

Course Outline

Agriculture and Natural Resources

REVISED: August/2019

Job Title
Landscaper

Career Pathway:
Ornamental Horticulture

Industry Sector:
Agriculture and Natural
Resources

O*NET-SOC CODE:
37-3011.00

CBEDS Title:
Introduction to Ornamental
Horticulture

CBEDS No.:
4051

70-25-75

Landscaping/2

Credits: 5

Hours: 90

Course Description:

This competency-based course is the second in a sequence of three designed for landscaping. It provides students with technical instruction and practical experience in workplace safety, handling and caring for power hand tools, part two of plant identification, soil analysis, weed abatement, pruning, plant propagation and a review of water management. The competencies in this course are aligned with the California High School Academic Content Standards and the California Career Technical Education Model Curriculum Standards.

Prerequisites:

Enrollment requires completion of the Landscaping/1 (70-25-70) course.

NOTE: For Perkins purposes this course has been designated as a **concentrator** course.

This course **cannot** be repeated once a student receives a Certificate of Completion.



COURSE OUTLINE COMPETENCY-BASED COMPONENTS

A course outline reflects the essential intent and content of the course described. Acceptable course outlines have six components. (Education Code Section 52506). Course outlines for all apportionment classes, including those in jails, state hospitals, and convalescent hospitals, contain the six required elements:

(EC 52504; 5CCR 10508 [b]; Adult Education Handbook for California [1977], Section 100)

COURSE OUTLINE COMPONENTS

LOCATION

GOALS AND PURPOSES

Cover

The educational goals or purposes of every course are clearly stated and the class periods are devoted to instruction. The course should be broad enough in scope and should have sufficient educational worth to justify the expenditure of public funds.

The goals and purpose of a course are stated in the COURSE DESCRIPTION. Course descriptions state the major emphasis and content of a course, and are written to be understandable by a prospective student.

PERFORMANCE OBJECTIVES OR COMPETENCIES

pp. 7-10

Objectives should be delineated and described in terms of measurable results for the student and include the possible ways in which the objectives contribute to the student's acquisition of skills and competencies.

Performance Objectives are sequentially listed in the COMPETENCY-BASED COMPONENTS section of the course outline. Competency Areas are units of instruction based on related competencies. Competency Statements are competency area goals that together define the framework and purpose of a course. Competencies fall on a continuum between goals and performance objectives and denote the outcome of instruction.

Competency-based instruction tells a student before instruction what skills or knowledge they will demonstrate after instruction. Competency-based education provides instruction which enables each student to attain individual goals as measured against pre-stated standards.

Competency-based instruction provides immediate and continual repetition and In competency-based education the curriculum, instruction, and assessment share common characteristics based on clearly stated competencies. Curriculum, instruction and assessment in competency-based education are: explicit, known, agreed upon, integrated, performance oriented, and adaptive.

COURSE OUTLINE COMPETENCY-BASED COMPONENTS
(continued)

| COURSE OUTLINE COMPONENTS | LOCATION |
|--|-----------------|
| INSTRUCTIONAL STRATEGIES | p. 12 |
| <p>Instructional techniques or methods could include laboratory techniques, lecture method, small-group discussion, grouping plans, and other strategies used in the classroom.</p> <p>Instructional strategies for this course are listed in the TEACHING STRATEGIES AND EVALUATION section of the course outline. Instructional strategies and activities for a course should be selected so that the overall teaching approach takes into account the instructional standards of a particular program, i.e., English as a Second Language, Programs for Adults with Disabilities.</p> | |
| UNITS OF STUDY, WITH APPROXIMATE HOURS ALLOTTED FOR EACH UNIT | Cover |
| <p>The approximate time devoted to each instructional unit within the course, as well as the total hours for the course, is indicated. The time in class is consistent with the needs of the student, and the length of the class should be that it ensures the student will learn at an optimum level.</p> <p>Units of study, with approximate hours allotted for each unit are listed in the COMPETENCY AREA STATEMENT(S) of the course outline. The total hours of the course, including work-based learning hours (community classroom and cooperative vocational education) is listed on the cover of every CBE course outline. Each Competency Area listed within a CBE outline is assigned hours of instruction per unit.</p> | |
| EVALUATION PROCEDURES | p. 12 |
| <p>The evaluation describes measurable evaluation criteria clearly within the reach of the student. The evaluation indicates anticipated improvement in performances as well as anticipated skills and competencies to be achieved.</p> <p>Evaluation procedures are detailed in the TEACHING STRATEGIES AND EVALUATION section of the course outline. Instructors monitor students' progress on a continuing basis, assessing students on attainment of objectives identified in the course outline through a variety of formal and informal tests (applied performance procedures, observations, and simulations), paper and pencil exams, and standardized tests.</p> | |
| REPETITION POLICY THAT PREVENTS PERPETUATION OF STUDENT ENROLLMENT | Cover |
| <p>After a student has completed all the objectives of the course, he or she should not be allowed to reenroll in the course. There is, therefore, a need for a statement about the conditions for possible repetition of a course to prevent perpetuation of students in a particular program for an indefinite period of time.</p> | |

ACKNOWLEDGMENTS

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CALIFORNIA CAREER TECHNICAL EDUCATION MODEL CURRICULUM STANDARDS

Agriculture and Natural Resources Industry Sector

Knowledge and Performance Anchor Standards

1.0 Academics

Analyze and apply appropriate academic standards required for successful industry sector pathway completion leading to postsecondary education and employment. Refer to the Agriculture and Natural Resources academic alignment matrix for identification of standards.

2.0 Communications

Acquire and accurately use Agriculture and Natural Resources sector terminology and protocols at the career and college readiness level for communicating effectively in oral, written, and multimedia formats.

3.0 Career Planning and Management

Integrate multiple sources of career information from diverse formats to make informed career decisions, solve problems, and manage personal career plans.

4.0 Technology

Use existing and emerging technology to investigate, research, and produce products and services, including new information, as required in the Agriculture and Natural Resources sector workplace environment.

5.0 Problem Solving and Critical Thinking

Conduct short as well as more sustained research to create alternative solutions to answer a question or solve a problem unique to the Agriculture and Natural Resources sector, using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.

6.0 Health and Safety

Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the Agriculture and Natural Resources sector workplace environment.

7.0 Responsibility and Flexibility

Initiate, and participate in, a range of collaborations demonstrating behaviors that reflect personal and professional responsibility, flexibility, and respect in the Agriculture and Natural Resources sector workplace environment and community settings.

8.0 Ethics and Legal Responsibilities

Practice professional, ethical, and legal behavior, responding thoughtfully to diverse perspectives and resolving contradictions when possible, consistent with applicable laws, regulations, and organizational norms.

9.0 Leadership and Teamwork

Work with peers to promote divergent and creative perspectives, effective leadership, group dynamics, team and individual decision making, benefits of workforce diversity, and conflict resolution as practiced in the Future Farmers of America (FFA) career technical student organization.

10.0 Technical Knowledge and Skills

Apply essential technical knowledge and skills common to all pathways in the Agriculture and Natural Resources sector, following procedures when carrying out experiments or performing technical tasks.

11.0 Demonstration and Application

Demonstrate and apply the knowledge and skills contained in the Agriculture and Natural Resources anchor standards, pathway standards, and performance indicators in classroom, laboratory, and workplace settings, and through the FFA career technical student organization.

Agriculture and Natural Resources Pathway Standards

F. Ornamental Horticulture Pathway

The Ornamental Horticulture pathway prepares students for careers in the nursery, landscaping, and floral industries. Topics include plant identification, plant physiology, soil science, plant reproduction, nursery production, and floriculture, as well as landscaping design, installation, and maintenance.

Sample occupations associated with this pathway:

- ◆ Florist/Floral Designer
- ◆ Landscape Design/Architect
- ◆ Hydroponics Grower
- ◆ Botanical Specialist
- ◆ Nursery/Greenhouse Manager

- F1.0 Compare and contrast the hierarchical classification of plants.
- F2.0 Summarize plant physiology and growth principles.
- F3.0 Demonstrate different types of plant propagation techniques.
- F4.0 Develop and implement a plan for basic integrated pest management.
- F5.0 Summarize water and soil (media) management practices.
- F6.0 Apply ornamental plant nutrition practices.
- F7.0 Develop a plan for the selection, installation, and maintenance of turf.
- F8.0 Employ nursery production principles.
- F9.0 Demonstrate the proper use of containers and horticultural tools, equipment, and facilities.
- F10.0 Understand basic landscape planning, design, construction, and maintenance.
- F11.0 Understand basic floral design principles.

CBE
Competency-Based Education

COMPETENCY-BASED COMPONENTS
for the Landscaping/2 Course

| COMPETENCY AREAS AND STATEMENTS | MINIMAL COMPETENCIES | STANDARDS |
|---|--|---|
| <p>A. WORKPLACE SAFETY</p> <p>Understand classroom and workplace safety policies and procedures.</p> <p>(10 hours)</p> | <ol style="list-style-type: none"> 1. Review classroom policies and procedures. 2. Review job safety requirements. 3. Review the safe use and care of various landscape tools. 4. Describe the California Occupational Safety and Health Administration (Cal/OSHA) workplace requirements for landscapers. 5. OSHA Certification 10 6. Pass the safety test with 100% accuracy. | <p>Career Ready Practice: 1,2, 5</p> <p>CTE Anchor: Communications: 2.1, 2.3, 2.5 Problem Solving and Critical Thinking: 5.4 Health and Safety: 6.3, 6.6, 6.7 Ethics and Legal Responsibilities: 8.2 Technical Knowledge and Skills: 10.1, 10.3</p> <p>CTE Pathway: F6.3, F6.4, F6.5, F6.6, F9.2, F10.3, F11.1</p> |
| <p>B. POWER HAND TOOLS</p> <p>Understand the types of and use landscaping power hand tools, equipment, and materials.</p> | <ol style="list-style-type: none"> 1. Identify the different types of power hand tools used in landscape installation. 2. Describe and demonstrate each of the following as it applies to power hand tools used in landscape installation: <ol style="list-style-type: none"> a. proper use b. maintenance c. storage 3. Identify the different types of power equipment used in landscape installation. 4. Describe and demonstrate each of the following as it applies to power equipment used in landscape installation: <ol style="list-style-type: none"> a. proper use b. maintenance c. storage | <p>Career Ready Practice: 1, 2, 4, 10</p> <p>CTE Anchor: Communications: 2.5 Problem Solving and Critical Thinking: 5.4 Ethics and Legal Responsibilities: 8.2</p> |

| COMPETENCY AREAS AND STATEMENTS | MINIMAL COMPETENCIES | STANDARDS |
|--|---|---|
| (7 hours) | | Technical Knowledge and Skills: 10.1, 10.3 Demonstration and Application: 11.1 CTE Pathway: F9.2, F9.3, F11.1 |
| C. PLANT IDENTIFICATION – PART II Understand the botanical names, appearance, and characteristics of 25 commonly used plant materials. | <ol style="list-style-type: none"> 1. Review the functions of leaves. 2. Review the functions of roots. 3. Review the functions of stems. 4. Review the functions of flowers and fruits. 5. Review the process of photosynthesis. 6. Review the movement of water and nutrients in plants. 7. Review the plant classification systems. 8. Identify the appropriate trees to be used in prescribed landscaping requirements. 9. Identify the appropriate shrubs to be used in prescribed landscaping requirements. 10. Identify the appropriate vines to be used in prescribed landscaping requirements. 11. Identify the appropriate perennials to be used in prescribed landscaping requirements. 12. Identify the appropriate biennials to be used in prescribed landscaping requirements. 13. Identify the appropriate annuals to be used in prescribed landscaping requirements. 14. Identify the appropriate grasses and broad leaves that can be used as a lawn. 15. Drought tolerant plants | Career Ready Practice: 1, 2, 4, 5, 10 CTE Anchor: Communications: 2.5 Ethics and Legal Responsibilities: 8.2 Technical Knowledge and Skills: 10.1, 10.3 CTE Pathway: F8.2, F10.1 |
| D. SOIL ANALYSIS Understand the importance of, and apply soil analysis techniques in landscaping. | <ol style="list-style-type: none"> 1. Review the features of each type of soil. 2. Review the procedures used in soil sampling. 3. Identify the different types of soil problems. 4. Identify the appropriate remedies for each type of soil problem. 5. Describe and demonstrate the procedures used in analyzing soil problems. 6. Describe and demonstrate the proper application of the appropriate remedies to soil problems. | Career Ready Practice: 2, 10 CTE Anchor: Communications: 2.5 Technical Knowledge and Skills: 10.3 Demonstration and Application: 11.1, 11.3 |

| COMPETENCY AREAS AND STATEMENTS | MINIMAL COMPETENCIES | STANDARDS |
|---|--|--|
| (6 hours) | | CTE Pathway: F5.1 |
| <p>E. WEED ABATEMENT</p> <p>Understand the importance of, and apply weed abatement techniques in landscaping.</p> | <ol style="list-style-type: none"> 1. Define weed abatement. 2. Identify the different types of weeds. 3. Describe the detrimental effects of weeds on the following areas: <ol style="list-style-type: none"> a. lawns b. landscapes c. grounds 4. Describe and demonstrate various mechanical weed abatement techniques. 5. Describe and demonstrate the proper use of weeding tools. 6. Describe and demonstrate the selective removal of weeds from landscaped areas. 7. Describe and demonstrate the selective removal of weeds from lawns. 8. Describe and demonstrate the selective removal of weeds from grounds areas. 9. Analyze the effectiveness of various chemicals on the different types of weeds. 10. Describe and demonstrate chemical weed abatement techniques. 11. Programming of Controllers 12. Appropriate location for Controllers 13. Technology of Controllers | <p>Career Ready Practice: 1, 2, 4, 5</p> <p>CTE Anchor: Communications: 2.5 Technology: 4.1, 4.2, 4.7 Problem Solving and Critical Thinking: 5.4 Technical Knowledge and Skills: 10.1, 10.3 Demonstration and Application: 11.1</p> <p>CTE Pathway: F9.3, F10.1</p> |
| <p>F. PRUNING</p> <p>Understand the importance of, and apply pruning techniques in landscaping.</p> | <ol style="list-style-type: none"> 1. Define pruning. 2. Identify basic tools and their uses in the pruning process. 3. Identify reasons for pruning. 4. Identify various types of pruning. 5. Discuss and demonstrate safe working practices in the pruning process. 6. Describe the appropriate location for a “cut” on a limb. | <p>Career Ready Practice: 1, 2, 5</p> <p>CTE Anchor: Communications: 2.5 Problem Solving and Critical Thinking: 5.4 Technical Knowledge and Skills: 10.1, 10.3 Demonstration and Application: 11.1, 11.3</p> <p>CTE Pathway: F9.3, F10.1</p> |

| COMPETENCY AREAS AND STATEMENTS | MINIMAL COMPETENCIES | STANDARDS |
|---|--|---|
| <p>G. PLANT PROPAGATION</p> <p>Understand the importance of, and apply plant propagation techniques in landscaping.</p> <p>(30 hours)</p> | <ol style="list-style-type: none"> 1. Define propagation. 2. Discuss and demonstrate how plants multiply. 3. Discuss and demonstrate seeding in containers and in the open ground. 4. Discuss the advantages of vegetative propagation. 5. Demonstrate the vegetative means of propagation. 6. Discuss and demonstrate transplanting procedures. | <p>Career Ready Practice: 1, 2, 5, 10</p> <p>CTE Anchor: Communications: 2.1, 2.5 Technology: 4.1, 4.2, 4.7 Problem Solving and Critical Thinking: 5.4 Demonstration and Application: 11.1, 11.3</p> <p>CTE Pathway: F3.1, F3.2, F10.1</p> |
| <p>H. WATER MANAGEMENT REVIEW</p> <p>Review the importance of water management in landscaping.</p> <p>(2 hours)</p> | <ol style="list-style-type: none"> 1. Review the definition of the following: <ol style="list-style-type: none"> a. water resources b. water management c. water sustainability 2. Review the importance of managing the following resources and the role they play in water management: <ol style="list-style-type: none"> a. time b. materials c. personnel 3. Review the specific examples of effective management of the following in landscaping: <ol style="list-style-type: none"> a. time b. materials c. personnel 4. Review the following benefits of effective water management in landscaping: <ol style="list-style-type: none"> a. profitability b. sustainability c. company growth | <p>Career Ready Practice: 1, 2, 4, 5</p> <p>CTE Anchor: Communications: 2.5 Technology: 4.1, 4.2, 4.7 Problem Solving and Critical Thinking: 5.4 Health and Safety: 6.6 Knowledge and Skills: 10.1, 10.3 Demonstration and Application: 11.1</p> <p>CTE Pathway: F10.1</p> |

SUGGESTED INSTRUCTIONAL MATERIALS and OTHER RESOURCES

TEXTS AND SUPPLEMENTAL BOOKS

Hannebaum, Leroy G. Landscape Operations: Management, Methods, and Materials 3rd Edition. Prentice Hall, 1999.

Ingels, Jack, Landscaping: Principles and Practices, 7th Edition. Cengage Learning, 2009.

Johnson, Hugh. The Principles of Gardening: The Practice of the Gardener's Art. Simon & Schuster, 1997.

Melby, Pete. Simplified Irrigation Design, 2nd Edition. Wiley, John & Sons, Inc., 1995.

Naylor, Robert, E.L. Weed Management Handbook, 9th Edition. Wiley, John & Sons, Inc., 2002.

Schrock, Denny. Scott's Landscaping. Meredith Books, 2004.

Smith, Miranda. The Plant Propagator's Bible. St. Martin's Press, 2007.

Symonds, George W. and Stephen V. Chelminski. Tree Identification. Harper Collins Publisher, 1973.

RESOURCES

Employer Advisory Board members

CTE Model Curriculum Standards for Agriculture and Natural Resources:

<http://www.cde.ca.gov/ci/ct/sf/documents/agnatural.pdf>

COMPETENCY CHECKLIST

TEACHING STRATEGIES and EVALUATION

METHODS AND PROCEDURES

- A. Lecture and discussion
- B. Visual aids
- C. Projects
- D. Demonstration/participation
- E. Guest lecturers

EVALUATION

SECTION A – Workplace Safety - Pass the safety test with 100% accuracy.

SECTION B – Power Hand Tools – Pass all assignments and exams on power hand tools with a minimum score of 80% or higher.

SECTION C – Plant Identification – Part II – Pass all assignments and exams on plant identification – part II with a minimum score of 80% or higher.

SECTION D – Soil Analysis – Pass all assignments and exams on soil analysis with a minimum score of 80% or higher.

SECTION E – Weed Abatement – Pass all assignments and exams on weed abatement with a minimum score of 80% or higher.

SECTION F – Pruning – Pass all assignments and exams on pruning with a minimum score of 80% or higher.

SECTION G – Plant Propagation – Pass all assignments and exams on plant propagation with a minimum score of 80% or higher.

SECTION H – Water Management Review – Pass all assignments and exams on water management review with a minimum score of 80% or higher

Standards for Career Ready Practice

1. Apply appropriate technical skills and academic knowledge.

Career-ready individuals readily access and use the knowledge and skills acquired through experience and education. They make connections between abstract concepts with real-world applications and recognize the value of academic preparation for solving problems, communicating with others, calculating measures, and performing other work-related practices.

2. Communicate clearly, effectively, and with reason.

Career-ready individuals communicate thoughts, ideas, and action plans with clarity, using written, verbal, electronic, and/or visual methods. They are skilled at interacting with others: they are active listeners who speak clearly and with purpose, and they are comfortable with terminology that is common to workplace environments. Career-ready individuals consider the audience for their communication and prepare accordingly to ensure the desired outcome.

3. Develop an education and career plan aligned with personal goals.

Career-ready individuals take personal ownership of their educational and career goals and manage their individual plan to attain these goals. They recognize the value of each step in the educational and experiential process, and they understand that nearly all career paths require ongoing education and experience to adapt to practices, procedures, and expectations of an ever-changing work environment. They seek counselors, mentors, and other experts to assist in the planning and execution of education and career plans.

4. Apply technology to enhance productivity.

Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring and using new technology. They understand the inherent risks—personal and organizational—of technology applications, and they take actions to prevent or mitigate these risks.

5. Utilize critical thinking to make sense of problems and persevere in solving them

Career-ready individuals recognize problems in the workplace, understand the nature of the problems, and devise effective plans to solve the problems. They thoughtfully investigate the root cause of a problem prior to introducing solutions. They carefully consider options to solve a problem and, once agreed upon, follow through to ensure the problem is resolved.

6. Practice personal health and understand financial literacy.

Career-ready individuals understand the relationship between personal health and workplace performance. They contribute to their personal well-being through a healthy diet, regular exercise, and mental health activities. Career-ready individuals also understand that financial literacy leads to a secure future that enables career success.

7. Act as a responsible citizen in the workplace and the community.

Career-ready individuals understand the obligations and responsibilities of being a member of a community and demonstrate this understanding every day through their interactions with others. They are aware of the impacts of their decisions on others and the environment around them, and they think about the short-term and long-term consequences of their actions. They are reliable and consistent in going beyond minimum expectations and in participating in activities that serve the greater good.

8. Model integrity, ethical leadership, and effective management.

Career-ready individuals consistently act in ways that align with personal and community-held ideals and principles. They employ ethical behaviors and actions that positively influence others. They have a clear understanding of integrity and act on this understanding in every decision. They use a variety of means to positively impact the direction and actions of a team or organization, and they recognize the short-term and long-term effects that management's actions and attitudes can have on productivity, morale, and organizational culture.

9. Work productively in teams while integrating cultural and global competence.

Career-ready individuals contribute positively to every team, as both team leaders and team members. To avoid barriers to productive and positive interaction, they apply an awareness of cultural differences. They interact effectively and sensitively with all members of the team and find ways to increase the engagement and contribution of other members.

10. Demonstrate creativity and innovation.

Career-ready individuals recommend ideas that solve problems in new and different ways and contribute to the improvement of the organization. They consider unconventional ideas and suggestions by others as solutions to issues, tasks, or problems. They discern which ideas and suggestions may have the greatest value. They seek new methods, practices, and ideas from a variety of sources and apply those ideas to their own workplace practices.

11. Employ valid and reliable research strategies.

Career-ready individuals employ research practices to plan and carry out investigations, create solutions, and keep abreast of the most current findings related to workplace environments and practices. They use a reliable research process to search for new information and confirm the validity of sources when considering the use and adoption of external information or practices.

12. Understand the environmental, societal, and economic impacts of decisions.

Career-ready individuals understand the interrelated nature of their actions and regularly make decisions that positively impact other people, organizations, the workplace, and the environment. They are aware of and utilize new technologies, understandings, procedures, and materials and adhere to regulations affecting the nature of their work. They are cognizant of impacts on the social condition, environment, workplace, and profitability of the organization.

Statement for Civil Rights

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