



**Alabama
Department of
Postsecondary Education**

Representing the Alabama Community College System

STATEWIDE CAREER/TECHNICAL EDUCATION COURSE ARTICULATION REVIEW MINUTES

Articulation Agreement Identifier: HOC136 (2006-1) Identifier is the postsecondary course prefix followed by Plan-of-Instruction version number (e.g.; INT 100 (2005-1)).

Applicable CIP code(s): 01.0101, 01.0601, 01.0603, and 01.0605

Postsecondary course prefix, number, and title: HOC 136, OHT 136, LOM 136, AGR 136 - Residential Landscape

Secondary Education course(s) title and number: 010607/420057 - Landscape Design and Management + 010606/420056 - Sports Turfgrass Production and Management OR 010609/420059 - Residential Landscape Establishment and Management AND 010606/420056 - Sports Turfgrass Production and Management

Initial Review: February 4, 1010 DPE Annual Review: March 8, 2012

Effective date: **Fall Semester 2011.**

Course Content Analysis (all postsecondary course objectives must be sufficiently addressed in the secondary courses):

Notes:

- 1 Skills and knowledge contained in the postsecondary course objectives must be present in the corresponding secondary objectives for a “match” to occur.**
- 2. Postsecondary and Secondary objectives must reflect similar content and performance levels before the course articulation agreement will be recommended to the TEDAC Oversight Committee.**
- 3. More than one Secondary course may be used in order to articulate to a Postsecondary course.**

Postsecondary Course Objectives	Secondary Objectives and Location(s)	TEDAC Comments
<p>MODULE A - INTRODUCTION TO RESIDENTIAL LANDSCAPE DESIGN</p> <p>A1.0 Explain elements of residential landscape design.</p> <p>A1.1.1 Define terms associated with residential landscape design.</p> <p>A1.1.2 Describe career opportunities with residential landscape design.</p> <p>A1.1.3 Explain the relationship between residential landscape design and the environment.</p> <p>A1.1.4 Explain safety issues related to residential landscape design.</p> <p>A1.1.5 Explain the value of a residential landscape design.</p> <p>MODULE B – INTRODUCTION TO GRAPHICAL COMMUNICATION</p> <p>B1.0 Demonstrate basic graphical communication skills.</p> <p>B1.1 Create a small composition that incorporates basic design elements.</p> <p>B1.1.1 Define the terms and symbols for graphical communication.</p> <p>B1.1.2 Describe the materials used to communicate graphically.</p> <p>B1.1.3 Describe various techniques for drawing and rendering.</p> <p>MODULE C – DESIGN PROCESS</p> <p>C1.0 Incorporate common elements into a residential landscape design.</p> <p>C1.1 Develop a basic residential landscape design incorporating specified elements and techniques.</p> <p>C1.1.1 Describe the elements and principals of design.</p>	<p>RESIDENTIAL LANDSCAPE ESTABLISHMENT AND MAINTENANCE</p> <p>Unit 1 - Career Opportunities</p> <p>Content Standards:</p> <ol style="list-style-type: none"> 1. Describe job characteristics for career opportunities in the residential landscape industry. <p>Learning Objectives:</p> <ol style="list-style-type: none"> 1. Identify career choices in the residential landscape industry. 2. Identify the educational requirements for careers in the residential landscape industry. 3. Describe job responsibilities of landscape personnel. <p>Unit 2 – Safety</p> <p>Content Standards:</p> <ol style="list-style-type: none"> 2. Identify safety precautions in the residential landscape and maintenance industry. <p>Learning Objectives:</p> <ol style="list-style-type: none"> 1. Explain the way pesticides are classified according to toxicity. 2. Identify the types of pesticide license. 3. Explain the various pesticides record keeping requirements. 4. Identify the importance of preventative maintenance. 5. Safely redress a selected hand tool. <ol style="list-style-type: none"> 6. Describe the importance of servicing power equipment to the manufacturer’s recommendation. 7. Set up a maintenance calendar. 8. Perform basic service recommendations on power equipment. <p>Unit 3 – Plant Identification</p> <ol style="list-style-type: none"> 3. Identify residential landscape plants and turfgrasses by common name. <p>Learning Objectives:</p> <ol style="list-style-type: none"> 1. Identify the major parts of residential landscape plants and turfgrasses. 	

Postsecondary Course Objectives		Secondary Objectives and Location(s)	TEDAC Comments
C1.1.2	List the steps of the design process.	2. Explain how residential landscape plants and turfgrasses are selected based on climate. 3. Identify characteristics of grass plants used in residential lawns. Unit 4 – Planning a Design Content Standards: 4. Design a residential landscape plan • Choosing plants and turfgrasses for a landscape based upon selective criteria • Demonstrating residential landscaping techniques Learning Objectives: 1. Explain the importance of landscape and landscape planning. 2. Describe procedures in landscape planning. 3. Explain the elements of design and effect. 4. Describe Xeriscape planting. 5. Explain how plants are selected to be used in a landscape design. Unit 5 – Tools and Equipment Content Standards: 5. Identify tools and equipment used for the installation and maintenance of a residential landscape. • Demonstrating the maintenance of hand tools and small power equipment. 6. Utilize skills needed to maintain drainage and irrigation systems. • Identifying various sprinklers used in an irrigation system Learning Objectives: 1. Identify hand tools used in residential landscape. 2. Identify equipment used in the residential landscape. 3. Demonstrate the proper maintenance of hand tools and small power equipment. 4. Describe skills needed to maintain drainage and irrigation systems. 5. Locate controllers and size wiring.	
C1.1.3	Describe considerations for determining client needs.		
C1.1.4	Describe considerations for site analysis.		
C1.1.5	Describe considerations for base mapping.		
C1.1.6	Explain the value of using bubble diagrams.		
C1.1.7	Describe the purpose of conceptual drawing.		
C1.1.8	Describe the importance of a master plan.		
C1.1.9	List the components of a master plan.		
C1.1.10	Describe the process of plant selection.		
C1.1.11	Describe why and when to use embellishments.		
C1.1.12	Describe why and when to use hardscape.		

Postsecondary Course Objectives	Secondary Objectives and Location(s)	TEDAC Comments
	<p>6. Determine water capacity and pressure. 7. Establish sprinkler circuits and install valves. 8. Determine irrigation requirements. 9. Identify various sprinklers used in an irrigation system and establish spacing range.</p> <p>Unit 6 – Residential Landscape Maintenance Content Standards: 7. Maintain trees, shrubs, plants, and turfgrasses in a residential landscape. Examples: fertilizing, controlling weeds, mowing, edging, weed-eating Learning Objectives: 1. Describe how the biology of woody and herbaceous plants influences the maintenance practices. 2. Explain recommended watering practices for plants used in the residential landscape and maintenance industry. 3. Explain guidelines for fertilizing plants used in the residential landscape and maintenance industry. 4. Explain how to select and apply mulches to the landscape. 5. Explain how to properly prune. 6. Explain why plants are pruned.</p> <p>Unit 7 – Nutrition Content Standards: 8. Select types of fertilizers and methods of application used in the residential landscape and maintenance industry. Learning Objectives: 1. Describe the use of fertilizer. 2. Explain fertilization and fertilizer. 3. Identify the nutrients needed for plant growth. 4. Describe methods for applying fertilizers.</p> <p>Unit 8 – Residential Landscape Pest Control Content Standards: 9. Identify insects, diseases, and weeds that affect residential landscape plants.</p>	

Postsecondary Course Objectives	Secondary Objectives and Location(s)	TEDAC Comments
	<p>Examples: insects – army worms, grubs, mole cricket diseases – dollar spot, rusts, fungi weeds – crabgrass, pigweed</p> <p>10. Differentiate among various types of pesticides used on residential landscape plants.</p> <ul style="list-style-type: none"> • Describing techniques for preparing pesticide mixtures <p>Learning Objectives:</p> <ol style="list-style-type: none"> 1. Identify insects that affect residential landscape plants. 2. Identify diseases that affect residential landscape plants. 3. Identify weeds that affect residential landscape plants. 4. Differentiate the major classifications of pesticides and their uses. 5. Describe techniques to prepare a pesticide mixture. <p>Unit 10 – Technology</p> <p>Content Standards:</p> <p>12. Describe technological advancements in the residential landscape industry.</p> <p>Learning Objectives:</p> <ol style="list-style-type: none"> 1. Describe how satellites can be used to determine the position of objects on earth. • The Global Positioning System(GPS) • NAVSTAR(Navigation by Satellite Timing and Ranging) <p>2. Describe the role of automated monitoring systems.</p> <ul style="list-style-type: none"> • Precision agriculture • Irrigation system <p>3. Describe Computerized Design</p> <p>Landscape Design and Management</p> <p>Unit 2 – Safety</p> <p>Content Standards:</p> <p>2. Identify safe use of pesticides, power equipment, and hand</p>	

Postsecondary Course Objectives	Secondary Objectives and Location(s)	TEDAC Comments
	<p>tools in the landscaping industry.</p> <p>Learning Objectives:</p> <ol style="list-style-type: none"> 1. Explain the way pesticides are classified according to toxicity. 2. Identify the types of pesticide license. 3. Explain the various pesticides record keeping requirements. 4. Identify the importance of preventative maintenance. 5. Safely redress a selected hand tool. 6. Describe the importance of servicing power equipment to the manufacturer’s recommendation. 7. Set up a maintenance calendar. 8. Perform basic service recommendations on power equipment. <p>Unit 3 – Design</p> <p>Content Standards:</p> <p>3. Apply principles of landscape design, including simplicity, balance, focalization of interest, rhythm and line, scale and proportion, and unity.</p> <ul style="list-style-type: none"> • Describing computer programs used in landscape planning • Designing a landscape plan, including enrichment features <p>Examples: fencing, birdbath, gazebo, walkway, driveway</p> <p>Learning Objectives:</p> <ol style="list-style-type: none"> 1. Explain the criteria used in the selection of enrichment, enclosures, and surfacing features. 2. Describe functions of the constructed enclosures. 3. Describe features of an outdoor room. 4. Identify the design qualities of plants and landscape features including color and texture. 5. Describe and use the principles of balance, simplicity, focalization of interest, rhythm and line, scale and proportion, and unity. <p>Unit 4 - Landscape Plant Selection</p> <p>Content Standards:</p> <ol style="list-style-type: none"> 4. Identify common plants used in landscape design <p>Examples: trees, shrubs, ground covers, vines, flowers, turfgrass</p> <ul style="list-style-type: none"> • Describing physical and cultural characteristics of common 	

Postsecondary Course Objectives	Secondary Objectives and Location(s)	TEDAC Comments
	<p>plants used in landscape design Examples: physical – color, flowering, foliage, fruiting Cultural – cold or heat hardiness, sun or shade tolerance</p> <p>Learning Objectives:</p> <ol style="list-style-type: none"> 1. Identify plants used in design by proper nomenclature. 2. Classify plant material according to growth habit, growth habit needs, and other requirements. 3. List environmental factors that affect perennial gardens. 4. Differentiate between the two types of NLE. 5.. List six functions of trees in the landscape. 6. List three major types of groundcover. 7. Recognize plants by their structural and physical characteristics. <p>Unit 5 - Landscape Growth and the Environment</p> <p>Content Standards:</p> <ol style="list-style-type: none"> 5. Describe environmental factors that affect plant growth. <ul style="list-style-type: none"> • Explaining the importance of specific plant processes Examples: photosynthesis, respiration, transpiration 6. Analyze landscape plants for symptoms of nutrient deficiencies. Examples: Primary nutrients – nitrogen, phosphorus, potassium Secondary nutrients – calcium, sulfur, magnesium Trace nutrients – boron, manganese, chlorine, zinc, molybdenum, iron, copper, aluminum 7. Explain environmental issues related to landscape design and management. <p>Learning Objectives:</p> <ol style="list-style-type: none"> 1. Describe environmental factors that affect growth. 2. Describe symptoms used to diagnose deficiencies and toxicity in landscape plants due to amounts of primary, secondary, micronutrients. 3. Explain how landscape design and management is beneficial to the environment. 4. Explain how landscape design and management can damage 	

Postsecondary Course Objectives	Secondary Objectives and Location(s)	TEDAC Comments
	<p>the environment.</p> <p>5. Identify how chemicals used in landscape design and management can affect the environment.</p> <p>Unit 6 - Landscape Establishment and Management Content Standards:</p> <p>8. Demonstrate methods for planting shrubs, trees, annuals, bulbs, groundcovers and vines.</p> <p>9. Describe techniques used for establishing and maintaining landscapes, including pruning, fertilizing, irrigating, mulching, and controlling pests.</p> <ul style="list-style-type: none"> • Identifying insects, diseases, and weeds that pose a problem in the landscape • Describing types of selective and nonselective pesticides used in the landscaping industry <p>10. Identify criteria for the selection of hand tools, power tools, power equipment, and machinery for a specific landscape task.</p> <ul style="list-style-type: none"> • Describing basic maintenance procedures required for tools and equipment used in landscaping <p>11. Describe the purpose of various sprinklers within an irrigation system.</p> <p>Examples: impulse, oscillating, automatic, pop-up</p> <ul style="list-style-type: none"> • Describing methods of drainage in a landscape <p>Examples: tiling, sloping</p> <p>Learning Objectives:</p> <ol style="list-style-type: none"> 1. Demonstrate proper methods of planting landscape plants. 2. Describe techniques for maintaining an established landscape. 3. Describe methods of proper drainage in the landscape 4. Discuss common methods of solving drainage problems. <p>Unit 7 - Interior Plantscaping and Xeriscaping Content Standards:</p> <p>12. Identify common needs for indoor plants used in interior plantscaping.</p> <p>Examples: light, media, watering and drainage, fertilization,</p>	

Postsecondary Course Objectives	Secondary Objectives and Location(s)	TEDAC Comments
	<p>temperature, humidity</p> <ul style="list-style-type: none"> • Explaining principles of interior design • Selecting techniques used to achieve Xeriscaping <p>Learning Objectives:</p> <ol style="list-style-type: none"> 1. Identify the types of plants commonly used in interiorscapes. 2. Explain some of the problems associated with the care of interior plants. 3. Describe common tasks associated with plant maintenance. 4. Explain interior plantscaping and its basic design principles. 5. Describe basic construction and irrigation techniques used in interior plantscapes. 6. Describe safety concerns associated with the installation of large plant materials. 7. List the basic concepts of Xeriscaping. 8. Identify plants that can be used in Xeriscaping. 9. List the four major concerns in caring for interior plants. <p>10. Discuss principles of interior design.</p> <p>11. Describe the best cultural conditions for selected plants(water, light, soil requirements).</p> <p>Sports Turfgrass Production and Management</p> <p>Unit 2 – Safety</p> <p>Content Standards:</p> <ol style="list-style-type: none"> 2. Identify workplace safety precautions for turfgrass personnel. <p>Learning Objectives:</p> <ol style="list-style-type: none"> 1. Research and discuss safe handling of pesticides. 2. Determine how to properly dispose of pesticide containers. 3. Demonstrate how to properly operate turfgrass equipment. 4. Demonstrate correct procedures for handling and applying fertilizers. 5. Evaluate effects of pesticides and fertilizers in the land in terms of runoff and non-point source pollution. 6. Learn what personal protection equipment must be worn when handling pesticides and fertilizers, and operating machines. 7. Demonstrate applicator calibration procedures for correct 	

Postsecondary Course Objectives	Secondary Objectives and Location(s)	TEDAC Comments
	<p>application rates to prevent pollution.</p> <p>Unit 3 - Turfgrass Growth Content Standards: 3. Identify common names, characteristics, and uses of warm- and cool-season perennial grasses. o Categorizing climatic regions of the United States to determine suitable grasses Examples: Region 1- Kentucky bluegrass Region 2- Bermuda grass 4. Differentiate among the growth patterns of turfgrasses, including rhizome, stolon, and bunch. 5. Explain soil preparation techniques needed during turfgrass renovations. Examples: grading, draining, fertilizing o Describing the components of soils and the importance of each to the turfgrass industry o Describing methods of establishing turfgrass Examples: seeding, sodding, plugging, sprigging Learning Objectives: 1. Identify common turfgrasses used on sports field and lawns, warm- and cool-season. 2. Compare characteristics of common turfgrasses, warm- and cool- season 3. Determine which grasses grow better in different regions of the country. 4. Identify and compare the turfgrass growth characteristics for warm-and cool-season grasses. 5. Prepare an area using soil preparation techniques in order to</p>	

Postsecondary Course Objectives	Secondary Objectives and Location(s)	TEDAC Comments
	<p>establish and renovate turfgrass areas.</p> <p>6. Compare and contrast the different types of establishing turfgrasses.</p> <p>7. Determine why the turfgrass industry is so important to our soils.</p> <p>Unit 4 - Turfgrass Management</p> <p>Content Standards:</p> <p>6. Evaluate the results of a soil analysis.</p> <ul style="list-style-type: none"> o Comparing characteristics of primary and secondary macronutrients and micronutrients <p>Examples: primary macronutrients – nitrogen, phosphorus, potassium</p> <p>secondary macronutrients – calcium, sulfur, magnesium</p> <p>micronutrients- carbon, hydrogen, oxygen, iron, boron, manganese, copper, zinc, molybdenum, chlorine</p> <ul style="list-style-type: none"> o Describing symptoms of deficiencies in turfgrasses <p>7. Identify insects, diseases, and weeds that affect specific turfgrasses.</p> <p>Examples: insects- army worms, grubs, mole crickets</p> <p>diseases- dollar spot, fairy ring</p> <p>weeds- crabgrass, annual bluegrass</p> <p>8. Differentiate among various types of pesticides.</p> <p>Examples: preemergence, postemergence, selective and nonselective monosodium methanearsonate (MSMA)</p> <ul style="list-style-type: none"> o Describing techniques for preparing pesticide mixtures o Demonstrating safe use of pesticides <p>9. Explain mowing heights, frequency of mowing, and patterns of mowing for use on various turfgrasses.</p> <p>Learning Objectives:</p> <ol style="list-style-type: none"> 1. Take a soil sample and send it off for analysis. 2. Evaluate the results and make a fertilization schedule. 3. Identify macronutrients and micronutrients. 4. Calibrate fertilizer spreader. 	

Postsecondary Course Objectives	Secondary Objectives and Location(s)	TEDAC Comments
	<p>5. Apply nutrients to turfgrass. 6. Identify nutrient deficiencies in turfgrasses. 7. Identify and treat common weed insects. 8. Identify and treat turfgrass diseases. 9. Identify and treat turfgrass weeds. 10. Compare various types of pesticides for the specific applications. 11. Calibrate a sprayer. 12. Safely mix a pesticide and apply.</p> <p>13. Evaluate different mowing heights and patterns for turfgrasses.</p> <p>Unit 5 - Sports Fields Content Standards: 10. Design a sports field, including dimensions and components. Examples: football, baseball, soccer, softball 11. Identify characteristics of various parts of a golf course, including greens, fairways, roughs, traps, and tees. o Describing the basic design and layout features of a golf course o Prescribing maintenance procedures for a golf course o Identifying responsibilities of the superintendent, director of grounds, golf professional, marshal, and maintenance crew 12. Evaluate skills needed to design drainage and irrigation systems. o Demonstrating skills needed to install and maintain drainage and irrigation systems Examples: plumbing, electrical Learning Objectives: 1. Measure, design, and draw a football field, soccer field, baseball field, and softball field. 2. Visit a golf course to evaluate the components of the course. 3. Evaluate maintenance procedures for a golf course.</p> <p>4. Research responsibilities of the superintendent, director of</p>	

Postsecondary Course Objectives	Secondary Objectives and Location(s)	TEDAC Comments
	<p>grounds, golf professional, marshal, and maintenance personnel.</p> <ol style="list-style-type: none"> 5. Design a drainage system for athletic fields. 6. Design an irrigation system for an athletic field. 7. Determine water requirements for turfgrasses. <p>Unit 6 - Turfgrass Tools and Equipment Content Standards: 13. Identify uses of tools and equipment needed for the maintenance of turfgrasses. Examples: tools-hand sprayers for applying pesticides, spreaders for applying fertilizers equipment- power mowers for cutting turfgrass, gasoline blowers for removing debris</p> <p>Learning Objectives: 1. Correctly identify hand and power tools used in the turfgrass industry. 2. Properly operate machines used in the turfgrass industry. 3. Demonstrate how to use hand tools and power tools.</p> <p>Unit 7 – Business Management Content Standards: Demonstrate business-related work ethics.</p> <p>Examples: following instructions, being on-time, cooperating with others, Demonstrating managerial skills for the successful operation of a landscape or turfgrass business Examples: keeping records, budgeting, pricing, scheduling work, inventorying purchasing, advertising, handling customer complaints, communicating in oral and written form</p> <p>Learning Objectives: 1. Create a business plan for a small business. 2. Write a résumé and complete a job application. 3. Create a budget for a lawn or landscape business. 4. Prepare work schedules.</p>	

Articulation Agreement Identifier: HOC 136 (2006-1)

Postsecondary Course Objectives	Secondary Objectives and Location(s)	TEDAC Comments
	<p>5. Estimate job costs and submit bids.</p> <p>Unit 8 – Technology</p> <p>Content Standards:</p> <p>15. Identify advancements in technology that enhance the sports and recreation turfgrass industry.</p> <p>Learning Objectives:</p> <p>1. Research and identify technology that helps the turfgrass business owner.</p>	