

# Horticulture Technology

The Horticulture Technology curriculum is designed to prepare individuals for various careers in horticulture. Classroom instruction and practical laboratory applications of horticultural principles and practices are included in the program of study.

Coursework includes plant science, plant materials, propagation, soils, fertilizers and pest management. Horticulture Technology is a program that focuses on

- the general production and management of cultivated plants, shrubs, flowers, foliage, trees, ground covers and related plant materials,
- the management of technical and business operations connected with horticultural services, and
- the basic science principles needed to understand plants and their management and care.

Also included are courses in plant production, landscaping and the management and operation of horticulture businesses.

Graduates should qualify for employment opportunities in nurseries, garden centers, greenhouses, landscape operations, gardens and governmental agencies. Graduates also should be prepared to take the following exams:

1. the North Carolina Certified Plant Professional Exam,
2. the licensed pesticide applicators exam, and
3. the ISA (International Society of Arboriculture) certified arborist exam.

For career information, visit Career Coach at [cpcc.edu/careercoach](http://cpcc.edu/careercoach).

## Horticulture Technology (A15240)

### Degree Awarded

The Associate in Applied Science - Horticulture Technology is awarded by the College upon completion of this program.

### Admissions

- A high school diploma or equivalent (available through CPCC) is required.
- CPCC placement tests are required in English and mathematics. Developmental Studies mathematics and English courses are available for students to build basic skills and knowledge.
- Consult with an Advisement Counselor and attend an orientation session after placement testing.
- Many courses have prerequisites or co-requisites; Check the Courses section for details.

### Contact Information

The Horticulture Technology program is in the Professional Careers Division. For more information, contact the Program Chair at 704.330.4826.

For career information, visit Career Coach at [cpcc.edu/careercoach](http://cpcc.edu/careercoach).

#### General Education Requirements

ENG 111	Writing and Inquiry	3.0
Select 3 credits of the following:		3.0
ENG 112	Writing and Research in the Disciplines	

ENG 113	Literature-Based Research	
ENG 114	Professional Research & Reporting	
Select 3 credits of the following:		3.0
COM 110	Introduction to Communication	
COM 231	Public Speaking	
Select 3 credits of the following:		3.0
MAT 110	Mathematical Measurement and Literacy	
MAT 143	Quantitative Literacy	
MAT 152	Statistical Methods I	
MAT 171	Precalculus Algebra	
Select 3 credits of the following:		3.0
ART 111	Art Appreciation	
ART 114	Art History Survey I	
ART 115	Art History Survey II	
HUM 120	Cultural Studies	
HUM 130	Myth in Human Culture	
MUS 110	Music Appreciation	
MUS 112	Introduction to Jazz	
PHI 215	Philosophical Issues	
PHI 240	Introduction to Ethics	
REL 110	World Religions	
Select 3 credits of the following:		3.0
ECO 251	Principles of Microeconomics	
ECO 252	Principles of Macroeconomics	
HIS 111	World Civilizations I	
HIS 112	World Civilizations II	
HIS 131	American History I	
HIS 132	American History II	
POL 120	American Government	
PSY 150	General Psychology	
SOC 210	Introduction to Sociology	
SOC 213	Sociology of the Family	

#### Major Requirements

HOR 112	Landscape Design I	3.0
HOR 116	Landscape Management I	3.0
HOR 124	Nursery Operations	3.0
HOR 134	Greenhouse Operations	3.0
HOR 160	Plant Materials I	3.0
HOR 161	Plant Materials II	3.0
HOR 162	Applied Plant Science	3.0
HOR 164	Horticultural Pest Management	3.0
HOR 166	Soils and Fertilizers	3.0
HOR 168	Plant Propagation	3.0
HOR 253	Horticulture Turfgrass	3.0
HOR 257	Arboriculture Practices	2.0
HOR 273	Horticultural Management & Marketing	3.0
CIS 111	Basic PC Literacy	2.0
WBL 111	Work-Based Learning I	1.0
SPA 120	Spanish for the Workplace	3.0

#### Technical Electives

Select 12 credits of the following:		12.0
AGR 121	Biological Pest Management	

AGR 140	Agricultural Chemicals
HOR 114	Landscape Construction
HOR 118	Equipment Operation and Maintenance
HOR 142	Fruit & Vegetable Production
HOR 154	Introduction to Horticulture Therapy
HOR 170	Horticultural Computer Applications
HOR 213	Landscape Design II
HOR 215	Landscape Irrigation
HOR 217	Landscape Management II
HOR 218	Advanced Equipment Operations and Maintenance
HOR 225	Nursery Production
HOR 235	Greenhouse Production
HOR 245	Horticultural Specialty Crops
HOR 251	Insects & Diseases
HOR 255	Interiorscapes
HOR 257	Arbiculture Practices
HOR 265	Advanced Plant Materials
HOR 268	Advanced Propagation
HOR 293	Selected Topics in Horticulture
SEL 291	Selected Topics in _____
TRF 110	Introduction Turfgrass Cultivation & Id And Identification
TRF 130	Native Flora ID
TRF 152	Landscape Maintenance
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Total Credits	74

## No diplomas are offered in Horticulture Technology.

### Horticulture Technology Certificates (C15240)

- Horticulture Technology Certificate with a Specialization in Landscape Design (C15240-C1) (p. 2)
- Horticulture Technology Certificate with a Specialization in Horticulture Maintenance (C15240-C5) (p. 2)
- Horticulture Technology Certificate with a Specialization in Plant Production (C15240-C6) (p. 2)
- Horticulture Technology Certificate with a Specialization in Horticulture (C15240-C7) (p. 2)
- Horticulture Technology Certificate with a Specialization in Landscape Maintenance (C15240-C8) (p. 2)
- Horticulture Technology Certificate with a Specialization in Urban Agriculture (C15240-C9) (p. 3)

### Horticulture Technology Certificate with a Specialization in Landscape Design (C15240-C1)

This certificate is designed to prepare individuals for horticultural careers in the specialized area of landscape design. Coursework includes plant materials, design, graphics and landscape computer applications.

#### Major Requirements

HOR 160	Plant Materials I	3.0
HOR 213	Landscape Design II	3.0

HOR 112	Landscape Design I	3.0
HOR 161	Plant Materials II	3.0
HOR 170	Horticultural Computer Applications	2.0
HOR 265	Advanced Plant Materials	2.0
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Total Credits		16

### Horticulture Technology Certificate with a Specialization in Horticulture Maintenance (C15240-C5)

This certificate is designed to prepare individuals for horticultural careers in maintaining landscape and turf areas. Coursework includes plant materials, pest management and landscape and turfgrass management.

#### Major Requirements

HOR 116	Landscape Management I	3.0
HOR 164	Horticultural Pest Management	3.0
HOR 118	Equipment Operation and Maintenance	2.0
or HOR 257	Arbiculture Practices	
HOR 160	Plant Materials I	3.0
or HOR 161	Plant Materials II	
HOR 253	Horticulture Turfgrass	3.0
or TRF 110	Introduction Turfgrass Cultivation & Id And Identification	
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Total Credits		14

### Horticulture Technology Certificate with a Specialization in Plant Production (C15240-C6)

This certificate is designed to prepare individuals for horticultural careers as growers of nursery and greenhouse crops. Coursework includes plant materials, pest management, propagation and the operation of nurseries and greenhouses.

#### Major Requirements

HOR 124	Nursery Operations	3.0
HOR 134	Greenhouse Operations	3.0
HOR 164	Horticultural Pest Management	3.0
HOR 168	Plant Propagation	3.0
HOR 161	Plant Materials II	3.0
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Total Credits		15

### Horticulture Technology Certificate Specialization in Horticulture (C15240-C7)

This program is available to high school students through the Career and College Promise program.

#### Major Requirements

HOR 160	Plant Materials I	3.0
HOR 162	Applied Plant Science	3.0
HOR 166	Soils and Fertilizers	3.0
HOR 168	Plant Propagation	3.0
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Total Credits		12

## Horticulture Technology Certificate Specialization in Landscape Maintenance (C15240-C8)

This program is available to high school students through the Career and College Promise program.

### Major Requirements

HOR 160	Plant Materials I	3.0
HOR 162	Applied Plant Science	3.0
HOR 166	Soils and Fertilizers	3.0
HOR 168	Plant Propagation	3.0
HOR 253	Horticulture Turfgrass	3.0
TRF 152	Landscape Maintenance	3.0
Total Credits		18

## Horticulture Technology Certificate with a Specialization in Urban Agriculture (C15240-C9)

This program is available to high school students through the Career and College Promise program.

HOR 134	Greenhouse Operations	3.0
HOR 142	Fruit & Vegetable Production	2.0
HOR 164	Horticultural Pest Management	3.0
HOR 168	Plant Propagation	3.0
HOR 166	Soils and Fertilizers	3.0
Total Credits		14

### HOR 112. Landscape Design I. 3.0 Credits. Class-2.0. Clinical-0.0. Lab-3.0. Work-0.0

This course covers landscape principles and practices for residential and commercial sites. Emphasis is placed on drafting, site analysis, and common elements of good design, plant material selection, and proper plant utilization (encouraged use of native plants and discouraged use of invasive species). Upon completion, students should be able to read plans and draft a landscape design according to sustainable practices.

Prerequisites: Take HOR 160 or HOR 161 Minimum grade C

### HOR 114. Landscape Construction. 3.0 Credits. Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course introduces the design and fabrication of landscape structures/features. Emphasis is placed on safety, tool identification and use, material selection, construction techniques, and fabrication. Upon completion, students should be able to design and construct common landscape structures/features.

### HOR 116. Landscape Management I. 3.0 Credits. Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course covers information and skills necessary to analyze a property and develop a management schedule. Emphasis is placed on property measurement, plant condition, analysis of client needs, and plant culture needs. Upon completion, students should be able to analyze a property, develop management schedules, and implement practices based on client needs.

### HOR 118. Equipment Operation and Maintenance. 2.0 Credits.

Class-1.0. Clinical-0.0. Lab-3.0. Work-0.0

This course covers the proper operation and maintenance of selected equipment used in horticulture. Emphasis is placed on the maintenance, minor repairs, safety devices, and actual operation of selected equipment. Upon completion, students should be able to design a maintenance schedule, service equipment, and demonstrate safe operation of selected equipment.

### HOR 124. Nursery Operations. 3.0 Credits. Class-2.0. Clinical-0.0. Lab-3.0. Work-0.0

This course covers nursery site and crop selection, cultural practices, and production and marketing methods. Topics include site considerations, water availability, equipment, irrigation, fertilization, containers, media, and pest control. Upon completion, students should be able to design and implement a nursery operation and grow and harvest nursery crops.

### HOR 134. Greenhouse Operations. 3.0 Credits. Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course covers the principles and procedures involved in the operation and maintenance of greenhouse facilities. Emphasis is placed on the operation of greenhouse systems, including the environmental control, record keeping, scheduling, and production practices. Upon completion, students should be able to demonstrate the ability to operate greenhouse systems and facilities to produce greenhouse crops.

### HOR 142. Fruit & Vegetable Production. 2.0 Credits. Class-1.0. Clinical-0.0. Lab-2.0. Work-0.0

This course introduces the principles and techniques of growing fruits and field-grown vegetables. Topics include site selection, proper varietal selection, nutritional values, cultural techniques, harvesting and marketing, and insect and disease control. Upon completion, students should be able to demonstrate an understanding of the principles related to the production of selected fruits and vegetables.

### HOR 150. Introduction to Horticulture. 2.0 Credits. Class-2.0. Clinical-0.0. Lab-0.0. Work-0.0

This course covers the history, development, and basic techniques of horticulture. Topics include propagation techniques, planting procedures, watering and fertility, plant growth, pest and disease control, and garden design and history. Upon completion, students should be able to demonstrate an understanding of the basic principles of horticulture. Students will explore horticultural careers, organizations, and reference materials.

### HOR 154. Introduction to Horticulture Therapy. 4.0 Credits. Class-2.0. Clinical-0.0. Lab-4.0. Work-0.0

This course introduces the concept of horticulture therapy and how it can be applied to improve human well-being. Emphasis is placed on developing a horticulture therapy program, planning activities, and adjusting activities based on the age, disability, or need of the individual. Upon completion, students should be able to develop project ideas, write lesson plans, and lead informal classes using horticulture therapy techniques.

### HOR 160. Plant Materials I. 3.0 Credits. Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course covers identification, culture, characteristics, and use of plants in a sustainable landscape. Emphasis is placed on nomenclature, identification, growth requirements, cultural requirements, soil preferences, and landscape applications. Upon completion, students should be able to demonstrate knowledge of the proper selection and utilization of plant materials, including natives and invasive plants.

**HOR 161. Plant Materials II. 3.0 Credits.** Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course provides a supplementary opportunity to cover identification, culture, characteristics, and use of plants in a sustainable landscape, giving students a broader knowledge of available landscape plants for utilization in landscapes and plant production. Emphasis is placed on nomenclature, identification, growth requirements, cultural requirements, soil preferences, landscape applications and expansion of the plant palette. Upon completion, students should be able to demonstrate knowledge of the proper selection and utilization of plant materials, including natives and invasive plants.

**HOR 162. Applied Plant Science. 3.0 Credits.** Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course introduces the basic concepts of botany as they apply to horticulture. Topics include nomenclature, physiology, morphology, and anatomy as they apply to plant culture. Upon completion, students should be able to apply the basic principles of botany to horticulture.

**HOR 164. Horticultural Pest Management. 3.0 Credits.** Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course covers the identification and management of plant pests including insects, diseases, and weeds. Topics include pest identification and beneficial organisms, pesticide application safety and use of least toxic methods of management. Upon completion, students should be able to manage common landscape pests using least toxic methods of control and be prepared to sit for North Carolina Commercial Pesticide Ground Applicators license. Students will apply the Integrated Pest Management Model in plant management.

**HOR 166. Soils and Fertilizers. 3.0 Credits.** Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course covers the physical and chemical properties of soils and soil fertility and management. Topics include soil formation; classification; physical, chemical, and biological properties (including microorganisms); testing; and fertilizer application. Upon completion, students should be able to analyze, evaluate, and properly amend soils/media according to sustainable practices.

**HOR 168. Plant Propagation. 3.0 Credits.** Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course is a study of sexual and asexual reproduction of plants. Emphasis is placed on seed propagation, grafting, stem and root propagation, micro-propagation, and other propagation techniques. Upon completion, students should be able to successfully propagate ornamental plants.

**HOR 170. Horticultural Computer Applications. 2.0 Credits.** Class-1.0. Clinical-0.0. Lab-3.0. Work-0.0

This course introduces computer programs as they apply to the horticulture industry. Emphasis is placed on applications of software for plant identification, design, and irrigation. Upon completion, students should be able to use computer programs in horticultural situations. Students will create a CAD drawing of a landscape. Prerequisites: Take HOR 112

**HOR 213. Landscape Design II. 3.0 Credits.** Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course covers residential and commercial landscape design, cost analysis, and installation. Emphasis is placed on job cost estimates, installation of the landscape design, and maintenance techniques. Upon completion, students should be able to read landscape design blueprints, develop cost estimates, and implement the design. Prerequisites: Take HOR 112

**HOR 215. Landscape Irrigation. 3.0 Credits.** Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course introduces basic irrigation design, layout, and installation. Topics include site analysis, components of irrigation systems, safety, types of irrigation systems, and installation techniques. Upon completion, students should be able to design and install basic landscape irrigation systems.

**HOR 217. Landscape Management II. 2.0 Credits.** Class-1.0. Clinical-0.0. Lab-3.0. Work-0.0

This course provides additional opportunities to design plans, write contracts, and present proposals. Emphasis is placed on the development, pricing, and presentation of proposals and additional exploration of cultural applications. Upon completion, students should be able to analyze a property, develop a management plan, and price and present that plan. Prerequisites: Take One: HOR 110 or HOR 116

**HOR 218. Advanced Equipment Operations and Maintenance. 3.0 Credits.** Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course covers the advanced repair and operation of selected equipment utilized in horticulture. Topics include diagnosis, service, maintenance and complex repairs of small and medium two- and four-cycle engine horticultural equipment. Upon completion, students should be able to diagnose and repair commonly used landscape equipment and communicate information concerning the repairs and the necessary maintenance schedule in a professional manner. Prerequisites: Take HOR 118

**HOR 225. Nursery Production. 3.0 Credits.** Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course covers all aspects of nursery crop production. Emphasis is placed on field production and covers soils, nutrition, irrigation, pest control, and harvesting. Upon completion, students should be able to produce a marketable nursery crop.

**HOR 235. Greenhouse Production. 3.0 Credits.** Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course covers the production of greenhouse crops. Emphasis is placed on product selection and production based on market needs and facility availability, including record keeping. Upon completion, students should be able to select and make production schedules to successfully produce greenhouse crops.

**HOR 245. Horticultural Specialty Crops. 3.0 Credits.** Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course introduces the techniques and requirements for the production of horticultural crops of special or local interest. Topics include development of a local market, proper varietal selection, cultural practices, site selection, and harvesting and marketing practices. Upon completion, students should be able to choose, grow, and market a horticultural crop of special or local interest.

**HOR 251. Insects & Diseases. 3.0 Credits.** Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course introduces insects and diseases of economic importance to horticultural crops. Topics include insect life cycles and identifying characteristics; plant diseases, including their signs and symptoms; control methods; and insect scouting for IPM. Upon completion, students should be able to demonstrate an understanding of insect and disease identification, collection, and control.

**HOR 253. Horticulture Turfgrass. 3.0 Credits.** Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course covers information and skill development necessary to establish and manage landscape turfgrasses. Topics include grass identification, establishment, cultural requirements, application of control products, fertilization, and overseeding techniques. Upon completion, students should be able to analyze a landscape site and determine those cultural and physical activities needed to establish or manage a quality turf.

**HOR 255. Interiorscapes. 2.0 Credits.** Class-1.0. Clinical-0.0. Lab-2.0. Work-0.0

This course covers plant selection, design, and management for interior settings. Topics include tropical plant identification, cultural requirements, insect and disease identification and control, and design and management requirements for interior plants. Upon completion, students should be able to design, install, and manage plants in interior settings.

**HOR 257. Arboriculture Practices. 2.0 Credits.** Class-1.0. Clinical-0.0. Lab-3.0. Work-0.0

This course covers the culture and maintenance of trees and shrubs. Topics include fertilization, pruning, approved climbing techniques, pest control, and equipment use and safety. Upon completion, students should be able to properly prune trees and shrubs and perform arboricultural practices.

**HOR 265. Advanced Plant Materials. 2.0 Credits.** Class-1.0. Clinical-0.0. Lab-2.0. Work-0.0

This course covers important landscape plants. Emphasis is placed on identification, plant nomenclature, growth characteristics, cultural requirements, and landscape uses. Upon completion, students should be able to correctly select plants for specific landscape uses.

Prerequisites: Take HOR 160 or HOR 161 Minimum grade C

**HOR 268. Advanced Propagation. 4.0 Credits.** Class-3.0. Clinical-0.0. Lab-3.0. Work-0.0

This course covers applied production techniques for asexual and sexual plant propagation. Emphasis is placed on the major accepted methods of asexual propagation and sexual propagation of woody ornamental plants, with evaluation of all initiated propagation. Upon completion, students should be able to successfully propagate a variety of plant materials utilizing methods covered in the course.

**HOR 273. Horticultural Management & Marketing. 3.0 Credits.** Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0

This course covers the steps involved in starting or managing a horticultural business. Topics include financing, regulations, market analysis, employer/employee relations, formulation of business plans, and operational procedures in a horticultural business. Upon completion, students should be able to assume ownership or management of a horticultural business.

**HOR 291H. Selected Topics in Horticulture. 1.0 Credit.** Class-1.0. Clinical-0.0. Lab-0.0. Work-0.0

This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

**HOR 293. Selected Topics in Horticulture. 3.0 Credits.** Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0

This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on the subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

**HOR 293H. Selected Topics in. 3.0 Credits.** Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0

This course covers various successful hydroponic systems used in commercial food/plant production as well as pertinent propagation techniques, including seeds and clones. Topics include hydroponic systems, water / nutrient solutions, plant requirements, system construction, lighting, growing techniques, pest management and troubleshooting. Upon completion of this class, students will be able to design, construct and operate a hydroponic system to grow various crops.