

Middletown Unified School – Career Technical Education

AG SKILLS ~ EQUIPMENT OPERATION & REPAIR

DATE:

INDUSTRY SECTOR: Agriculture and Natural Resources Sector

PATHWAY: Ornamental Horticulture

CALPADS TITLE: Advanced Ornamental Horticulture (Capstone)

CALPADS CODE: 7162

HOURS:

Total	Classroom	Laboratory/CC/CVE
180	52	128

JOB TITLE	O*NET CODE	JOB TITLE	O*NET CODE
First-Line Supervisors of Farming, Fishing, and Forestry Workers	45-1011.00	Welders, Cutters, Solderers, and Brazers	51-4121.00
Plumbers	47-2152.02	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	45-2092.00
Fence Erectors	47-4031.00	Construction Laborers	47-2061.00

COURSE DESCRIPTION:

To be prepared for careers in agriculture, food, and natural resources, students must attain academic skills and knowledge in agriculture. This course allows students to develop knowledge and skills regarding career opportunities, personal development, globalization, industry standards, details, practices, and expectations. To prepare for success, students need to have opportunities to learn, reinforce, experience, apply, and transfer their knowledge and skills in a variety of settings.

A-G APPROVAL: No

ARTICULATION: None

DUAL ENROLLMENT: None

PREREQUISITES:

Prerequisite
Two years of agriculture courses or permission of instructor.

METHODS OF INSTRUCTION

- Direct instruction
- Group and individual applied projects
- Multimedia
- Demonstration
- Field trips
- Guest speakers

STUDENT EVALUATION:

- Student projects
- Written work
- Exams
- Observation record of student performance
- Completion of assignment

INDUSTRY CERTIFICATION:

- None

RECOMMENDED TEXTS:

- Ag Mechanics Fundamentals & Applications
- Modern Agriculture Mechanics
- The Farm Shop

PROGRAM OF STUDY

Grade	Fall	Spring	Year	Course Type	Course Name
9, 10, 11, 12				Introductory	Introduction to Agriscience/Agriculture
9, 10, 11, 12				Introductory	Introduction to Viticulture
9, 10, 11, 12				Concentrator	Plant Science
9, 10, 11, 12				Concentrator	Ag Sales & Marketing/Services
9, 10, 11, 12				Concentrator	Agriculture Biology
9, 10, 11, 12				Concentrator	Viticulture Management
9, 10, 11, 12				Concentrator	Floral Design
11, 12				Capstone	Ag Skills ~ Equipment Operation & Repair

I.	LEADERSHIP DEVELOPMENT & TEAMWORK	CR	Lab/ CC	Standards
	<p>A.This unit contains lessons about the aim, purpose, history and structure of the FFA. Other lessons are about the opportunities in FFA such as awards, contests (career development opportunities), leadership opportunities and conferences.</p> <ol style="list-style-type: none"> 1. FFA: The benefits to involvement 2. What is FFA? (1st year members) 3. What is the FFA? (Older, experienced members?) 4. Creating my “Plan” 5. What is leadership 6. Leadership styles 7. Public speaking 8. FFA issues and topics <p>B.Understand the characteristics and benefits of teamwork, leadership, citizenship in the school, community, and workplace settings for effective performance and attainment of goals.</p> <p>C.Understand the ways in which professional associations, contribute to promote employability.</p> <p>D.Know multiple approaches to personal conflict resolution and understand how to interact with others in ways that demonstrate respect for individual and cultural differences and for the attitudes and feelings of others.</p>	2	10	<p>Academic: WS: 11-12.10, 9-10.4</p> <p>CTE Anchor: Communications: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6 Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4 Responsibility and Flexibility: 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8 Ethics and Legal Responsibilities: 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7 Leadership and Teamwork: 9.1, 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 9.11, 9.12, 9.13, 9.13 Technical Knowledge and Skills: 10.5, 10.6, 10.7 Demonstration and Application: 11.3</p> <p>CTE Pathway: F11.1</p>
II.	SUPERVISED AGRICULTURAL EXPERIENCE	CR	Lab/ CC	Standards
	<p>A.This unit contains lessons about SAE's: what they are, how to begin and manage them, selection, and how SAE's support agricultural learning.</p> <ol style="list-style-type: none"> 1. What is an SAE Program 2. What are the benefits of an SAE 3. Exploration, planning & selection of an SAE 	5	0	<p>Academic: WS: 11-12.4, 9-10.8, 9-10.9</p> <p>CTE Anchor: Career Planning and Management: 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9 Technology: 4.5 Leadership and Teamwork: 9.4, 9.9, 9.10, 9.11, 9.12, 9.13, 9.13 Technical Knowledge and Skills: 10.6, 10.7, 10.8 Demonstration and Application: 11.1, 11.2, 11.5</p>

				CTE Pathway: F2.4, F6.3, F6.4, F8.1, F8.2, F8.3, F8.4
III.	EQUIPMENT AND SITE SAFETY	CR	Lab/ CC	Standards
	<p>A.Health and Safety.</p> <ol style="list-style-type: none"> 1. Know policies, procedures, and regulations regarding health and safety in the workplace, including employers' and employees' responsibilities. 2. Understand critical elements of health and safety practices related to a variety of business environments. <p>B.Basic Safety</p> <ol style="list-style-type: none"> 1. Students will explain the idea of a safety culture and its importance to the construction crafts. 2. Students will identify causes of accidents and the impact of accident costs. 3. Students will explain the role of OSHA in jobsite safety. 4. Students will explain OSHA's General Duty Clause and 1926 CFR Subpart C. 5. Students will recognize hazard recognition and risk assessment techniques. 6. Students will explain fall protection, ladder, stair, and scaffold procedures and requirements. 7. Students will identify struck-by hazards and demonstrate safe working procedures and requirements. 8. Students will identify caught-in-between hazards and demonstrate safe working procedures and requirements. 9. Students will define safe work procedures to use around electrical hazards. 10. Students will demonstrate the use and care of appropriate personal protective equipment (PPE). 11. Students will explain the importance of hazard communications (HazCom) and Material Safety Data sheets (MSDSs). 12. Students will identify other construction hazards on the job site, including hazardous material exposures, environmental elements, welding and cutting hazards, confined spaces, and fires. <p>C.Know policies, procedures, and regulations regarding health and safety in the workplace, including employers' and employees' responsibilities.</p> <p>D.Understand critical elements of health and safety practices related to a variety of business environments.</p>	7	17	<p>Academic: RLST: 9-10.3, 9-10.4, 9-10.5 WS: 9-10.4</p> <p>CTE Anchor: Communications: 2.6 Career Planning and Management: 3.3, 3.4, 3.6 Technology: 4.7 Health and Safety: 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7 Responsibility and Flexibility: 7.7 Ethics and Legal Responsibilities: 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7</p> <p>CTE Pathway: F9.1, F9.2, F9.3, F9.4, F10.1, F10.2, F10.3, F10.4, F10.5, F11.2, F11.3</p>
IV.	CAREER PREPARATION	CR	Lab/ CC	Standards
	<p>A.Know the personal qualifications, interests, aptitudes, knowledge, and skills necessary to succeed in careers.</p> <p>B.Students will identify skills needed for job success</p> <p>C.Students will identify the education and experience required for moving along a career ladder.</p> <p>D.Understand the scope of career opportunities and know the requirements for education, training, and licensure.</p> <p>E.Students will describe how to find a job.</p> <p>F.Students will select two jobs in the field and map out a timeline for completing education and/or licensing requirements.</p> <p>G.Know the main strategies for self-promotion in the hiring process, such as completing job applications, Resume writing, interviewing skills, and preparing a portfolio.</p> <p>H.Students will write and use word processing software to create a resume, cover letters, thank you letters, and job applications.</p>	5	5	<p>Academic: WS: 9-10.4, 9-10.7, 9-10.8</p> <p>CTE Anchor: Communications: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6 Career Planning and Management: 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9 Technology: 4.6, 4.7 Responsibility and Flexibility: 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8</p>

	<p>I.Students will participate in mock job interviews</p> <p>J.Develop a career plan that is designed to reflect career interests, pathways, and postsecondary options</p> <p>K.Students will conduct a self—assessment and explain how professional qualifications affect career choices.</p> <p>L.Understand the role and function of professional organizations, industry associations, and organized labor in a productive society.</p> <p>M.Contact two professional organization and identify the steps to become a member.</p> <p>N.Understand the past, present and future trends that affect careers, such as technological developments and societal trends, and the resulting need for lifelong learning</p> <ol style="list-style-type: none"> 1. Students will describe careers in the business industry sector. 2. Students will identify work-related cultural differences to prepare for a global workplace 			<p>Ethics and Legal Responsibilities: 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7</p> <p>Technical Knowledge and Skills: 10.1, 10.4</p> <p>Demonstration and Application: 11.3, 11.4</p> <p>CTE Pathway: F8.4, F10.1, F10.2, F10.3, F10.4, F10.5</p>
V.	PROBLEM SOLVING & CRITICAL THINKING	CR	Lab/CC	Standards
	<p>A.Understand the systematic problem-solving models that incorporate input, process, outcome and feedback components, and apply appropriate problem-solving strategies and critical thinking to work-related issues and tasks.</p> <p>B.Use and apply critical thinking and decision making skills to make informed decisions, solve problems, and achieve balance in the multiple roles of personal, home, work and community life.</p>	4	15	<p>Academic: WS: 9-10.8</p> <p>CTE Anchor: Communications: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6 Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4</p> <p>CTE Pathway: F11.4</p>
VI.	ETHICS & LEGAL RESPONSIBILITIES	CR	Lab/CC	Standards
	<p>A.Know the major local, district, state, and federal regulatory agencies and entities that affect the industry and how they enforce laws and regulations</p> <p>B.Understand the concept and application of ethical and legal behavior consistent with workplace standards.</p> <ol style="list-style-type: none"> 1. Contact a business and obtain a copy of their rules for employment. 2. Role play difference ethical scenarios. <p>C.Understand the role of personal integrity and ethical behavior in the workplace.</p> <p>D.Understand the qualities and behaviors that constitute a positive and professional work demeanor.</p> <p>E.Understand the importance of accountability and responsibility in fulfilling personal, community, and work place roles and how individual actions can affect the larger community.</p> <p>F..Understand the need to adapt to varied roles and responsibilities.</p>	4	1	<p>Academic: WS: 9-10.4</p> <p>CTE Anchor: Communications: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6 Career Planning and Management: 3.1, 3.2, 3.3, 3.4, 3.9 Health and Safety: 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7 Ethics and Legal Responsibilities: 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7 Leadership and Teamwork: 9.1, 9.1, 9.2, 9.3, 9.8, 9.9 Technical Knowledge and Skills: 10.2</p>

				CTE Pathway: F5.4
VII.	TECHNOLOGY	CR	Lab/CC	Standards
	<p>A.Understand past, present and future technological advances as they relate to a chosen pathway and on selected segments of the economy.</p> <p>B.Understand the use of technological resources to gain access to, manipulate, and produce information, products and services.</p> <p>C.Use appropriate technology in the chosen career pathway.</p>	5	20	<p>Academic: WS: 9-10.4, 9-10.7, 9-10.8</p> <p>CTE Anchor: Communications: 2.6 Career Planning and Management: 3.5, 3.6, 3.7, 3.8, 3.9 Technology: 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7 Technical Knowledge and Skills: 10.1, 10.3, 10.4, 10.8 Demonstration and Application: 11.4</p> <p>CTE Pathway: F2.1, F2.6, F3.2, F3.3, F5.2, F6.4, F8.1, F8.2, F8.3, F8.4, F11.1</p>
VIII.	AGRICULTURAL PROCESSES	CR	Lab/CC	Standards
	<p>A.Ag Woodworking: This unit contains lessons about wood product identification, lumber types and sizes, wood construction calculations, fasteners, and woodworking projects.</p> <p>B.Rope Work & Load Securing:This unit contains lessons on Rope Work and Load Securing procedures common to the agricultural mechanics environment.</p> <p>C.Ag Electricity & Wiring: This unit contains lessons on agricultural electricity; voltage, amperage, resistance, power; test equipment; circuit problem analysis and correction; wiring techniques; and electrical plan interpretation.</p> <p>D.Plumbing: This unit contains lesson on plumbing fitting skills, enviornmental choices, how plumbing and irrigation systems are used in agriculture, and plumbing projects.</p> <p>E.Cold/Hot Metal Processes: This unit contains lessE.ns in common metals, sizes and shapes; tool fitting skills; layout skills; cold metal processes; and cold/hot metal projects.</p> <p>F.Concrete & Masonry Practices: This unit contains lessons in calculating volume, materials and project costs for a concrete project; bed preparation, forms and construction; and concrete or masonry projects.</p> <p>G.Oxy-fuel Cutting & Welding: This unit contains lessons on oxy-fuel cutting processes; setting up, adjusting, shutting down and maintaining an oxy-fuel system; flame cutting; fusing welding; and repair skills such as brazing and hard surfacing.</p> <p>H.Electric Arc Welding: This unit contains lessons on welding equipment selection, use and maintenance; Fusion-welding; welding positions; symbols and plans; electrodes selection; welding joints, and heat/distortion control.</p> <p>I.Small Engines: This unit contains lessons on two and four stroke engine</p>	20	60	<p>Academic: RLST: 11-12.3, 9-10.4, 9-10.5, 9-10.7 WS: 11-12.9</p> <p>CTE Anchor: Communications: 2.6 Technology: 4.1, 4.2, 4.3, 4.4, 4.6, 4.7 Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4 Health and Safety: 6.1, 6.2, 6.3, 6.5, 6.6, 6.7 Leadership and Teamwork: 9.13, 9.13 Technical Knowledge and Skills: 10.1, 10.2, 10.3, 10.4, 10.5, 10.6, 10.7, 10.8 Demonstration and Application: 11.1, 11.3</p>

theory, types of engines, parts and systems, troubleshooting and solving engine problems, the use of repair manuals, and appropriate use of forms and work orders.

J.Land Measurement: This unit contains lessons in basic land measurement and surveying techniques.

CTE Pathway:

F8.3, F8.4, F8.2,
F8.1, F9.1, F9.4,
F9.2, F9.3, F10.1,
F10.2, F10.3,
F10.4, F10.5

Entered by:

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