

**Career-Technical Credit Transfer (CT)²
Horticulture Career-Technical Assurance Guide (CTAG)
October 18, 2016**

The following courses, indicated by a Career-Technical Articulation Numbers (CTANs), are eligible for post-secondary credit and transfer among Ohio's public secondary career-technical institutions and state institutions of higher education. The SCTAI alignment document with ODE competencies and postsecondary learning outcomes can be found on the ODHE website at <https://www.ohiohighered.org/sctai/ctags>.

CTHOR001 Floral Design and Marketing	Credits: 3 Semester Hours
<p>Advising Notes: In order to access post-secondary college credit for this CTAN, the student must:</p> <ul style="list-style-type: none"> • Matriculate to an institution of higher with a comparable course NO LATER than 3 years after completing the approved secondary program • Successfully complete the ODE secondary course <u>[Floral Design and Marketing (010625)]</u> with a "C" or better, and earn a score of 64 or higher on the "End of Course" examination. 	<p>CERTIFICATE OF AFFIRMATION FORM required for course submission through CEMS. https://www.ohiohighered.org/transfer/ct2/affirmation</p>
CTHOR002 Landscape Maintenance	Credits: 3 Semester Hours
<p>Advising Notes: In order to access post-secondary college credit for this CTAN, the student must:</p> <ul style="list-style-type: none"> • Matriculate to an institution of higher with a comparable course NO LATER than 3 years after completing the approved secondary program • Successfully complete the ODE secondary course <u>[Landscape Hardscapes (010640)]</u> with a "C" or better, and earn a score of 56 or higher on "End-of-Course" examination. 	<p>CERTIFICATE OF AFFIRMATION FORM required for course submission through CEMS. https://www.ohiohighered.org/transfer/ct2/affirmation</p>
CTHOR003 Equipment Operation and Maintenance	Credits: 3 Semester Hours
<p>Advising Notes: In order to access post-secondary college credit for this CTAN, the student must:</p> <ul style="list-style-type: none"> • Matriculate to an institution of higher with a comparable course NO LATER than 3 years after completing the approved secondary program • Successfully complete the ODE secondary course <u>[Landscape Systems Management (010615)]</u> with a "C" or better, and earn a score of 64 or higher on "End-of-Course" examination. 	<p>CERTIFICATE OF AFFIRMATION FORM required for course submission through CEMS. https://www.ohiohighered.org/transfer/ct2/affirmation</p>

CTHOR004 Plant and Horticulture Science	Credits: 3 Semester Hours
<p>Advising Notes: In order to access post-secondary college credit for this CTAN, the student must:</p> <ul style="list-style-type: none"> • Matriculate to an institution of higher with a comparable course NO LATER than 3 years after completing the approved secondary program • Successfully complete the ODE secondary course [Plant and Horticulture Science (010155)] with a “C” or better, and earn a score of 64 or higher on “End-of-Course” examination. 	<p>CERTIFICATE OF AFFIRMATION FORM required for course submission through CEMS. https://www.ohiohighered.org/transfer/ct2/affirmation</p>
CTHOR005 Turf-Grass Management	Credits: 3 Semester Hours
<p>Advising Notes: In order to access post-secondary college credit for this CTAN, the student must:</p> <ul style="list-style-type: none"> • Matriculate to an institution of higher with a comparable course NO LATER than 3 years after completing the approved secondary program • Successfully complete the ODE secondary course [Turf Science and Management (010635)] with a “C” or better, and earn a score of 60 or higher on “End-of-Course” examination. 	<p>CERTIFICATE OF AFFIRMATION FORM required for course submission through CEMS. https://www.ohiohighered.org/transfer/ct2/affirmation</p>

Each CTAN identifies the learning outcomes that are equivalent or common in introductory technical courses. In order for students to receive credit under these agreements, the career-technical secondary programs and the post-secondary institutions must document that their course/program content matches the learning outcomes in the CTANs.

Requirements and Credit Conditions:

1. The receiving institution must have a comparable program, major, or courses approved through submission to the Ohio Department of Higher Education (CT)² approval process for the CTANs listed in this document.
2. Credits apply to courses in the specified technical area at Ohio’s public institutions of higher education, provided that the institution offers courses in the specific technical area. In the absence of an equivalent course, and when the institution offers the technical program, the receiving institution will guarantee to grant and apply an equivalent credit value of the Career-Technical Articulation Number (CTAN) toward the technical requirements of the specific degree/certificate program.
3. The applicant must provide proof to the receiving institution that she/he completed a course or program that has been approved through the (CT)² approval process and that she/he holds the appropriate credential or has passed the end-of-program assessment.
4. A career-technical student seeking credit under the terms of this CTAG must enroll and submit their verification form to the college within three years of completing a career-technical education course or within the currency of the industry certificate or license.
5. A career-technical student who meets all eligibility criteria will receive the credit hour value for the comparable course(s) as offered at the receiving state institution of higher education.
6. The admission requirements of individual institutions and/or programs are unaffected by the implementation of (CT)² outcomes.
7. The transfer of credit through this CTAG will not exempt a student from the residency requirements at the receiving institution.

Secondary Career-Technical students must complete the Horticulture Pathway to be eligible for credit under this CTAG. This pathway is outlined in the Ohio Department of Education’s *Agriculture and Environmental Systems Career Field Technical Content Standards*.

CTHOR001 – Floral Design and Marketing**Credits: 3 Semester Hours**

General Course Description: Students will develop skills in floral design. Basic floral design elements and principles as well as the tools, equipment, and plant materials used in floral design will be emphasized. Holiday, wedding, funeral, and other specialty designs will be created.

Credits: 3 Semester Hours

Learning Outcomes:

1. * Identify and use floral tools, equipment, and supplies safely and correctly
2. * Demonstrate proper techniques to condition handle and store fresh flowers and foliage
3. * Create basic designs including round, triangular, straight line, and curved line variations
4. * Design various seasonal, theme, wedding, sympathy, novelty, and corsage designs
5. * Create a profitable floral design based on customer need
6. * Manage inventory based on budgeting and sales forecasting

****Asterisk Indicates Essential Learning Outcomes***

CTHOR002 – Landscape Maintenance**Credits: 3 Semester Hours**

General Course Description: Principles and practices of landscape maintenance are examined and implemented. Included are proper pruning, planting, preparation mulching, fertilizing, water management, and soil preparation.

Credits: 3 Semester Hours

Learning Outcomes:

1. * Analyze landscape sites for development of a maintenance program
2. * Describe, calculate amounts, and correctly apply a variety of mulches
3. * Assess the pruning needs of a woody plant
4. * Describe and demonstrate proper pruning techniques
5. * Describe and demonstrate proper planting techniques
6. * Evaluate and prepare soil for planting landscape plants
7. * Describe proper water management practices used in the landscape
8. * Describe and demonstrate fertilization application techniques and practices
9. * Demonstrate safe and correct use of large and small hand/power equipment (e.g., shears, shovels, power trimmer/blowers, riding and walk behind mowers, skid steer loaders, truck and trailers, etc.)
10. * Develop a landscape maintenance schedule
11. * Determine landscape maintenance practices according to specific ecosystems characteristics

****Asterisk Indicates Essential Learning Outcomes***

CTHOR003 – Equipment Operation and Maintenance**Credits: 3 Semester Hours**

General Course Description: Students will learn the selection, operation, and maintenance of green industry equipment. Small engine operation, troubleshooting, and overhaul are included along with development of maintenance schedules.

Credits: 3 Semester Hours

Learning Outcomes:

1. * Demonstrate safety rules and regulations
2. * Understand the principles of operation of different types of engines/power sources, and power transfer systems commonly associated with Landscape equipment
3. * Demonstrate proper troubleshooting procedures for green industry equipment
4. * Operate according to the manufacturer specification within operators manual, a variety of industry standard large and small landscape equipment, including; skid loaders, compact utility loaders, trucks and trailers, and zero turn mowers
5. * Develop equipment maintenance schedules

****Asterisk Indicates Essential Learning Outcomes***

CTHOR004 – Plant and Horticulture Science**Credits: 3 Semester Hours**

General Course Description: This course focuses on skills and technologies essential for horticultural plant production. Cultural and sustainable production practices will be examined. Students will apply scientific knowledge of plant development, nutrition, and growth regulation. Environmental aspects of irrigation, chemical application, and soil conservation will be evaluated.

Credits: 3 Semester Hours

Learning Outcomes:

1. * Students will be able to identify plant anatomical structures and describe their physiological functions
2. * Students will be able to identify and classify plants by taxonomy at different stages of growth
3. * Students will compare and contrast sexual and asexual reproduction, and apply basic methods for propagating plants
4. * Students will understand basic plant nutrition and identify the causes and symptoms of nutrient deficiencies, and select methods of supplementing the required nutrients
5. * Students will determine optimum management practices for plant growth
6. * Students will understand the fundamentals of plant genetics, diversity, and gene pool

****Asterisk Indicates Essential Learning Outcome***

General Course Description: Principles of science and engineering will be delivered through the establishment, culture and maintenance of lawns, athletic and recreational turf. Experience is gained in propagation, care, and production of turf-grass. Students will learn to practice safe operation and maintenance of specialized equipment. Environmental awareness and conservation practices will be exercised.

Credits: 3 Semester Hours

Learning Outcomes:

1. * Analyze the structure of the turf-grass plant as it relates to growth, recommended uses and maintenance requirements
2. * Compare and contrast methods of establishing turf grass for lawns, athletics, and recreational uses
3. * Calculate the water requirements of turf grass for lawns, athletics, and recreational uses. Compare and contrast methods to provide these requirements
4. * Develop a fertility program specific to the turf use and site
5. * Identify pests and diseases, analyze control methods, and implement controls
6. * Analyze and develop proper turf-grass management practices
7. * Demonstrate accepted maintenance techniques and safe operation of turf-grass equipment
8. Identify component costs of turf grass management

****Asterisk Indicates Essential Learning Outcomes***

**Horticulture Pathway Panel Participants
2013-2015**

Dr. Susan Everett	Clark State Community College	SCTAI Lead Panel Expert (initial development)
Dr. Margaret McMahon	The Ohio State University	SCTAI Lead Panel Expert (realignment/finalization)
Mark Deacon	Cincinnati State Technical & Community College	SCTAI Panel Expert
Andy Freeman	Hocking College	SCTAI Panel Expert
Ruby Beil	Lorain County Community College	SCTAI Panel Expert
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Ed Tuhela	Gates Mills Environmental Center	Item Writer
Brett Joseph	Lorain County Community College	Item Writer
Jason Lipt	Washington County Career Center	Item Writer
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