

CUYAMACA COLLEGE
ACADEMIC PROGRAM CHANGES
December 2021
for the
2022-2023 CATALOG and
2021-2022 Distance Education

COURSE ADDITIONS

ENGINEERING 225 – MECHANICS FOR CIVIL ENGINEERS

3 UNITS

Prerequisite: "C" grade or higher or "Pass" in PHYC 201 or equivalent

Corequisite: MATH 280 or previous enrollment

Recommended Preparation: Review of materials covered in the prerequisite for the course.

3 hours lecture

Engineering applications of the principles of static equilibrium of force systems acting on particles and rigid bodies; structural analysis of trusses, frames, and machines; forces in beams; centroids and moments of inertia; kinematics and Newtonian laws of motion for particles.

CSU

COURSE MODIFICATIONS

The following reflect changes in subject designator, course number and/or title, prerequisite/corequisite/recommended preparation, units, hours, and/or course description. Other areas (e.g., course objectives, course content, student learning outcomes, etc.) may also have been modified to meet Title 5 standards (reflected as "*Review and update of course outline*"). These modifications have been carefully reviewed by the Curriculum, General Education and Academic Policies and Procedures Committee.

PRESENT	PROPOSED CHANGES TO AREAS AS INDICATED
COMPUTER AND INFORMATION SCIENCE 270 – PALO ALTO NETWORK SECURITY I	<i>Review and update of course outline</i>
COMPUTER AND INFORMATION SCIENCE 271 – PALO ALTO NETWORKS – CERTIFIED NETWORK SECURITY ADMINISTRATOR (PCNSA)	<i>Review and update of course outline</i>
MATHEMATICS 245 – DISCRETE MATHEMATICS	<i>Review and update of course outline</i>

DEACTIVATION

Course	Reason For Deletion per Department Faculty and/or Advisory Committee Recommendations
CHEM 116 – Introductory Organic and Biochemistry	Recommendation of the department faculty. The course has been replaced by an accelerated course of CHEM 102.

DELETION

Course, Program, Certificate	Reason For Deletion per Department Faculty and/or Advisory Committee Recommendations
BOT 201 – Advanced Keyboarding/Document Processing	Recommendation of the department faculty. The course was removed from all BOT degrees and certificates and replaced by BOT 102A/B based on input from the BOT Advisory Committee.

DISTANCE EDUCATION

Course	Title
<i>(Effective Spring 2022)</i>	
CIS 270	Palo Alto Network Security I
CIS 271	Palo Alto Networks – Certified Network Security Administrator (PCNSA)

DEGREE AND CERTIFICATE MODIFICATIONS

ENGINEERING

CIVIL ENGINEERING

This degree program is designed to cover the first two years of a four-year program leading to the bachelor's degree in engineering at most four-year colleges and universities. While the bachelor's degree is usually the minimum needed to practice as an engineer, the associate degree will permit an individual to find work in most engineering firms as an engineering aide.

CAREER OPPORTUNITIES

- * Aerospace Engineer
 - * Agricultural Engineer
 - * Architectural Engineer
 - * Biomedical Engineer
 - * CAD/CAM Engineer
 - * Chemical Engineer
 - * Civil Engineer
 - Civil Engineering Technician
 - * Computer Engineer
 - * Electrical Engineer
 - Electrical Engineering Technician
 - * Environmental Engineer
 - * Geological Engineer
 - * Industrial Engineer
 - Industrial Engineering Technician
 - * Manufacturing Engineer
 - * Marine Engineer
 - * Materials Engineer
 - * Mechanical Engineer
 - Mechanical Engineering Technician
 - * Mining Engineer
 - * Nuclear Engineer
 - * Petroleum Engineer
 - * Structural Engineer
 - * Systems Engineer
 - * Robotics Engineer
- * Bachelor's degree or higher required

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Draw conclusions about simple and complex systems by collecting, assessing, and analyzing information.
- Communicate technical ideas in group and professional settings in both written and oral form.
- ~~Visualize 3D objects and draw them in 2D, both by sketching and through the use of computer-aided drafting software; produce a complete set of drawings sufficient to manufacture a part, including dimensions and tolerances.~~
- ~~Solve engineering problems through computer modeling, employing an engineering computer language such as Matlab.~~
- ~~Design a rigid structure such as a bridge, determining forces in each part of the structure. Determine the weight and location of the center of gravity of the structure.~~
- ~~Design a dynamic system such as a piston or linkage, and compute forces, accelerations, and speeds of all components of the system.~~
- ~~Apply the tools of surveying, including total station instruments, to analyze the topography of land, construction staking, and setting property boundaries.~~
- ~~Model vibrating systems using systems of 2nd-order differential equations.~~
- ~~Analyze experimental data to determine summary statistics (e.g., mean, variance), apply appropriate statistical tests to data sets, and design statistical experiments.~~

Associate in Science Degree Requirements:

<i>Course</i>	<i>Title</i>	<i>Units</i>
CHEM 141	General Chemistry I	5
ENGR 100	Introduction to Engineering and Design	4
ENGR 119	Basic Engineering CAD	3
or		
CADD 120	Introduction to Computer-Aided Drafting and Design	3

(Civil Engineering continued)		
ENGR 120	Engineering Computer Applications	3
ENGR 200	Engineering Mechanics-Statics	3
ENGR/SURV 218	Plane Surveying	4
ENGR 220	Engineering Mechanics-Dynamics	3
ENGR 225	Mechanics for Civil Engineers	3
ENGR 260	Engineering Materials	3
MATH 160	Elementary Statistics	4
MATH 180	Analytic Geometry and Calculus I	5
MATH 280	Analytic Geometry and Calculus II	4
MATH 281	Multivariable Calculus	4
MATH 285	Differential Equations	3
PHYC 190	Mechanics and Heat	5
PHYC 200	Electricity and Magnetism	5
	Total Required	<u>58</u>
	Plus General Education Requirements	<u>55</u>

ORNAMENTAL HORTICULTURE

ARBORICULTURE

This degree program provides students with entry level skills, upgrading of existing skills, and preparation for further training. It is designed for those interested in careers in nursery and greenhouse management, landscape design and construction, grounds management, retail nursery operations, irrigation system design, installation and maintenance of interior plantscaping, arboriculture and other related fields. Students will learn modern horticultural methods and procedures as well as the use of tools and equipment common to the field.

CAREER OPPORTUNITIES

- † Agricultural Inspector
- * Agricultural Researcher
- † Arboretum/Park Director
 - Arboriculture Technician
 - Botanical Illustrator
- † County/State Agricultural Advisor
- * Environmental Designer
 - Floral Designer
 - Flower Shop Manager
 - Golf Course Superintendent
 - Golf Course Worker
 - Greenhouse Manager
 - Grounds Maintenance Manager
 - Grower/Production Manager
- † Horticultural Journalist
 - Irrigation Consultant
- † Landscape Architect
 - Landscape Contractor
 - Landscape Designer
 - Landscape Technician
 - Nursery/Garden Center Manager
- † Park Planner/Manager
 - Plant Breeder/Propagator
 - Sports Field Manager
 - Turf Manager
 - Urban Forester
 - Water Auditor
- † Water Conservationist

* Bachelor Degree or higher required.

† Bachelor Degree normally recommended.

This major encompasses urban forestry, professional tree care, and tree trimming. Students will learn care and pruning of landscape trees, palms and related plants as well as common fruit trees. Course work includes skill development in tree climbing and pruning techniques, basic tree maintenance, and principles of urban forestry. Graduates are employed by private tree care companies, public agencies, landscape contractors, wholesale and retail nurseries, or may be self-employed.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- ~~• Describe proper and safe principles and practices of tree climbing.~~
- ~~• Describe the principles of tree biology and physiology for growth management.~~
- ~~• Demonstrate proper tree pruning procedures per industry standards.~~
- ~~• Identify common biotic and abiotic problems for trees common to Southern California landscapes and list appropriate control measures.~~
- ~~• Conduct a visual tree assessment for tree risk or value appraisal.~~
- ~~• Draft a tree preservation plan for a construction site.~~
- Perform work-related functions according to current industry standards.
- Assess and resolve work-related problems using current industry-specific tools and resources.
- Communicate effectively to prospective clients, managers and coworkers in a workplace setting.
- Abide by industry and government regulations regarding occupational health and safety, and/or environmental standards.

Associate in Science Degree Requirements:

Course	Title	Units
OH 120	Fundamentals of Ornamental Horticulture	3
OH 130	Plant Pest Control	3

(Arboriculture continued)		
OH 140	Soils	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 260	Arboriculture	3
OH 290*	Cooperative Work Experience Education	<u>3</u>
		18

Select two of the following:

OH 263	Urban Forestry	1
OH 264	Safe Work Practices in Tree Climbing and Arboriculture	1
OH 266	Science in Practice for Arboriculture	<u>1</u>
		2

Select one of the following:

BUS 110	Introduction to Business	3
BUS 111	Entrepreneurship: Starting and Developing a Business	3
BUS 125	Business Law: Legal Environment of Business	<u>3</u>
		3

Select nine units from the following:

OH 102	Xeriscape: Water Conservation in the Landscape	2
OH 150	Landscape Architecture I	3
OH 174	Turf and Ground Cover Management	3
OH 221	Landscape Construction: Irrigation and Carpentry	3
OH 235	Principles of Landscape Irrigation	4
OH 250	Landscape Water Management	2
OH 255	Sustainable Urban Landscapes Principles and Practices	2
OH 275	Diagnosing Horticultural Problems	3
SPAN 120	Spanish I	<u>5</u>
		9
	Total Required	32
	Plus General Education Requirements	

*Student must complete six units within the major at Cuyamaca College to be eligible for this course.

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Arboriculture. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

FLORAL DESIGN

This degree program is designed for those individuals seeking careers in the floral industry, or for those seeking to upgrade their existing skills and prepare for further training. Course work is directed toward skills, concepts and practices used in the commercial floral industry with an emphasis in hands-on training. There is also an emphasis on the business skills needed to succeed as a floral industry entrepreneur.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- ~~Identify and explain the principles and elements of design common to the retail floral industry and utilize these guidelines in the reproduction and construction of independent floral arrangements, events and décor.~~
- ~~Identify, evaluate and discuss in correct industry vocabulary fresh floral product and permanent botanical materials, hard goods, and trends in European and Asian design influence.~~
- ~~Prepare an original event proposal based on site analysis for a special occasion to include an appropriate wholesale budget, estimate design recipes, fresh and hard goods product.~~
- ~~Compare and contrast retail florist businesses in shop operations, workstations, sales and consultation areas, visual displays, customer relations, and typical business practices including labor relations, insurance, advertising, accounting and license requirements.~~
- Perform work-related functions according to current industry standards.
- Assess and resolve work-related problems using current industry-specific tools and resources.
- Communicate effectively to prospective clients, managers and coworkers in a workplace setting.
- Abide by industry and government regulations regarding occupational health and safety, and/or environmental standards.

Associate in Science Degree Requirements:

<i>Course</i>	<i>Title</i>	<i>Units</i>
OH 114	Floral Design I	3
OH 116	Floral Design II	3
OH 117	Wedding Design I	3
OH 118	Special Occasion Floral Design	3
OH 120	Fundamentals of Ornamental Horticulture	3
OH 180	Plant Materials: Annuals and Perennials	3
OH 290*	Cooperative Work Experience Education	<u>3</u>
		21

Select one of the following:

BUS 110	Introduction to Business	3
BUS 111	Entrepreneurship: Starting and Developing a Business	3
BUS 125	Business Law: Legal Environment of Business	<u>3</u>
		3

Select nine units from the following:

ART 120	Two-Dimensional Design	3
ART 124	Drawing I	3
BUS 111	Entrepreneurship: Starting and Developing a Business	3
BUS 128	Business Communication	3
OH 121	Plant Propagation	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 240	Greenhouse Plant Production	<u>3</u>
		9
	Total Required	33
	Plus General Education Requirements	

*Student must complete six units within the major at Cuyamaca College to be eligible for this course.

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Floral Design. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

GOLF COURSE AND SPORTS TURF MANAGEMENT

Students in this major pursue careers as golf course superintendents or sports turf managers. The program is intended for those individuals wishing to enter the field as well as those who desire to upgrade their existing skills. Students may also transfer to a four-year degree program in agronomy, turf management, or related field. Course work is designed to study environmentally sound solutions for the efficient production and management of golf and sports turf.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- ~~• Demonstrate and practice standardized safety procedures as they apply to golf and sports turf management.~~
- ~~• Identify warm and cool season turf cultivars common to Southern California.~~
- ~~• Identify and manage primary and secondary noxious weeds.~~
- ~~• Identify and manage common biotic and abiotic problems associated with turf management in Southern California.~~
- ~~• Demonstrate knowledge of appropriate use and maintenance of equipment common to golf and sports turf management.~~
- ~~• Identify 88 trees and shrubs common to Southern California.~~
- ~~• Identify water quality impact on turfgrass and plant material species and the relationship to soil conditions.~~
- ~~• Demonstrate the impact of various water sources on golf course maintenance budgets.~~
- ~~• Using principles of irrigation hydraulics, calculate friction loss in pipe, determine proper pipe sizing using the friction factor and velocity limit method, and determine appropriate component sizing.~~
- ~~• Identify and describe the proper installation of irrigation system components.~~
- ~~• Using standard industry practices, develop guidelines and demonstrate the ability to perform proper fertilizing, pruning, mulch application and irrigation of Southern California landscapes.~~
- ~~• Identify and explain labor relations, business plans, and licensure requirements for the golf and sports turf industry.~~
- ~~• Demonstrate the ability to install concrete, masonry and plant material.~~
- Perform work-related functions according to current industry standards.
- Assess and resolve work-related problems using current industry-specific tools and resources.
- Communicate effectively to prospective clients, managers and coworkers in a workplace setting.
- Abide by industry and government regulations regarding occupational health and safety, and/or environmental standards.

Associate in Science Degree Requirements:

<i>Course</i>	<i>Title</i>	<i>Units</i>
OH 120	Fundamentals of Ornamental Horticulture	3
OH 130	Plant Pest Control	3
OH 140	Soils	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 174	Turf and Ground Cover Management	3
OH 235	Principles of Landscape Irrigation	4
OH 290*	Cooperative Work Experience Education	3
		<u>22</u>

Select one of the following:

BUS 110	Introduction to Business	3
BUS 111	Entrepreneurship: Starting and Developing a Business	3
BUS 125	Business Law: Legal Environment of Business	3
		<u>3</u>

Select seven units from the following:

OH 102	Xeriscape: Water Conservation in the Landscape	2
OH 220	Landscape Construction: Concrete and Masonry	3
OH 221	Landscape Construction: Irrigation and Carpentry	3
OH 250	Landscape Water Management	2
OH 265	Golf Course and Sports Turf Management	3
OH 275	Diagnosing Horticultural Problems	3
SPAN 120	Spanish I	5
		<u>7</u>
	Total Required	32
	Plus General Education Requirements as listed below	

*Student must complete six units within the major at Cuyamaca College to be eligible for this course.

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Golf Course and Sports Turf Management. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

IRRIGATION TECHNOLOGY

This specialized field focuses on the design, installation and management of landscape irrigation systems. The program is designed for entry level students, those seeking to upgrade existing skills, or those wishing to transfer to a four-year degree program at Cal Poly or other institution. The use of current design theory, installation techniques, and management programs form the heart of the curriculum. Graduates are employed by landscape architects, irrigation consultants, landscape contractors, public agencies or may be self-employed.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- ~~• Explain the relationships between plants and their soil and water environment including the use of recycled water.~~
- ~~• Demonstrate an understanding of landscape irrigation hydraulics.~~
- ~~• Identify irrigation system components and demonstrate their proper installation.~~
- ~~• Demonstrate a basic understanding of irrigation design principles.~~
- ~~• Demonstrate the ability to calculate an irrigation schedule.~~
- ~~• Demonstrate the ability to diagnose irrigation system problems related to valves, wiring and hydraulics.~~
- ~~• Explain the importance of, and best practices for, water conservation in regards to water sources, water quality and regulations.~~
- ~~• Gain practical experience working in the landscape industry.~~
- Perform work-related functions according to current industry standards.
- Assess and resolve work-related problems using current industry-specific tools and resources.
- Communicate effectively to prospective clients, managers and coworkers in a workplace setting.
- Abide by industry and government regulations regarding occupational health and safety, and/or environmental standards.

Associate in Science Degree Requirements:

<i>Course</i>	<i>Title</i>	<i>Units</i>
OH 102	Xeriscape: Water Conservation in the Landscape	2
OH 120	Fundamentals of Ornamental Horticulture	3
OH 140	Soils	3
OH 221	Landscape Construction: Irrigation and Carpentry	3
OH 235	Principles of Landscape Irrigation	4
OH 250	Landscape Water Management	2
OH 290*	Cooperative Work Experience Education	<u>3</u>
		20

Select one of the following:

BUS 110	Introduction to Business	3
BUS 111	Entrepreneurship: Starting and Developing a Business	3
BUS 125	Business Law: Legal Environment of Business	<u>3</u>
		3

Select nine units from the following:

OH 130	Plant Pest Control	3
OH 150	Landscape Architecture I	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 174	Turf and Ground Cover Management	3
OH/CADD 200**	Introduction to Computer-Aided Landscape Design	3
OH 225	Landscape Contracting	3
OH 238	Irrigation System Design	3
SPAN 120	Spanish I	<u>5</u>
		9
	Total Required	32
	Plus General Education Requirements	

*Student must complete six units within the major at Cuyamaca College to be eligible for this course.

**May also be offered at Southwestern College as LA 200.

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Irrigation Technology. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

LANDSCAPE ARCHITECTURE

The Landscape Architecture major provides students with a multi-disciplined, project-based approach to landscape architecture for residential, public, and commercial sites. The curriculum covers the current trends in design and technologies in construction of the projects. Course work is designed to provide employable technical skill training in the field and provides foundation for students who plan to transfer to four-year degree programs in Landscape Architecture. Students earning an associate degree in Landscape Architecture are eligible to take the Landscape Architecture Registration Exam to achieve state licensure after completing requisite apprenticeship. Graduates may be employed by landscape architects, landscape contractors, public agencies, or may be self-employed.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- ~~• Use hand-drawn and computer-generated graphics that are industry standards to produce accurate landscape plans that reflect sustainable, functional and aesthetic principles.~~
- ~~• Communicate design ideas with clients and contractors 1) verbally, 2) with hand drawings, and 3) computer-generated drawings.~~
- ~~• Integrate plants as well as construction methods and materials indicative of the Southern California region.~~
- Perform work-related functions according to current industry standards.
- Assess and resolve work-related problems using current industry-specific tools and resources.
- Communicate effectively to prospective clients, managers and coworkers in a workplace setting.
- Abide by industry and government regulations regarding occupational health and safety, and/or environmental standards.

Associate in Science Degree Requirements:

<i>Course</i>	<i>Title</i>	<i>Units</i>
CADD 120	Introduction to Computer-Aided Drafting and Design	3
OH 102	Xeriscape: Water Conservation in the Landscape	2
OH 120	Fundamentals of Ornamental Horticulture	3
OH 150	Landscape Architecture I	3
OH 151	Landscape Architecture II	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 220	Landscape Construction: Concrete and Masonry	3
OH 235	Principles of Landscape Irrigation	4
OH 290*	Cooperative Work Experience Education	<u>3</u>
		27

Select one of the following:

ART 140	Survey of Western Art I: Prehistory through Middle Ages	3
ART 141	Survey of Western Art II: Renaissance through Modern	3
ART 144	Architecture of the 20 th Century	<u>3</u>
		3

Select four units (minimum) from the following:

OH 180	Plant Materials: Annuals and Perennials	3
OH/CADD 201	Advanced Computer-Aided Landscape Design	3
OH 221	Landscape Construction: Irrigation and Carpentry	3
OH 222	Japanese Garden Design and Construction	1
OH 225	Landscape Contracting	3
OH 255	Sustainable Urban Landscape Principles and Practices	2
OH 263	Urban Forestry	<u>1</u>
		4-6
	Total Required	34-36
	Plus General Education Requirements	

*Student must complete six units within the major at Cuyamaca College to be eligible for this course.

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Landscape Architecture. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

LANDSCAPE TECHNOLOGY

Landscape installation and management forms the focus of this program. Students will learn the latest methods, materials and techniques in the landscape industry. Those seeking careers in landscape technology are entering a challenging career field that requires knowledge of plant material, turfgrass, landscape and irrigation design, soils, pest control and landscape construction. A professional in the field has the opportunity to be involved in working with people as well as plants as the manager must direct and supervise employees, deal with clients and suppliers, and may become involved in professional organizations. Students entering the landscape industry, those already employed but seeking to upgrade their skills, and those wishing to transfer to Cal Poly or other four-year degree programs will benefit from the curriculum. Graduates are employed by landscape contractors, public agencies or may be self-employed.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- ~~Understand the principles of plant structure function and plant growth.~~
- ~~Identify 175 trees, shrubs, annuals, perennials and turf grass species commonly used in Southern California landscapes.~~
- ~~Using standard industry practices, develop guidelines and demonstrate the ability to perform proper fertilizing, pruning, mulch application and irrigation of Southern California landscapes.~~
- ~~Understand the elements of water management of a large landscape site.~~
- ~~Identify common biotic and abiotic problems common to Southern California landscapes and list appropriate control measures.~~
- ~~Gain practical experience working in the landscape industry.~~
- Perform work-related functions according to current industry standards.
- Assess and resolve work-related problems using current industry-specific tools and resources.
- Communicate effectively to prospective clients, managers and coworkers in a workplace setting.
- Abide by industry and government regulations regarding occupational health and safety, and/or environmental standards.

Associate in Science Degree Requirements:

<i>Course</i>	<i>Title</i>	<i>Units</i>
OH 120	Fundamentals of Ornamental Horticulture	3
OH 130	Plant Pest Control	3
OH 140	Soils	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 180	Plant Materials: Annuals and Perennials	3
OH 235	Principles of Landscape Irrigation	4
OH 250	Landscape Water Management	2
OH 290*	Cooperative Work Experience Education	<u>3</u>
		24

Select one of the following:

BUS 110	Introduction to Business	3
BUS 111	Entrepreneurship: Starting and Developing a Business	3
BUS 125	Business Law: Legal Environment of Business	<u>3</u>
		3

Select five units from the following:

OH 102	Xeriscape: Water Conservation in the Landscape	2
OH 105	Edibles in Urban Landscapes	1.5
OH 150	Landscape Architecture I	3
OH 151	Landscape Architecture II	3
OH 174	Turf and Ground Cover Management	3
OH 220	Landscape Construction: Concrete and Masonry	3
OH 221	Landscape Construction: Irrigation and Carpentry	3
OH 222	Japanese Garden Design and Construction	1
OH 225	Landscape Contracting	3
OH 255	Sustainable Urban Landscapes Principles and Practices	2
OH 260	Arboriculture	3
OH 275	Diagnosing Horticultural Problems	3
SPAN 120	Spanish I	<u>5</u>
		5-5.5
	Total Required	32-32.5
	Plus General Education Requirements	

*Student must complete six units within the major at Cuyamaca College to be eligible for this course.

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Landscape Technology. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

NURSERY TECHNOLOGY

Students enrolled in this major pursue careers in the wholesale production and retail sales of horticultural crops. Course work will focus on plant propagation, greenhouse plant production, and horticultural practices related to production and sales of landscape and greenhouse plant material. Students entering the nursery industry, those already employed but seeking upgraded skills, and those wishing to transfer to Cal Poly or other four-year degree programs will benefit from the curriculum. Graduates are employed by wholesale and retail nurseries, public agencies or may be self-employed.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- ~~• Identify 250 trees, shrubs, annuals, perennials and turf grass species commonly used in Southern California landscapes.~~
- ~~• Explain the principles of plant structure function and plant growth.~~
- ~~• Demonstrate an understanding of common plant propagation practices.~~
- ~~• Cultivate horticultural crops in both natural and artificial environments common in the horticulture industry.~~
- ~~• Demonstrate an understanding of soil principles.~~
- ~~• Explain how to produce a business plan for the nursery industry.~~
- ~~• Gain practical experience working in the landscape industry.~~
- Perform work-related functions according to current industry standards.
- Assess and resolve work-related problems using current industry-specific tools and resources.
- Communicate effectively to prospective clients, managers and coworkers in a workplace setting.
- Abide by industry and government regulations regarding occupational health and safety, and/or environmental standards.

Associate in Science Degree Requirements:

<i>Course</i>	<i>Title</i>	<i>Units</i>
OH 120	Fundamentals of Ornamental Horticulture	3
OH 121	Plant Propagation	3
OH 130	Plant Pest Control	3
OH 140	Soils	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 180	Plant Materials: Annuals and Perennials	3
OH 290*	Cooperative Work Experience Education	<u>3</u>
		21

Select one of the following:

BUS 110	Introduction to Business	3
BUS 111	Entrepreneurship: Starting and Developing a Business	3
BUS 125	Business Law: Legal Environment of Business	<u>3</u>
		3

Select eight units from the following:

BIO 122	The Secret Life of Plants	4
OH 102	Xeriscape: Water Conservation in the Landscape	2
OH 114	Floral Design I	3
OH 150	Landscape Architecture I	3
OH 240	Greenhouse Plant Production	3
SPAN 120	Spanish I	<u>5</u>
		8-9
	Total Required	32-33
	Plus General Education Requirements	

*Student must complete six units within the major at Cuyamaca College to be eligible for this course.

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Nursery Technology. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

SUSTAINABLE URBAN LANDSCAPES

This curriculum is designed to investigate the current trends and provide practical experience in sustainable landscape design, construction and maintenance. Students will use technology, materials and methods that enhance the urban landscape with minimal input of labor and materials while reducing negative environmental impacts. Students entering the landscape industry, those already employed but seeking upgraded skills, and those wishing to transfer to four-year degree programs will benefit from the curriculum. Graduates are employed by landscape contractors, landscape architects and designers, public agencies, or are self-employed.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- ~~• Use industry accepted standards to conduct site evaluations and determine site assets and constraints for the development of aesthetically pleasing and sustainable landscapes.~~
- ~~• Identify common biotic and abiotic problems common to Southern California landscapes and list appropriate control measures.~~
- ~~• Utilize standard industry practices and principles of plant structure, function and plant growth to develop guidelines for the proper maintenance of Southern California landscapes.~~
- ~~• Demonstrate the ability to calculate an irrigation schedule.~~
- ~~• Explain the elements of water management of a large landscape site.~~
- ~~• Gain practical experience working in the landscape industry.~~
- Perform work-related functions according to current industry standards.
- Assess and resolve work-related problems using current industry-specific tools and resources.
- Communicate effectively to prospective clients, managers and coworkers in a workplace setting.
- Abide by industry and government regulations regarding occupational health and safety, and/or environmental standards.

CAREER OPPORTUNITIES

Irrigation Manager
 Landscape Design Consultant
 Landscape Maintenance Supervisor
 Landscape Manager
 Landscape Water Auditor
 Water Conservation Specialist

Associate in Science Degree Requirements:

<i>Course</i>	<i>Title</i>	<i>Units</i>
OH 120	Fundamentals of Ornamental Horticulture	3
OH 130	Plant Pest Control	3
OH 140	Soils	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 250	Landscape Water Management	2
OH 255	Sustainable Urban Landscape Principles and Practices	2
OH 263	Urban Forestry	1
OH 290*	Cooperative Work Experience Education	<u>3</u>
		20

Select one of the following:

BUS 110	Introduction to Business	3
BUS 111	Entrepreneurship: Starting and Developing a Business	3
BUS 125	Business Law: Legal Environment of Business	<u>3</u>
		3

Select a minimum of eight units from the following:

OH 102	Xeriscape: Water Conservation in the Landscape	2
OH 105	Edibles in Urban Landscapes	1.5
OH 150	Landscape Architecture I	3
OH 180	Plant Materials: Annuals and Perennials	3
OH 220	Landscape Construction: Concrete and Masonry	3
OH 221	Landscape Construction: Irrigation and Carpentry	3
OH 235	Principles of Landscape Irrigation	4
OH 260	Arboriculture	3
OH 266	Science in Practice for Arboriculture	<u>1</u>
		8
	Total Required	31-31.5
	Plus General Education Requirements	

*Student must complete six units within the major at Cuyamaca College to be eligible for this course.

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Sustainable Urban Landscapes. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

BASIC ORNAMENTAL HORTICULTURE Certificate of Specialization

This certificate prepares students to work in the horticulture industry at an entry or intermediate level by providing them with basic knowledge of horticultural principles and practices. Upon completion, students will be prepared to work in one of many fields of horticulture, or choose to continue their studies and apply their earned credits to a degree or certificate of achievement.

Program Learning Outcomes

Upon successful completion of this certificate, students will be able to:

- ~~• Understand the basic principles of plant growth.~~
- ~~• Identify 125 trees and shrub species commonly used in Southern California landscapes.~~
- ~~• Understand the basic principles of soil science as they relate to plant growth and plant nutrition.~~
- ~~• Apply basic horticultural knowledge to specific field of study in ornamental horticulture.~~
- ~~• Understand business principles as they apply to working in ornamental horticulture.~~
- Perform work-related functions according to current industry standards.
- Assess and resolve work-related problems using current industry-specific tools and resources.
- Communicate effectively to prospective clients, managers and coworkers in a workplace setting.
- Abide by industry and government regulations regarding occupational health and safety, and/or environmental standards.

Certificate Requirements:

<i>Course</i>	<i>Title</i>	<i>Units</i>
OH 120	Fundamentals of Ornamental Horticulture	3
OH 170	Plant Materials: Trees and Shrubs	<u>3</u>
		6

Select one of the following:

OH 130	Plant Pest Control	3
OH 140	Soils	3
OH 180	Plant Materials: Annuals and Perennials	<u>3</u>
		3

Select one of the following:

BUS 110	Introduction to Business	3
BUS 111	Entrepreneurship: Starting and Developing a Business	3
BUS 125	Business Law: Legal Environment of Business	<u>3</u>
		3

Select at least three units from the following:

OH 114	Floral Design I	3
OH 121	Plant Propagation	3
OH 150	Landscape Architecture I	3
OH 174	Turf and Ground Cover Management	3
OH 220	Landscape Construction: Concrete and Masonry	3
OH 221	Landscape Construction: Irrigation and Carpentry	3
OH 260	Arboriculture	<u>3</u>
		3
	Total Required	15

Students who complete the requirements above qualify for a Certificate in Basic Ornamental Horticulture. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.