



South Dakota Board of
Technical Education

April 22, 2024

Lake Area Technical College
1201 Arrow Ave. NE
Watertown, SD 57201

**RE: South Dakota Board of Technical Education Approval of:
Non-Substantive Program Application
Long-Term Certificate in CNC Operator Upskill**

To whom it may concern:

After review, the executive director has approved above application.

Per Board Policy 303.3, the receipt of this letter completes the SDBOTE's approval process, and the technical college may proceed with program implementation.

The SDBOTE's approval is valid for three years upon the date of this letter. If a technical college does not implement an approved program within three years, approval is terminated.

A technical college must update the program's profile in the SDBOTE's Academic Program Database by June 30 prior to the year in which students are first enrolled or at least 30 days prior to enrolling students, whichever is first.

Sincerely,

A handwritten signature in black ink that reads "Scott DesLauriers". The signature is written in a cursive, flowing style.

Scott DesLauriers
Deputy Director
South Dakota Board of Technical Education
800 Governors Drive
Pierre, SD 57006
Scott.DesLauriers@state.sd.us
(605) 295-7033

PROGRAM DESCRIPTION

Institution	Lake Area Technical College
Program Identifier Code (If applicable)	
Program Title	CNC Operator Upskill
Program Award Level:	<input type="checkbox"/> Short-Term Certificate <input checked="" type="checkbox"/> Long-Term Certificate <input type="checkbox"/> Diploma <input type="checkbox"/> Associate of Applied Science <input type="checkbox"/> Associate of Applied Science Option
CIP Code (6 Digit)	48.0501
Projected Implementation Date	8/26/2024
Approved Parent Program Title (If applicable)	Precision Machining
Approved Parent Program Identifier Code (If applicable)	
Location	<input checked="" type="checkbox"/> Main Campus <input type="checkbox"/> Other:

SUMMARY

Type of Non-Substantive Change	<input checked="" type="checkbox"/> Program created using subset of existing courses (B.1.1) <input type="checkbox"/> Creation of associate of applied science option (B.1.2) <input type="checkbox"/> Consolidation of existing programs (B.1.3) <input type="checkbox"/> Program award level change (B.1.4) <input type="checkbox"/> Other:
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Describe the change the institution is seeking approval of.

Lake Area Technical College is seeking approval to offer a Certificate in Computer Numerically Controlled (CNC) Operator as an option within the existing Precision Machining program. The new certificate courses are all offered in the Precision Machining AAS, allowing the certificate option to seamlessly build into the existing AAS degree.

CRITERION 2: DEMAND

The program leads to meaningful employment, adequate student enrollment, and/or fulfills needs not being met by existing education and training providers.

- 2.1. The program leads to high-wage occupations that have an average/mean wage greater than the median wage across all occupations.
- 2.2. The program leads to high-demand occupations that have project annual openings (a measure of demand for workers) greater than the average across all occupations or is shown as an economic and/or labor market emerging field for the state of South Dakota and its regions.
- 2.3. The program's student enrollment is adequate to justify program existence.
- 2.4. The program fulfills a demand not being met by existing education and training providers in the region and/or state.

2.1. Describe the wage projections for occupations associated with the proposed program by completing Appendix 2.A.

2.2. Describe the demand projections for occupations associated with the proposed program.

A. Complete Appendix 2.A.

B. If an emerging field for the state of South Dakota, describe the field. Letter(s) of support, detailing demand, should be attached as appendices.

This is not an emerging field.

2.3. Describe projected student enrollment for the proposed program by completing Appendix 2.B.

2.4. Describe how the proposed program fulfills a demand not being met by existing education and training providers in the region and/or state.

A. Identify closely related program(s) that currently exist at other public higher education institutions in the system or state. If none, write "None."

No other South Dakota Technical College offers a CNC Operator certificate. Mitchell Technical College offers an AAS in Manufacturing/Machining and Western Dakota Tech offers a diploma program in Precision Machining Technology.

B. If applicable: Describe the ways in which the demand is not currently being met by the aforementioned program(s) and provide justification as to why the program should be approved by addressing the following conditions that warrant duplication ([BP 303.2](#)). Select all that apply.

Unmet Demand (C.5.1.1)
 Industry Partnership (C.5.1.2)

Increases Student Access (C.5.1.3)
 Other:

I. For each condition selected above, provide a brief justification.

According to the SD Department of Labor and Regulation, there will be a 4% increase in Computer Numerically Controlled (CNC) Operator jobs in South Dakota between 2020-2030. The Certificate

option packages existing coursework within the Precision Machining AAS program, creating both quick access to the labor market and a stackable credential that can build into a full Precision Machining AAS degree over time for students. This option will allow students access to the program in a variety of ways: full-time or part-time, on-campus or through a blended online/on campus option.

CRITERION 3: DESIGN

The program's learning assessment strategy, program of study, and delivery methods are designed to provide students with the necessary competencies, as demonstrated through program learning outcomes.

- 3.1. The program is aligned to competencies, as demonstrated through program learning outcomes, that are developed with and continually validated by relevant stakeholders.
- 3.2. The program has a learning assessment strategy to validate student mastery of the program learning outcomes.
- 3.3. The program has an integrated program of study designed to develop and reinforce the program learning outcomes.
- 3.4. The program, when appropriate, includes a work-based learning component that develops and reinforces the program learning outcomes.
- 3.5. The program, when appropriate, offers flexible delivery methods to increase student access.

3.0. Describe the proposed program's alignment with the program award level requirements established in [BP 301.1](#).

A. Does the program align with the requirements?

- Yes
 No (Requesting Exemption)

B. If no: Provide a detailed rationale for program exemption. Specify which requirement(s) in BP 301.1 are not met; cite specific policy sections (e.g., B.3.4), when appropriate. If external organizations are involved (accreditation, regulatory, licensure, etc.), reference the organization name(s), specific requirements (including citations), and a justification for why the exemption should be approved.

3.1. Describe the program learning outcomes.

A. Provide a list of program learning outcomes for each proposed award level. Learning outcomes should be specific to the program.

CNC Operator Certificate:

1. Demonstrate competence in operating manual machining processes.
2. Operate CNC machines.
3. Read and interpret blueprints for machining.
4. Demonstrate proper use of mathematical measurement and inspection equipment.

B. Describe the how the program learning outcomes were developed and validated.

The *program learning outcomes* were developed through the help of the LATC Precision Machining Advisory Board as key components to create a superior Precision Machinist.

3.2. Describe the program's learning assessment strategy.

- A. Describe how students will demonstrate mastery of the program learning outcomes. Description should be specific to the program's learning assessment plan vs. the institutional assessment plan.

The program includes evaluations in the form of quizzes and tests to ensure students understand the material. Students must also perform Lab Tests to demonstrate the hands-on skills needed in this field.

- B. Is the program preparation for a professional licensure and/or certification examination?

- Yes (Detail in Appendix 4: Section 3)
 No

3.3. Describe the program of study by completing Appendix 3.

3.4. Describe the program's work-based learning component.

- A. Does the program have a work-based learning component? If so, select all that apply.

- None
 Apprenticeship
 Internship or Externship
 Clinical
 Capstone
 Other:

- B. If none, describe why.

The CNC Operator Certificate and Precision Machining AAS include a great deal of hands-on lab work that replicates industry experience. Students get repetitions in the lab on different machines and processes to build their skills and readiness for employment.

3.5. Describe the program's delivery methods.

- A. Select the program's primary delivery method(s)¹. Select all that apply.

- On Campus
 Online
 Blended
 Apprenticeship
 Other:

- B. Describe how flexible delivery methods are being leveraged to increase student access.

Currently, LATC has 14 programs that provide the flexibility of an E-degree or blended delivery method. Blended programs are completed through a combination of online courses with on-campus labs for crucial hands-on training. Weekend labs are available for students to utilize as well as a dedicated space for online students to use during weekday hours. It is LATC's goal to keep required on-campus time to a minimum for students, thus making the blended program as accessible as possible to distance learners. In addition, the blended option offers students a part-time option to fulfill the certificate requirements. The variety of options and delivery formats for this certificate allow a greater number of students the flexibility to obtain the certificate in a plan and on a timeline that works for their life.

¹ **In Person:** 100 percent of courses are available in-person. **Online:** 100 percent of courses are available via distance learning. Delivery is only via the Internet. **Blended:** Delivery includes a required combination of both in-person and online courses. If a student has the option to take courses online, but is not required to do so, the program is not necessarily considered blended.

CRITERION 4: ALIGNMENT

The program is vertically aligned to an education and training pathway.

- 4.1. The program is vertically aligned to an education and training pathway, reflecting efficient articulation of:
 - 4.1.1. Non-degree credential/industry certification
 - 4.1.2. Certificate to diploma
 - 4.1.3. Diploma to associate of applied science
 - 4.1.4. Associate of applied science to baccalaureate

4.1. Describe the alignment of the proposed program along an education and training pathway.

A. Complete Appendix 4.

B. Describe the projected alignment between the proposed program and existing academic programs within the technical college system.

The CNC Operator Certificate aligns with LATC's Precision Machining AAS Degree. All 15 credits are included in the Precision Machining program.

C. As applicable: Insert any additional comments here.

The South Dakota Department of Labor & Regulation was awarded funding for short-term training in high-demand areas. This certificate option would be an eligible training option for DLR clients under that program.

The CNC Operator Certificate helps address requests from industry for entry-level employee training as well. The program can serve traditional students and upskill those in hired by industry partners who need basic training for proficiency as an operator.

SOUTH DAKOTA BOARD OF TECHNICAL EDUCATION
Appendix 2.A: Labor Market Information

Lake Area Technical College
 CNC Operator Certificate

SOUTH DAKOTA								
SOC* CODE	SOC* TITLE	AVERAGE ANNUAL OPENINGS	2020 EMPLOYMENT	2030 EMPLOYMENT	NUMERIC CHANGE: 2020-2030	PERCENT CHANGE: 2020-2030	MEDIAN: ANNUAL WAGE (2022)	AVERAGE: ANNUAL WAGE (2022)
00-0000	Total, All Occupations	62,664	491,588	526,251	34,663	7.1	\$36,823	\$44,961
51-9161	CNC Operator - SD DLR		621	647	26	4.19%	\$49,292	\$50,119
51-9161	CNC Operator - Career One Stop	70	620	650	30	4.84%	\$46,490	\$47,270

NATIONAL								
SOC* CODE	SOC* TITLE	AVERAGE ANNUAL OPENINGS	2022 EMPLOYMENT	2032 EMPLOYMENT	NUMERIC CHANGE: 2022-2032	PERCENT CHANGE: 2022-2032	MEDIAN: ANNUAL WAGE (2020)	AVERAGE: ANNUAL WAGE (2020)
51-9161	CNC Operator - Career One Stop	14,300	181,800	167,200	-14,600	-8%	\$46,760	\$47,940
51-9161	Computer Numerically Controlled Tool Operators - BLS		181,800	167,200	-14,600	-8%	\$46,760	\$47,940

SOURCE: South Dakota Department of Labor and Regulation, Labor Market Information Center (LMIC) (<https://dlr.sd.gov/lmic/>)
DATE: 02/07/2024

NOTES:

SOURCE: Career One Stop <https://www.careeronestop.org/Toolkit/StateAndLocal/Wages.aspx?socode=519161&location=south%20dakota&dataview=>
DATE: 02/07/2024

NOTES:

SOURCE: U.S. Bureau Of Labor Statistics <https://www.bls.gov/oes/current/oes519161.htm>
DATE: 02/07/2024 <https://www.bls.gov/emp/tables/occupational-projections-and-characteristics.htm>

NOTES:

SOUTH DAKOTA BOARD OF TECHNICAL EDUCATION

Appendix 2.B: Student Demand Projections

Lake Area Technical College

CNC Operator Certificate

	YEAR 1	YEAR 2	YEAR 3
Student Full-Time Equivalent (FTE)	1	2	3
Headcount: Full-Time	1	2	2
Headcount: Part-Time	2	4	6
Headcount: Total	3	6	8
Total Program or Site Capacity	30	30	30

***Total Capacity represents the cap for the entire first-year cohort of Precision Machining students (Certificate*

SOUTH DAKOTA BOARD OF TECHNICAL EDUCATION

Appendix 3: Program of Study

Lake Area Technical College
CNC Operator Certificate

MONTHS:	9 - 18 months
SEMESTERS:	2-4 (full-time and part-time options)
TOTAL CREDITS:	13

PREFIX AND NUMBER	TITLE	CREDITS	DESCRIPTION	EXISTING COURSE
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I. GENERAL EDUCATION CORE				
SUBTOTAL OF GENERAL EDUCATION CREDITS:		0	TOTAL NEW COURSES:	0

II. PROGRAM CORE				
PM 106	Blueprint Reading	1	This course introduces the student to the basics of interpreting working drawings, blueprints, and tolerances.	Y
PM 107	Computer Numerical Control (CNC) Operations I	2	This course introduces the student to Milltronics "Partner": programming (G&M code), operations, and setup.	Y
PM 110	Precision Measuring	1	This course will cover a variety of tools used for measuring or inspecting a part. The course will include inspection and measuring fractions, decimal, and metric.	Y
PM 131	Mill and Lathe Operations I	2	This course provides the student with hands-on experience in basic machine controls, set up, operation, and maintenance of manual milling machines and engine lathes.	Y
PM 134	Machine Tool Fundamentals	1	This course provides hands-on shop time to develop safe work habits using general shop tools and equipment; also basic competency on pedestal grinders.	Y
PM 154	Computer Numerical Control (CNC) Operations II	5	This course expands students' knowledge of turning center programming and introduces students to full-scale production turning centers: set up, programming, and operation of the Fryer Easy Turn 14.	Y
PM 167	Introduction to Computer Numerical Control (CNC)	1	This course introduces the student to the operation and programming of computer numerically controlled lathes and mills, using G & M Codes.	Y
SUBTOTAL OF PROGRAM CREDITS:		13	TOTAL NEW COURSES:	0

SOUTH DAKOTA BOARD OF TECHNICAL EDUCATION
Appendix 4: Alignment Projection

Lake Area Technical College
 CNC Operator Certificate

TOTAL CREDITS IN PROPOSED PROGRAM:

13

I. STACKABLE OPPORTUNITIES							
PROGRAM NAME							
Precision Machining	<input type="checkbox"/>	Short-term Certificate	<input checked="" type="checkbox"/>	Existing	If Forthcoming: Projected Timeline	Total Credits in Stackable Program	How many PROPOSED PROGRAM credits are in this stackable program opportunity?
	<input type="checkbox"/>	Long-term Certificate	<input type="checkbox"/>	Forthcoming			
	<input type="checkbox"/>	Diploma	<input type="checkbox"/>				
	<input checked="" type="checkbox"/>	AAS	<input type="checkbox"/>				
					72	13	
PROGRAM NAME							
	<input type="checkbox"/>	Short-term Certificate	<input type="checkbox"/>	Existing	If Forthcoming: Projected Timeline	Total Credits in Stackable Program	How many PROPOSED PROGRAM credits are in this stackable program opportunity?
	<input type="checkbox"/>	Long-term Certificate	<input type="checkbox"/>	Forthcoming			
	<input type="checkbox"/>	Diploma	<input type="checkbox"/>				
	<input type="checkbox"/>	AAS	<input type="checkbox"/>				
PROGRAM NAME							
	<input type="checkbox"/>	Short-term Certificate	<input type="checkbox"/>	Existing	If Forthcoming: Projected Timeline	Total Credits in Stackable Program	How many PROPOSED PROGRAM credits are in this stackable program opportunity?
	<input type="checkbox"/>	Long-term Certificate	<input type="checkbox"/>	Forthcoming			
	<input type="checkbox"/>	Diploma	<input type="checkbox"/>				
	<input type="checkbox"/>	AAS	<input type="checkbox"/>				
PROGRAM NAME							
	<input type="checkbox"/>	Short-term Certificate	<input type="checkbox"/>	Existing	If Forthcoming: Projected Timeline	Total Credits in Stackable Program	How many PROPOSED PROGRAM credits are in this stackable program opportunity?
	<input type="checkbox"/>	Long-term Certificate	<input type="checkbox"/>	Forthcoming			
	<input type="checkbox"/>	Diploma	<input type="checkbox"/>				
	<input type="checkbox"/>	AAS	<input type="checkbox"/>				

II. ARTICULATION AGREEMENTS (BACCALAUREATE)						
PROGRAM NAME	COLLEGE OR UNIVERSITY					
		<input type="checkbox"/>	Existing	If Forthcoming: Projected Timeline	Total Credits in Bachelor's Degree	How many PROPOSED PROGRAM credits are projected to be accepted in the articulation agreement?
		<input type="checkbox"/>	Forthcoming			
		<input type="checkbox"/>				
PROGRAM NAME	COLLEGE OR UNIVERSITY					
		<input type="checkbox"/>	Existing	If Forthcoming: Projected Timeline	Total Credits in Bachelor's Degree	How many PROPOSED PROGRAM credits are projected to be accepted in the articulation agreement?
		<input type="checkbox"/>	Forthcoming			
		<input type="checkbox"/>				
PROGRAM NAME	COLLEGE OR UNIVERSITY					
		<input type="checkbox"/>	Existing	If Forthcoming: Projected Timeline	Total Credits in Bachelor's Degree	How many PROPOSED PROGRAM credits are projected to be accepted in the articulation agreement?
		<input type="checkbox"/>	Forthcoming			
		<input type="checkbox"/>				

III. LICENSURE AND CERTIFICATION OPPORTUNITIES		
<i>The PROPOSED PROGRAM will qualify students to pursue the following licensure and/or certification opportunities:</i>		
LICENSURE/CERTIFICATION	OVERSIGHT ORGANIZATION	Will the licensure/certification require reporting per SDCL 13-1-61?

SOUTH DAKOTA BOARD OF TECHNICAL EDUCATION

Appendix 5: Financial Projections

Lake Area Technical College
CNC Operator Certificate

	YEAR 1	YEAR 2	YEAR 3
Student FTE	0.86	2.15	3.01

I. PROJECTED EXPENDITURES

A. ONE-TIME

New/Renovated Facilities	\$ -	\$ -	\$ -
Equipment	\$ -	\$ -	\$ -
Other	\$ -	\$ -	\$ -
Sub-Total: One-time	\$ -	\$ -	\$ -

B. RECURRING

B.1. PERSONNEL

FTE (Faculty and Staff)			
Salary & Benefits	\$ -	\$ -	\$ -

B.2. OPERATING

Rental / Lease	\$ -	\$ -	\$ -
Contractual Services	\$ -	\$ -	\$ -
Equipment	\$ -	\$ -	\$ -
Supplies	\$ 4,446.00	\$ 8,892.00	\$ 11,856.00
Travel	\$ -	\$ -	\$ -
Other	\$ 2,610.00	\$ 5,220.00	\$ 6,960.00
Sub-Total: Operating	\$ 7,056.00	\$ 14,112.00	\$ 18,816.00
Total: Recurring	\$ 7,056.00	\$ 14,112.00	\$ 18,816.00

TOTAL EXPENDITURES (A + B)	\$ 7,056.00	\$ 14,112.00	\$ 18,816.00
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II. PROJECTED REVENUE

Tuition	\$ 3,199.20	\$ 7,998.00	\$ 11,197.20
State Fees	\$ 1,083.60	\$ 2,709.00	\$ 3,792.60
Local Fees	\$ 5,166.00	\$ 10,332.00	\$ 13,776.00
Location-Based Fees	\$ -	\$ -	\$ -
State Sources	\$ -	\$ 5,167.10	\$ 12,917.76
Federal Sources	\$ -	\$ -	\$ -
Private Grants or Gifts	\$ -	\$ -	\$ -
Other	\$ -	\$ -	\$ -

TOTAL REVENUE	\$ 9,448.80	\$ 26,206.10	\$ 41,683.56
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REVENUE - EXPENDITURES	\$ 2,392.80	\$ 12,094.10	\$ 22,867.56
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**Projections are held constant based on current fiscal year. Inflation or rate changes are not factored.*

SOUTH DAKOTA BOARD OF TECHNICAL EDUCATION

Appendix 5: Financial Projections

Lake Area Technical College

CNC Operator Certificate

Notes:

Projected expenses do not include any portion of costs for equipment or faculty/staff . The cost projections are relative to the materials, program-provided tools, and maintenance required for the addition of the CNC Operator students.

Local fees include campus support fee, departmental fee, local M&R fee, uniform, and uniform cleaning.

Projected revenues do not include any potential sales of required tools, textbooks, or laptops.