate Certificate, Surface Mount Technology Minor

3.3. Proposed instructional method by university *(as defined by AAC Guideline 5.4)*: R - Lecture
3.4. Proposed delivery method by university *(as defined by AAC Guideline 5.5)*: 001 – Face to Face
3.5. Term change will be effective: fall 2024
3.6. Can students repeat the course for additional credit? ☐ Yes, total credit limit: ☒ No
3.7. Will grade for this course be limited to S/U (pass/fail)? ☐Yes ☒ No
3.8. Will section enrollment be capped? ☒ Yes, max per section: 20 ☐ No
3.9. Will this course equate (i.e., be considered the same course for degree completion) with any other unique or common courses in the common course system database in Colleague and the Course Inventory Report? ☐Yes ☒ No
3.10. Is this prefix approved for your university? ☒ Yes ☐ No

Section 4. Department and Course Codes (Completed by University Academic Affairs)

4.1. University Department: Construction and Concrete Industry Management
4.2. Banner Department Code: SCCM
4.3. Proposed CIP Code: 15.0616
Is this a new CIP code for the university? ☒ Yes ☐ No

NEW COURSE REQUEST
Supporting Justification for On-Campus Review

Suzette Burckhard	Suzette Burckhard	3/26/2024
Request Originator	**Signature**	**Date**
Suzette Burckhard	Suzette Burckhard	3/26/2024
Department Chair	**Signature**	**Date**
Suzette Burckhard	Suzette Burckhard	3/26/2024
School/College Dean	**Signature**	**Date**

1. Provide specific reasons for the proposal of this course and explain how the changes enhance the curriculum.
   The proposed course, MNET 467-567 Principles of Surface Mount Technology, will introduce students to automated surface mount technology circuit board assembly. The use of Surface Mount Technology is increasing due to the increase in printed circuit boards in consumer electronics and SMART (Self-Monitoring, Analysis, and Reporting Technology), devices. The MNET 467-567 course will allow students to gain knowledge of this process which will enhance their employment opportunities.
2. Note whether this course is: ☒ Required ☐ Elective
3. In addition to the major/program in which this course is offered, what other majors/programs will be affected by this course?
   None
4. If this will be a dual listed course, indicate how the distinction between the two levels will be made.
   Graduate students will have different assessments compared to undergraduate students as well as more robust projects.
5. Desired section size: 20
6. Provide qualifications of faculty who will teach this course. List name(s), rank(s), and degree(s).
   Carrie Steinlicht, Senior Lecturer, PhD
7. Note whether adequate facilities are available and list any special equipment needed for the course.
   This lecture course does not require special equipment or facilities.
8. Note whether adequate library and media support are available for the course.
   Library and media support is adequate for this course as the topic is contained in IEEE journals and other journals presently available through the library.
9. Will the new course duplicate courses currently being offered on this campus? ☐ Yes ☒ No
10. If this course may be offered for variable credit, explain how the amount of credit at each offering is

to be determined.
N/A

SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS

New Course Request

SDSU	Jerome J. Lohr College of Engineering/Department of Construction and Concrete Industry Management
Institution	**Division/Department**

Dennis D. Hedge	4/24/2024
Institutional Approval Signature	**Date**

Section 1. Course Title and Description

Prefix & No.	Course Title	Credits
MNET 469	Immersive Experience in Surface Mount Technology	3
MNET 569	Immersive Experience in Surface Mount Technology	3

Course Description

This course provides hands-on experiences in using state of the art automated surface mount technology circuit board assembly. Students will be provided an opportunity to learn about printing, placement, reflow, and inspection processes. Control of process parameters, typical defects and how to correct them will be practiced.

MNET 469 Pre-requisites or Co-requisites

Prefix & No.	Course Title	Pre-Req/Co-Req?
MNET 467	Principles of Surface Mount Technology	Pre-Req

MNET 569 Pre-requisites or Co-requisites

Prefix & No.	Course Title	Pre-Req/Co-Req?
MNET 567	Principles of Surface Mount Technology	Pre-Req

Registration Restrictions

None

Section 2. Review of Course

2.1. Will this be a unique or common course?

☒ Unique Course

Prefix & No.	Course Title	Credits
MNET 231	Manufacturing Processes	3
MNET 367	Production Strategy	3

Provide explanation of differences between proposed course and existing system catalog courses below:
MNET 231 and MNET 367 are introductory courses that cover a wide range of manufacturing processes and strategies. They are prerequisites to MNET 467-567 Principles of Surface Mount Technology, the prerequisite course to the proposed course which will focus on modern surface mount printed circuit board manufacturing. MNET 469-569 will provide hands-on experience in using state of the art automated surface mount technology circuit board assembly.

Section 3. Other Course Information

3.1. Are there instructional staffing impacts?

☒ No. Schedule Management, explain below: The Surface Mount Technology Education consortium will be providing guest speakers and access to an industrial manufacturing process line for course activities. SDSU will provide an instructor to coordinate the course.

3.2. Existing program(s) in which course will be offered: Surface Mount Technology Graduate Certificate, Surface Mount Technology Minor

3.3. Proposed instructional method by university *(as defined by AAC Guideline 5.4)*: L - Laboratory

3.4. Proposed delivery method by university *(as defined by AAC Guideline 5.5)*: 001 – Face to Face

3.5. Term change will be effective: fall 2024

3.6. Can students repeat the course for additional credit? ☐ Yes, total credit limit: ☒ No

3.7. Will grade for this course be limited to S/U (pass/fail)? ☐Yes ☒ No

3.8. Will section enrollment be capped? ☒ Yes, max per section: 20 ☐ No

3.9. Will this course equate (i.e., be considered the same course for degree completion) with any other unique or common courses in the common course system database in Colleague and the Course Inventory Report? ☐Yes ☒ No

3.10. Is this prefix approved for your university? ☒ Yes ☐ No

Section 4. Department and Course Codes (Completed by University Academic Affairs)

4.1. University Department: Construction and Concrete Industry Management

4.2. Banner Department Code: SCCM

4.3. Proposed CIP Code: 15.0616

Is this a new CIP code for the university? ☒ Yes ☐ No

NEW COURSE REQUEST
Supporting Justification for On-Campus Review

Suzette Burckhard	Suzette Burckhard	3/26/2024
Request Originator	**Signature**	**Date**
Suzette Burckhard	Suzette Burckhard	3/26/2024
Department Chair	**Signature**	**Date**
Suzette Burckhard	Suzette Burckhard	3/26/2024
School/College Dean	**Signature**	**Date**

1. Provide specific reasons for the proposal of this course and explain how the changes enhance the curriculum.
   The proposed course, MNET 469-569 Immersive experience in Surface Mount Technology, will introduce students to automated surface mount technology circuit board assembly. The use of Surface Mount Technology is increasing due to the increase in printed circuit boards in consumer electronics and SMART (Self-Monitoring, Analysis, and Reporting Technology), devices. The MNET 469-569 course will allow students to gain knowledge of this process which will enhance their employment opportunities.
2. Note whether this course is: ☒ Required ☐ Elective
3. In addition to the major/program in which this course is offered, what other majors/programs will be affected by this course?
   None
4. If this will be a dual listed course, indicate how the distinction between the two levels will be made.
   Graduate students will have different assessments compared to undergraduate students as well as more robust projects.
5. Desired section size: 20
6. Provide qualifications of faculty who will teach this course. List name(s), rank(s), and degree(s).
   Carrie Steinlicht, Senior Lecturer, PhD

7. Note whether adequate facilities are available and list any special equipment needed for the course.
   Surface Mount Technology requires access to industrial equipment not at SDSU. Given the cost and rapidly changing technology, SDSU will partner with the Surface Mount Technology Education Consortium to use equipment at operating surface mount facilities. Daktronics has pledged to provide access to an operating manufacturing line at least one day per week for course activities.
8. Note whether adequate library and media support are available for the course.
   Library and media support is adequate for this course as the topic is contained in IEEE journals and other journals presently available through the library.
9. Will the new course duplicate courses currently being offered on this campus? ☐ Yes ☒ No
10. If this course may be offered for variable credit, explain how the amount of credit at each offering is to be determined.
    N/A