Horticultural Technology Management

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School of Business

Bachelor of Technology Degree

The Horticultural Technology Management program is designed to produce versatile graduates prepared for a wide range of entry-level and middle management positions in the extensive green industry on Long Island and beyond. The horticultural green industry is a diverse conglomerate of growers, retailers, designers, installers, and maintenance personnel serving public and private gardens, homeowners, golf courses, parks and recreational facilities.

Through a selection of required and elective courses in the concentration, students will become progressively more specialized and advanced in their chosen area of interest. The Horticultural Technology Management program has a common business and horticulture core which serves as the foundation for the two concentrations in the program.

The two major concentrations are: General Horticulture and Landscape Development. Each concentration offers a sequence of courses that build upon a strong foundation in the discipline and draws from a multi-disciplinary array of course work in Horticulture, Business and the Arts and Sciences.

The broad scope of courses allows students to experience various phases of horticultural operations as well as business procedures and practices. The mix of horticulture and business maximizes their employment opportunities and career choices. Graduates of this program may develop careers owning and operating their own businesses, propagating plants, designing interior and exterior landscapes, managing golf courses, estates, public gardens and garden centers.

Horticultural Technology Management (BT) Program Outcomes:

This major has two concentrations: Landscape Development and General Horticulture.

General Horticulture (BT) Program Outcomes:

- Graduates will receive a strong foundation in science and master skillsets utilizing traditional and cutting edge techniques.
- Graduates will demonstrate diverse knowledge and skills required to perform professionally in today’s complex multi-disciplinary environment.
- Graduates will exhibit the knowledge necessary to understand horticulture from an historical perspective, as well as current and future trends of industry.
- Graduates will have learned specific professional skills addressing the science and art of growing and utilizing cultivated plants to beautify, enhance and restore private and public landscapes, and become familiar with ever-changing industry procedures, practices and techniques.
- Graduates will have learned specific professional skills addressing resume development, self-promotion and job search skills in order to successfully compete in the current job market.
Landscape Development (BT) Program Outcomes:

- Graduates will receive a strong foundation in design, and master skillsets utilizing traditional and cutting digital techniques.
- Graduates will demonstrate diverse knowledge and skills required to perform professionally in today’s design environment.
- Graduates will exhibit the knowledge necessary to understand design from an historical perspective, as well as current and future trends of industry.
- Graduates will have learned specific professional skills addressing resume development, self-promotion, job search skills, industry procedures and practices and presentation techniques.
- Graduates will have created a portfolio of work, which will meet industry demands in order to successfully compete in the current job market.

Fall 2019 - Subject to Revision

Liberal Arts and Sciences: (43 credits)

EGL 101 Composition I: College Writing (GE) 3
EGL 102 Composition II: Writing About Literature 3
SPE 130 or SPE 202 (GE) 3
Humanities (GE) 3
American/Other World/Western Civilization History (GE) 3
Mathematics (GE) 3
The Arts (GE) 3
Social and Behavioral Sciences (GE) 3
General Education elective (GE) 3
BIO 192 Botany (GE) 4
BIO 198 Entomology (GE) OR
BIO 290 Entomology II 3-4

Students must select 8 credits from:

BIO 353/BIO 354L Essentials of Plant Pathology/Lab 4
BIO 355 Ecological Topics OR
BIO 330 Principles of Ecology 4
CHM 124 Principles of Chemistry 4
Required: BUS/BCS/IND Courses (21 credits)
BCS 102 Computer Concepts & Applications 3
BUS 109 Management Theories and Practices 3
BUS 131 Marketing Principles 3
BUS 141 Contemporary Business Communications 3
BUS 230 Environmental Law OR
BUS 202 Business Law I 3
BUS/IND/BCS Electives (300 level or above) 6
Required: Horticulture Courses (28 credits)
HOR 110 Horticulture I 3
HOR 111 Horticulture II Growth and Development of Cultivated Plants 3
HOR 112 Soils: The Foundation of Life 3
HOR 127 Horticultural Seminar 1
HOR 131 Landscape Drafting I 3
HOR 204 Herbaceous Plants II 3
HOR 211 Woody Plants I 3
HOR 212 Woody Plants II 3
HOR 340 The Sustainable Garden 3

Writing Intensive: Students must choose one of the following:

HOR 320W Public Garden Management OR
HOR 350W The History of Garden Design & Landscape Architecture 3

Concentration Requirements (choose one):

General Horticulture:

The concentration in General Horticulture provides a generalized study of horticulture and business. Through a wide range of electives, students can develop specific areas of expertise. The program of study includes training in plant identification, botany, entomology, soil science, business, and computer business applications. Students may elect additional courses in plant propagation, landscape construction, commercial floral design, arboriculture, ecology, and turf and grass management. Laboratory hours provide students valuable “hands-on” experience in the College’s extensive greenhouses and ornamental gardens.

General Horticulture Concentration: (31-32 credits)
HOR 103 Herbaceous Plants I 3
HOR 200 +- Level Electives 18
____ 200 +- Level Elective (by advisement: if not HOR) 3-4
HOR 311 Woody Plants III: Advanced Topics 3
HOR 475 Horticulture Practicum 4

Landscape Development:

The focus of this specialization is to prepare students for business in professional landscape contracting and landscape design. The student is trained in landscape drafting, landscape graphics, landscape plans, landscape construction, landscape surveying, computer-aided design, plant materials, professional practices, business, and computer business applications.

Landscape Development Concentration: (31 credits)
HOR 133 Landscape Drafting II 3
HOR 207 Landscape Plans I 3
HOR 219 Landscape Construction 3
HOR 220 Landscape Plans II 3
HOR 370 Landscape Professional Practices 3
HOR 371 Landscape CAD I 3
HOR 372 Site Engineering I 3
HOR Electives (200 level or above) 6
HOR 474 Design Capstone Project 4
Total Credits: 122-123

Degree Type: BT
Total Required Credits: 122-123

Please refer to the General Education, Applied Learning, and Writing Intensive requirement sections of the College Catalog and consult with your advisor to ensure that graduation requirements are satisfied.

Course Descriptions

EGL 101 Composition I: College Writing (GE)
This is the first part of a required sequence in college essay writing. Students learn to view writing as a process that involves generating ideas, formulating and developing a thesis, structuring paragraphs and essays, as well as revising and editing drafts. The focus is on the development of critical and analytical thinking. Students also learn the correct and ethical use of print and electronic sources. At least one research paper is required. A grade of C or higher is a graduation requirement. Note: Students passing a departmental diagnostic exam given on the first day of class will remain in EGL 101; all others will be placed in EGL 097. Prerequisite is any of the following: successful completion of EGL 097; an SAT essay score (taken prior to March 1, 2016) of 7 or higher; an SAT essay score (taken after March 1, 2016) of 5 or higher; on-campus placement testing. Credits: 3

EGL 102 Composition II: Writing About Literature
This is the second part of the required introductory English composition sequence. This course builds on writing skills developed in EGL 101, specifically the ability to write analytical and persuasive essays and to use research materials correctly and effectively. Students read selections from different literary genres (poetry, drama, and narrative fiction). Selections from the literature provide the basis for analytical and critical essays that explore the ways writers use works of
the imagination to explore human experience. Grade of C or higher is a graduation requirement. Prerequisite(s): EGL 101
Credits: 3

SPE 130 or SPE 202 (GE)
This course prepares students in the following areas of effective expository and persuasive public speaking: audience
analysis; topic selection; appropriate use and documentation of supporting material; organization and outlining techniques;
aspects of delivery which include appropriate eye contact, posture, use of notes, elements of voice such as rate and volume,
and the use of presentational visual aids. Group discussion and problem solving exercises will also be provided, and students
will engage in peer feedback throughout the course. Credits: 3

BIO 192 Botany (GE)
An introduction to the biology of plants and their ancestors. Topics include cell structure and function, cell chemistry,
photosynthesis and cellular respiration. The tissues, roots, stems and leaves are studied covering such topics as conduction,
absorption, translocation and reproduction. A phylogenetic comparison among plant groups and their ancestors is the
underlying theme. Note: the laboratory course, BIO 192L is a part of your grade for this course. Attendance is the laboratory
course is required. Corequisite(s): BIO 192L Credits: 4

BIO 198 Entomology (GE)
The nature, structure, growth, and habits of insects and related forms are discussed. The beneficial and injurious effects of
insects are covered. Recent breakthroughs and developments in the field of entomology are discussed. Skills are developed
which enable the student to identify insect plant pests, diseases and injuries. Control measures and application equipment
are discussed. Emphasis is placed on the various pest management options available to the homeowner and professionals
in the field. IPM (integrated pest management) involves an understanding of pesticides, physical and mechanical controls,
biological controls, cultural controls, and legal controls. Laws regulating the activities of pest control operators and the
application of hazardous pesticides are discussed. A collection of insects and related forms is required. Note: the laboratory
course, BIO 198L is a part of your grade for this course. Credits: 4

BIO 290 Entomology II
Methods of greenhouse pest and disease control, including identification of major families of pests, diagnosis of diseases,
principles of cultural and chemical control, and a survey of pests and diseases associated with economically important
greenhouse crops. Note: The laboratory course, BIO 290L is a part of your grade for this course. Corequisite(s): BIO 198 or
192 Credits: 3

BIO 353/BIO 354L Essentials of Plant Pathology/Lab
The study of the development of plant diseases caused by Plants, Animals, Fungi, Protists, Bacteria, Viruses and Viroidls.
Major diseases of economically important plants are emphasized. The disease process and disease cycles for representative
pathogens are covered in relation to plant disease control methods. Prerequisite(s): BIO 192 with a grade of C- or higher and
Junior Status Corequisite(s): BIO 354L Credits: 3

BIO 355 Ecological Topics OR
This course introduces students to basic ecological concepts as they relate to the biotic and abiotic environment. It stresses
the diversity of life and the impact that man, other organisms and environment have on each other. Laboratory exercises
and field work will investigate the effects organisms have on each other as well as the effects of environmental conditions
on growth and development. Students will also characterize the nature of selected site(s) in terms of species diversity using
plot sampling techniques. Seminar type discussions require individuals or small groups to explore environmental issues.
Topics for these discussions will be submitted to the instructor for appropriateness and approval. Students will be required to
research and prepare a paper as well as make a presentation to the class. The class will be given the opportunity to question
each speaker following that individual's presentation. Note: the laboratory course, BIO 355L is a part of your grade for this
course. Prerequisite(s): BIO 131 or BIO 192 or BIO 198 with a grade of C- or higher and Junior Status. Corequisite(s): BIO 355L Credits: 4

**BIO 330 Principles of Ecology**
The course introduces the student to the nature of ecosystems, community organization and dynamics, and population growth and regulation through the understanding and use of modern ecological techniques. The laboratory will be primarily focused on the analysis of field data collected by students. Note: the laboratory course, BIO 330L is a part of your grade for this course. Prerequisite(s): MTH 110, BIO 131 with a C- or higher and Junior Status Corequisite: BIO 330L Credits: 4

**CHM 124 Principles of Chemistry**
A one semester survey of general chemistry. Emphasis is placed on quantitative applications of chemical concepts. Topics include: measurement, matter and energy, atomic structure, periodic table, chemical bonding, nomenclature, chemical stoichiometry, chemical equations, gases, liquids and solids, solutions, acids and bases, equilibrium and kinetics. This course will fulfill the requirement of certain science, health science, or pre-health programs that have an introductory chemistry course as a prerequisite. Note: the laboratory course CHM 124L is a part of your grade for this course. Attendance in the laboratory course is required. Approved eye-protection and a laboratory coat are required materials. A student must pass the laboratory course to receive a passing grade in the entire course. Prerequisite(s): MP2 or MTH 015 Credits: 4

**BCS 102 Computer Concepts & Applications**
This is an introductory course in the use of personal computers in today's society. Students will receive instruction in basic computer concepts and terminology, the fundamentals of the Windows operating system and have hands on experience at the beginning to intermediate level using Microsoft Word, Excel, and PowerPoint. The Internet will be used to supplement textbook and lecture materials. Computer Systems students cannot use BCS 102 to meet a BCS Elective requirement. Credits: 3

**BUS 109 Management Theories and Practices**
This introductory course covers management principles pertaining to human resources, individual behavior in organizations, employee motivation and performance, and business ethics. Topics also include managing and the manager’s job; planning and decision making; employee performance appraisal and feedback; leadership and influence processes; interpersonal relations and communication; and managing work groups and teams. Credits: 3

**BUS 131 Marketing Principles**
This course provides the student with a sound knowledge of the basic elements of the marketing process. Major topics include the features of consumer and organizational markets, market segmentation, and target market strategies. Product planning and development, brands, packaging and other product features are covered. Price determination and the use of various pricing strategies are discussed. The factors in the selection of channels of distribution and the features of wholesaling and retailing are considered. Elements of the promotional process such as sales, advertising, and sales promotion are included. Ethical and legal issues in marketing, marketing of services, global marketing, and marketing on the Internet are also covered. Credits: 3

**BUS 141 Contemporary Business Communications**
An introduction to the role and importance of effective communications in business. Key topics include the familiarization and practice in preparing common types of internal and external business communications; contemporary issues in business communication relating to technology, ethics, and nondiscriminatory language; memo and report writing with proper mechanics, style, and appropriate tone/attitude; and business presentations. Prerequisite(s): EGL 101 and BCS 102 Credits: 3

**BUS 230 Environmental Law OR**
This elective course addresses concerns pertaining to the business environment, instructing students as to the unified ecological approach to which affect management. The political approach to business environmental concerns in the context of constitutional, common law and administrative law theories and case and statutory analysis are examined, referencing basic natural science technology. Designed as a first law course it introduces the business, horticulture and industrial technology student to the legal process applying relevant components of environmental law studies. A nationally adopted text of a major law publisher and contemporary business periodical articles on assigned topics are to be used extensively. Credits: 3

**BUS 202 Business Law I**
An introduction to the nature and sources of law; the role the legal system; the law of torts and crimes; the law of contracts; and real and personal property. Credits: 3

**HOR 110 Horticulture I**
Instruction, orientation and field experience in the various phases of horticulture. Each week the explanation and demonstration of a new subject precedes the assignment to duties/ A rounded experience is the objective. Tools, techniques, and standards of workmanship are taught. Corequisite(s): HOR 110L Credits: 3

**HOR 111 Horticulture II Growth and Development of Cultivated Plants**
The performance of landscape plants is influenced by myriad internal and external factors that may limit growth and survival. By understanding the scientific basis for these variables informed professionals can customize growth conditions to promote optimal yield. This course surveys the physiological processes that mitigate plant growth, senescence, dormancy, flowering and propagation. Lab exercises offer an interactive opportunity to investigate phenomena such as dormancy and photoperiod through experimentation, data collection and interpretation. The development of practical horticultural skills is also stressed. Prerequisite(s): HOR 110 Corequisite(s): HOR111L Credits: 3

**HOR 112 Soils: The Foundation of Life**
Soils serve as the foundation for production in natural ecosystems and human systems. This exploration of soils addresses their geologic formation and properties (physical, chemical and biological). Special attention is given to the focused manipulation of soils to achieve optimum plant performance in landscape situations. Through classroom lecture and investigative laboratory exercises students will develop an appreciation for soil as a dynamic living system with broad implications for agriculture and general society. Corequisite(s): HOR 112L Credits: 3

**HOR 127 Horticultural Seminar**
This course provides an overview of the industry, and major areas of development; it will provide an opportunity for students to hear from representatives of the industry. Students will be provided with the basis for an assessment of future career opportunities as well as the opportunity to evaluate their individual needs for continuing education. Credits: 1

**HOR 131 Landscape Drafting I**
This course introduces students to essential drafting techniques and design fundamentals. The student develops graphic skills in landscape drafting and layout by utilizing drafting instruments to produce landscape plans. Students visualize space by learning plan view, orthographic projection, section/elevation design and are introduced to perspective design techniques. Emphasis is placed upon representation, definition, and expression of landscape concepts. Through lectures, workshops and in-class exercises, students explore techniques in black-and-white media. The goal is to learn how to develop drawing skills so that students can present proposed garden designs to clients. Each student is required to produce and present a final set of drawings suitable for presentation to a client or inclusion in a portfolio. This course has a laboratory component (HOR131L). Corequisite(s): HOR 131L Credits: 3

**HOR 204 Herbaceous Plants II**
Lecture and field study of the nomenclature, identification, ornamental attributes, cultural requirements and horticultural uses of hardy perennial plants used in gardens including ferns, ornamental grasses, wild flowers, and herbs. Naturalistic woodland and rock gardens are introduced as well as the principles to design perennial borders. Corequisite(s): HOR 204L Credits: 3

**HOR 211 Woody Plants I**
The Woody Plants courses give a picture primarily of the woody plants grown in nurseries for landscape purposes, and secondly of those found in arborets, woodlands, and fields of Northeastern United States. Emphasis is on identification, culture, uses, flowers, and fruits, and ecological relationships. Several of the evergreens, broad and narrow leaf, as well as some of the deciduous trees and shrubs will be covered in this first study. Corequisite(s): 211L Credits: 3

**HOR 212 Woody Plants II**
A continuation of Woody Plants I covering additional evergreens, broad and narrow leaf, as well as deciduous plants, trees, shrubs, vines and ground covers. Corequisite(s): 212L Credits: 3

**HOR 340 The Sustainable Garden**
Healthy sustainable landscapes provide benefits to human functioning, health and well being. But just what is a "healthy landscape?" What are the major tenets of "Sustainability?" What does it mean to "Go Green?" In the Sustainable Garden course we will define, investigate and promote sustainable garden design, land development and management practices. We will investigate how to transform sites with and without buildings utilizing integrated sustainable principles. The course will provide students with tools to address increasingly urgent global concerns such as climate change, loss of biodiversity, and resource depletion. It will have value for those who design, construct, operate and maintain landscapes. Prerequisite(s): HOR 131 Corequisite(s): HOR 340L Credits: 3

**HOR 320W Public Garden Management OR**
Students will be introduced to the range of operations that occur within botanic gardens, arboreta, and other public garden institutions, and will develop skills required to become effective managers of these living plant collections. Students will also form communication channels with public garden professions. Course requirements include a research project tailored to the student's career objectives. Following this course it is recommended students pursue a summer public garden internship. This is a writing-intensive course. Note: Students cannot get credit for HOR 320 and 320W; HOR 320W can be used to fulfill the writing intensive requirement. Note: Offered at the discretion of the Ornamental Horticulture Department Prerequisite(s): HOR 110 or 111 and EGL 101 with a grade of C or higher Credits: 3

**HOR 350W The History of Garden Design & Landscape Architecture**
Gardens and cultivated landscapes are works of art whose development offers a historical snapshot of the societies and historical movements that shaped them. Studying the evolution of gardens, landscapes and urban spaces in Europe, Asia and North America allows us to interpret the history, art and cultures of these regions. This historical survey charts the designed landscape from pre-history to the present with an emphasis on the historical perspective, analytical skills and specialized vocabulary necessary to understand and describe gardens, landscapes and the artistic movements they reflect. Note: Students cannot get credit for HOR 350 and 350W; HOR 350W can be used to fulfill the writing intensive requirement. Note: Offered at the discretion of the Ornamental Horticulture Department Prerequisite(s): EGL 101 with a grade of C or higher Credits: 3

**HOR 103 Herbaceous Plants I**
Lecture and field study of the nomenclature, identification, ornamental attributes, cultural requirements and horticultural uses of annuals, summer display plants treated as annuals, spring and summer flowering bulbous plants used in gardens. Corequisite(s): HOR 103L (2,2) Credits: 3

**HOR 311 Woody Plants III:Advanced Topics**
This course supplements topics addressed in the core woody plant curriculum and expands in new directions. Contemporary topics will be discussed such as native vs. non-native plants, invasive plants and alternatives, xeriscaping and sustainable plant selection. It is hoped that students will hone their ability to select appropriate woody plant material for challenging landscape situations and become aware of contemporary issues in horticulture. Guest speakers, outdoor laboratory exercises and field trips will be organized to complement classroom instruction. Prerequisite(s): HOR 211 and HOR 212 Corequisite(s): HOR 311L Credits: 3

**HOR 475 Horticulture Practicum**
The Horticulture Practicum represents a culmination of the four-year general horticulture curriculum. Students engage in a focused project or a broad survey of an appropriate industry setting approved and supervised by a faculty mentor and, if applicable, an industry representative. Throughout the Practicum students will be challenged to synthesize course theory and skills, and apply them in a practical manner. Participants will reflect and report on their experiences to their supervisors and peers in both oral and written formats. Prerequisite(s): Department Chair approval. Students enrolled in HOR475 should have Senior Level status and substantial completion of the program. Credits: 4

**HOR 133 Landscape Drafting II**
This course continues the development of graphic skills introduced in Landscape Drafting I. Students discover how to visualize space by learning perspective design, orthographic projection and section elevation design. Prerequisite(s): HOR 131 Corequisite(s): HOR 133L Credits: 3

**HOR 207 Landscape Plans I**
The course covers the theory and principles of applying landscape design skills for solving landscape problems. Students learn the design process from creating preliminary sketches to final presentation drawings including, plans, section elevations, freehand and perspective sketches. Prerequisite(s): HOR 133 Corequisite(s): HOR 270L Credits: 3

**HOR 219 Landscape Construction**
This course examines techniques and material selection for designing and building steps, walks, walls, fences and other landscape features and structures. Basic skills in landscape surveying will also be emphasized. Corequisite(s): HOR 219L Credits: 3

**HOR 220 Landscape Plans II**
The theory and principles of landscape design are applied to selected landscape problems. Projects comprise preliminary sketches and final presentations in plan, elevation and perspective forms. Students prepare contract documents: plans, specifications and estimates in relationship to comprehensive landscape planning. Prerequisite(s): HOR 207 Corequisite(s): HOR 220L Credits: 3

**HOR 370 Landscape Professional Practices**
This is a course about the student's future as a horticulturist, landscape designer, contractor, a business professional and a citizen. Students will learn the skills required to start and manage a professional practice in his/her chosen field. The basics of business structure, insurance, contracts, and business investment will be addressed. Students will produce a cohesive business plan that incorporates defining their marketplace, developing a communication strategy, and cash-flow planning. They will also learn how to put together a portfolio and make effective use of technology to leverage the efficiency of their existing or proposed practice. Prerequisite(s): HOR 207 Credits: 3

**HOR 371 Landscape CAD I**
This course is an introduction to computer aided design/ drafting. This course includes all the functions of AutoCad plus specific tools and solutions for professionals in the land development industry. This course will focus solely on two-dimensional aspects of AutoCad. Each student will acquire CAD experience from using the program at his or her own
workstation. We will perform exercises to develop skills from file set-up to creating 2D drawings to plotting. Our goal in the class is to become comfortable, efficient and competent computer drafters. Each student is required to produce a landscape site plan. Prerequisite(s): HOR 207 Corequisite(s): HOR 371L Credits: 3

**HOR 372 Site Engineering I**

Landscape construction projects involve modification of the Earth’s surface. This course teaches how to design, read and engineer landform. Students will be given an introduction to grading and surveying landscape contours. They will develop knowledge of grading around buildings and roads as well as grading for drainage. Prerequisite(s): HOR 131 Corequisite(s): HOR 372L Credits: 3

**HOR 474 Design Capstone Project**

This course is the culmination of the Landscape Development design sequence. This capstone course integrates landscape design and site engineering design philosophies and methodologies into a comprehensive studio project. The intent of the course is to help the student to synthesize skills and knowledge learned in other courses to apply in real-life situations. This multidisciplinary project incorporates landscape design and site planning analysis, site engineering, construction, energy and sustainability, cost estimating and plant selection. Faculty directs the development of individually determined projects in response to defined objectives, critical commentary of advisory panels and periodic formal reviews. Students present their final project to the full faculty at the end of the semester. Prerequisite(s): HOR 220, 371 and 372 or Department approval. Credits: 4

Admission to Farmingdale State College - State University of New York is based on the qualifications of the applicant without regard to age, sex, marital or military status, race, color, creed, religion, national origin, disability or sexual orientation.