South Dakota Board of
Technical Education

March 27, 2025

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

RE: Academic Affairs – Approval of Non-Substantive Program Application(s)

To whom it may concern:

After review, the Executive Director of the South Dakota Board of Technical Education (SDBOTE) has approved the following application(s):

Associate of Applied Science
Aviation Maintenance Technology

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,

Scott DesLauriers
Deputy Director
South Dakota Board of Technical Education
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Pierre, SD 57006
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PROGRAM DESCRIPTION

Institution	Lake Area Technical College
Program Identifier Code (If applicable)	
Program Title	Aviation Maintenance Technology
Program Award Level:	☐ Short-Term Certificate ☐ Long-Term Certificate ☐ Diploma ☒ Associate of Applied Science ☐ Associate of Applied Science Option
CIP Code (6 Digit)	47.0608
Projected Implementation Date	8/25/2025
Approved Parent Program Title (If applicable)	
Approved Parent Program Identifier Code (If applicable)	
Location	☐ Main Campus ☒ Other: Aviation Annex

SUMMARY

Type of Non-Substantive Change	☐ Program created using subset of existing courses (B.1.1) ☐ Creation of associate of applied science option (B.1.2) ☐ Consolidation of existing programs (B.1.3) ☐ Program award level change (B.1.4) ☒ Other: Signficant Curriculum Change

Describe the change the institution is seeking approval of.

Lake Area Technical College seeks approval for a significant curriculum modification to its current Aviation Maintenance Technology (AVM) program. Currently, LATC has a 71-credit diploma and an 84.5-credit AAS in AVM. LATC is proposing to eliminate the diploma option and to reduce the AAS total credits to 71.

In May 2022, the FAA published a ruling, allowing Aviation Maintenance training programs to provide competency-based training. Prior to this ruling, AVM programs, such as the one at LATC, had to implement a curriculum based on clock hours. This meant the program was required to teach required topics for a specified number of hours, leaving little flexibility for how much time was spent teaching each topic or skill. Guided by the new FAA ruling, LATC AVM faculty, with the help of their advisory board, reassigned credits and combined some courses to create a more modern curriculum that better fits the needs of their students. The proposed curriculum ensures that students will have enough time to meet all required competencies and will be adequately prepared for the FAA licensure tests they are required to pass before working in the field.

LATC has been training aviation mechanics since 1965. This program has graduated 880 individuals over the last 60 years, supporting the aviation industry in our state and beyond. LATC is proud of this program and the impact it has made. The program is well-established with strong retention and placement rates. The average hourly wage after 6 months of employment for LATC AVM grads is $32.99 per hour, which comes to approximately $68,619 annually.

While the program is currently successful, the proposed changes will help it better align with industry standards and system graduation credit requirements, while providing a more affordable AAS option to students.

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.

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."

South Dakota State University has an Aviation Maintenance Management Specialization. According to the SDSU website, "SDSU has partnered with approved FAA A&P programs across the United States to offer a four-year degree in aviation maintenance management. Students must first complete an Airframe and Powerplant license and then transfer to SDSU to finish up the degree requirements." Students graduating from this program would receive a B.S. in Aviation.

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:

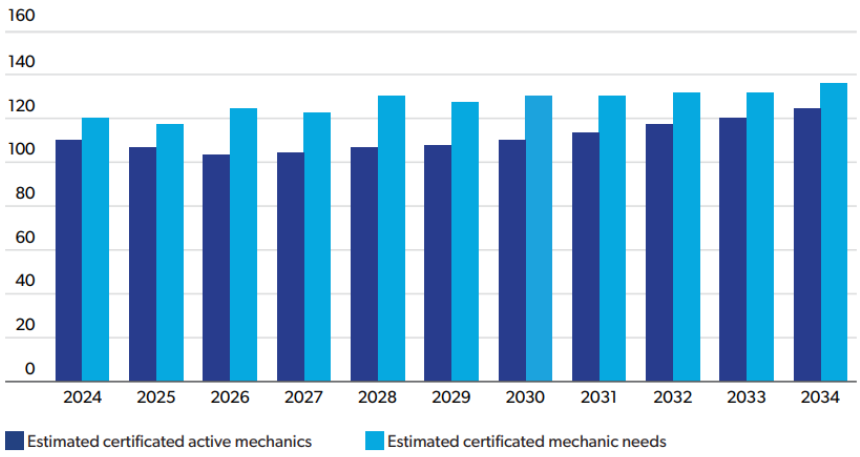
I. For each condition selected above, provide a brief justification.

The need for Aviation Mechanics in South Dakota is expected to increase significantly. According to recent Lightcast data, the aviation maintenance field is projected to grow by nearly 40% in the state between 2023 and 2033.

South Dakota's projected workforce need mirrors the projected open positions across the country. According to the 2024 Aviation Technician Education Council (ATEC)'s Pipeline Report, North America currently has a shortage of 16,200 aviation technical personnel, including 10,800 certificated mechanics. The same report states that the current 9% shortage in certified mechanics in the United States will increase to 20% by 2028, meaning we will see a shortfall of nearly 25,000 certified mechanics. This significant projected shortfall gives South Dakota a tremendous economic development opportunity to attract maintenance facilities to the state and for Lake Area Technical College's Aviation Maintenance program to grow to help address the demand.

The graph below from the ATEC Pipeline Report reflects the demand vs supply in the next 10 years for certified mechanics in the commercial aviation field. These numbers do not account for the needs in noncommercial aviation, such as rotorcraft, business aviation, general aviation, or emerging technologies.

Figure 8
Estimated Supply and Demand for Certified North America Commercial Aviation Mechanics, 2024-2034
Thousands



Source: Oliver Wyman and Aviation Technician Education Council (ATEC) analysis

Expected retirements contribute to these shortages as well. Lightcast data suggests that in South Dakota, 20% of the current Aircraft Mechanics are age 55-64. This 20% is likely to retire in the next 10 years, leaving many open positions to be filled statewide. The ATEC Pipeline Reports confirms that a significant number of retirements are expected in this field across the country, especially in the next two years.

The LATC AVM program is well-established and on target to supply highly-trained aviation mechanics to help fill the need in South Dakota and beyond.

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.

The graduate of this program will be able to:

1. Demonstrate an in-depth technical knowledge of aircraft systems and operation.

2. Demonstrate appropriate skills and accepted practices necessary for aircraft maintenance and determination of airworthiness.

3. Apply reasoning skills to aircraft systems analysis and troubleshooting.

4. Obtain the F.A.A. aircraft maintenance technician certification with airframe and powerplant ratings.

5. Identify regulatory and legal issues which impact the industry.

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

The program learning outcomes are determined by the Airman Certification Standards. They have been voted on and approved by the Aviation Maintenance Technology Advisory Board in a meeting held in Fall 2024.

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.

All courses will contain assessment components. The assessments will be comprised of skills assessments, as well as formative and summative assessments both in the classroom and the lab setting. All program courses leading to the degree will require a pass rate of at least 80% mastery.

Graduates of the AVM AAS program will need to take and pass the FAA's three Airman Certification Standards exams in order to work in the field. The three exam areas are General, Airframe, and Powerplant. The new curriculum will be organized in a such a way that students will be prepared to take their Airframe and General testing by the end of their first year of instruction, and they will be prepared to take their Powerplant test by the end of their second year. The exams include written, oral and practical sections. The FAA requires that students earn a 70% or better on the exams to pass. Last year, the AVM program boasted a 100% pass rate on all three exams. Pass rates are tracked and reported annually to the FAA and Lake Area Tech. The data is used to assess the program's effectiveness and guide improvements.

In addition, all LATC programs use SPOL assessment software to map curriculum and gather assessment data throughout the year. Annually, each department analyzes the assessment data. Under the guidance of LATC leadership, each program creates an assessment and improvement plan each year.

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 FAA does not require graduates to participate in internships. However, the FAA does require students to be able to pass extensive practical exams in all three FAA testing areas. To prepare for these practical exams and for success in their future careers, our students practice and are assessed on their skills on a consistent basis throughout the coursework. Hands-on labs are built into every AVM class. After each skill or concept has been covered in a lecture-based classroom setting, the students immediately move to the adjacent lab to practice and refine the identified skill. This lecture to lab process occurs multiple times per day, providing immediate reinforcement and attainment of a higher skill level. As a result, our students are well-prepared for the workplace, despite not requiring internship credits. Our extremely high exam pass rate attests to the successfulness of the AVM instructional faculty methodology.

While an internship is not required for AVM, approximately 80% of our AVM students work in the aviation field over the summer in paid internship opportunities. These internships often lead to full-time employment after graduation.

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.

Due to the very strict FAA curriculum requirements and license exam Airman Certification Standards, this program does not lend itself to online or blended formats. The extremely heavy hands-on skill attainment level while working on various types of aircraft requires an on-campus lab experience.

[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.

Students in LATC's AVM program are often interested in also pursuing their pilot's license. They can do this by enrolling in LATC Professional Fixed Wing Pilot AAS degree. Because both the pilot and maintenance programs are highly regulated by FAA regulations and standards, they do not have much room for content overlap beyond general education coursework. There are 15 common general education credits between the AVM and Fixed Wing degrees. If a student chose to pursue both AAS degrees, those 15 credits of general education coursework would align.

C. As applicable: Insert any additional comments here.

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

Lake Area Technical College
Aviation Maintenance Technology

SOUTH DAKOTA

SOC* CODE	SOC* TITLE	AVERAGE ANNUAL OPENINGS	2023 EMPLOYMENT	2033 EMPLOYMENT	NUMERIC CHANGE: 2023-2033	PERCENT CHANGE: 2023-2033	MEDIAN: ANNUAL WAGE (2020)	AVERAGE: ANNUAL WAGE (2020)
00-0000	*Total, All Occupations*	*62,664*	*491,588*	*526,251*	*34,663*	*7.1*	*$36,823*	*$44,961*
49-3011	Aircraft Mechanics and Service Technicians--Department of Labor and Regulation	17	200	223	23	11.50%	$ 68,980.00	$ 68,490.00
49-3011	Aircraft Mechanics & Service Technicians AND Avionics Technicians - Lightcast	9	86	120	34	39.90%	$ 67,662.00	

NATIONAL

SOC* CODE	SOC* TITLE	AVERAGE ANNUAL OPENINGS	2023 EMPLOYMENT	2033 EMPLOYMENT	NUMERIC CHANGE: 2023-2033	PERCENT CHANGE: 2023-2033	MEDIAN: ANNUAL WAGE (2020)	AVERAGE: ANNUAL WAGE (2020)
49-3011	Aircraft Mechanics and Service Technicians-O*Net Online	11,500	141,400	148,700	7,300	5%	$ 75,020.00	$ 76,260.00
49-2091	Avionics Technicians-BLS	1,900	21,900	23,500	1,600	8%	$ 77,420.00	$ 77,080.00

SOURCE: South Dakota Department of Labor and Regulation, Labor Market Information Center (LMIC) (https://dlr.sd.gov/lmic/)
DATE: 12/26/2024

NOTES:

SOURCE: U.S. Bureau of Labor and Statistics (https://www.bls.gov/oes/current/oes492091.htm)
DATE: 12/26/2024

NOTES:

SOURCE: Lightcast Data Q4 2024 Data Set | lightcast.io
DATE: 12/27/2024

NOTES:

SOURCE: O*NET Online https://www.onetonline.org/link/localtrends/49-3011.00?st=SD
DATE: 12/27/2024

NOTES:

SOUTH DAKOTA BOARD OF TECHNICAL EDUCATION
Appendix 2.B: Student Demand Projections

Lake Area Technical College
Aviation Maintenance Technology

	YEAR 1	YEAR 2	YEAR 3
Student Full-Time Equivalent (FTE)	**36**	**43**	**47**
Headcount: Full-Time	30	36	40
Headcount: Part-Time			
Headcount: Total	**30**	**36**	**40**
Total Program or Site Capacity	50	50	50

SOUTH DAKOTA BOARD OF TECHNICAL EDUCATION
Appendix 3: Program of Study

Lake Area Technical College
Aviation Maintenance Technology

MONTHS:	18
SEMESTERS:	4
TOTAL CREDITS:	71

PREFIX AND NUMBER	TITLE	CREDITS	DESCRIPTION	EXISTING COURSE
I. GENERAL EDUCATION CORE				
COMM 101 or ENGL 101	Communications and Career Strategies, Composition	3	COMM 101 – This course places emphasis on the essentials of written and oral communication; also covers effective communication during the job search process. OR ENGL 101 – This course concentrates on all phases of the writing/ communication process. Prewriting, drafting, revising and editing are used to help students develop clear, concise and unified writing styles that will serve them well in their chosen career areas.*College transferable.	Y
CSC 105	Computer Software Applications	3	Using a Windows-based microcomputer and related software, the students will gain an understanding and basic operational knowledge about the Windows operating systems, Microsoft Office word processing, spreadsheets, database management, and presentation software. The students will demonstrate this knowledge by scoring at least 80% on assignments and related objective and performance tests.	Y
PSYC 100 or PSYC 101	Psychology of Human Relations, General Psychology	3	PSYC 100 - Human relations is a practical course that presents the interpersonal "people skills" that are important in the modern workplace. Topics include communicating effectively, assertive behavior, teamwork, conflict resolution, and work ethics. Students will gain awareness of their individual work styles and how to work effectively with people with different styles in a diverse workplace. Specific techniques for coping with job stress and managing anger will also be emphasized. Class activities and assignments will stress practical application of skills. Course is also applicable in personal settings, such as family, social, and school. OR PSYC 101 - This course is an introduction survey to the field of psychology with consideration of the biological bases of behavior, sensory and perceptual processes, learning and memory, human growth and development, social behavior and normal and abnormal behavior. *College transferable.	Y
ECON 105 or ECON 201 or SOC 100	Leadership in the Global Workplace, Principles of Microeconomics I, Introduction to Sociology	3	ECON 105 - This course concentrates on the study of traditional theories of leadership, as well as the most recently developed leadership philosophies. This course will focus on the application of leadership concepts through critical thinking and the development of critical leadership skills needed in the global workplace. Leadership traits, ethics, changing demographics, workforce diversity, and financial planning are also included. Upon successful completion of this course, the student will be able to relate to the importance of leadership both personal and professional. OR ECON 201 - This course studies the basic economic concepts as they relate to consumer, worker and business decisions. Emphasis is given to satisfaction maximizing behavior by individuals and profit maximization by firms. Market structures are thoroughly analyzed regarding their effect on price, output and competitiveness. OR SOC 100 - This course is a comprehensive study of society, with analysis of group life and other forces shaping human behavior. *College transferable.	Y
MATH 100 or MATH 101 or MATH 103 or MATH 114	Applied General Math, Intermediate Algebra, Mathematical Reasoning, College Algebra	3	MATH 100 - This course will provide emphasis on the ability to understand and apply math skills to solve problems in the world of work. OR MATH 101 - This course will enhance students' problem-solving skills and prepare them for mathematical problems to be faced in future courses and careers. OR MATH 103 - This course incorporates mathematical reasoning as it applies to dimensional analysis, equations, exponents, basic statistics, concepts related to financial security and other mathematical topics deemed necessary. The financial security portion of the course includes, but is not limited to: financial planning, managing money, putting together a budget plan, calculating compound interest, comparing interest rates and calculating loan payments with regards to student and consumer loans. These are all taught with an emphasis on practical application and problem solving. OR MATH 114 - This course includes a study of the theory and application of functions including function notation, graphs, inverses, polynomial, rational, exponential, logarithmic, and other functions. It may also include additional topics such as sequences, series, the binomial theorem, linear systems, matrices, or complex numbers. *College transferable.	Y
SUBTOTAL OF GENERAL EDUCATION CREDITS:		**15**	**TOTAL NEW COURSES:**	**0**

SOUTH DAKOTA BOARD OF TECHNICAL EDUCATION
Appendix 3: Program of Study

Lake Area Technical College
Aviation Maintenance Technology

II. PROGRAM CORE				
AVM 100	Regulations, Maintenance Forms, Records and Publications and Human Factors	1	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral and Practical tests for certification as an FAA mechanic. Students are encouraged to reference the latest revisions of the Airman Certification Standards, FAA-S-ACS-1 section 1- I & L to compare their progress through this course to their capability to pass the FAA certification test. Students will go through the pertinent FAR's that relate to the maintenance side of aviation and look at the human factors that effect the outcome of our work.	Y
AVM 103	Weight and Balance	1	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral and Practical tests for certification as an FAA mechanic. Students are encouraged to reference the latest revisions of the Airman Certification Standards, FAA-S-ACS-1 section 1- C to compare their progress through this course to their capability to pass the FAA certification test. Students will prepare and do a weight & balance on an aircraft and calculate whether the aircraft is safe for flight. Also students will recalculate W&B after equipment changes and do extreme forward, aft and gross weight checks.	Y
AVM 106	Physics for Aviation	1	This course will provide students with the Aviation Physics knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Powerplant mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 1-J to compare their progress through this course to their capability to pass the FAA certification tests.	Y
AVM 109	Ground Operations and Servicing	1	This course will provide students with the Ground Operations and Servicing knowledge and skills necessary to pass the FAA written, Oral, and Practical General tests for certification as an FAA mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 1- F to compare their progress through this course to their capability to pass the FAA certification tests.	Y
AVM 112	Aircraft Drawings	1	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Powerplant mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 1-B to compare their progress through this course to their capability to pass the FAA certification tests. Students will use symbols and schematic diagrams, draw sketches of repairs and alterations, use blueprint information, and use graphs and charts.	Y
AVM 115	Aircraft Materials, Hardware and Processes	3	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Powerplant mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 1-E to compare their progress through this course to their capability to pass the FAA certification tests. Students will identify and select appropriate nondestructive test methods; perform dye penetrant, eddy current, ultrasonic, magnetic, and particle inspection; perform basic heat-treating processes; identify and select aircraft hardware and materials; inspect and check welds; and perform precision measurements.	Y
AVM 118	Shop Practices and Safety	1	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical GENERAL tests. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 1-E to compare their progress through this course to their capability to pass the FAA certification tests. Students will demonstrate safety-wiring bolts, wire a turnbuckle safely, identify and install cotter keys, remove and install a stud, install a helical, and manufacture a hammer head.	Y
AVM 121	Fundamentals of Electricity and Electronics	2.5	During this course students will establish a fundamental working knowledge of electricity that will be a basis for any future learning experience relating to electricity such as airframe electrical, powerplant electrical, ignition and starting systems, and communication/navigation. During this course students will establish a fundamental working knowledge of electricity that will be a basis for any future learning experience relating to electricity such as airframe electrical, powerplant electrical, ignition and starting systems, and communication/navigation.	Y
AVM 127	Cleaning and Corrosion Control	1	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Airframe mechanic Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 1- G to compare their progress through this course to their capability to pass the FAA certification tests. Students will identify and select cleaning materials, inspect, identify, remove and treat aircraft corrosion, and perform aircraft cleaning.	Y

SOUTH DAKOTA BOARD OF TECHNICAL EDUCATION
Appendix 3: Program of Study

Lake Area Technical College
Aviation Maintenance Technology

AVM 130	Flight Controls	1	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral and Practical tests for certification as an FAA mechanic. Students are encouraged to reference the latest revisions of the Airman Certification Standards, FAA-S-ACS-1 section 2- C to compare their progress through this course to their capability to pass the FAA certification test. Students will learn which controls are primary or secondary, how to rig flight controls, build control cables and balance flight controls. They will also learn about different methods of operating those flight controls.	Y
AVM 133	Airframe Fuel Systems	1	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral and Practical tests for certification as an FAA mechanic. Students are encouraged to reference the latest revisions of the Airman Certification Standards, FAA-S-ACS-1 section 2-J to compare their progress through this course to their capability to pass the FAA certification test. Students will learn the different fuel system types, system components, fuel tanks/cells, and different characteristics of fuel types. They will also learn how to maintain and do inspections on the different fuel systems.	Y
AVM 134	Fluid Lines and Fittings	1	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral and Practical tests for certification as an FAA mechanic. Students are encouraged to reference the latest revisions of the Airman Certification Standards, FAA-S-ACS-1 section 1-D to compare their progress through this course to their capability to pass the FAA certification test. Students will learn the different tubing and hose materials, applications, sizes and fittings. Also, students will learn hose fabrication installation and inspection techniques and practices.	Y
AVM 136	Non-Metallic Structures	2.5	This course prepares students for the wood and non-metallic structures requirements of the FAA Airframe written, oral and practical tests. This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Airframe Mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 1-E and section 2-B & D to compare their progress through this course to their capability to pass the FAA certification tests.	Y
AVM 139	Metallic Structures	3	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Airframe Mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 2-A to compare their progress through this course to their capability to pass the FAA certification tests. Students will install conventional aircraft rivets, hand-form, lay out and bend aircraft sheet metal, and inspect and repair sheet metal aircraft structures	Y
AVM 142	Hydraulic and Pneumatic Power Systems	1	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Airframe Mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 2-F to compare their progress through this course to their capability to pass the FAA certification tests. Students will learn hydraulic system components and fluids. They will also inspect, check, service and repair hydraulic systems. Learn the different types of hydraulic/pneumatic seals and fluid/seal compatibility.	Y
AVM 145	Landing Gear Systems	2	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Airframe Mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 2-E to compare their progress through this course to their capability to pass the FAA certification tests. Students will inspect, check, service and repair landing gear, retraction system, shock struts, brakes, wheels, tires and steering systems.	Y
AVM 148	Aircraft Electrical Systems	2.5	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Airframe Mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 2-K to compare their progress through this course to their capability to pass the FAA certification tests. Students will repair and inspect aircraft electrical system components.	Y
AVM 151	Aircraft Instrument Systems	1	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Airframe Mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 2-H to compare their progress through this course to their capability to pass the FAA certification tests. Students will inspect, check, service, troubleshoot and repair electronic flight instrument systems, install instruments and perform a static-pressure leak test.	Y

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Appendix 3: Program of Study

Lake Area Technical College
Aviation Maintenance Technology

AVM 154	Communications, Light Signals and Runway Lighting Systems	2	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Airframe Mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 2-I to compare their progress through this course to their capability to pass the FAA certification tests. Students will learn Radio operating principles and components, antenna, static discharge wicks, and avionics identification, inspection, and mounting requirements. They will also learn about Aircraft Communication Addressing and Reporting System (ACARS), ELT Operation, VHF omnidirectional range (VOR), Distance measuring equipment (DME), Instrument landing system (ILS), Global positioning system (GPS), Traffic collision avoidance system (TCAS), theory, components, and operation.	Y
AVM 157	Utility Systems, Ice & Rain, Aircraft Fire Protections and Water and Waste Systems	2	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Airframe Mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 2-L, M & O to compare their progress through this course to their capability to pass the FAA certification tests. Students will inspect, check, troubleshoot & service Ice & Rain systems, be able to identify, inspect, service & troubleshoot different fire protection systems and the inspection and servicing requirements for lavatory waste system & potable water system components and operation.	Y
AVM 160	Environmental Systems	1	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Airframe Mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 2-G to compare their progress through this course to their capability to pass the FAA certification tests. The students will learn to inspect, service and troubleshoot the following environmental systems, Vapor cycle cooling, Air cycle cooling, Pressurization systems and controls, Heating and Oxygen systems.	Y
AVM 163	Inspection Concepts and Techniques	1.5	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Airframe Mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 2-D to compare their progress through this course to their capability to pass the FAA certification tests. The students will learn Maintenance recordkeeping requirements under 14 CFR part 43, Inspection requirements under 14 CFR part 91, and search for the compliance with service letters, service bulletins, instructions for continued airworthiness, or ADs.	Y
AVM 206	Reciprocating Engines, Theory, Maintenance & Overhaul and Removal and Installat	5	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Airframe Mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 3-A to compare their progress through this course to their capability to pass the FAA certification tests. Students will learn, reciprocating engine operating principles/theory of operation, horizontally-opposed engine construction and internal components, reciprocating engine maintenance and inspection, reciprocating engine ground operations, we will also touch on diesel engine operating principles/theory of operation.	Y
AVM 212	Turbine Engine Technology, Service and Maintenance	3.5	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Airframe Mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 3-B to compare their progress through this course to their capability to pass the FAA certification tests. Students will learn about different types of turbine engines, turbine engine operating principles/theory of operation, turbine engine troubleshooting, maintenance, and inspection procedures and engine adjustment and testing.	Y
AVM 218	Engine Lubrication Systems	1.5	This course prepares students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Powerplant mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 3-G to compare their progress through this course to their capability to pass the FAA certification tests. Students will identify and select lubricants, repair engine lubrication system components, inspect, check, service, troubleshoot and repair engine lubrication systems.	Y

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Appendix 3: Program of Study

Lake Area Technical College
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AVM 221	Engine Fuel and Fuel Metering Systems	1.5	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Powerplant mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 3-I to compare their progress through this course to their capability to pass the FAA certification tests. Students will inspect, check, service, troubleshoot, and repair engine fuel systems and components; troubleshoot, repair and adjust fuel-metering systems and electronic engine fuel controls; overhaul carburetor systems.	Y
AVM 224	Engine Fire Protection Systems	0.5	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Powerplant mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 3-E to compare their progress through this course to their capability to pass the FAA certification tests. Students will inspect, service, troubleshoot, and repair engine fire-detection and extinguishing systems.	Y
AVM 227	Propellers	2	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Powerplant mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 3-M to compare their progress through this course to their capability to pass the FAA certification tests. Students will inspect, check, service, and repair propeller synchronizing and ice-control systems, identify and select propeller lubricants, balance propellers, repair propeller-control system components, install, troubleshoot and remove propellers, and repair aluminum-alloy propeller blades.	Y
AVM 230	Ignition and Starting Systems	2	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Powerplant mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 3-H to compare their progress through this course to their capability to pass the FAA certification tests. Students will inspect, service, troubleshoot, and repair reciprocating and turbine-engine ignition systems and components, and turbine-engine pneumatic starting systems.	Y
AVM 233	Engine Induction, Air and Cooling Systems	1.5	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Airframe Mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 3-J to compare their progress through this course to their capability to pass the FAA certification tests. Students will learn about reciprocating engine induction and cooling system theory, components, and operation. They will also learn about causes and effects of induction system icing, superchargers and controls, turbochargers, intercoolers, and controls.	Y
AVM 236	Engine Electrical Systems	2	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Airframe Mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 3-F to compare their progress through this course to their capability to pass the FAA certification tests. Students will learn to inspect, service & troubleshoot generator, alternator, starter generator systems, voltage regulators and overvoltage and overcurrent protection systems. They will also learn engine electrical wiring, switches, and protective devices and the procedure for locating the correct electrical cable/wire size needed to fabricate a cable/wire.	Y
AVM 242	Engine Exhaust and Thrust Reverser Systems	0.5	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Powerplant mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 3-L to compare their progress through this course to their capability to pass the FAA certification tests. Students will inspect, check, troubleshoot, service, and repair engine exhaust systems, and components, troubleshoot and repair engine thrust-reverser systems and related components.	Y
AVM 245	Engine Instrument Systems	1	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Powerplant mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 3-D to compare their progress through this course to their capability to pass the FAA certification tests. Students will inspect, check, troubleshoot, service, and repair the following engine instruments, fuel flow, Temperature (e.g., exhaust gas, oil, oil cylinder head, turbine inlet), Engine speed indicating systems, Pressure (e.g., air, fuel, manifold, oil), Annunciator indicating systems (e.g., warning, caution, and advisory lights), Torque meters, Engine pressure ratio (EPR), Engine indicating and crew alerting system (EICAS).	Y

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AVM 248	Engine Inspections	1	This course will provide students with the knowledge and skills necessary to pass the FAA written, Oral, and Practical tests for certification as an FAA Powerplant mechanic. Students are encouraged to reference the latest revision of the Airman Certification Standards, FAA-S-ACS-1 section 3-C to compare their progress through this course to their capability to pass the FAA certification tests. Students will search inspection requirements under 14 CFR part 43 and 14 CFR part 91, compliance with service letters, service bulletins, instructions for continued airworthiness, ADs, or TCDSs, and maintenance recordkeeping requirements under 14 CFR part 43.	Y
SUBTOTAL OF PROGRAM CREDITS:		**56**	**TOTAL NEW COURSES:**	**0**

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Appendix 4: Alignment Projection

Lake Area Technical College
Aviation Maintenance Technology

TOTAL CREDITS IN PROPOSED PROGRAM:
71

I. STACKABLE OPPORTUNITIES							
PROGRAM NAME		Short-term Certificate	x	Existing	If Forthcoming: Projected Timeline	Total Credits in Stackable Program	How many PROPOSED PROGRAM credits are in this stackable program opportunity?
Professional Fixed Wing Pilot (A.A.S.)		Long-term Certificate		Forthcoming			
		Diploma					
	x	AAS				67	15
PROGRAM NAME		Short-term Certificate		Existing	If Forthcoming: Projected Timeline	Total Credits in Stackable Program	How many PROPOSED PROGRAM credits are in this stackable program opportunity?
		Long-term Certificate		Forthcoming			
		Diploma					
		AAS					
PROGRAM NAME		Short-term Certificate		Existing	If Forthcoming: Projected Timeline	Total Credits in Stackable Program	How many PROPOSED PROGRAM credits are in this stackable program opportunity?
		Long-term Certificate		Forthcoming			
		Diploma					
		AAS					
PROGRAM NAME		Short-term Certificate		Existing	If Forthcoming: Projected Timeline	Total Credits in Stackable Program	How many PROPOSED PROGRAM credits are in this stackable program opportunity?
		Long-term Certificate		Forthcoming			
		Diploma					
		AAS					

II. ARTICULATION AGREEMENTS (BACCALAUREATE)						
PROGRAM NAME	**COLLEGE OR UNIVERSITY**	x	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?
Applied Technology Management (B.A.)	Mount Marty College		Forthcoming			
					128	up to 64
PROGRAM NAME	**COLLEGE OR UNIVERSITY**	x	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?
Operations Management (B.S.)	Minnesota State University, Moorehead		Forthcoming			
					120	up to 48
PROGRAM NAME	**COLLEGE OR UNIVERSITY**		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?
			Forthcoming			

III. LICENSURE AND CERTIFICATION OPPORTUNITIES		
The PROPOSED PROGRAM will qualify students to pursue the following licensure and/or certification opportunities:		
LICENSURE/CERTIFICATION	**OVERSIGHT ORGANIZATION**	Will the licensure/certification require reporting per SDCL 13-1-61?
Airman Certification Standards/General	FAA	No
LICENSURE/CERTIFICATION	**OVERSIGHT ORGANIZATION**	Will the licensure/certification require reporting per SDCL 13-1-61?
Airman Certification Standards/Airframe	FAA	No
LICENSURE/CERTIFICATION	**OVERSIGHT ORGANIZATION**	Will the licensure/certification require reporting per SDCL 13-1-61?
Airman Certification Standards/Powerplant	FAA	No

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Appendix 5: Financial Projections

Lake Area Technical College
Aviation Maintenance Technology

	YEAR 1	YEAR 2	YEAR 3
Student FTE	**36**	**43**	**47**
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	$ -	$ -	$ -
Travel	$ -	$ -	$ -
Other	$ -	$ -	$ -
Sub-Total: Operating	$ -	$ -	$ -
Total: Recurring	**$ -**	**$ -**	**$ -**
TOTAL EXPENDITURES (A + B)	**$ -**	**$ -**	**$ -**
II. PROJECTED REVENUE			
Tuition	$ 132,060.00	$ 158,472.00	$ 176,080.00
State Fees	$ 44,730.00	$ 53,676.00	$ 59,640.00
Local Fees	$ -	$ -	$ -
Location-Based Fees	$ -	$ -	$ -
State Sources	$ -	$ 133,867.31	$ 160,640.77
Federal Sources	$ -	$ -	$ -
Private Grants or Gifts	$ -	$ -	$ -
Other	$ -	$ -	$ -
TOTAL REVENUE	**$ 176,790.00**	**$ 346,015.31**	**$ 396,360.77**
REVENUE - EXPENDITURES	**$ 176,790.00**	**$ 346,015.31**	**$ 396,360.77**

**Projections are held constant based on current fiscal year. Inflation or rate changes are not factored.*