

Passaic County Technical Institute

Curriculum of Instruction

Landscape Design/Horticulture IV

Grade 12

June 2011

Prepared by Michael Di Patria

I. COURSE DESCRIPTION

Landscape Design/Horticulture IV is a one-year course, which builds on the basic skills and knowledge gained in Landscape Design/Horticulture II and III. This will be accomplished through review along with classroom and greenhouse activities. Units of study will include but not be limited to: Landscape Design, Using Plants in the Landscape, Interior Plantscape, Xeriscaping, Lawn equipment and maintenance. Students will also study Integrated Pest Management, Plant propagation by hydroponics and Irrigation systems. Students in Landscape IV will be expected to do basic mathematics; read and interpret garden catalogs; research, analyze and organize information by requiring the use of word processing, power point and the internet to complete assignments. The entrepreneurial skills and business interest of the students will be reinforced through simulated landscape situations. FFA activities will support classroom material.

Time Frame : 1 year

Suggested Grade Level : Grade 12

Prerequisite: Successful completion of Landscape Design/Horticulture III

II. OBJECTIVES

Upon completion of Landscape Design/Horticulture IV, the student will be able to:

- A. Explain Interior Plantscape: environment needed, plant care and species characteristics
- B. Describe the benefits of using outdoor lighting and architecture as landscape Enrichments
- C. Explain and demonstrate economic, environmental and aesthetic benefits of Xeriscaping
- D. Describe the process of Pricing the Landscape using appropriate calculations for take-offs
- E. List and describe the components of a contract
- F. Describe standard and customized specifications for typical landscape project
- G. Explain and demonstrate a lawn maintenance cost estimate
- H. Safely operate, service and maintain power lawn maintenance equipment
- I. Explain how to prepare an area for a sod and seed lawn
- J. Describe various types of dry walls used in the landscape and be able to construct one
- K. Set up basic Hydroponics system and grow plants

COURSE OUTLINE

Interior Plantscape

- A. Describe good indoor plant growing conditions
- B. Explain foliage plants by light tolerance levels
- C. Describe insect pest found on foliage plants
- D. Explain plant acclimation
- E. Identify cultural and biological pest control strategies
- F. List and rate ten interior plants according to light tolerance

Landscape Enrichment

- A. Explain effect of landscape enrichment on design project
- B. Describe tangible and intangible enrichments
- C. Discuss natural and fabricated enrichment items
- D. Explain how the use of architecture can effect a landscape design project

Xeriscaping

- A. Describe the purpose of Xeriscaping
- B. Explain the economic, environmental and aesthetic benefits of Xeriscaping
- C. Discuss the seven principles of Xeriscaping
- D. Demonstrate the principles of Xeriscaping to landscape designing

Pricing the Landscape Design

- A. Explain the difference between cost and price
- B. Discuss the difference between an estimate and a bid
- C. Prepare a design cost estimate
- D. Describe the calculations needed for landscape take-offs
- E. Explain and demonstrate typical calculations required for take-offs

Contracts/Contractors/Landscape Specifications

- A. Explain the importance of understanding a contract
- B. List and describe the components of a contract
- C. Explain the different ways contractors are selected for jobs
- D. Describe the difference between a contractor and sub-contractor
- E. Explain standard and customized specifications
- F. Discuss the value and importance of uniformity
- G. Explain the difference between closed and open specifications

Pricing Landscape Maintenance

- A. Describe the values of cost analysis to a maintenance firm
- B. Explain the features of a landscape maintenance cost analysis
- C. Describe unit pricing
- D. Prepare a maintenance cost estimate

Landscape Equipment Maintenance

- A. Review safety precautions for operating landscape maintenance equipment
- B. Explain the importance of servicing equipment on a regular basis
- C. Demonstrate steps in servicing a 36" Commercial lawn mower
- D. Demonstrate steps in servicing a Commercial Backpack Blower

- E. Demonstrate steps in servicing a Commercial String Trimmer
- F. Explain how to prepare lawn maintenance equipment for Spring and Winter

Turf Grass Establish Care

- A. Explain ways turf grass can be established
- B. Compare a turf grass blend to turf grass mixture
- C. Explain the steps in good seed bed preparation
- D. Discuss and demonstrate planting techniques for seed lawns
- E. Describe and demonstrate sod laying techniques
- F. Explain how to maintain turf grass
- G. Discuss proper mowing practices for maintaining turf
- H. Explain weed control techniques for turf grass

Dry Wall Construction

- A. Explain the different types of materials used for wall construction
- B. Describe the aesthetic value of terracing the landscape
- C. Discuss size, function and shape of walls in the landscape
- D. Explain steps in constructing a dry wall
- E. Discuss the importance of water release on walls
- F. Construct dry wall using typical landscape thin stone

Hydroponics

- A. Describe the purpose of Hydroponics
- B. Explain the types of Hydroponic systems used in propagation of plants
- C. Describe the equipment and supplies needed to construct a Hydroponic system
- D. Prepare a basic Hydroponic system and grow selected plant material

Greenhouse Operation

- A. Prepare a maintenance and watering program for greenhouse grown plants
- B. Explain ways to install a drip irrigation system for selected plants
- C. Discuss Marketing ideas for greenhouse plant sale

Student Organizations

- A. Review Organizations and Internships in Horticulture
- B. Review the purpose and nature of FFA
- C. Review the benefits of being an active member of the FFA
- D. Evaluate and apply for FFA chapter

III. EVALUATION, PROFICIENCIES and NJCCS

A. Evaluation :

Students to be evaluated using the following grading system:

Tests	40%
Quizzes	20%
Projects	20%
Notebooks/Homework	10%
Class Participation	10%
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TOTAL	100%

B. Proficiencies:

Students will be able to :

- A. Explain Interior Plantscape: environment needed, plant care and species characteristics
- B. Describe the benefits of using outdoor lighting and architecture as landscape Enrichments
- C. Explain and demonstrate economic, environmental and aesthetic benefits of Xeriscaping
- D. Describe the process of pricing the Landscape using appropriate calculations for take-offs
- E. List and describe the components of a contract
- F. Describe standard and customized specifications for typical landscape project
- G. Explain and demonstrate a lawn maintenance cost estimate
- H. Safely operate, service and maintain power lawn maintenance equipment
- I. Explain how to prepare an area for a sod and seed lawn
- J. Describe various types of dry walls used in the landscape and be able to construct one
- K. Set up basic Hydroponics system and grow plants

C. NJCCS

The following CCS will be used throughout the course :

Standard 9.1 21st-Century Life and Career Skills: All students will demonstrate the creative, critical thinking, collaboration, and problem-solving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures.

Standard 9.2 Personal Financial Literacy: All students will develop skills and strategies that promote personal and financial responsibility related to financial planning, savings, investment, and charitable giving in the global economy.

Standard 9.3 Career Awareness, Exploration, and Preparation: All students will apply knowledge about and engage in the process of career awareness, exploration, and preparation in order to navigate the globally competitive work environment of the information age.

Standard 9.4 Career and Technical Education: All students who complete a career and technical education program will acquire academic and technical skills for careers in emerging and established professions that lead to technical skill proficiency, credentials, certificates, licenses, and/or degrees.

IV. TEXTBOOKS and INSTRUCTIONAL MATERIALS

“Introduction to Horticulture”, fourth edition - Charles B. Schroeder
Pearson Education Inc., Boston, Ma, 2009
ISBN : 978-0-13-362631-5

Eddie Dean Seagle
Lorie Felton
John M. Ruter
William T. Kelly
Gerard Krewer

“Landscaping-Principles and Practices”, 5th edition Jack E. Ingles
Delmar Publishers, Albany, New York, 1997
ISBN : 0-8273-6735-X

“Landscape Design, Construction and Maintenance”, third edition - Ronald Biondo
Person Education Inc., Boston, Ma, 2009
ISBN : 978-0-13-362638-4

Charles Schroder

V. INSTRUCTIONAL STRATEGIES

Various teaching methods are utilized in this course. In order to meet the individual needs of our students, differentiated instruction is utilized in every class. Meaningful instruction will use a variety of strategies, including but not limited to: readings and exercises from approved text(s) and related supplemental materials, hands-on practical projects, shop demonstrations by the teacher and students, cooperative group activities, teacher generated worksheets and exercises, field trips to flower shows, botanical gardens, and selected secondary schools will support classroom content. Teacher modeling of landscape situations will also be implemented. The use of specific audio-visual materials will be utilized in classroom instruction. Computer use will consist of research and project reports.

VI. SCOPE and SEQUENCE

Skills to be Learned 9 10 11 12

Contracts/Contractors/Landscape Specifications	I	ID	D	DR
Greenhouse operation	I	ID	DR	R
Horticulture Industry & the Environment	I	I	D	DR
Hydroponics	I	I	ID	DR
Integrated Pest Management (IPM)	I	ID	DR	R
Interior Plantscape	I	ID	D	DR
Irrigation Systems	I	ID	DR	R
Landscape Business Management	I	ID	D	DR
Landscape Construction	I	ID	D	DR
Landscape Design	I	ID	DR	DR
Landscape Enrichments	I	ID	D	DR
Landscape Maintenance	I	ID	D	DR
Landscape Maintenance Equipment	I	ID	D	DR
Landscape/Horticulture Careers	I	ID	DR	R
Media, Nutrients and Fertilizers	I	ID	DR	R
Non Power Tools	I	ID	DR	R
Outdoor Room Concept	I	ID	DR	R
Plant Classification, Function and Structure	I	ID	DR	R
Plant Growth Regulators	I	ID	D	DR
Plant Propagation	I	ID	DR	R
Plant Selection and the use of Plants in the Landscape	I	ID	D	DR
Pricing the Landscape	I	ID	D	DR
Student organizations	I	ID	DR	R
Turf grass	I	I	D	DR
Xeriscaping	I	ID	D	DR

KEY : INTRODUCE : I DEVELOP IN DEPTH : D REINFORCE : R

VII. PACING CHART

<u>Week</u>	<u>Chapter</u>	<u>Material</u>
Week 1-2	Chapter 27 Student Organizations and Internships in Horticulture	Explain purpose, nature and organization of the FFA. Org. for Landscape/Horticulture students.
Week 3	Chapter 27 Student Organizations and Internships in Horticulture	Role of Internships in student development. Evaluate and apply for FFA chapter
Week 4-7	Chapter 17 Maintaining Turf Grass Areas Chapter 26 Care of the Lawn	Compare turf grass mixture. Steps in good seed bed preparation. Discuss and demonstrate sod and seed lawns, Maintenance. Explain weed control for turf. Set up lawn maintenance program
Week 8-9	Chapter 13 Landscape Enrichments	Define Enrichments. Effects of Landscape Enrichments on design projects. Describe tangible and intangible enrichments. Noted in Site Analysis
Week 10-11	Chapter 13 Landscape Enrichments	Discuss natural and fabricated enrichments items. Effective use of architecture in Landscape. Effect light and water have on the design
Week 12-14	Chapter 15 Interiorscaping	Explain foliage plant by light tolerance levels. Identify and Describe insect pest found on foliage plants. Explain plant acclimation, cultural and biological pest control strategies. List and rate ten interior plants according to light tolerance
Week 15-16	Chapter 10 Xeriscaping	Define and describe the purpose of Xeriscaping. Explain the economic, environmental and aesthetic benefits. Describe the basic principles use in design
Week 17	Winter Break	
Week 18-22	Chapter 8 Pricing the Plan	Define Landscape estimates and bids. Difference between cost, price, estimate, and

	Chapter 15 Pricing the Proposed Design	a bid. Describe Landscape specifications. Explain and demonstrate how to prepare an estimate for a Landscape design. Explain and demonstrate calculations needed for Landscape take-offs.
Week 24-26	Chapter 17 Understanding Contracts and Contractors	Explain the importance of understanding a contract. List and describe the components of a contract. Describe the ways contractors are selected for a job. Difference between a contractor and sub-contractor
Week 27-28	Chapter 17 Understanding Contracts and Contractors	Explain standard and customized landscape specifications. Discuss the value and importance of uniformity. Describe the difference between closed and open specifications
Week 29-30	Landscape/Horticulture Articles. Greenhouse Journals, Internet Resources	Describe the purpose of Hydroponics. Advantages and disadvantages. Explain various types of Hydroponic systems used in propagation of plants. Discuss equipment needed to construct a Hydroponic system. Prepare basic system and grow selected plant material
Week 31-32	Chapter 22 Hand and Power Tools Chapter 24 Grounds Maintenance Equipment	Review safety precautions for operating landscape maintenance equipment. Review importance of servicing equipment on a regular basis. Explain ways to prepare lawn maintenance equipment for Spring/Winter. Describe and demonstrate servicing of 36" commercial lawn mower, backpack blower and String Trimmer
Week 33	Chapter 28 Pricing the Landscape Maintenance	Discuss Importance of pricing correctly. Describe the values of cost analysis to a maintenance firm. Explain the features of a Landscape Maintenance cost analysis. Define unit pricing. Prepare a Maintenance cost estimate

Week 34	Chapter 11 Growing Crops in the Greenhouse	Explain and prepare a maintenance and watering program for greenhouse grown plants. Describe ways to install drip irrigation system for selected plant material. Discuss Marketing ideas for greenhouse plant sales. Layout and install basic drip system for vegetable garden
Week 35-36	Chapter 13 Installing Fences and Walls	Describe different types of material available for wall construction. Explain the aesthetic value of terracing the landscape. Importance of size, function and wall shape. Discuss importance a water release spots. Demonstrate steps in constructing a dry wall. Construct dry wall using thin wall stone

Landscape Design/Horticulture IV

Grade 12

Student Proficiencies

COURSE DESCRIPTION

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- G. Explain and demonstrate a lawn maintenance cost estimate
- H. Safely operate, service and maintain power lawn maintenance equipment
- I. Explain how to prepare an area for a sod and seed lawn
- J. Describe various types of dry walls used in the landscape and be able to construct one
- K. Set up basic Hydroponics system and grow plants