

2012 - 2013

**Florida Department of Education  
Curriculum Framework**

**Program Title:** Citrus Production Technology  
**Career Cluster:** Agriculture, Food and Natural Resources

	<b>AS</b>	<b>AAS</b>
CIP Number	1101110300	0101110300
Program Type	College Credit	College Credit
Standard Length	62 credit hours	62 credit hours
CTSO	N/A	N/A
SOC Codes (all applicable)	45-2092	45-2092
Targeted Occupation List	<a href="http://www.labormarketinfo.com/wec/TargetOccupationList.htm">http://www.labormarketinfo.com/wec/TargetOccupationList.htm</a>	
Perkins Technical Skill Attainment Inventory	<a href="http://www.fldoe.org/workforce/perkins/perkins_resources.asp">http://www.fldoe.org/workforce/perkins/perkins_resources.asp</a>	
Statewide Articulation	<a href="http://www.fldoe.org/workforce/dwdframe/artic_frame.asp">http://www.fldoe.org/workforce/dwdframe/artic_frame.asp</a>	

### **Purpose**

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Agriculture, Food and Natural Resources career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the citrus production sector within the Agriculture, Food and Natural Resources career cluster.

The content includes but is not limited to instruction that prepares individuals to produce citrus trees and fruit and manage services associated with citrus production. Subject matter includes pest control, propagation, nutrition, irrigation, equipment management and marketing, as well as leadership, communication, employability and human relations skills.

### **Program Structure**

This program is a planned sequence of instruction consisting of 62 hours.

### **Laboratory Activities**

Laboratory activities are an integral part of this program. These activities include instruction in the use of safety procedures, tools, equipment, materials, and processes related to these

occupations. Equipment and supplies should be provided to enhance hands-on experiences for students.

### **Special Notes**

Planned and supervised occupational activities may be provided through directed laboratory experience, practicum or cooperative experience. Whenever the cooperative method of instruction is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

### **Accommodations**

Federal and state legislation requires the provision of accommodations for students with disabilities as identified on the secondary student's IEP or 504 plan or postsecondary student's accommodations' plan to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their postsecondary service provider. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

### **Articulation**

To be transferable statewide between institutions, this program must have been reviewed, and a "transfer value" assigned the curriculum content by the appropriate Statewide Course Numbering System discipline committee. This does not preclude institutions from developing specific articulation agreements with each other.

For details on articulation agreements which correlate to programs and industry certifications refer to [http://www.fldoe.org/workforce/dwdframe/artic\\_frame.asp](http://www.fldoe.org/workforce/dwdframe/artic_frame.asp).

### **Program Length**

The AS degree requires the inclusion of a minimum of 15 credits of general education coursework according to SACS, and it must be transferable according to Rule 6A-14.030 (2), F.A.C. The AAS degree requires the inclusion of a minimum of 15 credits of general education coursework according to SACS. The standard length of this program is 62 credit hours according to Rule 6A-14.030, F.A.C.

### **Standards**

After successfully completing this program, the student will be able to perform the following:

- 01.0 Classify and select citrus rootstocks and scions.
- 02.0 Identify varieties of citrus.

- 03.0 Manage the propagation of citrus.
- 04.0 Analyze nutritional disorders and develop a fertilization program.
- 05.0 Identify insects, diseases and other pathogens of citrus and develop a pest control management program.
- 06.0 Identify and control citrus weed problems.
- 07.0 Protect citrus from frost and freeze damage.
- 08.0 Calculate the irrigation requirements of citrus and manage an irrigation program.
- 09.0 Select, manage and maintain citrus production equipment.
- 10.0 Determine maturity and quality of citrus fruits.
- 11.0 Keep production, financial, personnel and maintenance records.
- 12.0 Market citrus nursery and grove products.
- 13.0 Manage the growth and culture of citrus.
- 14.0 Harvest citrus.
- 15.0 Interpret and incorporate technical information into management practices.
- 16.0 Demonstrate leadership, employability, communications and human relations skills.

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**Florida Department of Education  
Student Performance Standards**

**Program Title:** Citrus Production Technology  
**CIP Numbers:** 1101110300 A.S.  
 0101110300 A.A.S.  
**Program Length:** 62 credit hours  
**SOC Code(s):** 45-2092

The AS degree requires the inclusion of a minimum of 15 credits of general education coursework according to SACS, and it must be transferable according to Rule 6A-14.030 (2), F.A.C. The AAS degree requires the inclusion of a minimum of 15 credits of general education coursework according to SACS. At the completion of this program, the student will be able to:

01.0 Classify and select citrus rootstocks and scions--The student will be able to:

- 01.01 Classify citrus rootstocks and scions according to taxonomy.
- 01.02 Select scion varieties best suited for specific soil types, rootstock compatibility, disease resistance, insect resistance, cold resistance and specific marketing purposes.
- 01.03 Select rootstocks best suited for specific soil types, scion compatibility, nematode resistance, insect resistance, cold resistance, disease and virus resistance and specific marketing purposes.

02.0 Identify varieties of citrus--The student will be able to:

- 02.01 Identify citrus fruit varieties by color, shape, texture, maturity, seeds and leaves.
- 02.02 Identify rootstock varieties by characteristic of fruit, leaves and stems.

03.0 Manage the propagation of citrus--The student will be able to:

- 03.01 Select a site for seedbeds and apply for site approval.
- 03.02 Supervise the preparation of site and plant certified seed.
- 03.03 Manage the culture and care of seedlings.
- 03.04 Select and cut certified budwood.
- 03.05 Manage the budding and wrapping of seedlings.
- 03.06 Train and supervise workers to maintain accurate records and counts in tagging and labeling rootstocks and scion varieties.
- 03.07 Supervise the culture and care of young budded nursery stock.
- 03.08 Supervise the digging and handling of nursery stock for potting or bareroot shipment.
- 03.09 Maintain strict nursery sanitation practices.

04.0 Analyze nutritional disorders and develop a fertilization program--The student will be able to:

- 04.01 Collect soil and plant tissue samples for analysis.
- 04.02 Interpret results of soil and tissue analysis.
- 04.03 Develop a fertilization program or schedule for grove and nursery.
- 04.04 Identify nutritional disorders and deficiencies in grove and nursery.

- 04.05 Calculate fertilization rates for citrus.
- 04.06 Compare advantages and disadvantages of different sources and forms of plant nutrients.
- 04.07 Calibrate fertilization equipment.
- 04.08 Supervise application of fertilizer.
- 04.09 Supervise cleaning and storage of fertilizer application equipment.
  
- 05.0 Identify insects, diseases and other pathogens of citrus and develop a pest control management program—The student will be able to:
  - 05.01 Identify insects, diseases and other pathogens of citrus.
  - 05.02 Determine extent and severity of pest infestation.
  - 05.03 Select and supervise the application of pesticides.
  - 05.04 Calibrate and adjust pesticide applications.
  - 05.05 Determine effectiveness of application or spray program.
  - 05.06 Develop a pest management program or schedule.
  - 05.07 Train workers in the safe use of pesticides.
  - 05.08 Recognize symptoms of pesticide poisoning and provide first aid.
  - 05.09 Safely dispose of pesticide containers.
  - 05.10 Observe and maintain grove and nursery sanitation practices.
  - 05.11 Supervise the cleaning and maintenance of pesticide application equipment.
  
- 06.0 Identify and control citrus weed problems—The student will be able to:
  - 06.01 Identify noxious weeds and vines of citrus.
  - 06.02 Select appropriate herbicide and supervise the application.
  - 06.03 Calibrate and adjust herbicide applicators.
  - 06.04 Develop a weed/vine control program or schedule.
  - 06.05 Determine appropriate conditions for effective and safe application of herbicides.
  - 06.06 Supervise mechanical weed and vine control.
  
- 07.0 Protect citrus from frost and freeze damage—The student will be able to:
  - 07.01 Monitor and interpret weather forecasts.
  - 07.02 Supervise the preparation and maintenance of grove, nursery and equipment for frost and freeze.
  - 07.03 Supervise procedures for protecting citrus from cold damage.
  - 07.04 Protect young trees from cold damage.
  - 07.05 Compare cost and efficiency of various methods of cold protection.
  
- 08.0 Calculate the irrigation requirements of citrus and manage an irrigation program—The student will be able to:
  - 08.01 Determine irrigation requirements.
  - 08.02 Plan an irrigation system.
  - 08.03 Supervise the installation of irrigation equipment.
  - 08.04 Service and maintain electric and engine driven pumps.
  - 08.05 Operate and service low volume irrigation system.
  - 08.06 Operate and service overhead irrigation system.
  - 08.07 Calculate cost efficiency of irrigation system.

- 09.0 Select, manage and maintain citrus production equipment—The student will be able to:
- 09.01 Determine the equipment requirements for the citrus operation.
  - 09.02 Compare cost, efficiency and maintenance requirements of various models and makes of equipment.
  - 09.03 Determine equipment replacement schedule.
  - 09.04 Develop a schedule for servicing of equipment.
  - 09.05 Instruct workers in the safe and efficient use of equipment.
  - 09.06 Supervise the maintenance and repair of citrus equipment.
  - 09.07 Keep maintenance records.
- 10.0 Determine maturity and quality of citrus fruit--The student will be able to:
- 10.01 Determine solids using refractometer.
  - 10.02 Interpret results of citrus juice analysis.
  - 10.03 Estimate quality grade of product.
  - 10.04 Estimate date of maturity of fruit.
- 11.0 Keep production, financial, personnel and maintenance records—The student will be able to:
- 11.01 Maintain fertilizer and pesticide application records.
  - 11.02 Make grove plats.
  - 11.03 Keep equipment maintenance and service records.
  - 11.04 Keep inventory records.
  - 11.05 Record production information.
  - 11.06 Record labor and personnel information.
  - 11.07 Analyze cost and effectiveness of management practices.
  - 11.08 Prepare written reports.
  - 11.09 Determine insurance needs.
- 12.0 Market citrus nursery and grove products--The student will be able to:
- 12.01 Determine market for product.
  - 12.02 Maintain customer service relations.
  - 12.03 Arrange for transportation of product.
  - 12.04 Evaluate market.
  - 12.05 Interpret and analyze marketing contracts.
  - 12.06 Locate sources of marketing information services.
- 13.0 Manage the growth and culture of citrus—The student will be able to:
- 13.01 Supervise daily operations.
  - 13.02 Determine work schedules.
  - 13.03 Inspect grove/nursery properties.
  - 13.04 Hire, train and dismiss employees.
  - 13.05 Determine cultural practices.
  - 13.06 Implement instructions and requests.
- 14.0 Harvest citrus—The student will be able to:

- 14.01 Make arrangements for harvesting crop.
  - 14.02 Interpret and analyze harvesting contract.
  - 14.03 Monitor harvesting operation.
  - 14.04 Prepare contingency plans for harvesting citrus.
- 15.0 Interpret and incorporate technical information into management practices—The student will be able to:
- 15.01 Observe local, state and federal pesticide regulations.
  - 15.02 Observe grove and nursery site regulations.
  - 15.03 Observe and interpret marketing restrictions and agreements.
  - 15.04 Interpret and observe certification, licensing and inspection requirements.
  - 15.05 List agencies responsible for the regulation of the citrus industry.
  - 15.06 Attend workshops and seminars to upgrade skills and knowledge.
  - 15.07 Maintain a file for technical information, periodicals and other publications.
  - 15.08 Determine sources of up-to-date information and services.
  - 15.09 List societies, organizations and associations related to occupation or profession.
- 16.0 Demonstrate leadership, employability, communications and human relations skills—The student will be able to:
- 16.01 Conduct a job search.
  - 16.02 Secure information about a job.
  - 16.03 Identify documents that may be required when applying for a job.
  - 16.04 Complete a job application form correctly.
  - 16.05 Demonstrate competence in job interview techniques.
  - 16.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
  - 16.07 Identify acceptable work habits.
  - 16.08 Demonstrate knowledge of how to make job changes appropriately.
  - 16.09 Demonstrate acceptable employee health habits.