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A PROPOSAL FOR

Agriculture Aviation Option

beginning fall of 2014



LAKE AREA
TECHNICAL INSTITUTE

www.lakeareatech.edu

LAKE AREA TECHNICAL INSTITUTE (LATI)

Agriculture – Aviation Option

Executive Summary

Lake Area Technical Institute requests approval to add an Aviation option to our Agriculture program. This program option will be a nine-month diploma option. Students may attend the nine-month option and exit with a diploma or enter the option after completing the Agriculture or Aviation program. Graduates of this option will obtain a private pilot's license and be trained to work in the field of agriculture aviation as an aerial application pilot, aerial application technician, or aerial application owner/operator.

LATI is an excellent fit for this new option as we have very strong Agriculture and Aviation programs, which could share equipment and educational content for the option.

IDENTIFICATION AND DESCRIPTION OF THE PROGRAM

The Ag Aviation option is designed for students interested in a career in the aerial spraying industry. This option will prepare individuals to apply technical knowledge and skills to the field of aviation relative to aerial application and maintenance. Students will be trained in the areas of: aircraft operation for chemical aerial application to fields; GPS management for accurate application; job record maintenance using GPS equipment, computer hardware, and software; management of crop and plant health using appropriate chemicals; crop and weed identification; safety practices in a dynamic agricultural, aviation, and chemical handling environment; administration of first aid and/or CPR; and compliance with local, state, and federal commercial pesticide application guidelines. Ag pilots often own and manage their own business.

OBJECTIVES AND PURPOSE OF THE PROGRAM

The primary purpose of the Agriculture Aviation option would be to graduate students with the necessary skills to be employed in the agriculture aviation industry including positions as an aerial application pilot, aerial applicator technician, and aerial applicator owner/operator.

A graduate of this option should be able to:

- Use approved safety procedures in agricultural, aviation, and chemical handling environments.
- Correctly and safely use all applicable equipment and chemicals required for this option.
- Demonstrate critical communication and leadership skills.
- Demonstrate exemplary aviator skills.
- Demonstrate a thorough knowledge of the federal and state application guidelines/rules/laws regarding chemical usage in agriculture.
- Demonstrate a thorough knowledge of the FAA pilot licensure requirements.
- Practice safe, ethical, and legal field practice techniques.
- Demonstrate professionalism and related soft skills, including communicating with peers, supervisors and community members.
- Utilize previous skill sets from either agriculture or aviation experiences (where applicable) for a viable career option.
- Utilize GPS systems to manage the accurate application of chemicals.
- Accurately maintain records using GPS equipment as well as computer hardware and software.
- Demonstrate a thorough knowledge of chemicals used to manage crop and plant health.
- Demonstrate excellent decision-making skills; particularly in emergency, high stress situations.
- Demonstrate the ability to administer first aid and/or CPR.
- Properly identify various crops and weeds.

METHODS OF ATTAINING THE OBJECTIVES OF THE OPTION

The Ag Aviation option will include classroom instruction and lab experiences, along with industry field trips and guest speakers. The curriculum will incorporate a variety of instructional methods including use of LATI's Innovation Center to enhance instructional materials with virtual instruction, streaming video, etc. The option will utilize both the Aviation and Agriculture facilities at LATI.

The Ag Aviation option will work closely with industry and the LATI Aviation program advisory board composed of representatives from potential employers. Two board members will represent the Ag Aviation industry specifically. The Advisory Board will approve the curriculum, discuss and recommend equipment purchases, and assist in forming partnerships to assist LATI with innovative curriculum and cost-sharing.

DESCRIPTION OF THE NEEDS BASED ON LABOR MARKET DEMANDS IN THE UNITED STATES AND SOUTH DAKOTA

According to the most recent National Agricultural Aviation Association survey, the average age of owner/operator respondents was 53. Pilot respondent average age was 49.9. This indicates a need for training a new generation of pilots to replace those retiring.

Wage factors –

Published salary information by the Department of Labor doesn't separate salaries for ag spray pilots from general aviation pilots. The data available is included in the appendix. The need for pilots is increasing, due to the rebound of general aviation and the Baby Boomer exodus from the job market. The reason for this can in part be explained by considering several factors:

Salary data for Aerial Applicators is difficult to obtain because most ag pilots are paid by the acre of ground covered. This can range from \$.80 an acre to \$1.75 an acre. The low end is typical for an entry-level pilot in a more southerly climate operating a smaller piston-powered aircraft. The high end of this pay scale would be for a highly experienced pilot who never gets any chemical drift complaints and

is able to work under the pressure of doing more acres in less time without compromising safety.

Aerial applicators with an FAA Airframe and Powerplant certification earn wages during the off-season performing scheduled inspections and unscheduled maintenance on the aircraft fleet.

According to the website Simply Hired, the average annual national salary for ag applicators is \$52,000 (see appendix B).

POPULATION TO BE SERVED BY THE OPTION

The Ag Aviation option will be available to any applicant who has successfully met the admission standards as set by LATI. Additional FAA eligibility requirements will apply for flight training. The program is intended to be full-time. However, based on the types of training available, each individual's experience level, and specific training objective, part-time opportunities exist. No restriction will be made regarding race, age, creed, or gender. The program will draw students primarily from South Dakota, North Dakota, western Minnesota, and Nebraska but opportunity exists to draw nationwide. LATI will primarily provide skilled workers to employers in South Dakota and neighboring states but, very feasibly, to any region of the country. Due to the specialized nature of this option, it is anticipated enrollment would be 6-10 students per year. No added full-time instructors are needed.

PROJECTED THREE-YEAR BUDGET

	FY 14	FY 15	FY 16
Instructor Salary/Benefits (Adjuncts/Overload)	\$20,000	\$23,000	\$25,000
Equipment	\$0	\$0	\$0
Supplies	\$1,000	\$1,500	\$2,000
Travel	\$0	\$0	\$0
Contracted Services	\$1,000	\$1,500	\$2,000
Totals	\$22,000	\$26,000	\$29,000

OPTION COMPETENCIES AND ENTRY AND EXIT POINTS OF SUBOCCUPATIONS

Entry Point: Fall 2014

Exit Point: After completion of all coursework.

Job Titles: Aerial Application Pilot, Aerial Application Technician, Aerial Application Owner/Operator

Certifications/Licenses: (Can be numerous combinations of these):

- Federal Aviation Administration (FAA) Private Pilot
- FAA Instrument Pilot
- FAA Commercial Pilot
- FAA Multi-Engine Private
- Other Logbook Endorsements (Tailwheel airplane, complex airplane, high performance airplane)
- Commercial Pesticide License

Statement of Non-Duplication

This program is not available at any college or technical institute in South Dakota. There are four locations in the US that offer formal agricultural aviation flight training:

Georgia – Flight training only
AG Flight Pilot Training, LLC
Bainbridge, GA

Louisiana – Flight training only
Flying Tiger Aviation
Oak Ridge, LA 71264

Florida – Flight training only
Eagle Vistas, LLC
Port St Lucie, Florida

Minnesota
University of Minnesota Crookston (Bachelor of Science Degree)
Agriculture/Flight training
Crookston, MN

Note: The uniqueness of Lake Area Tech's program is that it will be the only two-year post-secondary institution in the country offering this combination of agricultural and aviation training.

Curriculum Design

See Appendix A

Survey/Wage Factor

See Appendix B

SUGGESTED CIP CODE

01.0204 Agricultural Power Machinery Operation A program that prepares individuals to operate specialized farm, ranch, and agribusiness power equipment of a stationary, mobile, and/or hand-operated nature. Includes instruction in operating specialized equipment such as terrestrial and airborne crop-spraying equipment; tractors and hauling equipment; planting and harvesting equipment; cutting equipment; power sources and systems for silos, irrigation, pumping, and applications such as dairy, feeding and shearing operations; processing equipment; and applicable electrical, mechanical, and safety principles.

APPENDIX

- A. Curriculum outlines.
- B. Job titles and survey/wage factors.
- C. Letters of Support.

Appendix A



Agriculture ■ Aviation Option

Semester Course Outline ■ 2014 – 2015 ■ Revised: 12/17/13

9 Months ■ Credits Required for Graduation: 30.5

Optional Associate of Applied Science (A.A.S.) Degree

Credits Required for Graduation: 87.5

Fall Semester

Course Number	Course Title	Clock Hours	Credits
AG 100	Soil Science	56	2
AG 102	Crop Science	56	2
AG 214	Ag Chemical Equipment	56	2
AGR 105	Ag Safety	28	1
AGR 215	Advanced Fertilizers, Soils, and Waste Management	56	2
AGR 262	Precision Agriculture/Data Collection	56	2
AED 100	Automated External Defibrillator	14	.5
HAZ 100	Hazardous Materials Safety	14	.5
Choose one (1) of the following:			
● AVM 260	Private Pilot Ground School	84	3
● AVM 265	Private Pilot Flight Training	84	3
● AVM 270	Instrument Flight	84	3
● AVM 275	Commercial Flight Multi-Engine Airplane	84	3
● AVM 280	Commercial Flight Single Engine	84	3
Total		392	15

Spring Semester

Course Number	Course Title	Clock Hours	Credits
AG 122	Fertilizers	42	1.5
AG 124	Ag Chemicals	42	1.5
AG 126	Weed Management	42	1.5
AGR 118	Soil and Water Management	42	1.5
AGR 142	Commercial Pesticide Certification	14	.5
AGR 210	Forages and Grasses	42	1.5
AGR 212	Plant Diseases/Insect ID and Control	42	1.5
Choose two (2) of the following:			
● AVM 260	Private Pilot Ground School	84	3
● AVM 265	Private Pilot Flight Training	84	3
● AVM 270	Instrument Flight	84	3
● AVM 275	Commercial Flight Multi-Engine Airplane	84	3
Total		392	15.5

- Students who elect to take and pass these courses and also pass the FAA private pilot written, oral, and practical exams will qualify for their private pilot license.

To fulfill graduation requirements for the Associate of Applied Science (A.A.S.) degree, students must have completed the Diploma option in Aviation Technology and select a course in each of the areas listed, thus completing 12 credits in general education. Courses marked with an asterisk can be transferred directly to the university system under the terms of articulation agreements and may be substituted for recommended general education courses. Students should speak with an advisor before selecting transferable courses.

Behavioral Science

PSYC 100 – Psychology of Human Relations
 PSYC 101 – General Psychology *

Mathematics

MATH 100 – Applied General Math
 MATH 101 – Intermediate Algebra
 MATH 102 – College Algebra *

Communications

COMM 101 – Contemporary Communication
 ENGL 101 – Composition *
 SPCM 101 – Fundamentals of Speech *

Social Science

ECON 105 – Leadership in the Global Workplace
 ECON 201 – Principles of Microeconomics I *
 ECON 202 – Principles of Macroeconomics II *
 SOC 100 – Introduction to Sociology *

Appendix B

From Simply Hired:

<http://www.simplyhired.com/salaries-k-ag-pilot-jobs.html>

Average Ag Pilot Salaries

The average salary for ag pilot jobs is \$52,000. Average ag pilot salaries can vary greatly due to company, location, industry, experience and benefits. This salary was calculated using the average salary for all jobs with the term "ag pilot" anywhere in the job listing.

South Dakota Department of Labor and Regulation:

South Dakota													
SOC* Code	Occupational Title	Occupational Employment Projections					Wage Data						
		2010 Workers	Projected 2020 Workers	Numeric Change	Percent Change	Average Annual Openings	Annual	Avg. Wage per Hour	10th	25th	50th	75th	90th
532012	Commercial Pilots	225	260	35	15.6%	11	\$59,462	Note1	*	*	*	*	*

United States													
SOC* Code	Occupational Title	Occupational Employment Projections					Wage Data						
		2012 Workers	Projected 2022 Workers	Numeric Change	Percent Change	Average Annual Openings	Annual	Avg. Wage per Hour	10th	25th	50th	75th	90th
532012	Commercial Pilots	37,600	41,200	3,600	9.4%	14,400	\$76,050	Note1	\$38,520	\$53,050	\$73,280	\$96,810	\$134,990

SOC* Code - Standard Occupational Classification, 2000. For definitions of each SOC occupation, please visit the U.S. Bureau of Labor Statistics website at <http://www.bls.gov/soc/socguide.htm>.
 Note1 - Only annual wage estimates are available for this occupation. Workers in this occupation are paid based on an annual amount, but generally do not work the norm of 2,080 hours per year. An * indicates that information is not available due to disclosure concerns or reliability issues.

Projected Employment Notes:

Data is preliminary and subject to revision. Occupations with fewer than 20 workers in 2010 were excluded. Number of jobs data for 2010 and 2020 rounded to nearest five. Data presented for occupations will not sum to totals due to non-publishable data for additional occupations included in totals.
 Demand data is the summation of job openings estimated due to projected employment growth and job openings projected to be created due to replacement need of current workers.
 Replacement need is estimated by multiplying occupational employment estimates by national replacement rates supplied by the U.S. Bureau of Labor Statistics (BLS). These rates estimate the

Wage Notes:

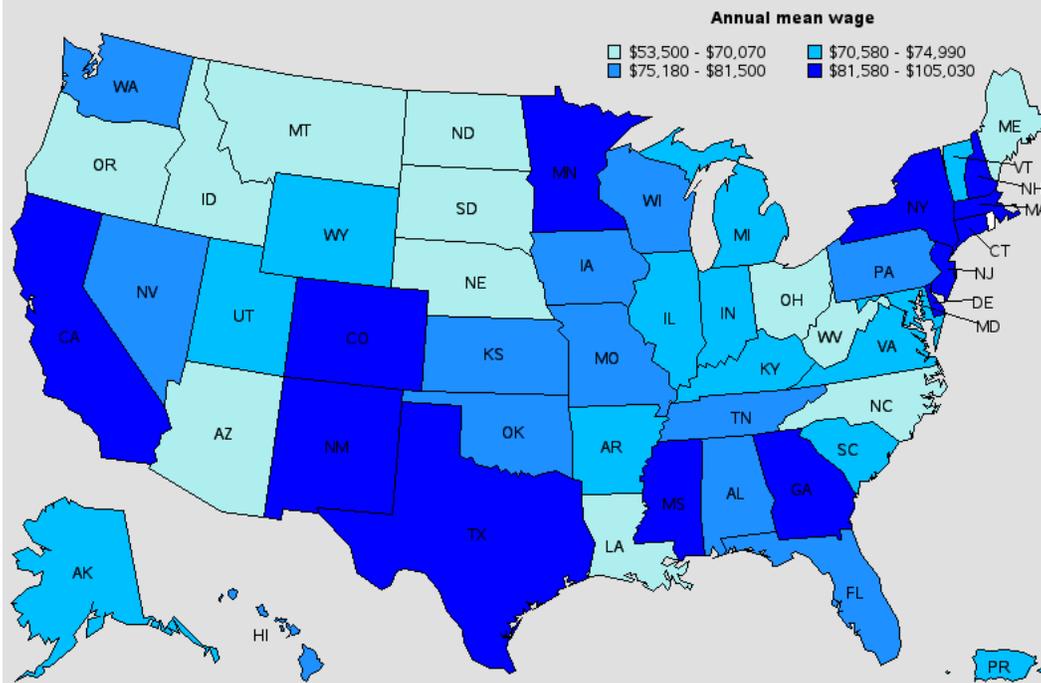
Wages do not include the value of benefits paid to workers
 Number of Workers: represents an estimate of the total wage and salary workers in an occupation across all industries. For certain occupations, the number of workers statistic may not be available because of disclosure concerns or reliability issues.
 Average Wage: represents the arithmetic mean of the wage data collected, calculated by dividing the estimated total wages for an occupation by the number of workers in that occupation. The average wage is also referred to as the mean wage.
 Median Wage: represents the positional central tendency of a dataset where 50 percent of the wages fall below this wage and 50 percent of the wages fall above this wage.
 Percentile Wages: represents the percentage of an occupation's workers who earn less than or equal to that wage. For certain occupations, the upper percentile wages may not be available because of disclosure concerns or reliability issues. The following percentile wages represent distinct measures of the entire wage range:
 10th Percentile: 10% earn less than or equal to this amount; 90% earn more
 25th Percentile: 25% earn less than or equal to this amount; 75% earn more
 50th Percentile: 50% earn less than or equal to this amount; 50% earn more (median wage)
 75th Percentile: 75% earn less than or equal to this amount; 25% earn more
 90th Percentile: 90% earn less than or equal to this amount; 10% earn more

Sources:

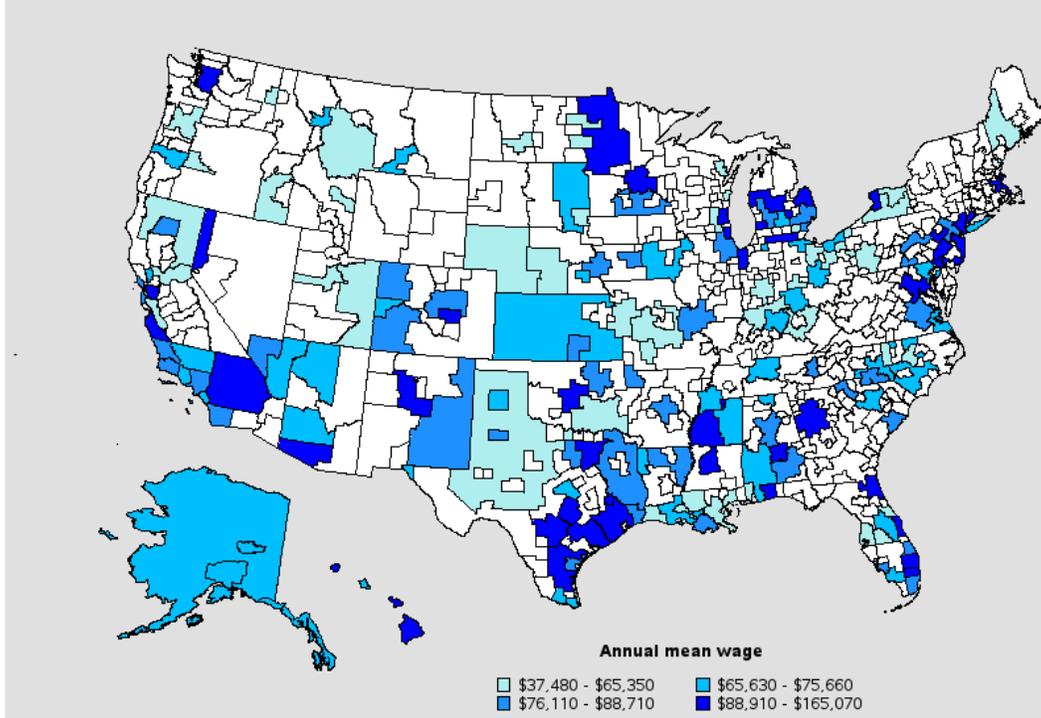
Labor Market Information Center, South Dakota Department of Labor and Regulation, 2014.
 Occupational Employment Statistics, Occupational Employment and Wages, May 2012. Bureau of Labor Statistics.

Occupational Employment and Wages, May 2012:

Annual mean wage of commercial pilots, by state, May 2012



Annual mean wage of commercial pilots, by area, May 2012



from <http://www.bls.gov/oes/current/oes532012.htm>

Appendix C

THOMPSON FARM AIR LLC
PO BOX 308
ESTELLINE, SD 57234

January 31, 2014

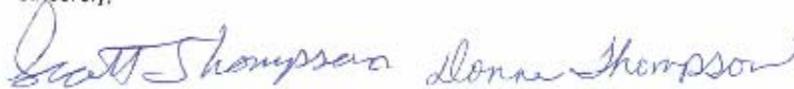
South Dakota Board of Education:

Thompson Farm Air, LLC is committed to and enthusiastically supports Lake Area Technical Institute's (LATI's) request for an Associates of Applied Science in Agricultural Aviation Degree. Thompson Farm Air, LLC is a family owned aerial application business in Estelline, SD. We have been in business for 20 years and have grown to serve over 700 farmers in a 7 county area. Finding qualified, quality employees has been one of our biggest hurdles to growth while maintaining good service. This 3rd year option of either an Agriculture AAS or Aviation Maintenance program adds key employability skills in both cases. Allowing someone to come directly into the program and earn a diploma in Ag Aviation ensures an expedient path for those who require it.

LATI's Ag Aviation program is a key to ensuring South Dakota and neighboring states have a pipeline of trained aerial applicators. We project a need for 2 new positions in the coming 5 years. Besides addressing a growing need for Ag Aviation, we also have 25% of our employees within seven years of retirement. The existence of an Ag Aviation program would also enable many of our current employees to get refresher, certification, and upskill training. This proposal is another example of LATI responding to regional needs to meet the workforce development challenges, not only for today, but in a manner that is sustainable and strategic.

We see LATI's Ag Aviation program as vital to Eastern South Dakota and our community. We urge your strongest support of this request.

Sincerely,



Scott and Donna Thompson