

Program Description

USU offers both a one-year technology certificate and an Associate of Applied Science degree in agricultural machinery technology. This program is the only one of its kind in the western United States and is endorsed by the Implement Dealer's Association, which represents dealers and manufacturers of agricultural machinery throughout the region. In addition to coursework training, machinery dealerships and companies hold in-service training at USU where students can receive training and certification for repairs and operations of the latest agricultural equipment. Upon completion of these programs, employers are always seeking students from USU's program, resulting in extremely high job placement.

The one-year certificate program is designed to familiarize students with the agricultural equipment industry. Certificate requirements include technical hands-on training on engines, power trains, hydraulics, DC electrical and specialized forage, harvesting, tillage, planting and spraying equipment.

The Associate of Applied Science degree is a second-year continuation of the certificate program. Core curriculum includes equipment testing, diagnosis and retailing of parts and equipment. Because it is an Associate of Applied Science degree program, a minimum of fifteen credits of University Studies courses is required. The Associate of Applied Science degree also transitions very easily into a bachelor's program in agricultural systems technology and agricultural education.

II. Degrees and Emphasis Options Offered

Agricultural Machinery Technology — Certificate

Agricultural Machinery Technology — Associate of Applied Science

III. Program Mission

The curriculum offered in Agricultural Machinery Technology (AMT) prepares students for careers in: agricultural machinery management; agricultural machinery sales, parts, and service; along with agricultural farm suppliers, corporate farms and ranches positions and precision agriculture. Resident instruction develops students through acquisition of theoretical and vocational skills. These skills must support and stimulate critical thinking and reasoning through practical application of relevant theory necessary for intellectual achievement and practical applications in agricultural occupations.

IV. Alignment of Program Mission with Departmental Mission

The mission of the Agricultural Machinery Technology program aligns with the School of Applied Sciences, Technology and Education using the application of a multidisciplinary systems science approach for the resolution of agricultural and applied science matters through the advancement of education, research, and outreach for agricultural technology transfer.

V. Program Goals

The objectives for our students upon completion of the AMT program include:

1. Demonstrating competence in the basic and applied sciences necessary for situational analysis in agricultural and related settings.
2. Acquisition of professional skills necessary to contribute in diagnosing and managing agricultural equipment. These include not only manipulative skills, but also creative thinking and communication aptitudes & skills.
3. Applying management, diagnostic and problem solving principles to multi-disciplinary solutions.
4. Preparation for undergraduate studies in agricultural system technology and other related disciplines.

VI. Program Learning Objectives

Graduates from the AMT program should be able to:

1. Apply knowledge of equipment, science technology and applied sciences to agricultural situations and related industries.
2. Provide viable solutions to situations within existing economic, environmental, social, political, health & safety and sustainability constraints.
3. Work and communicate effectively individually and in teams.
4. Recognize personal limitations and the need for further education, knowledge or assistance.
5. Contribute to their community, and society in general, using their knowledge and professional expertise.

Plan for Measuring the Achievement of Degree and Program Objectives

All students complete classroom theory and hands-on lab instruction in the mechanization program and may also complete an occupational internship. Some students completing the program requirements are positioned to enter the Agricultural Systems Technology or Agricultural Education Program.

We assess our program in a number of ways:

- Individual class assessments
- Internship assessments
- Surveys of past graduates
- Surveys of employers
- Dealer/Manufacturer advisory board

Faculty members should continue to develop measurement methods for determining the satisfaction of employers, placement success and student satisfaction of the program post-graduates.

Exit Interviews

Graduates in Agricultural Machinery Technology will complete an exit interview in connection with their application of graduation. This is an opportunity for the student to express concerns and indicate strengths of the program from the perspective of a student completing the course.

- The department head or other faculty provides questions to gain the student's thoughts regarding the program.
- Program faculty meet at the conclusion of each academic year to discuss needed curricular changes.
- The exit interview will be conducted by Royce Hatch, lecturer and the interview recorded, after which will sign off on the graduation requirements for the Agricultural Machinery Technology AAS, CERT.

Utah State University

Cooperative Education Internship Agreement

Student Name _____ Major _____ A# _____

On-Campus E-mail: _____ Office E-mail _____

Street Address _____ City _____ State _____ Zip _____

Telephone: Home _____ Work _____ Course Number _____

Faculty Co-op Coordinator Name _____ Campus Phone _____

Company/Business _____ Immediate Supervisor's Name _____

Work Address _____ City _____ State _____ Zip _____

Rate of Pay _____ Hours worked weekly _____ Supervisor's Work Phone _____

Semester Enrolled: Fall Spring Summer Year _____

Work Schedule: _____
 Monday Tuesday Wednesday Thursday Friday

Statement of Student's Learning Objectives

You will be required to establish five learning objectives for the specified grading period. The learning objectives must be originated by you, the student, approved by the employer/supervisor, and reviewed by the department faculty co-op coordinator for validity and relative value with all parties in agreement.

ATTACH A COPY OF YOUR 5 LEARNING OBJECTIVES TO THIS FORM

Agreement

We, the undersigned, agree with the validity of the learning objectives listed above (or attached). The employer and the college agree to provide the necessary supervision and counseling to insure that the maximum educational benefit may be achieved from the student work experience. The student agrees to abide by the cooperative education guidelines as outlined in the Student Manual. The supervisor will evaluate the student's learning objectives and work performance at the end of the grading period. The university will award academic credit for successful accomplishment of the objectives in the cooperative education student manual.

Student

date Work Supervisor

date Faculty Coordinator

date

Student Name _____

form 2

Employer Evaluation of Learning Objectives

Instructions - Read Carefully

Please rate the employee according to how well he/she achieved each learning objective according to the following rating scale:

1 = Failed to meet minimum requirements

2 = Limited accomplishment

3 = Average or expected accomplishment

4 = Exceeds average performance

5 = Unique or outstanding performance

Please write/type learning objectives below or attach a sheet listing objectives.

Learning Objectives	Rating
1	
2	
3	
4	
5	

Supervisor's Signature _____ Date _____

Employer Evaluation of Student Performance

Instructions - Read Carefully

This rating sheet provides a practical method through which the ability of the individual can be judged with a reasonable degree of accuracy and uniformity. Indicate your opinion of this employee by placing a **X** on the phrase in the block which seems best to fit the employee. If you can't make up your mind between two phrases, place your **X** in the narrow space between two blocks. Please follow instructions carefully.

1. Use your own independent judgment.
2. Disregard your general impression of the employee and concentrate on one factor at a time.
3. When rating an employee, call to mind instances that are typical of his/her work and way of acting. Do not be influenced by UNUSUAL SITUATIONS which are not typical.
4. Make your rating with the utmost care and thought be sure it represents a fair and square opinion. **DO NOT ALLOW PERSONAL FEELING TO GOVERN YOUR RATING.**
5. After you have rated the employee on all factors, write at the bottom of the sheet any additional information about the employee which you feel has not been covered by the rating report, but which is essential to a fair appraisal.

Knowledge of work	Practically none	Below average	Acceptable knowledge	Somewhat above average	Well informed	Extremely well informed
Effect on Workers	Often breeds trouble and dissatisfaction	Sometimes causes dissension	No outstanding effects on co-workers	Better than average	Promotes cooperation and good will	Outstanding for loyalty and cooperation
Promptness	Always tardy	Must be reminded occasionally	Usually prompt	Never late without good excuse	Almost never late	Always prompt
Responsibility	Careless and negligent	Not very reliable	Accepts responsibility when asked	Accepts responsibility w/o being told	Accepts responsibility Above Average	Exceptionally reliable
Accuracy	Is highly inaccurate	Is often inaccurate	Makes occasional errors	Somewhat above average	Rarely makes mistakes	Never makes mistakes
Quantity of Work	Amount of work unsatisfactory	Turns out just enough To get by	Turns out fair amount	Always finishes allotted amount	Turns out more than average amount	Consistently outputs unusually large amount
Initiative	Must always be told what to do	Needs considerable supervision	Needs direction and help in some cases	Needs little supervision	Pushes work through on own initiative	Always finds extra work to do
Application	Indifferent and lazy	Tendency toward indifference	Average application	Interested and diligent	Puts extra effort into work	Works continuously and enthusiastically
Possibilities for promotion	None	Lacks some necessary traits	Good enough for present job	Improving self through study	Has great future possibilities	Is promotable now
Ability to handle public	Difficult personality	Likely to antagonize people	Hesitant and diffident	Pleasant and courteous	Ingenious and tactful	Unusual personality and aptitude

Overall Rating: Excellent Very Good Average Marginal Poor

Has this evaluation been discussed with the student? Yes No

Additional Information: _____

Supervisor Signature _____ Date _____

Student Name _____

form 4

Student Evaluation of Learning Objectives

Instructions - Read Carefully

Please rate the employee according to how well he/she achieved each learning objective according to the following rating scale:

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2 = Limited accomplishment

3 = Average or expected accomplishment

4 = Exceeds average performance

5 = Unique or outstanding performance

Please write/type learning objectives below or attach a sheet listing objectives.

Learning Objectives	Rating
1	
2	
3	
4	
5	

Student's Signature _____ Date _____

Student Evaluation of Student Performance

Instructions - Read Carefully

This rating sheet provides a practical method through which the ability of the individual can be judged with a reasonable degree of accuracy and uniformity. Indicate your opinion of this employee by placing a **X** on the phrase in the block which seems best to fit the employee. If you can't make up your mind between two phrases, place your **X** in the narrow space between two blocks. Please follow instructions carefully.

- Use your own independent judgment.
- Disregard your general impression and concentrate on one factor at a time.
- When rating an yourself, call to mind instances that are typical of your work and way of acting. Do not be influenced by UNUSUAL SITUATIONS which are not typical.

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Possibilities for promotion	None	Lacks some necessary traits	Good enough for present job	Improving self through study	Has great future possibilities	Is promotable now
Ability to handle public	Difficult personality	Likely to antagonize people	Hesitant and diffident	Pleasant and courteous	Ingenious and tactful	Unusual personality and aptitude

Overall Rating: Excellent Very Good Average Marginal Poor

Time and Work Verification

In order to justify credit awarded, each student must verify the total number of hours worked. Complete the following:

Rate of Pay _____ Total Hours Worked _____ Total Wages Earned _____

Student Signature: _____ Date: _____

Confidential Student Evaluation of the Work Experience

Please type or print your responses to the following questions regarding your work experience during this past work period. Make additional comments if you wish. The purpose of the form is to provide opportunity for frank appraisal of the job location in the interests of the employer and future students.

Criteria	Excellent	Good	Average	Poor	Very Poor	No Observation
1. Work experience relates to field of study						
2. Adequacy of employer supervision						
3. Helpfulness of supervisor						
4. Cooperativeness of fellow workers						
5. Opportunity to use academic learning						
6. Opportunity to develop human relations skills						
7. Provided levels of responsibility consistent with student ability and growth						
8. Opportunity to develop communication skills						
9. Opportunity to develop creativity skills						
10. Opportunity to solve problems						
11. Opportunity to develop critical thinking skills						
12. Helpfulness of faculty coordinator						
13. Overall evaluation of Co-op experience						

14. Did you share this evaluation with your employer/supervisor? Yes No
15. Would you work for this organization again? Yes No
16. Would you recommend the Cooperative Education Internship Program to other students? Yes No
17. List ways you have benefited from this experience.

18. What did you learn about yourself, personally, as a result of this experience?

19. If you were to make one suggestion to improve the Cooperative Education Internship Program, what would it be?

20. Additional Comments:

Please email your responses to donna.crow@usu.edu or turn this form in with your final report.

Student Name _____ Student ID _____ Date _____

Major _____ Faculty Co-op Coordinator _____

Company/Business _____ Immediate Supervisor's Name _____

Work Address _____

Individualized Class Assessments

Core courses for AAS and One-year certificate AMT students include ASTE 1615 and ASTE 1625. These courses address skill competency development using laboratories and individualized projects. Course data on student achievements are documented below.

<u>GPA</u>	<u>Term</u>	<u>Course Number</u>
2.7	Fall 2012	ASTE 1615
3.5	Fall 2009	ASTE 1615
4.0	Fall 2010	ASTE 1615
3.8	Fall 2013	ASTE 1615
3.9	Fall 2011	ASTE 1615
4.0	Fall 2014	ASTE 1615
4.0	Fall 2015	ASTE 1615

<u>GPA</u>	<u>Term</u>	<u>Course Number</u>
3.4	Spring 2010	ASTE 1625
3.2	Spring 2011	ASTE 1625
3.6	Spring 2012	ASTE 1625
3.6	Spring 2013	ASTE 1625
3.7	Spring 2014	ASTE 1625
3.6	Spring 2015	ASTE 1625
3.5	Spring 2016	ASTE 1625

Alumni Surveys

Job skill competencies in need of improvement were ranked from high to low using the \bar{x}_{MWDS} . Conflict resolution was the construct in most need of improvement ($\bar{x}_{\text{MWDS}} = 1.64$); followed by communicating ideas to others ($\bar{x}_{\text{MWDS}} = 1.61$); and responding positively to constructive criticism ($\bar{x}_{\text{MWDS}} = 1.48$). Solving problems and setting priorities ($\bar{x}_{\text{MWDS}} = 0.82$) were the competencies least in need of improvement.

Alumni Perceptions of Employability Competencies (n = 101)

Rank	Competency	MWDS	Importance		Competence	
			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
1	Conflict Resolution	1.64	3.59	0.62	3.11	0.73
2	Communicating ideas to others	1.61	3.77	0.45	3.37	0.66
3	Responding positively to constructive criticism	1.48	3.63	0.51	3.20	0.67
4	Adapting to situations of change	1.28	3.68	0.51	3.32	0.67
5	Time Management	1.26	3.66	0.52	3.27	0.60
6	Recognizing alternative routes in meeting objectives	1.12	3.57	0.57	3.23	0.67
7	Recognizing the effects of decisions made	1.01	3.55	0.56	3.32	0.72
8	Solving Problems	0.82	3.71	0.50	3.52	0.58
9	Setting Priorities	0.82	3.62	0.57	3.40	0.61

Data based Decisions

As program design focuses on preparing students who are knowledgeable, competent, and who possess good communication and interpersonal skills (Doerfort, 2011), it is essential that perceptions of those who have completed the program and are currently working be explored. Results suggest that AMT program benefits from using the diverse talents and abilities of faculty from various program emphases.

Job skill competencies in need of improvement were ranked from high to low using the \bar{x}_{MWDS} . Conflict resolution was the construct in most need of improvement ($\bar{x}_{MWDS} = 1.64$); followed by communicating ideas to others ($\bar{x}_{MWDS} = 1.61$); and responding positively to constructive criticism ($\bar{x}_{MWDS} = 1.48$). Solving problems and setting priorities ($\bar{x}_{MWDS} = 0.82$) were the competencies least in need of improvement.

Strengths

Strengths of the program include:

- Faculty expertise in managing agricultural operations, machinery and businesses
- Support from intermountain equipment dealers
- Industry manufacturer support for current agricultural technology, laboratory teaching aids, and teaching facilities
- Strong introductory program with options to continue studies in Agricultural Systems Technology or Agricultural Education

Weaknesses

Weaknesses of the program include:

- Limited space for accommodating large machinery for instructional purposes
- Limited storage for laboratory teaching aids
- Lack of strategic interactions with industry partners regarding internships

Recommendations

Recommendations for the program include:

- Reorganization of laboratory policies for storage and reallocation of outdated surplus of teaching aids
- Curriculum alignment for emphasis to provide seamless transition for transfer students
- Build and maintain relationships with industry partners for internships