

MICHIGAN STATE UNIVERSITY

October 24, 2014

MEMORANDUM

TO: Dr. Douglas Estry, Associate Provost for Undergraduate Education
and Dean of Undergraduate Studies

FROM: Dr. John Gaboury, Associate Provost for Academic Services

RE: Request for a New Agricultural Technology Certificate in
Agricultural Operations

For Transmittal to the University Committee on Undergraduate
Education (UCUE)

The request referenced above is being sent to the University Committee on Undergraduate Education (UCUE) in accordance with the *Bylaws for Academic Governance*, 4.4.

UCUE Response Requested:

Please ask the committee to consider the request referenced above and provide consultative commentary. Please mail the related materials referenced under the heading Attachments at the end of this memorandum to the committee members.

After receiving the committee's consultative response, the Provost will make a determination to forward or not to forward the request to the University Committee on Curriculum for its approval of curriculum and degree requirements.

If you have any questions, please call Joy Speas, University Curriculum Administrator, at 5-8420.

Thank you.

Attachments:

1. Request to Establish a New Academic Program form dated October 5, 2014: Agricultural Technology Certificate in Agricultural Operations and attachments.

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University Curriculum and Catalog

Hannah Admin. Building
426 Auditorium Road
Room 151A
East Lansing, MI 48824

517-355-8420
Fax: 517-353-1935

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

1. Request to establish an **Agricultural Technology Certificate in Agricultural Operations** in the Institute of Agricultural Technology. The University Committee on Undergraduate Education (UCUE) will consider this request.

- a. **Background Information:**

Certificate programs in the areas of horticulture were developed and launched as off-campus programs in the mid-1990s. The Institute of Agricultural Technology has successfully operated these programs since. There are currently no programs available for individuals interested in general agricultural operations. Changes in these industries now warrant a program in this area to be offered. There is a need to provide agricultural management educational training to traditional and non-traditional students that cannot participate in face-to-face campus-based programs due to family and work obligations. With continued growth in this industry, there is a need for trained and skilled workers.

- b. **Academic Programs Catalog Text:**

The Agricultural Operations program provides students with a solid background in plant and soil science, precision agriculture, water management, entomology, plant pathology and business management. It exposes students to exciting opportunities available in the industry.

Requirements for Agricultural Operations

CREDITS

Students must complete 55 credits from the following:

1. All of the following courses (30 credits):

ABM	130	Farm Management I	3
AE	131	Agricultural Water Resource Management	3
AE	143	Application of Precision Agriculture Technologies	3
AT	202	Agricultural Regulation, Compliance and Safety	3
AT	293	Professional Internship in Agricultural Technology	3
CSS	101	Introduction to Crop Science	3
CSS	105	Agricultural Industries Seminar	1
CSS	135	Crop Scouting and Investigation	2
CSS	210	Fundamentals of Soil Science	3
ENT	110	Applied Entomology of Economic Plants	3
PLP	200	Plant Diseases and Their Pathogens	3
2. Completion of a minimum of 4 additional elective credits in the college as approved by the program coordinator in the Institute of Agricultural Technology.
3. Completion of 21 credits of additional course work through Northwestern Michigan College. All course work must be approved by the program coordinator in the Institute of Agricultural Technology.

Effective Fall 2015

View a Program		Main Menu
Joy Speas, RO	Monday, 10/6/2014	
Program Name: Agricultural Operations Degree: ATCT Sequence Number: 1	Program Request ID: 2769	
Effective Dates: Fall 2015 - Open Status: Interim Initial Action: New		
Requested Date: 9/11/2014 4:19:32 PM		
<p>1. Department/School/College: 02042 Institute of Agricultural Technology</p> <p>2. Name of Program: Agricultural Operations</p> <p>3. Name of Degree: ATCT</p> <p>4. Type of Program: Major</p> <p>5. Effective Start Semester: Fall 2015</p> <p>6. Target student audience for the program: Post-secondary students desiring technical education in agriculture.</p> <p>7. Enrollment: What is the expected enrollment per year: 15 What is the minimum enrollment acceptable: 10</p> <p>8. Source of budget for the program: To align academic planning and curricular change, ALL requests for NEW funds must be included in the College's annual planning letter. Provost approval of new funds and the effective date for the new program must align. If funding is not approved, then the program request will not be forwarded to Faculty Senate. Internal reallocation If new funds, was this request included in the College's annual planning letter? Indicate yes or no. If no, then this is a department or college fund reallocation (If the program is implemented, no additional resources are required.).</p> <p>9. Projected Costs as compared to other programs in unit: Same</p> <p>10. Staff requirement: How many additional staff will be required: 0 Who will provide the primary instruction. Describe any external linkages(industry,</p>		

government, etc.):

Departments in the College of ANR.

11. Will additional equipment be required:

Approximate cost: 0

Source of funding:

12. Will additional library materials be required:

Approximate cost: 0

Source of funding: No additional library resources will be needed.

13. Will additional space be required:

Type:

Approximate amount:

14. If the program requirements contain a named concentration, do you wish for the concentration to be noted on the student's transcript?:

No

15. Detailed Description:

a. Background information including the considerations, which precipitated the development of the program, and its relationship to similar programs offered at MSU and by other educational institutions. Supply a copy of standards of accrediting agencies and federal regulations related to the request as appropriate.

Certificate programs in the areas of horticulture were developed and launched as off campus programs in the mid 1990's. There are currently no program available for individuals interested in general agricultural operations. Changes in the agricultural industry now warrant a the programs in this area. Industry stakeholders as well as collaborating community college partners were brought in as advisory committee to develop this program.

b. Rationale for offering the program at MSU.

There is a need to provide agricultural management educational training to traditional and non-traditional student that cannot participate in face-to-face campus based programs due to their family or work obligations. The aforementioned industries currently employ many professionals that have no formal academic training in their respective industry. In addition the industry is seeing growth and have a need for trained and skilled workers. Many industry professionals and those seeking a job would like an opportunity further their education. A certificate from MSU will provide an opportunity for individual to secure additional credibility in their respective industry.

c. Rationale for the program being housed in the primary administrative unit.

The Institute of Agricultural Technology is the administrative unit for certificate programs in CANR and a number of different Departments in the College will provide the course work for the Agricultural Operation Program.

d. Educational objectives of the program and their relationship to those of the college and the University.

Students will be able to:

- *demonstrate plant growth, development, and management in agriculture systems.*
- *apply practical skills in management of plant systems, including entomology and pathology.*
- *demonstrate principles of soil science, including those specific principles in soil texture, fertility and interpretation of soil report.*
- *manage water conservation and management practices.*
- *interpret and integrate concepts related to regulations and compliance at the local, State and federal level.*
- *apply precision agricultural technologies.*
- *demonstrate professionalism and proficiency in oral and written communication skills.*

e. Faculty who were instrumental in developing the program and faculty who will be responsible for implementing the program (see item 10).

Dr. Randy Showerman and Brian Matchett

f. Plan for evaluating the program. Plan for assessing student outcomes. For academic major programs, indicate the learning objectives/goals for students and how outcomes will be assessed. Visit <http://www.reg.msu.edu/Read/UCC/assessfrm.doc> to complete the outcomes assessment form and include with the program submission.

Michigan State University

Assessing Student Outcomes

College: Agriculture & Natural Resources

Department: Institute of Agricultural Technology & Department of Horticulture

Program or Major: Agricultural Operations

Program Level: Certificate

Contact Person: Randy Showerman

Inventory of Written Statements and Plans

1. Do you have a written mission statement or statement of purpose? **yes** **no**
If yes, please attach a copy or reference where this can be found:

To educate and develop students who are seeking a career in the fruit and vegetable horticulture industries using research-based and industry-applicable information so they will be recognized and successful contributors within their respective careers; to increase student opportunities for employment, profitability and personal satisfaction in the fruit and vegetable horticulture industries.

2. Do you have a written statement of intended educational outcomes **yes** **no**
describing what a student should know or be able to do when they
have completed this program?
3. Do you have a written method of assessment for measuring student **yes** **no**
outcomes?
4. Does your program have a separate accreditation process? **yes** **no**
If yes, please list all accrediting agencies below:

Assessment Methodologies

It is likely that some assessment measures are already in place in this program even if they are not identified as being part of a formal assessment plan. Listed below are some of the assessment methodologies you may be using. Indicate "A" if the method is currently being used; "B" if it is **not** being used but you are interested in using it; and "C" if the method of assessment does not apply to your program.

Direct Methods of Assessment

1. C Comprehensive Examinations
2. C Writing proficiency Examinations
3. C National Examinations assessing subject matter knowledge
4. C Graduate Record Exam General Test

5. C Graduate Record Exam Subject Test
6. A Certification Examinations
7. A Licensure Examinations
8. A Locally developed pre-test or post-test for subject matter knowledge
9. C Senior thesis or major project
10. C Portfolio evaluation of student work
11. A Capstone courses
12. C Audio or Video tape evaluations

Indirect Methods of Assessment

1. A Comparison or benchmarking with peer institutions
2. A Job placement of graduates
3. A Employer surveys
4. A Advisory groups from your profession
5. C Graduate school acceptance rates
6. A Student graduation/retention rates
7. A Exit interviews with students graduating or leaving the program
8. A Student satisfaction surveys
9. A Student course evaluations
10. A Focus group discussions
11. A Alumni surveys
12. C Alumni honors, awards, achievements
13. A Analysis of grade distributions
14. A Peer review of courses
15. A Peer review of program
16. A Curriculum/syllabus analysis
17. A Community service/volunteerism participation
18. Other:

Does your program have an experiential learning component? yes no
 If yes, how do you assess the student learning outcomes from that experience?

1. A Participate in a class designed to complement the experience
2. C Student journals
3. A Formal evaluation procedures from field-based supervisor
4. A Formal meetings between supervisor, student, and faculty
5. C Formal test of practical skills
6. A Other: Presentation of internship experience to incoming freshman

Implementation Plans

1. How has your department used any of the indicators above to improve services and

programs for students?

Results of (Student Instructional Rating System) are discussed between the Department Chair and each individual teaching faculty member during an annual evaluation. Exit evaluations are conducted semi-annually with upper division students and results are discussed with faculty directly involved in the teaching of a specific class and with members of the Undergraduate Programs Committee. Positive and negative scores and/or comments are discussed with individual faculty with an emphasis on strengthening classroom material and student involvement in the learning process. These exercises increase the effectiveness of teaching and learning within the Horticulture department.

2. When you think about developing and implementing an assessment plan, what concerns do you have?

Time and money involved to assess practical skills. For example, it takes a lot of time to set up and test individual students on their ability to construct a hoop house or install an irrigation system. The equipment and materials must be available.

Once the students graduate from our programs, it is difficult in many cases to keep in contact with them to uniformly assess how our programs have prepared them for their careers. It is also a time consuming process, so allotting sufficient time each year (or every 3 to 5 years) to collect the data can be challenging.

**Return this form to: Kelly Funk
221 Administration Building**

Assessing Student Outcomes modified and used with permission, Dr. Sharron L. Ronco,
Florida Atlantic University

g. Program description including statement and specific requirements of the program as they will appear in the University catalog. Information contained in the catalog represents a University contract with students. Any deviation from college and University policies must be specifically requested. For a master's degree program, indicate whether Plan A (thesis) or B (non-thesis) or both will be available.

In response to the agricultural industry need for skilled professionals, Michigan State University is partnering with communities colleges to offer a combined program that will enable students to complete an MSU Certificate in Agricultural Operations from the Institute of Agricultural Technology and an Associate's Degree from the community college. The Certificate is made up of both MSU and community college courses that are all available locally and therefore not requiring students to travel to East Lansing.

The certificate program in Agricultural Operations is directed toward preparing students for a rewarding career as agricultural industry. Courses are practical in nature and focus on the basic knowledge and skills needed to be successful in all types of agricultural systems. There is a high demand for technically trained personnel to manage local agricultural businesses, scout for pest, develop management plans and run machinery.

The Agricultural Operations program provides students with a solid background in plant and soil science, precision agriculture, water management, entomology, plant pathology and business management. This program exposes students to the many exciting opportunities that are available in the industry. The program attempts to create enthusiasm and passion for the agricultural industry in each student.

Agricultural Operations

MSU Courses

Required – All of the following MSU courses (30 credits total):

ABM	130	Farm Management I	(3 Cr)
AE	131	Agricultural Water Resource Management	(3 Cr)
AE	143	Application of Precision Agriculture Technologies	(3 Cr)
AT	202	Agricultural Regulation, Compliance and Safety Course	(3 Cr)
AT	293	Professional Internship in Agricultural Technology	(3 Cr)
CSS	101	Introduction to Crop Science	(3 Cr)
CSS	105	Agricultural Industries Seminar	(1 Cr)
CSS	135	Crop Scouting and Investigations	(2 Cr)
CSS	200 10	Fundamentals of Soil Science	(3 Cr)
ENT	110	Applied Entomology of Economic Plants	(3 Cr)
PLP	200	Plant Diseases and Their Pathogens	(3 Cr)

A minimum of 4 additional CANR credits must be completed with approval from the Program Coordinator

Community College Partner Courses

Required – Complete 21 credits from a community college partner as approved by the Program Coordinator.

TOTAL CREDITS REQUIRED FOR GRADUATION = 55

i. If the program will be offered in a location other than the main campus in East Lansing, specify the location (s).

This program will be offered off campus at Northwestern Michigan College (NMC), in Traverse City and other community colleges as the partnerships are developed.

j. List the name and describe any certificate program that is associated with a new or extant degree program.

- Explain the relationship between the certificate program and a new or extant degree program.
- If a certificate program is being proposed that is related to a degree program, please explain how the department/school/college will learn that the supervising faculty have endorsed the potential certificate holders as possessing specified skills or competency levels that render them eligible to receive the certificate and the degree.

N/A

k. Other information that will assist the Provost and the University-level committees in

evaluating the request.

None

16. Are there admissions requirements for this program?:

Grade or grade-point average requirements and if so in which course(s), portfolio requirement, audition, essay, etc. If there are not admission requirements other than those required by the University policy indicate "none".

High school diploma or equivalent with a 2.0 GPA.

DEPARTMENT LEVEL APPROVAL STATUS

Approved: Institute of Agricultural Technology
10/2/2014 2:15:25 PM by Randy Showerman for Randy Showerman, Director

SIGNOFFS STATUS

Signed Off: Department of Agricultural, Food, and Resource Economics
10/3/2014 3:52:34 PM by James Hilker for Steven Hanson, Chairperson

Signed Off: Department of Biosystems and Agricultural Engineering
10/3/2014 2:32:57 PM by Barbara Delong for Ajit Srivastava, Chairperson

Signed Off: Department of Entomology
10/2/2014 2:23:22 PM by Heather Lenartson-Kluge for Douglas Landis, Acting Chairperson

Signed Off: Department of Plant, Soil and Microbial Sciences
10/2/2014 3:10:26 PM by Taylor Johnston for James Kells, Chairperson

COLLEGE LEVEL APPROVAL STATUS

Approved: College of Agriculture and Natural Resources
10/5/2014 2:37:07 PM by Kelly Millenbah for Kelly Millenbah, Associate Dean

Comments: CSS 200 should be CSS 210 (name of course is correct, number incorrect)

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MSU is an affirmative-action, equal-opportunity employer.

Addendum to
Consortium Agreement between
Michigan State University
College of Agriculture and Natural Resources
Institute of Agricultural Technology
And
Northwestern Michigan College

Whereas, Michigan State University's College of Agriculture and Natural Resources (MSU CANR) and Northwestern Michigan College (NMC) entered into a Consortium Agreement (the "Agreement"), effective as of June 13, 2013, regarding inter-institutional programs in Applied Plant Science and Viticulture;

Whereas, section 11 of the Agreement allows the parties, upon mutual agreement, to add additional MSU Institute of Agriculture Technology (IAT) certificates; and

Whereas, the parties desire to add the following IAT certificate programs:

1. Agricultural Operations
2. Fruit and Vegetable Crop Management
3. Landscape Management
4. Applied Horse Science

The curriculum for the certificate programs shall be as set forth on the attachments to this addendum.

Now, therefore, in support of the additional certificate programs, Michigan State University and Northwest Michigan College hereby agree to add the additional certificate programs to the Agreement. This addendum will take effect upon the last dated signature below.

[Signatures Appear on Next Page]

**MICHIGAN
UNIVERSITY**

STATE

**NORTHWESTERN
COLLEGE**

MICHIGAN

June Pierce Youatt
Provost and Executive Vice President
for Academic Affairs
Date:

Timothy Nelson
President
Date:

**COLLEGE OF AGRICULTURE
AND NATURAL RESOURCES**

Name:
Title:
Date:

**INSTITUTE OF
AGRICULTURAL
TECHNOLOGY**

Name:
Title:
Date:

Agricultural Industries

One of every six jobs in the American economy is related to agricultural and food businesses. The curriculum in the Agricultural Industries program is designed to provide students with the technical and business skills necessary to be successful in any of these related fields. Career opportunities range from managing a farm or business (cash crop, animal, or fruit/vegetable) to working in the banking or farm credit industries. Ample opportunities are available in the management of farm supply stores or cooperatives, in agricultural input sales, in the insurance field, or in a number of agricultural processing and manufacturing industries.

The Agricultural Industries program allows students to customize their educational program to fit their own personal career goals. This program has two main areas of study – agronomy and business. However, the student who has an interest in the animal industry may obtain foundational knowledge in the species of his/her choice.

Requirements for Agricultural Industries

CREDITS

The student must complete 48 credits from the following:

1. All of the following courses (30 to 33 credits):
 - ABM 100 Decision-making in the Agri-Food System 3
 - ABM 130 Farm Management I 3
 - AT 045 Agricultural Communications 2
 - AT 055 Agricultural Finance 3
 - AT 071 Technical Mathematics 2
 - AT 291 Selected Topics in Agricultural Technology 2
 - AT 293 Professional Internship in Agricultural Technology 3 to 6
 - CSS 101 Introduction to Crop Science 3
 - CSS 105 Agricultural Industries Seminar 1
 - CSS 110 Computer Applications in Agronomy 2
 - CSS 120 Agricultural Industry Issues 3
 - CSS 302 Principles of Weed Management 3
2. One of the following courses (3 credits):
 - ABM 222 Agribusiness and Food Industry Sales (W) 3
 - ABM 225 Commodity Marketing I 3
3. Complete 12 to 15 credits from the following:
 - AE 150 Metal Fabrication Technology 2
 - AE 252 Gasoline and Diesel Engine Technology 3
 - AE 261 Principles of Animal Environments 2
 - ANS 110 Introductory Animal Agriculture 4
 - ANS 141 Draft Horse Basics 2
 - ANS 200A Introductory Judging of Livestock or Carcass 1 or 2
 - ANS 203 Principles of Livestock Feeding 2
 - ANS 205 Reproduction in Livestock 2
 - ANS 211 Animal and Product Evaluation 3
 - ANS 222 Introductory Beef Cattle Management 3
 - ANS 232 Introductory Dairy Cattle Management 3
 - ANS 272 Introductory Swine Management 3
 - AT 291 Selected Topics in Agricultural Technology 2 to 6
 - CSS 124 Introduction to Sustainable Agriculture and Food Systems 1
 - CSS 135 Crop Scouting and Investigation 2
 - CSS 151 Seed and Grain Quality 2
 - CSS 201 Forage Crops 3
 - CSS 210 Fundamentals of Soil Science 3
 - CSS 212 Advanced Crop Production 2
 - CSS 222 New Horizons in Biotechnology 2
 - CSS 251 Organic Farming Principles and Practices 3
 - CSS 294 Issues in International Agriculture 1
 - ENT 111 Basics of Applied Entomology 2
 - HRT 203 Principles of Horticulture 3
 - HRT 205 Plant Mineral Nutrition 1
 - HRT 206 Training and Pruning Plants 1
 - HRT 335 Berry Crop Production and Management 1
 - HRT 341 Vegetable Production and Management 3
 - PLP 105 Fundamentals of Applied Plant Pathology 2
 - TSM 343 Principles of Precision Agriculture 3

Insert (1)

Applied Plant Science

AGRICULTURAL OPERATIONS

The Agricultural Operations program provides students with a solid background in plant and soil science, precision agriculture, water management, entomology, plant pathology and business management. It exposes students to exciting opportunities available in the industry.

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CSS	105	Agricultural Industries Seminar	1
CSS	135	Crop Scouting and Investigation	2
CSS	210	Fundamentals of Soil Science	3
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2. Completion of a minimum of 4 additional elective credits in the college as approved by the program coordinator in the Institute of Agricultural Technology.
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