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ABSTRACT

This program guide contains the standard environmental horticulture curriculum for technical institutes in Georgia. The curriculum encompasses the minimum competencies required for entry-level workers in the environmental horticulture field. The general information section contains the following: purpose and objectives; program description, including admissions, typical job titles, and accreditation and certification; and curriculum model, including standard curriculum sequence and lists of courses. The next three sections contain the courses: general core courses (English, mathematics, interpersonal relations and professional development); fundamental technical courses (horticulture sciences, woody ornamental plant identification, herbaceous plant identification, greenhouse management I, horticulture construction, nursery production, landscape design, landscape installation, pest control); and specific technical courses (greenhouse management II, landscape management, garden center management, environmental horticulture internship). Each course consists of the following: a course overview (description, competency areas, prerequisites, credit hours, contact hours); course outline with student objectives and class and lab hours; and resource list. An appendix to the guide lists equipment needed for the program. (KC)

GEORGIA DEPARTMENT OF TECHNICAL AND
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GEORGIA DEPARTMENT OF TECHNICAL AND ADULT EDUCATION

ENVIRONMENTAL HORTICULTURE PROGRAM GUIDE

ENVIRONMENTAL HORTICULTURE PROGRAM GUIDE

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ENVIRONMENTAL HORTICULTURE PROGRAM GUIDE

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TABLE OF CONTENTS

HOW TO USE THIS MANUAL

Summary

This manual is divided into:

Tabs - major divisions, physically separated by numbered tab dividers

Sections - divisions within a tab

Subjects - divisions within a section

Numbering System

Each document (Subject) has a unique 6-digit number. This number is divided into 3 sets of 2 digits which are separated by dashes.

Example:	04	-	02	-	03
	TAB		SECTION		SUBJECT

Locating a Document

Document numbers appear on the upper right hand corner of each page (see top of this page). To locate a subject:

1. Refer to the Table of Contents.
2. Note the document number for the subject.

   Example: 04-02-03

3. Turn to the tab divider marked 04 and within this tab find Section 02 and Subject 03.

Table of Contents

The table of contents (00-00-01) is intended to give a cover-to-cover overview of the manual contents and organization. It lists contents of a Tab to the Section and Subject level.

Amendments

Registered manual holders are instructed to keep their manuals up-to-date.

Manuals Document Transmittal	All new or revised documents are sent to the registered holder of the manual and are recorded on a Manuals Document Transmittal Form. Transmittals are numbered consecutively, and instructions for use are printed on the form.
Amendment Record	The registered holder of the manual records the receipt of all manual document transmittals on the Amendment Record. This record and instructions are found on the reverse side of the manual title page.

GENERAL INFORMATION

Introduction

Overview

Environmental Horticulture is a program of study which is consistent with the philosophy and purpose of the institution. The program provides academic foundations in communications, mathematics, and human relations, as well as technical fundamentals. Program graduates are well trained in the underlying fundamentals of environmental horticulture and are well prepared for employment and subsequent upward mobility.

The Environmental Horticulture program is a specialized training program that provides the student with the knowledge and skills to become a competent horticulturist in the modern horticulture industry. Skills application plays a vital role in the comprehensive Environmental Horticulture program. Important attributes of successful program graduates are critical thinking, problem solving, and the ability to apply technology to the work requirement. This field has experienced rapid expansion and the trend is expected to continue for the foreseeable future.

The program structure acknowledges individual differences and provides opportunities for students to seek fulfillment of their respective educational goals. The program does not discriminate on the basis of race, color, national origin, religion, sex, handicapping condition, academic or economic disadvantage.

To assist each student to attain his or her respective potential within the program, both the instructor and the student incur an obligation in the learning process. The instructor is a manager of instructional resources and organizes instruction in a manner which promotes learning. The student assumes responsibility for learning by actively participating in the learning process.

This is a dynamic field which requires extraordinary attention to current curriculum and up-to-date instructional equipment, materials, and processes. The Environmental Horticulture program must promote the concept of change as the profession evolves. The need for nurturing the spirit of involvement and lifelong learning is paramount in the horticulture industry.

GENERAL INFORMATION

Introduction

Standard Curriculum

The Environmental Horticulture program guide presents the standard environmental horticulture curriculum for technical institutes in Georgia. This curriculum addresses the minimum competencies for the Environmental Horticulture program. The competency areas included in a local Environmental Horticulture program may exceed what is contained in this program guide, but it must encompass the minimum competencies contained herein.

As changes occur in the Environmental Horticulture program, this guide will be revised to reflect those changes. Proposed changes are first evaluated and approved by the local program advisory committee and then forwarded to the State Technical Committee for approval and inclusion in the state standard program guide.

This program guide is designed to relate primarily to the development of those skills needed by individuals in the field such as plant propagation, growth, and sales; landscape design, installation, and maintenance; and nursery and garden center management.

GENERAL INFORMATION

Introduction

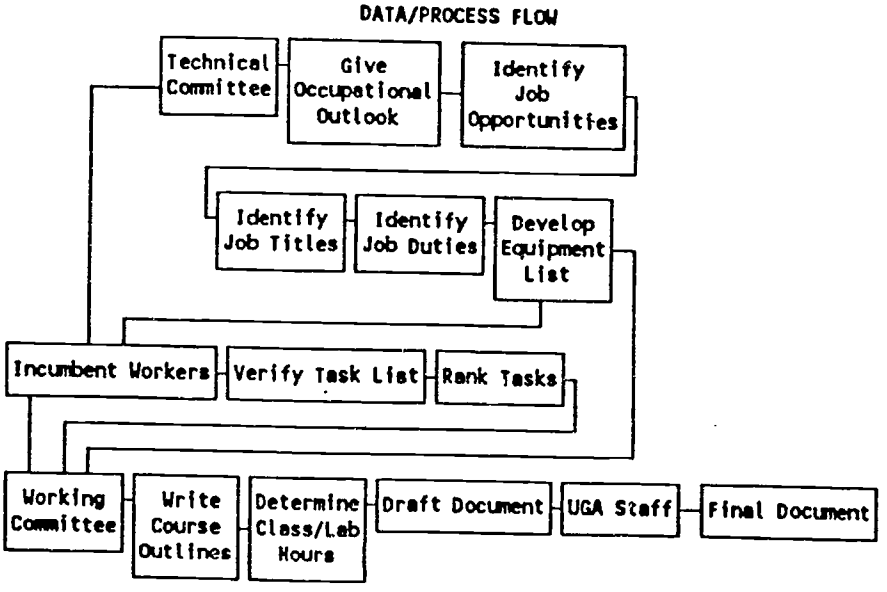
Developmental Process

The development of the Environmental Horticulture program guide was based on the premise that the people in the industry can best determine program needs. With this in mind, representatives from businesses which would employ program graduates were asked to serve on a State Technical Committee to help identify the technical content and to provide overall guidance to ensure that the resulting program would produce graduates qualified for entry-level positions in the industry.

Representatives from the various technical areas recommended by the State Technical Committee verified the task list compiled from extensive research. These representatives included workers who had actually performed the duties and tasks being verified.

Technical institutes which would implement the curriculum were also included in the developmental effort. Representatives from the technical institutes provided the expertise in teaching methodology unique to each discipline and developed the courses contained in this program guide.

The University of Georgia coordinated and directed the development of the curriculum and produced the final program guide. The role of each group in the developmental process is shown in the following diagram.



GENERAL INFORMATION

Introduction

Purpose and Objectives

Purpose

The purpose of the Environmental Horticulture program is to provide educational opportunities to individuals that will enable them to obtain the knowledge, skills, and attitudes necessary to succeed in the environmental horticulture profession.

The Environmental Horticulture program provides educational opportunities regardless of race, color, national origin, religion, sex, age, handicapping condition, academic disadvantage, or economic disadvantage.

The Environmental Horticulture program is intended to produce graduates who are prepared for employment as horticulturists. Program graduates are to be competent in the general areas of communications, math, and professional relations.

Graduates are to be competent in horticultural science; environmental considerations; interior and exterior landscape design, installation, and maintenance; and business management as it applies to career opportunities in environmental horticulture.

Objectives

1. Provide current curriculum, instructional materials, and equipment (in accordance with available funding) which teach knowledge, skills, and attitudes appropriate to industry needs.

2. Provide educational facilities which foster learning and provide safe, healthy environments available and accessible to all students who can benefit from the program.

3. Provide academic instruction which supports effective learning within the program and which enhances professional performance on the job.

4. Provide employability skills which foster work attitudes and work habits that will enable graduates of the program to perform as good employees.

5. Nurture the desire for learning so that graduates will pursue their own continuing education as a lifelong endeavor.

6. Provide an educational atmosphere which promotes a positive self image and a sense of personal well being.

7. Provide education that fosters development of good safety habits.

8. Provide admission, educational, and placement services without regard to race, color, national origin, religion, sex, age, or handicapping condition.

9. Provide information to the public regarding the program that will facilitate recruitment and enrollment of students.

10. Promote good public relations via contacts and regular communications with business, industry, and the public sector.

11. Promote faculty and student rapport and communications to enhance student success in the program.

GENERAL INFORMATION

Program Description

Program Defined

The Environmental Horticulture program prepares students for employment in a variety of positions in today's environmental horticulture industry. The Environmental Horticulture program provides learning opportunities which introduce, develop, and reinforce academic and occupational knowledge, skills, and attitudes required for job acquisition, retention, and advancement. Graduates of the program receive an Environmental Horticulture diploma and are qualified as horticulturists.

GENERAL INFORMATION

Program Description

Admissions

Admissions Requirements

Admission of new students to the Environmental Horticulture program is contingent upon their meeting all of the following requirements:

a) attainment of 16 or more years of age;
b) achievement of the 7th grade level in math, reading, and English as shown on a statistically validated test; and
c) completion of application and related procedures.

Admission of transfer students is contingent upon their meeting the following:

a) regular admission and good standing at a regionally accredited diploma or degree granting institution; and
b) proper completion of application and related procedures.

Provisional Admission

A new student who does not meet the regular admission requirements of the program may be admitted on a provisional basis. The requirements for provisional admission are:

a) attainment of 16 or more years of age;
b) achievement of the 6th grade level in math, reading, and English as shown on a statistically validated test or recommendation by program faculty and designated admissions personnel on the basis of interview and assessment of student potential; and
c) completion of application and related procedures.

GENERAL INFORMATION

Program Description

Typical Job Titles

The Environmental Horticulture program is assigned a (PGM) CIP code of (PGM) 01.0601 and is consistent with all other programs throughout the state which have the same (PGM) CIP code. The related D.O.T. job title follows:

Horticultural Worker I	405.684-014

GENERAL INFORMATION

Program Description

Accreditation and Certification

This program must conform to the institutional accreditation requirements of the Southern Association of Colleges and Schools by meeting Commission on Colleges (COC) or Commission on Occupational Education Institutions (COEI) accreditation requirements and must not conflict with the accreditation criteria established by COC and COEI.

GENERAL INFORMATION

Curriculum Model

Standard Curriculum

The standard curriculum for the Environmental Horticulture program is set up on the quarter system. Technical institutes may implement the Environmental Horticulture program using one of the sequences listed below or using a locally developed sequence designed to reflect course prerequisites and/or corequisites.

Course		Class Hours	Lab Hours	Weekly Contact Hours	Credits
SUGGESTED SEQUENCE I					
FIRST QUARTER					
EHO 100	Horticulture Science	5	0	5	5
EHO 101	Woody Ornamental Plant Identification	5	2	7	6
EHO 102	Herbaceous Plant Identification	3	2	5	4
ENG 100	English	5	0	5	5
XXX xxx	Occupational or Occupationally Related Electives	-	-	-	5
		18	4	22	25
SECOND QUARTER					
EHO 103	Greenhouse Management I	2	3	5	3
EHO 104	Horticulture Construction	2	3	5	3
EHO 105	Nursery Production	2	3	5	3
EHO 106	Landscape Design	2	8	10	5
MAT 100	Basic Mathematics	3	0	3	3
		11	17	28	17

Course		Class Hours	Lab Hours	Weekly Contact Hours	Credits
THIRD QUARTER					
EHO 107	Landscape Installation	4	6	10	5
EHO 108	Pest Control	4	0	5	4
EHO 110	Greenhouse Management II	4	6	10	6
		12	12	25	15
FOURTH QUARTER					
EHO 112	Landscape Management	2	3	5	3
EHO 114	Garden Center Management	2	3	5	3
EHO 115	Environmental Horticulture Internship	0	10	10	3
PSY 100	Interpersonal Relations and Professional Development	3	0	3	3
XXX xxx	Occupational or Occupationally Related Electives	-	-	-	7
		7	16	23	19

Course		Class Hours	Lab Hours	Weekly Contact Hours	Credits
SUGGESTED SEQUENCE II					
FIRST QUARTER					
EHO 100	Horticulture Science	5	0	5	5
EHO 101	Woody Ornamental Plant Identification	5	2	7	6
EHO 102	Herbaceous Plant Identification	3	2	5	4
ENG 100	English	5	0	5	5
MAT 100	Basic Mathematics	3	0	3	3
		21	4	25	23
SECOND QUARTER					
EHO 103	Greenhouse Management I	2	3	5	3
EHO 104	Horticulture Construction	2	3	5	3
EHO 105	Nursery Production	2	3	5	3
EHO 108	Pest Control	4	0	5	4
XXX xxx	Occupational or Occupationally Related Electives	-	-	-	7
		11	9	20	20
THIRD QUARTER					
EHO 106	Landscape Design	2	8	10	5
EHO 107	Landscape Installation	4	6	10	5
EHO 112	Landscape Management	2	3	5	3
PSY 100	Interpersonal Relations and Professional Development	3	0	3	3
		11	17	28	16

Course		Class Hours	Lab Hours	Weekly Contact Hours	Credits
FOURTH QUARTER					
EHO 110	Greenhouse Management II	4	6	10	6
EHO 114	Garden Center Management	2	3	5	3
EHO 115	Environmental Horticulture Internship	0	10	10	3
XXX xxx	Occupational or Occupationally Related Electives	-	-	-	5
		6	19	25	17

GENERAL INFORMATION

Curriculum Model

General Core Courses

The general core courses provide students with a foundation in the basic skills which enable them to express themselves more clearly, both orally and in writing, and to perform the mathematical functions required in this occupation. The general core courses for the Environmental Horticulture program are listed below.

ENG 100	English	5 Credits
MAT 100	Basic Mathematics	3 Credits
PSY 100	Interpersonal Relations and Professional Development	3 Credits

GENERAL INFORMATION

Curriculum Model

Fundamental Occupational Courses

The fundamental occupational courses provide students with a foundation in the area of environmental horticulture which is needed to progress to the more highly specialized courses in environmental horticulture. The fundamental occupational courses are listed below.

EHO 100	Horticulture Science	5 Credits
EHO 101	Woody Ornamental Plant Identification	6 Credits
EHO 102	Herbaceous Plant Identification	4 Credits
EHO 103	Greenhouse Management I	3 Credits
EHO 104	Horticulture Construction	3 Credits
EHO 105	Nursery Production	3 Credits
EHO 106	Landscape Design	5 Credits
EHO 107	Landscape Installation	5 Credits
EHO 108	Pest Control	4 Credits

GENERAL INFORMATION

Curriculum Model

Specific Occupational Courses

The specific occupational courses build upon the fundamental occupational courses to provide students with the basic knowledge and skill required to work as horticulturists. The specific occupational courses offered in the Environmental Horticulture program are listed below.

EHO 110	Greenhouse Management II	6 Credits
EHO 112	Landscape Management	3 Credits
EHO 114	Garden Center Management	3 Credits
EHO 115	Environmental Horticulture Internship	3 Credits
	Occupational or Occupationally Related Electives	12 Credits

GENERAL INFORMATION

Curriculum Model

Electives

Elective courses are provided to allow for the different levels of prior knowledge and skills brought to the classroom by students with diverse backgrounds, educational attainment, and specialized interests.

Decisions regarding the selection and appropriateness of any elective are made by the student after consultation with the instructor. Courses from other departments may be taken as electives when considered appropriate for a student's academic circumstances and career goals.

GENERAL CORE

ENG 100 - English

Course Overview

Course Description

Emphasizes the development and improvement of written and oral communications abilities. Topics include: basic grammar; language usage; vocabulary; idea development; spelling; outlining; sentence elements; sentence developments; paragraph development; revision; listening skills; reading skills; and locating, using, and organizing information. Homework assignments reinforce classroom learning.

Competency Areas

Basic Oral Communications
Listening Skills
Basic Grammar and Sentence Skills
Paragraph Development
Reading Skills

Prerequisite

Program admission level English and reading competency

Credit Hours

5

Contact Hours Per Week

Class - 5

Lab - 0

GENERAL CORE

ENG 100 - English

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
BASIC ORAL COMMUNICATIONS		**15**	**0**
Telephone etiquette	Recognize effective telephone communication.		
Small group interaction	Participate in group interaction.		
Language registers	Recognize different levels of language.		
Oral presentations	Give oral presentations.		
	Interview and introduce a person.		
	Demonstrate a product or procedure.		
	Convey thoughts in a way that accomplishes desired results.		
	Role play a job-related situation.		
LISTENING SKILLS		**5**	**0**
Listening techniques	Summarize and paraphrase.		
Nonverbal communication	Take accurate notes that summarize material presented.		
	Interpret nonverbal clues.		
Directions	Follow directions.		

Recommended Outline	After completing this section, the student will:	Hours Class	Lab
BASIC GRAMMAR AND SENTENCE SKILLS		**10**	**0**
Nouns, pronouns, verbs, adverbs, adjectives	Use sentence parts correctly.		
Sentence patterns	Recognize basic sentence patterns.		
Sentence structure	Structure sentences effectively.		
Word choice, style, punctuation	Practice peer editing, preferably with word processing.		
PARAGRAPH DEVELOPMENT		**15**	**0**
Topic	Develop a topic sentence.		
Organization	Organize unified details for a paragraph.		
Paragraph elements	Write a paragraph which contains a narrow subject; a controlling idea; relevant, concrete details; and logical organization.		
Revision	Edit and revise paragraphs, preferably using a word processor.		
	Reinforce reading skills through paragraph revision.		

Recommended Outline	After completing this section, the student will:	Hours Class	Lab
READING SKILLS		**5**	**0**
Library usage	Demonstrate the ability to use library cataloging system.		
Reference usage	Reinforce reading skills through reference usage.		
	Complete a library worksheet on locating various references.		
	Demonstrate the ability to use indexes to find information in professional journals.		

GENERAL CORE

ENG 100 - English

Resources

Lewis, S. D., Smith, H., Baker, F., Ellegood, G., Kopay, C., & Tanzer, W. (1988). *Writing skills for technical students* (2nd ed.). Englewood Cliffs, NJ: Prentice Hall.

VanAlstyne, J. S. (1986). *Professional and technical writing strategies*. Englewood Cliffs, NJ: Prentice Hall.

GENERAL CORE

MAT 100 - Basic Mathematics

Course Overview

Course Description

Emphasizes basic mathematical concepts. Topics include: mathematical operations with whole numbers, fractions, decimals, percents, ratio/proportion, and measurement using common English and metric units. Class includes lecture, applications, and homework to reinforce learning.

Competency Areas

Mathematical Operations
Fractions
Decimals
Percents
Ratio and Proportion
Measurement and Conversion

Prerequisite

Program admission level math competency

Credit Hours

3

Contact Hours Per Week

Class - 3

Lab - 0

GENERAL CORE

MAT 100 - Basic Mathematics

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
MATHEMATICAL OPERATIONS		**4**	**0**
Addition	Solve whole number problems using basic mathematical skills.		
Subtraction			
Multiplication			
Division			
Symbols	Recognize symbols and groupings and use them to solve hierarchy of operations problems with whole numbers.		
Order of operations			
Properties			
FRACTIONS		**11**	**0**
Definition of fractions	Define fractions.		
	Identify proper and improper fractions.		
Equivalent fractions			
Greatest common divisor (GCD)			

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Basic operations using fractions	Solve fraction problems using basic multiplication, division, addition, and subtraction operations.		
DECIMALS		**3**	**0**
Definition of decimals and place value			
Basic operations of mathematics with decimals	Solve mathematical problems using decimals.		
Round-off procedures			
Conversion of fractions to decimals and decimals to fractions	Recognize the relationship between fractions and decimals.		
PERCENTS		**3**	**0**
Definition	Solve problems using percents.		
Fractions, decimals, and percents			
Base-rate-part problems	Demonstrate skill in solving base-rate-percent problems.		
RATIO AND PROPORTION		**6**	**0**
Definition of ratio, rates, and proportions	Construct and solve problems involving ratios and proportions.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
MEASUREMENT AND CONVERSION		**3**	**0**
Define base units of length, area, volume, weight, temperature, and time	Determine proper dimensions. Solve basic measurement problems. Convert units within basic systems. Convert between English and metric systems.		

GENERAL CORE

MAT 100 - Basic Mathematics

Resources

Harter, J. H., & Beitzel, W. D. (1988). *Mathematics applied to electronics* (3rd ed.). Englewood Cliffs, NJ: Prentice Hall.

Heywood, A. (1982). *Arithmetic: A programmed worktext.* Monterey, CA: Brooks/Cole.

Johnston, C. L., Willis, A. T., & Hughes, G. M. (1984). *Essential arithmetic* (4th ed.). Belmont, CA: Wadsworth.

Keedy, M. L., & Bittinger, M. L. (1983). *Introductory algebra* (4th ed.). Perdue, IN: Addison-Wesley.

Keedy, M. L., & Bittinger, M. L. (1985). *Essential mathematics* (4th ed.). Perdue, IN: Addison-Wesley.

Lewis, H. (1986). *Technical mathematics.* Albany, NY: Delmar.

Palmer, C. L., & Rachek, L. A. (1986). *Practical mathematics* (7th ed.). Minneapolis: McGraw-Hill.

Proga, R. (1987). *Basic mathematics* (2nd ed.). Boston: Prindle, Weber & Schmidt.

Washington, A. J., & Triola, M. F. (1988). *Technical mathematics* (3rd ed.). Poughkeepsie, NY: Benjamin/Cummings.

GENERAL CORE

PSY 100 - Interpersonal Relations and Professional Development

Course Overview

Course Description

Provides a study of human relations and professional development in today's rapidly changing world that prepares students for living and working in a complex society. Topics include: personal skills required for an understanding of self and others; projecting a professional image; job acquisition skills such as conducting a job search, interviewing techniques, job application, and resume preparation; desirable job performance skills; and desirable attitudes necessary for job retention and advancement.

Competency Areas

Human Relations Skills
Job Acquisition Skills
Job Retention Skills
Job Advancement Skills
Professional Image Skills

Prerequisite

Provisional admission

Credit Hours

3

Contact Hours Per Week

Class - 3

Lab - 0

GENERAL CORE

PSY 100 - Interpersonal Relations and Professional Development

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
HUMAN RELATIONS SKILLS		**6**	**0**
Goal setting	Develop and set personal goals.		
Stress management	Diagnose and respond to own stress level.		
Behavior problems	Identify strategies to handle difficult behaviors effectively.		
Personal introductions	Make proper introductions.		
Problem solving/ decision making	Identify strategies to solve problems/make decisions.		
JOB ACQUISITION SKILLS		**15**	**0**
Job search	Identify strategies to conduct a job search.		
Career goals	Develop and set career goals.		
Employment documents	Prepare letter of application.		
	Prepare resume/applications.		
	Prepare follow-up letters.		
Interviewing	Demonstrate interviewing techniques.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
JOB RETENTION SKILLS		**3**	**0**
Office relationships	Identify techniques used to work effectively with coworkers.		
Time management	Develop time management strategies.		
JOB ADVANCEMENT SKILLS		**3**	**0**
Performance appraisal	Demonstrate ability to accept counseling positively.		
	Demonstrate ability to negotiate promotion/salary increase.		
Supervisory chain	Explain chain of responsibility.		
PROFESSIONAL IMAGE SKILLS		**3**	**0**
Image	Project professional image.		
Attitude	Project professional attitude.		

GENERAL CORE

PSY 100 - Interpersonal Relations and Professional Development

Resources

DuBrin, A. G. (1988). *Human relations - A job oriented approach* (4th ed.). Englewood Cliffs, NJ: Prentice Hall.

Milton, C. R. (1981). *Human behavior in organizations.* Englewood Cliffs, NJ: Prentice Hall.

Reynolds, C. *Dimensions in professional development* (3rd ed.). Cincinnati, OH: South-Western.

Rogers, C. R. (1981). *Human behavior in organizations.* Cincinnati, OH: South-Western.

Wilkes, M., & Crosswait, C. B. *Professional development--The dynamics of success* (3rd ed.). Atlanta: Harcourt Brace & Jovanovich.

Williams, C., Jr. (1982). *Human behavior in organizations.* Cincinnati, OH: South-Western.

FUNDAMENTAL OCCUPATIONAL

EHO 100 - Horticulture Science

Course Overview

Course Description

Introduces the fundamentals of plant science and horticulture as a career field. Topics include: an industry overview, plant parts, plant functions, environmental factors in horticulture, soil function and components, fertilizer elements and analysis, and propagation techniques.

Competency Areas

Industry Overview
Plant Parts
Plant Functions
Environmental Factors in Horticulture
Soil Function and Components
Fertilizer Elements and Analysis
Propagation Techniques

Prerequisite

Provisional admission

Credit Hours

5

Contact Hours Per Week

Class - 5

Lab - 0

FUNDAMENTAL OCCUPATIONAL

EHO 100 - Horticulture Science

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
INDUSTRY OVERVIEW		**5**	**0**
Scope and size	Discuss the scope, size, and economic importance of the horticulture industry.		
Career opportunities	Define the main branches of horticulture.		
	Describe careers in the horticulture industry.		
PLANT PARTS		**8**	**0**
Leaves	Identify plant leaves.		
	Identify leaf structures.		
	Discuss the function of leaves in relation to other plant parts.		
Stems	Identify stems.		
	Identify stem structures.		
	Discuss the function of stems in relation to other plant parts.		
Roots	Identify roots.		
	Identify root structures.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Discuss the function of roots in relation to other plant parts.		
Flowers	Identify flowers.		
	Identify flower structures.		
	Discuss the function of flowers.		
Fruits/seeds	Identify fruits and seeds.		
	Identify fruit/seed structures.		
	Discuss the function of fruits and seeds.		
PLANT FUNCTIONS		7	0
Photosynthesis	Describe the photosynthetic process.		
	Describe the role of photosynthesis in plant growth.		
	Discuss how horticulturists can manipulate photosynthesis to affect plant growth.		
Respiration	Describe the respiration process.		
	Describe the role of respiration in plant growth.		
	Discuss how horticulturists can manipulate respiration to affect plant growth.		

Recommended Outline	After completing this section, the student will:	Hours Class	Lab
Transpiration	Describe the transpiration process.		
	Describe the role of transpiration in plant growth.		
	Discuss how horticulturists can manipulate transpiration to affect plant growth.		
ENVIRONMENTAL FACTORS IN HORTICULTURE		**8**	**0**
Light	Discuss how horticulturists can manipulate light to affect plant growth.		
	Describe the relationship between light and plant functions.		
Temperature	Discuss how horticulturists can manipulate temperature to affect plant growth.		
	Describe the relationship between temperature and plant functions.		
Moisture	Discuss how horticulturists can manipulate moisture to affect plant growth.		
	Describe the relationship between moisture and plant functions.		
Humidity	Discuss how horticulturists can manipulate humidity to affect plant growth.		

Recommended Outline	After completing this section, the student will:	Hours Class	Lab
	Describe the relationship between humidity and plant functions.		
SOIL FUNCTION AND COMPONENTS		**8**	**0**
Soil function	Define soil.		
	Discuss the functions of soil.		
Soil components	List the components of soil.		
	Define soil texture.		
	Define soil structure.		
Practical application	Discuss methods for improving soil structure.		
	Explain the purpose of soil sampling.		
	List the steps to test soil samples.		
FERTILIZER ELEMENTS AND ANALYSIS		**7**	**0**
Essential elements (macro/micro nutrients)	List the essential elements needed for plant growth.		
Role of pH	Define pH.		
	Describe the role of pH in nutrient availability.		
Nutrient deficiencies and toxicities	Describe nutrient deficiencies.		
	Describe nutrient toxicities.		

Recommended Outline	After completing this section, the student will:	Hours Class	Lab
Fertilizer analysis	Interpret fertilizer analysis.		
PROPAGATION TECHNIQUES		**7**	**0**
Introduction	Define sexual reproduction.		
	Define asexual reproduction.		
	Describe propagation environments.		
Techniques	Describe techniques used for propagation.		

FUNDAMENTAL OCCUPATIONAL

EHO 100 - Horticulture Science

Resources

Ingles, J. E. (1985). *Ornamental horticulture: Principles and practices*. Salinas, CA: Delmar.

Janick, J. (1986). *Horticultural science*. New York: Freeman.

FUNDAMENTAL OCCUPATIONAL

EHO 101 - Woody Ornamental Plant Identification

Course Overview

Course Description

Provides the basis for a fundamental understanding of the taxonomy, identification, and culture requirements of woody plants. Topics include: an introduction to woody plants, the classification of woody plants, and woody plant identification and culture requirements.

Competency Areas

Introduction to Woody Plants
Classification of Woody Plants
Woody Plant Identification and Culture Requirements

Prerequisite

Program admission

Credit Hours

6

Contact Hours Per Week

Class - 5

D.Lab - 2

FUNDAMENTAL OCCUPATIONAL

EHO 101 - Woody Ornamental Plant Identification

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
INTRODUCTION TO WOODY PLANTS		**5**	**0**
Binomial nomenclature	Explain why scientific names are used.		
	Use scientific names.		
	Define taxonomy.		
CLASSIFICATION OF WOODY PLANTS		**5**	**0**
Classification systems	Describe systems used to classify woody plants.		
WOODY PLANT IDENTIFICATION AND CULTURE REQUIREMENTS		**40**	**20**
Groundcovers	Identify woody ornamental groundcovers used in southern landscapes.		
	Select ground cover plants based on environmental factors.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Small shrubs	Identify woody ornamental small shrubs used in southeastern landscapes.		
	Select small shrubs based on environmental factors.		
Medium shrubs	Identify woody ornamental medium shrubs used in southeastern landscapes.		
	Select medium shrubs based on environmental factors.		
Large shrubs	Identify woody ornamental large shrubs used in southeastern landscapes.		
	Select large shrubs based on environmental factors.		
Small trees	Identify woody ornamental small trees used in southeastern landscapes.		
	Select large trees based on environmental factors.		
Large trees	Identify woody ornamental large trees used in southeastern landscapes.		
	Select large trees based on environmental factors.		

FUNDAMENTAL OCCUPATIONAL

EHO 101 - Woody Ornamental Plant Identification

Resources

Dirr, M. A. (1983). *Manual of woody landscape plants* (3rd ed.). Champaign, IL: Stipes.

Halfacre, R. G., & Shawcroft, A. R. (1989). *Landscape plants of the southeast.* Raleigh, NC: Sparks.

Whitecomb, C. (1985). *Know it and grow it.* Stillwater, OK: Lacebark.

Document Number:
03-03-01

FUNDAMENTAL OCCUPATIONAL

EHO 102 - Herbaceous Plant Identification

Course Overview

Course Description

Emphasizes the taxonomy, identification, and culture requirements of herbaceous plants. Topics include: an introduction to herbaceous plants, classification of herbaceous plants, and herbaceous plant identification and culture requirements.

Competency Areas

Introduction to Herbaceous Plants
Classification of Herbaceous Plants
Herbaceous Plant Identification and Culture Requirements

Prerequisite

Program admission

Credit Hours

4

Contact Hours Per Week

Class - 3

D.Lab - 2

FUNDAMENTAL OCCUPATIONAL

EHO 102 - Herbaceous Plant Identification

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
INTRODUCTION TO HERBACEOUS PLANTS		**3**	**0**
Binomial nomenclature	Explain why scientific names are used.		
	Use scientific names.		
	Define taxonomy.		
CLASSIFICATION OF HERBACEOUS PLANTS		**2**	**0**
Classification systems	Describe systems used to classify herbaceous plants.		
HERBACEOUS PLANT IDENTIFICATION AND CULTURE REQUIREMENTS		**25**	**20**
Annuals	Identify herbaceous annuals used in southeastern landscapes.		
	Select annuals based on environmental factors.		
Perennials	Identify herbaceous perennials used in southeastern landscapes.		
	Select perennials based on environmental factors.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Floral crops	Identify floral plants used in southeastern landscapes.		
	Select floral plants based on environmental factors.		
Tropical crops	Identify tropical plants used in southeastern landscapes.		
	Select tropical plants based on environmental factors.		

FUNDAMENTAL OCCUPATIONAL

EHO 102 - Herbaceous Plant Identification

Resources

Foster, G. B., & Louden, R. F. (1980). *Park's success with herbs.* Greenwood, SC: George Park Seed.

Reader's Digest. (1979). *Success with houseplants.* New York: Author.

Still, S. (1988). *Manual of herbaceous ornamental plants.* Champaign, IL: Stipes.

FUNDAMENTAL OCCUPATIONAL

EHO 103 - Greenhouse Management I

Course Overview

Course Description

Develops a basic understanding of greenhouse design, construction, and environmental factors affecting plant growth. Topics include: greenhouse construction, greenhouse heating and cooling, greenhouse soil functions and components, irrigation types and effects, fertilizer types and applications, and fall crops for the local area.

Competency Areas

Greenhouse Construction
Greenhouse Heating and Cooling
Greenhouse Soil Functions and Components
Irrigation Types and Effects
Fertilizer Types and Applications
Fall Crops for the Local Area

Prerequisite

Program admission

Credit Hours

3

Contact Hours Per Week

Class - 2

P.Lab - 3

FUNDAMENTAL OCCUPATIONAL

EHO 103 - Greenhouse Management I

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
GREENHOUSE CONSTRUCTION		**4**	**0**
Location	Select a suitable location for a greenhouse.		
Structures	Identify greenhouse components.		
	Describe different styles of greenhouse structures.		
	Discuss economic factors involved in greenhouse construction.		
Covering materials	Discuss the characteristics of materials used in greenhouse construction.		
	Glaze or recover greenhouse structures.		
Benches	Design greenhouse bench systems.		
	Evaluate bench systems in terms of overall greenhouse design and crops being grown.		
GREENHOUSE HEATING AND COOLING		**4**	**0**
Heating	Explain basic differences in types of available greenhouse heating systems.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Calculate heating requirements for a greenhouse.		
	Maintain growing structure heating system.		
	Regulate growing structure temperature.		
Cooling	Explain the basic principles of greenhouse ventilation and cooling.		
	Describe methods of greenhouse cooling.		
	Calculate cooling requirements for a greenhouse.		
	Maintain growing structure cooling system.		
GREENHOUSE SOIL FUNCTIONS AND COMPONENTS		**4**	**0**
Introduction	Define soilless media.		
	Explain why soilless media are desirable.		
Components	List components of artificial soils and their characteristics.		
Functions	Discuss the function of soilless media.		
Economics	Evaluate the cost effectiveness of various greenhouse soil mixes.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Practical application	Mix greenhouse growing media.		
	Alter pH of greenhouse growing media.		
	Pasteurize greenhouse growing media.		
IRRIGATION TYPES AND EFFECTS		**4**	**0**
Effects	Describe the effects of water on plants.		
Rules	Explain general guidelines for watering plants.		
Quality	Demonstrate an awareness of importance of water quality for plant growth.		
Systems	Identify types of systems used for irrigation greenhouse crops.		
FERTILIZER TYPES AND APPLICATIONS		**4**	**0**
Types	Compare various types of fertilization procedures for greenhouse crops.		
Methods of application	Calculate fertilizer requirements for greenhouse crops.		
	Calculate liquid fertilizer concentrations for greenhouse crops.		
	Prepare fertilizer solutions for greenhouse crops.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Fertilize greenhouse plants.		
FALL CROPS FOR THE LOCAL AREA		**0**	**30**
Greenhouse plant cultivation	Apply growth regulator to local fall greenhouse crops.		
	Pinch fall greenhouse plants.		
	Pot fall greenhouse plants.		
	Label greenhouse plants.		
	Disbud fall greenhouse plants.		
	Stake fall greenhouse plants.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Practical application	Mix greenhouse growing media.		
	Alter pH of greenhouse growing media.		
	Pasteurize greenhouse growing media.		
IRRIGATION TYPES AND EFFECTS		**4**	**0**
Effects	Describe the effects of water on plants.		
Rules	Explain general guidelines for watering plants.		
Quality	Demonstrate an awareness of importance of water quality for plant growth.		
Systems	Identify types of systems used for irrigation greenhouse crops.		
FERTILIZER TYPES AND APPLICATIONS		**4**	**0**
Types	Compare various types of fertilization procedures for greenhouse crops.		
Methods of application	Calculate fertilizer requirements for greenhouse crops.		
	Calculate liquid fertilizer concentrations for greenhouse crops.		
	Prepare fertilizer solutions for greenhouse crops.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Fertilize greenhouse plants.		
FALL CROPS FOR THE LOCAL AREA		**0**	**30**
Greenhouse plant cultivation	Apply growth regulator to local fall greenhouse crops.		
	Pinch fall greenhouse plants.		
	Pot fall greenhouse plants.		
	Label greenhouse plants.		
	Disbud fall greenhouse plants.		
	Stake fall greenhouse plants.		

FUNDAMENTAL OCCUPATIONAL

EHO 103 - Greenhouse Management I

Resources

Ball, G. (1985). *Ball red book on greenhouse growing.* Reston, VA: Reston.

Boodley, J. W. (1981). *The commercial greenhouse.* Albany, NY: Delmar.

Nelson, P. V. (1985). *Greenhouse operation and management.* Englewood Cliffs, NJ: Reston.

FUNDAMENTAL OCCUPATIONAL

EHO 104 - Horticulture Construction

Course Overview

Course Description

Develops skills necessary to design and construct landscape features such as retaining walls, walkways, and irrigations systems. Topics include: tool use and safety, retaining walls, drainage, irrigation/water use, low-voltage lighting, and walkways.

Competency Areas

Tool Use and Safety
Retaining Walls
Drainage
Irrigation/Water Use
Low-Voltage Lighting
Walkways

Prerequisite

Provisional admission

Credit Hours

3

Contact Hours Per Week

Class - 2

D.Lab - 2

P.Lab - 1

FUNDAMENTAL OCCUPATIONAL

EHO 104 - Horticulture Construction

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
TOOL USE AND SAFETY		**4**	**0**
Hand tools	Identify hand tools used in horticultural construction.		
	Use hand tools safely.		
Power tools	Identify power tools used in horticultural construction.		
	Use power tools safely.		
RETAINING WALLS		**4**	**6**
Materials	Identify materials used in retaining walls.		
Installation procedures	Design a retaining wall.		
	Construct a retaining wall.		
DRAINAGE		**3**	**6**
Installation	Design a drainage system used in horticultural construction.		
	Construct a horticultural drainage system.		
IRRIGATION/WATER USE		**3**	**6**
Equipment installation	Design a horticultural irrigation system.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Construct a horticultural irrigation system.		
	Design a landscape feature that involves the use of water.		
LOW-VOLTAGE LIGHTING		**3**	**6**
Design and installation	Design a low-voltage lighting system for use in environmental horticulture.		
	Install a low-voltage lighting system for use in environmental horticulture.		
WALKWAYS		**3**	**6**
Materials, design, and installation	Design a walkway.		
	Construct a walkway.		

FUNDAMENTAL OCCUPATIONAL

EHO 104 - Horticulture Construction

Resources

Baudendistal, R. F. (1983). *Lawn and garden construction.* Reston, VA: Reston.

Chevron Chemical Company (1981). *Garden construction.* San Francisco: Author.

Giles, F. (1986). *Landscape construction procedures, techniques, and design.* Champaign, IL: Stipes.

Hannebaum. L. G. (1980). *Landscape operations.* Reston, VA: Reston.

FUNDAMENTAL OCCUPATIONAL

EHO 105 - Nursery Production

Course Overview

Course Description

Develops skills necessary to propagate and produce both container and field grown nursery stock. Topics include: an industry overview, facility design, propagation techniques and environment, field grown and container production, and managerial functions for nursery production.

Competency Areas

Industry Overview
Facility Design
Propagation Techniques and Environment
Field Grown and Container Production
Managerial Functions for Nursery Production

Prerequisite

Program admission

Credit Hours

3

Contact Hours Per Week

Class - 2

P.Lab - 3

FUNDAMENTAL OCCUPATIONAL

EHO 105 - Nursery Production

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
INDUSTRY OVERVIEW		**4**	**0**
Career opportunities	Describe career opportunities offered by the nursery industry.		
Scope and size	Discuss the scope, size, and economic importance of the nursery industry.		
FACILITY DESIGN		**4**	**0**
Layout	Design temporary growing structures for a production nursery.		
	Construct temporary growing structures for a production nursery.		
	Discuss the facility requirements for a typical production nursery.		
Irrigation	Design an irrigation system for nursery production.		
	Construct an irrigation system for nursery production.		
	Evaluate irrigation requirements for a typical production nursery.		
Water supply	Identify factors affecting water quality in a production nursery.		
	Evaluate nursery site location on the basis of water availability and quality.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Location	Identify factors affecting choice of a nursery location.		
	Evaluate potential nursery location sites.		
PROPAGATION TECHNIQUES AND ENVIRONMENT		**4**	**15**
Techniques	Take cuttings from nursery plants.		
	"Harden off" nursery cuttings.		
	Propagate nursery plants using grafting techniques.		
	Propagate nursery plants using layering techniques.		
	Propagate nursery plants by division.		
Environment	Place nursery plant cuttings in a medium other than water or mist.		
	Remove nursery plant cuttings from the propagating area.		
	Set time clocks for nursery plant mist systems.		
	Identify spacing requirements for nursery-grown species during propagation.		
D GROWN AND NTAINER PRODUCTION		**4**	**15**
itainer grown	Pasteurize container growing media.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Sterilize container media with chemical soil sterilant.		
	Mix growing media for container-grown plants.		
	Prepare mulch beds for storage of plant materials.		
	Plan container-grown plant production schedules for nursery crops.		
	Plan container-grown plant propagation schedules for nursery crops.		
	Irrigate container-grown plants.		
	Shear container-grown plants.		
	Pot plants.		
	Transplant container-grown trees and shrubs.		
	Label container-grown plants.		
	Pinch container-grown plants.		
	Fertilize container-grown nursery crops for pests.		
	Identify insects for insect control in container grown plants.		
	Identify diseases for disease control in container-grown plants.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Spray container-grown plants for pest control.		
Field grown	Transplant field-grown trees and shrubs.		
	Prepare mulch beds for storage of plant materials.		
	Plan field-grown plant production schedules.		
	Plan field-grown plant production schedules.		
	Irrigate field-grown plants.		
	Prune field-grown plants.		
	Shear field-grown plants.		
	Label field-grown plants.		
	Pinch field-grown plants.		
	Fertilize field-grown plants.		
	Inspect field-grown crops for pests.		
	Identify insects for insect control in field-grown crops.		
	Identify diseases for disease control in field-grown crops.		
	Spray field-grown plants for pest control.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Cultural requirements	Establish plant spacing for field-grown crops.		
MANAGERIAL FUNCTIONS FOR NURSERY PRODUCTION		**4**	**0**
Marketing	Maintain horticultural supply and stock inventory.		
	Store production nursery stock and supplies.		
	Plan plant stock production needs.		
	Plan production nursery marketing strategy.		
Post-production handling	Procure plant materials for nursery production.		
	Store plant materials for nursery production.		
	Dig bareroot trees and shrubs.		
	Ball trees and shrubs.		
	Bundle plant materials.		
	Prepare plant materials for shipment.		
	Perform post-harvest handling of plant materials.		
Grades and standards	Identify plant grades and other standards used to classify nursery-grown plants.		
	Grade nursery-grown plant materials.		

FUNDAMENTAL OCCUPATIONAL

EHO 105 - Nursery Production

Resources

Davidson, H., & Mecklenburg, R. (1988). *Nursery management: Administration and culture.* Englewood Cliffs, NJ: Prentice Hall.

Hartman, H. T., & Kester, D. E. (1983). *Plant propagation: Principles and practices.* Englewood Cliffs, NJ: Prentice Hall.

Whitcomb, C. (1986). *Landscape plant production, establishment, and maintenance.* Stillwater, OK: Lacebark.

FUNDAMENTAL OCCUPATIONAL

EHO 106 - Landscape Design

Course Overview

Course Description

Introduces design principles, drawing skills, and plant selection techniques required to produce landscape plans for residential/commercial clients. Topics include: site analysis, landscape design principles, sketching and drawing skills, landscape design process, and plant and material selection.

Competency Areas

Landscape Design Principles
Sketching and Drawing Skills
Site Analysis
Plant and Material Selection
Landscape Design Process

Prerequisite

Program admission

Credit Hours

5

Contact Hours Per Week

Class - 2

P.Lab - 6

D.Lab - 2

FUNDAMENTAL OCCUPATIONAL

EHO 106 - Landscape Design

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
LANDSCAPE DESIGN PRINCIPLES		**8**	**5**
Elements	Identify elements of landscape design.		
	Develop a landscape improvement plan.		
Outdoor room concept	Describe the "outdoor room" concept.		
	Develop a landscape plan that utilizes the "outdoor room" concept.		
SKETCHING AND DRAWING SKILLS		**4**	**20**
Symbols and lettering	Identify appropriate lettering, line weight, value contrast, and format.		
	Identify symbols used in landscape drawings.		
Drawing	Demonstrate competency in drawing skills and equipment use.		
	Draw landscape renderings using accepted symbols.		

Recommended Outline	After completing this section, the student will:	Hours Class	Lab
	Draw and letter a landscape plan using appropriate line weight, value contrast, and format.		
SITE ANALYSIS		**8**	**5**
Measurement	Use a tape measure to obtain site dimensions.		
Positive and negative design features	Identify positive and negative landscape design features.		
	Analyze a landscape site in terms of its positive and negative design features.		
Needs analysis	Recommend improvements on a landscape site based upon a needs analysis.		
PLANT AND MATERIAL SELECTION		**0**	**10**
Plants	Select appropriate plant materials for a specific landscape site.		
Hard materials	Select appropriate non-plant materials for a specific landscape site.		
LANDSCAPE DESIGN PROCESS		**0**	**40**
Pre-design process	Prepare a site analysis.		
Design process	Prepare a bubble diagram.		
	Prepare a preliminary landscape plan.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Feedback	Prepare a final landscape plan.		
Presentation	Present a landscape design.		

FUNDAMENTAL OCCUPATIONAL

EHO 106 - Landscape Design

Resources

Chevron Chemical Company (1980). *All about landscaping.* San Francisco: Author.

Hannebaum, L. (1981). *Landscape design: A practical approach.* Englewood Cliffs, NJ: Reston.

FUNDAMENTAL OCCUPATIONAL

EHO 107 - Landscape Installation

Course Overview

Course Description

Introduces cultural techniques required for proper landscape installation with emphasis on practical application. Topics include: landscape installation procedures and managerial functions for landscape installers.

Competency Areas

Landscape Installation Procedures
Managerial Functions for Landscape Installers

Prerequisite

Program admission

Credit Hours

5

Contact Hours Per Week

Class - 4

D.Lab - 1

P.Lab - 5

FUNDAMENTAL OCCUPATIONAL

EHO 107 - Landscape Installation

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
LANDSCAPE INSTALLATION PROCEDURES		**20**	**30**
Turf	Calculate fertilizer requirements for turf crops.		
	Incorporate amendments into turf growing media.		
	Spread soil to establish a grade.		
	Perform soil erosion control practices.		
	Prepare a turf seedbed.		
	Plant cover crops.		
	Inspect turf crops for pests.		
	Identify insects for turf insect control.		
	Identify diseases for turf disease control.		
	Identify weeds for turf weed control.		
	Spray turf and landscape plants for pest control.		
	Establish spacing for grass stolons, sprigs, and plugs.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Operate tillers.		
	Plant grass stolons, sprigs, and plugs.		
	Roll sod.		
Trees and shrubs	Transplant trees and shrubs.		
	Lay turf barrier.		
	Remove dead trees and shrubs.		
Annuals and perennials	Install annual/perennial flowers.		
MANAGERIAL FUNCTIONS FOR LANDSCAPE INSTALLERS		20	30
Materials list	Maintain landscaping equipment inventory.		
	Prepare "take-off" from plan.		
Estimating and bidding	Estimate labor requirements for landscape installation.		
	Price horticultural products.		
	Assess overhead and profits involved in a landscape installation.		
Sales presentation	Present sales information to customer.		
	Incorporate changes in sales agreements.		
	Prepare sales invoices.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Scheduling	Determine labor requirements for turf and landscape installation.		
	Schedule work crews for landscape installation.		
Record-keeping	Compare estimates with actual expenditures.		
	Maintain profitability records.		
	Maintain equipment warrantee records.		
Equipment maintenance	Perform preventive maintenance of landscaping equipment.		
	Service engine oil and filters for landscaping equipment.		
	Perform minor engine adjustments.		
	Dispose of landscaping waste materials.		
	Lubricate landscaping equipment.		
	Clean landscaping equipment.		
	Order repair parts for landscaping equipment.		
	Prepare landscaping equipment for winter storage.		
	Sharpen landscaping hand tools and blades.		
	Maintain irrigation systems.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Labor management	Determine daily landscaping assignments.		
	Evaluate landscaping employee performance.		
	Supervise landscaping employees/work crew.		

FUNDAMENTAL OCCUPATIONAL

EHO 107 - Landscape Installation

Resources

Hannebaum, L. G. (1980). *Landscape operations.* Reston, VA: Reston.

Hartman, H. T., & Kester, D. E. (1983). *Plant propagation: Principles and practices.* Englewood Cliffs, NJ: Prentice Hall.

FUNDAMENTAL OCCUPATIONAL

EHO 108 - Pest Control

Course Overview

Course Description

Provides experience in insect, disease, and weed identification and control with emphasis on safety and legal requirements for state licensure. Topics include: identification of insects, diseases, and weeds; safety regulations; equipment use and care; and regulations for licensure.

Competency Areas

Identification of Insects, Diseases, and Weeds
Safety Regulations
Equipment Use and Care
Regulations for Licensure

Prerequisite

Program admission

Credit Hours

5

Contact Hours Per Week

Class - 5

Lab - 0

FUNDAMENTAL OCCUPATIONAL

EHO 108 - Pest Control

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
IDENTIFICATION OF INSECTS, DISEASES, AND WEEDS		**20**	**0**
Insects	Identify insect pests for insect control.		
Diseases	Identify plant diseases for disease control.		
Weeds	Identify weeds for weed control in environmental horticulture.		
SAFETY REGULATIONS		**10**	**0**
Clothing	Select protective clothing for pest control chemical handling and application.		
Equipment	Refer to equipment and pesticide manufacturers' instructions for horticultural pesticide mixing, filling, disposal, and cleanup procedures.		
Labels and labeling	Interpret information on pesticide container labels.		
Regulations	Identify federal, state, and local ordinances and regulations pertaining to the use of pesticides.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
EQUIPMENT USE AND CARE		**15**	**0**
Types	Identify types of pesticide equipment, uses, and operation procedures.		
Selection	Select equipment on the basis of the desired pesticide application.		
Calibration	Describe procedures for calibrating pest control sprayers and spreaders.		
Application	Describe procedures for applying pest control compounds.		
REGULATIONS FOR LICENSURE		**5**	**0**
Licensure requirements	Identify requirements for state pesticide applicator license.		
	Prepare to obtain a state pesticide applicator's license.		

FUNDAMENTAL OCCUPATIONAL

EHO 108 - Pest Control

Resources

Atkins, M. D. (1978). *Insects in perspective.* New York: Macmillan.

Harris, E. D. (1990). *Georgia pest control handbook.* Athens, GA: Cooperative Extension Service.

SPECIFIC OCCUPATIONAL

EHO 110 - Greenhouse Management II

Course Overview

Course Description

Continues hands-on experience in crop production with emphasis on spring foliage crops and managerial skills. Topics include: light and temperature; insects and diseases; production and scheduling; and winter, spring, and foliage crops for the local area.

Competency Areas

Light and Temperature
Insects and Diseases
Production and Scheduling
Winter, Spring, and Foliage Crops for the Local Area

Prerequisite

EHO 103

Credit Hours

6

Contact Hours Per Week

Class - 4

P.Lab - 6

SPECIFIC OCCUPATIONAL

EHO 110 - Greenhouse Management II

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
LIGHT AND TEMPERATURE		**10**	**0**
Light	Discuss the role of light in greenhouse crop production.		
Temperature	Discuss the role of temperature in greenhouse crop production.		
INSECTS AND DISEASES		**15**	**0**
Identification	Identify common greenhouse pests.		
Control	Select an appropriate pest control strategy.		
PRODUCTION AND SCHEDULING		**15**	**0**
Ordering	Identify procedures to procure necessary supplies and materials for crop production.		
Scheduling	Plan crop production schedules for greenhouse crops.		
WINTER, SPRING, AND FOLIAGE CROPS FOR THE LOCAL AREA		**0**	**60**
Winter crops	Identify winter crops for local area.		
	Select winter crops.		
	Propagate winter crops.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Spring crops	Identify spring crops for local area.		
	Select spring crops.		
	Propagate spring crops.		
Foliage crops	Identify foliage crops for local area.		
	Select foliage crops.		
	Propagate foliage crops.		

SPECIFIC OCCUPATIONAL

EHO 110 - Greenhouse Management II

Resources

Ball, G. (1985). *Ball red book on greenhouse growing.* Reston, VA: Reston.

Boodley, J. W. (1981). *The commercial greenhouse.* Albany, NY: Delmar.

Nelson, P. V. (1985). *Greenhouse operation and management.* Englewood Cliffs, NJ: Reston.

SPECIFIC OCCUPATIONAL

EHO 112 - Landscape Management

Course Overview

Course Description

Introduces cultural techniques required for proper landscape maintenance with emphasis on practical application and managerial techniques. Topics include: landscape management and administrative functions for landscape management.

Competency Areas

Landscape Management
Administrative Functions for Landscape Management

Prerequisite

EHO 107

Credit Hours

3

Contact Hours Per Week

Class - 2

P.Lab - 3

SPECIFIC OCCUPATIONAL

EHO 112 - Landscape Management

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
LANDSCAPE MANAGEMENT		**15**	**25**
Pruning	Prune landscape plants.		
	Shear landscape plants.		
Mowing	Mow turf grass.		
	Edge turf grass.		
Fertilizing	Collect soil samples.		
	Test soil samples.		
	Alter pH of soil.		
	Establish a fertilizer program.		
	Apply growth regulator to landscape materials.		
Irrigation	Establish a watering program for landscape materials.		
Equipment operation and maintenance	Renovate turf.		
	Reseed worn spots on turf.		
	Aerate sod.		
	Top dress lawn.		
	Operate dethatchers.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
	Operate weedeaters.		
	Operate blowers.		
Ornamental plant maintenance	Identify ornamental plant materials and their cultural requirements.		
	Lay barrier.		
	Apply mulch to planting beds.		
	Stake plants.		
	Treat plant wounds.		
Pest control	Inspect landscape materials for pests.		
	Identify landscape material pests.		
	Apply liquid pesticides.		
	Apply granular pesticides.		
	Control pests mechanically.		
ADMINISTRATIVE FUNCTIONS FOR LANDSCAPE MANAGEMENT		5	5
Estimation and bidding	Measure turf areas for square footage.		
	Measure plant bed areas for square footage.		
	Estimate landscaping labor requirements.		
	Estimate landscaping equipment requirements.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Record keeping	Maintain horticultural supply and stock inventory records.		
	Design daily time record sheets for landscape management crews.		
Scheduling	Estimate landscaping crew capabilities.		
	Develop landscaping labor schedules that maximize crew efficiency.		

SPECIFIC OCCUPATIONAL

EHO 112 - Landscape Management

Resources

Emmonds, R. D. (1984). *Turfgrass science and management.* Albany, NY: Delmar.

Whitcomb, C. (1986). *Landscape plant production, establishment, and maintenance.* Stillwater, OK: Lacebark.

SPECIFIC OCCUPATIONAL

EHO 114 - Garden Center Management

Course Overview

Course Description

Presents cultural and managerial techniques required for success in the garden center industry. Topics include: garden center establishment, garden center management, and post-production handling and marketing.

Competency Areas

Garden Center Establishment
Garden Center Management
Post-Production Handling and Marketing

Prerequisites/Corequisites

EHO 110, EHO 112

Credit Hours

3

Contact Hours Per Week

Class - 2

P.Lab - 3

SPECIFIC OCCUPATIONAL

EHO 114 - Garden Center Management

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
GARDEN CENTER ESTABLISHMENT		**10**	**0**
Assessing potential	Plan garden center marketing strategy.		
	Determine the potential in a chosen business area of environmental horticulture.		
	Prepare a garden center market survey.		
Acquiring and financing a business	Develop a garden center business plan.		
Facilities	Design a garden center layout.		
GARDEN CENTER MANAGEMENT		**10**	**0**
Displays	Prepare garden center displays and in-store advertisement.		
Sales	Present sales information to customer.		
	Prepare sales invoice.		
	Operate cash register.		
	Calculate cost of customers' order.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours Lab
Pricing	Price horticultural products.		
	Estimate cost of customers' order.		
Customer relations	Identify correct customer relations procedures.		
	Demonstrate correct customer relations procedures.		
Procurement	Order hard good items.		
	Order plant materials.		
Transportation	Load garden center products.		
	Deliver garden center products to customer.		
Record keeping	Prepare a financial statement.		
	Complete daily sales reports.		
	Complete monthly sales reports.		
POST-PRODUCTION HANDLING AND MARKETING		**0**	**30**
Stock maintenance	Maintain garden center hard goods area.		
	Maintain garden center plant areas.		

SPECIFIC OCCUPATIONAL

EHO 114 - Garden Center Management

Resources

Berninger, L. (1981). *Profitable garden center management.* Englewood Cliffs, NJ: Prentice Hall.

SPECIFIC OCCUPATIONAL

EHO 115 - Environmental Horticulture Internship

Course Overview

Course Description

Provides the student with practical experience in an actual job setting. This internship allows the student to become involved in on-the-job environmental horticulture applications that require practice and follow through. Topics include: work ethics, skills, and attitudes; demands of the horticulture industry; horticultural business management; and labor supervision.

Competency Areas

Work Ethics, Skills, and Attitudes
Demands of the Horticulture Industry
Horticultural Business Management
Labor Supervision

Prerequisite

Completion of all other courses required for graduation

Credit Hours

3

Contact Hours Per Week

Class - 0

O.B.I. - 10

SPECIFIC OCCUPATIONAL

EHO 115 - Environmental Horticulture Internship

Course Outline

Recommended Outline	After completing this section, the student will:	Hours Class	Hours OBI
WORK ETHICS, SKILLS, AND ATTITUDES		**0**	**10**
Positive work habits	Demonstrate positive work ethics, skills, and attitudes.		
	Demonstrate punctuality.		
	Develop dependable attendance habits.		
DEMANDS OF THE HORTICULTURE INDUSTRY		**0**	**10**
Work requirements	Demonstrate acclimatization to the physical, mobility, and other demands of the environmental horticulture industry.		
HORTICULTURAL BUSINESS MANAGEMENT		**0**	**40**
Management skills	Demonstrate basic business management skills for the environmental horticultural industry.		
Analysis	Analyze all business decisions and procedures observed.		

Recommended Outline	After completing this section, the student will:	Hours Class	Hours OBI
LABOR SUPERVISION		**0**	**40**
Labor management	Demonstrate adequate supervisory skills for the environmental horticulture industry. Analyze labor management decisions and procedures observed in the environmnetal horticulture industry.		

SPECIFIC OCCUPATIONAL

EHO 115 - Environmental Horticulture Internship

Resources

Baudendistal, R. F. (1983). *Lawn and garden construction.* Reston, VA: Reston.

Berninger, L. (1981). *Profitable garden center management.* Englewood Cliffs, NJ: Prentice Hall.

Boodley, J. W. (1981). *The commercial greenhouse.* Albany, NY: Delmar.

Dirr, M. A. (1983). *Manual of woody landscape plants* (3rd ed.). Champaign, IL: Stipes.

Emmonds, R. D. (1984). *Turfgrass science and management.* Albany, NY: Delmar.

Whitcomb, C. (1985). *Know it and grow it.* Stillwater, OK: Lacebark.

Whitcomb, C. (1986). *Landscape plant production, establishment, and maintenance.* Stillwater, OK: Lacebark.

APPENDIX A

APPENDIX A

Environmental Horticulture

Equipment List

Aerator
Alarm, thermal
Backhoe
Ball cart
Bench, greenhouse
Bins, nursery
Blade, landscape
Blower, backpack
Blowers, mist
Boards, peg
Boots, neoprene
Box scraper
Broom
Brushes
Burlap
Cables, heating
Calculator
Caliper
Carts, hand
Chain, logging
Chipper
Clipboard
Cloth, black
Cloth, shade
Compaction vibrator
Compressor, air
Container, paper mache'
Controller, watering
Cooling system, evaporative
Couplers, hose
Cutter, sod
Dibble
Dibble board
Digger bar
Disc

Drafting table and stool
Drills
Duster
Edger, sod
Equipment, drafting
Eye wash station
Fan, exhaust
Fertility analyzer
Fertilizer injector
Flats, various
Fogger
Fork, mulch
Fork, spading
Fork, pitch
Gauge, rain
Gloves, neoprene
Goggles
Graders, for tractors
Grafting strips
Grafting tool
Greenhouse, plastic
Greenhouse water faucets
Greenhouse washer
Gun, caulking
Gun, hot glue
Gun, stapler
Gun, tape
Hammer, claw
Hammer, sledge
Hand tool kit (screwdriver, pliers, wrenches)
Heaters
Hoe, garden
Hoe, nurserymans
Hoist, chain
Hose, drip irrigation
Hose, low temperature all-weather
Hose, plastic/rubber
Hygrometer, wet/dry bulb
Knife, budding/grafting
Knife, pocket
Lawn mowers, reel and rotary
Leather scabbard, machete

Lights, fluorescent, 8 ft.
Line strainer
Loader bucket
Loader, front end
Machete
Magnifiers
Mask, dust
Mat, capillary
Mat, propagating
Mats, heat
Mattock
Measuring cups and spoons
Meter, humidity
Meter, light
Meter, moisture
Meter, pH
Meter, solubridge
Misting equipment
Mixer, soil
Monitor, fertilizer
Monitor, flow
Mower, flail
Mulch laying machines
Nails
Nozzle, sprayer
Nozzle, watering
Overseeder
Pans, bulb
Pipe, plastic
Pipe saddles
Plant dolly
Plant ties
Planter, bulb
Pliers
Plow, rollover
Plows
Plug extractor
Post hole digger
Pots, clay
Pots, plastic
Potting machine
Pressure regulator

Propagation light
Pruner, anvil
Pruner, hand
Pruner, pole
Pump, irrigation
Pump, sprayer
Rake, bow
Rake, grading
Rake, leaf
Reel, hose
Respirators, dust
Respirators, full face
Roller
Rope, 1/4", nylon and hemp
Sampler, soil
Saw, bow
Saw, chain
Saw, tree
Saw, circular
Saw, masonry
Saw, table
Scale, gram
Scoop, hand
Seeder, mechanical
Seeder, broadcast
Shading, liquid
Sharpening stones
Shears, florist
Shears, hedge
Shears, lopping
Shears, ratchet-cut pruning
Shears, ribbon
Shears, thinning
Shield, face
Shovel, round point
Shovel, scoop
Shovel, square point
Skid loader with bucket
Spade, garden
Sprayers, air blast
Sprayers, field
Sprayers, hand

Sprayers, high pressure
Sprinklers, rotating
Stakes, metal
Sterilizers, soil
Stripper, flower stem
Tagging ribbon, plastic
Tape measure
Tape writer label gun
Testing kit, soil
Thermometer, all weather
Thermometer, digital
Thermometer, recording (high-low)
Thermometer, soil
Thermostats
Tiller
Tillers, rotary
Tractors
Trailers
Trailers, Tandem axle
Transplanter, mechanical
Tree spade, mechanical
Trowel, cultivating
Trowel, utility
Trucks, dump
Trucks, pickup
Trucks, platform
Valve, shut-off
Vans
Vase, florist
Watering can
Weed whip, hand
Wheelbarrow
Wick applicator
Winch
Wire, galvanized
Wire mesh
Wire stem cutters
Woven shade lath

END

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U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement (OERI)
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