

# 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 Fruit and  
Vegetable Crop Management

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 September 19, 2014: Agricultural Technology Certificate in Fruit and Vegetable Crop Management 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 Fruit and Vegetable Crop Management** in the Institute of Agricultural Technology. The University Committee on Undergraduate Education (UCUE) will consider this request.

- a. **Background Information:**

Michigan's fruit and vegetable industry contributed \$1.4 billion to the Michigan economy in 2012. There is a high demand for experienced individuals who have technical and practical knowledge in the fruit and vegetable crop management industries across the state, and the country. More people than ever are focusing on local agriculture, and seeking educational programs that encompass the management of horticultural food crops. The two-year certificate program focuses on fruit and vegetable crop management satisfying the needs of both the students and the industries in need of educated, trained professionals.

Michigan State University is home to the oldest Horticulture program in the country, MSU's horticulture graduates are highly sought after by industry leaders because of the excellent knowledge and hands-on experience. MSU's programs are locally and internationally renowned. Through the long-standing horticulture research and teaching programs, relationships between industry and faculty have been strengthened. The results of decades of research conducted around the state have been shared with members of industry and have promoted communication, interaction, and loyalty to MSU. Because MSU is a leader in horticulture teaching and research, this program is a perfect fit to continue building strong relationships with Michigan's horticultural industries.

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

The Fruit and Vegetable Crop Management program provides students an opportunity to apply practical knowledge and training on the selection, use, and management of fruit and vegetable crops. The program combines classroom instruction and theory with practical experience gained through field laboratories and a professional internship. Graduates of the program are prepared for careers in the fruit and vegetable industry.

### **Requirements for Fruit and Vegetable Crop Management**

CREDITS

Students must complete 48 credits from the following:

1. All of the following courses (20 credits):

	AT	202	Agricultural Regulation Compliance and Safety	3
	AT	293	Professional Internship in Agricultural Technology	3
	CSS	210	Fundamentals of Soil Science	3
	ENT	110	Applied Entomology of Economic Plants	3
	HRT	206	Training and Pruning Plants	1
	HRT	207	Horticulture Career Development	1
	HRT	218	Irrigation Systems for Horticulture	3
	PLP	200	Plant Diseases and Their Pathogens	3
2. Completion of 7 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 Summer 2015

<b>View a Program</b>		<b>Main Menu</b>
Joy Speas, RO	Friday, 9/19/2014	
<b>Program Name: Fruit and Vegetable Crop Management</b> <b>Degree: ATCT Sequence Number: 1</b>	Program Request ID: 2689	
<b>Effective Dates: Spring 2015 - Open Status: Interim Initial Action: New</b>		
<b>Requested Date: 4/16/2014 10:06:58 AM</b>		
<p><b>1. Department/School/College:</b> 02042 .... Institute of Agricultural Technology</p> <p><b>2. Name of Program:</b> Fruit and Vegetable Crop Management</p> <p><b>3. Name of Degree:</b> ATCT</p> <p><b>4. Type of Program:</b> Major</p> <p><b>5. Effective Start Semester:</b> <del>Spring 2015</del> <i>Summer</i></p> <p><b>6. Target student audience for the program:</b> Post-secondary students desiring technical education in fruit and vegetable prod</p> <p><b>7. Enrollment:</b> <b>What is the expected enrollment per year: 15</b> <b>What is the minimum enrollment acceptable: 10</b></p> <p><b>8. Source of budget for the program:</b> 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><b>9. Projected Costs as compared to other programs in unit:</b> Same</p> <p><b>10. Staff requirement:</b> How many additional staff will be required: 0  Who will provide the primary instruction. Describe any external linkages(industry,</p>		

government, etc.):

**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: Department currently is offering programs related to this one.

**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 Commercial Horticulture Operations and Landscape Horticulture, were developed and launched as off campus programs in the mid 1990's. IAT in collaboration with the Department of Horticulture have successfully operated these programs since. Changes in the Commercial Horticulture and Landscape Horticulture industries over the past 15 years now warrant changes in the programs that are offered through our off campus programs; thus we are proposing changes to the titles, course requirements and structure of our programs. Industry stakeholders from the fruit and vegetable, landscape and viticulture industries as well as collaborating community college partners were brought in as advisors as the program changes were identified.*

b. Rationale for offering the program at MSU.

*There is a need to provide fruit and vegetable crop management educational training to traditional and non-traditional students 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 fruit and vegetable 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 individuals 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 the Department of Horticulture is the academic department for the proposed Fruit and Vegetable Crop Management Program.*

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

1. *Student will be able to apply practical knowledge and training on the selection, use, and management of fruit and vegetable crops.*
2. *Student will be able to describe basic and working knowledge of plant growth, development, and identification.*
3. *Students will prepare students for careers in the fruit and vegetable industry.*

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; Susan Gruber; Marcus Duck; Stacey Rocklin; 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

1

College:	Agriculture & Natural Resources
Department:	Institute of Agricultural Technology & Department of Horticulture
Program or Major:	Fruit and Vegetable Crop Management
Program Level:	Certificate
Contact Person:	Brian Matchett and Stacey Rocklin

#### 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.

Oral surveys of the Horticulture Industry Advisory Committee and the Department Alumni Association were compared with input from the Horticulture Organization of Graduate Students, Horticulture Club, and exit interviews of graduating seniors conducted by the Department Chair. Special consideration is given to how the mission of the department meets the needs of students and industry. Students have given specific feedback on coursework in the areas of increasing the information on sustainable horticulture systems in order to better prepare them for the need to be better environmental stewardship with in the horticulture industry.

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.

*per Randy Showerman  
10-20-14*

*Employment and career opportunities continue to expand for those who have training and educational preparation in applied plant sciences. In response to this regional plant industry need in Northwestern Michigan College, (NMC) and Lake Michigan College (LMC) partner with Michigan State University to offer a combined program, which enables students to complete an Associate of Applied Science degree through Northwestern Michigan College or Lake Michigan College as well as an MSU Institute of Agricultural Technology certificate - without leaving their local area.*

*Bringing together the world-acclaimed expertise of Michigan State University's College of Agriculture and Natural Resources and the "close to home" convenience*



*of outstanding community colleges, the Fruit and Vegetable Crop Management program prepares graduates for a wide range of employment and career choices. Each student receives personal, one-on-one help in selecting her/his program of study (including workplace internship). Students may continue their course work to obtain an Associate in Applied Science Degree from the community college partners in addition to the certificate from Michigan State University. Should students wish to continue their education, the appropriate pre-designated credits may be applied to a bachelor's degree program at Michigan State University if students meet the established transfer guidelines.*

**Fruit and Vegetable Crop Management**

**MSU Courses**

**Required – All of the following MSU courses (20 credits total):**

AT	202	Agricultural Regulation, Compliance and Safety.....	3
AT	293	Professional Internship in Agricultural Technology.....	3
CSS	210	Fundamentals of Soil Science.....	3
ENT	110	Applied Entomology of Economic Plants.....	3
HRT	206	Training and Pruning Plants.....	1
HRT	207	Horticulture Career Development.....	1
HRT	218	Irrigation Systems for Horticulture.....	3
PLP	200	Plant Diseases and Their Pathogens.....	3

**A minimum of 7 additional IAT approved CANR credits must be completed with approval from the Program Coordinator 7**

**Community College Partner Courses**

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

**TOTAL CREDITS REQUIRED FOR GRADUATION = 48**

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 ~~Lake Michigan College (LMC), in Benton Harbor.~~*

*per Randy Showerman 10-20-14*

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  
9/18/2014 9:03:54 AM by Randy Showerman for Randy Showerman, Director

**SIGNOFFS STATUS**

Signed Off: Department of Entomology  
9/18/2014 10:03:21 AM by Heather Lenartson-Kluge for Douglas Landis, Acting Chairperson

Signed Off: Department of Horticulture  
9/18/2014 1:15:40 PM by Susan Gruber for William V. Baird, Chairperson

Signed Off: Department of Plant, Soil and Microbial Sciences  
9/18/2014 9:19:04 AM by Taylor Johnston for James Kells, Chairperson

**COLLEGE LEVEL APPROVAL STATUS**

Approved: College of Agriculture and Natural Resources  
9/19/2014 7:25:39 AM by Kelly Millenbah for Kelly Millenbah, Associate Dean

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**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**

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

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Timothy Nelson  
President  
Date:

**COLLEGE OF AGRICULTURE  
AND NATURAL RESOURCES**

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Name:  
Title:  
Date:

**INSTITUTE OF  
AGRICULTURAL  
TECHNOLOGY**

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Name:  
Title:  
Date:

### ***Electrical Technology***

There is a need for highly trained electricians. Electrical contractors need electricians capable of planning complex wiring and solving difficult wiring problems. Wiring systems today are complex. In some cases, equipment breakdowns must be repaired promptly to avoid devastating losses.

The Electrical Technology program is a complete electrical apprenticeship program recognized by the State Electrical Administrative Board. Graduates of the program receive credit for two years of experience by completing only 15 months of training. Four years of experience are required for the State Journeyman Electrician License Exam.

The program covers residential, farm, commercial, and industrial wiring; single and three phase motors and generators; electrical control systems wiring, design and troubleshooting; lighting system design; electrical system design; heating; animal and human environment control; electrical estimating; and electrical business management.

Insert ①

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### ***Grounds Management***

The Grounds Management certificate is delivered in partnership between Wayne County Community College District and the Michigan State University Institute of Agricultural Technology. It is designed for persons interested in careers managing commercial, private, school, or community athletic facilities and landscapes.

Graduates of the program will receive a certificate from the Michigan State University Institute of Agricultural Technology and will have the opportunity to complete a test to become a certified pesticide applicator with the Michigan Department of Agriculture. Additional course work may lead to a Certificate in Grounds Management from Michigan State University and a Certificate in Facilities Maintenance from Wayne County Community College District, making the graduate more qualified to manage both indoor and outdoor facilities. Students may continue their course work to obtain an Associate in Applied Science Degree from Wayne County Community College District in addition to the certificate from Michigan State University.

### **Requirements for Grounds Management**

The student must complete 50 credits from the following:

1. All of the following courses (25 credits):

AT	291	Special Topics in Agricultural Technology	1
AT	293	Professional Internship in Agricultural Technology	3
CSS	202	The World of Turf	2
CSS	203	Applied Turf Management	1
CSS	210	Fundamentals of Soil Science	3
CSS	269	Turfgrass Strategies: Integration and Synthesis	2
CSS	292	Management of Turfgrass Weeds	3
ENT	111	Basics of Applied Entomology	2
HRT	214	Landscape and Turfgrass Business Operations	2
HRT	218	Landscape Irrigation	3
PLP	104	Applied Plant Pathology for Ornamentals and Turf	3
2. Complete 25 credits of course work from Wayne County Community College District as approved by the student's academic advisor.

**FRUIT AND VEGETABLE CROP MANAGEMENT**

The Fruit and Vegetable Crop Management program provides students an opportunity to apply practical knowledge and training on the selection, use, and management of fruit and vegetable crops. The program combines classroom instruction and theory with practical experience gained through field laboratories and a professional internship. Graduates of the program are prepared for careers in the fruit and vegetable industry.

**Requirements for Fruit and Vegetable Crop Management**

CREDITS

Students must complete 48 credits from the following:

1. All of the following courses (20 credits):
 

AT	202	Agricultural Regulation, Compliance and Safety	3
AT	293	Professional Internship in Agricultural Technology	3
CSS	210	Fundamentals of Soil Science	3
ENT	110	Applied Entomology of Economic Plants	3
HRT	206	Training and Pruning Plants	1
HRT	207	Horticulture Career Development	1
HRT	218	Irrigation Systems for Horticulture	3
PLP	200	Plant Diseases and Their Pathogens	3
2. Completion of 7 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.