

DESE Model Curriculum

GRADE LEVEL/UNIT TITLE: 11-12/Agricultural Construction – Project Construction

Course Code:

COURSE INTRODUCTION:

This course utilizes welding in the development and construction of major metal and wood projects. (CD 016770, CIP 01.0201).

Course Rationale – Agriculture encompasses the food, fiber, conservation and natural resource systems, employing over 20% of the nation's workforce. Advanced skills in welding, woodworking, and project construction provide students with entry-level agricultural construction skills.

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UNIT DESCRIPTION: Students learn the details involved in designing and creating a project from start to finish, including estimating materials and costs, creating drawings and plans, and assembling the project.		SUGGESTED UNIT TIMELINE: 16-32 weeks CLASS PERIOD (min.): 50 MINUTES				
ESSENTIAL QUESTIONS: 1. Why is it important to develop a bill of materials, projected cost list, and conceptual drawings prior to beginning a construction project? 2. What are the specific details you need to consider to complete a construction project?						
ESSENTIAL MEASURABLE LEARNING OBJECTIVES	CCSS LEARNING GOALS (Anchor Standards/Clusters)	CROSSWALK TO STANDARDS				
		GLEs/CLEs	PS	CCSS	AFNR Standards	DOK
List the safety procedures for project construction.				L11-12.6 WHST11-12.2	CS.06.03 CS.07.01 CS.07.04 CS.08.02	1
Select project and design a project plan.				WHST11-12.2	PST.04.01 PST.04.02	4
Develop a bill of materials and a projected cost list.				N-Q-1 N-Q-2 N-Q-3	PST.04.01 PST.04.03 PST.04.04	4
List tools needed to complete a project and list safety precautions.				L11-12.6 WHST11-12.2	CS.06.03 CS.07.01 CS.08.01	1

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					CS.08.02 CS.08.03 PST.01.03 PST.02.01 PST.02.02	
Determine the time frame for completion of a project					PST.04.03	4
Interpret a project construction plan.				RST11-12.2 RST11-12.4 RST11-12.9	PST.04.01 PST.04.02 PST.04.04	4
Lay out and prepare materials for cutting.					PST.01.03 PST.04.04	2
Determine construction design for proper hitching and balancing.				G-CO-1 G-CO-6 G-CO-7 G-CO-12 G-GMD-4 G-GM-1 G-GM-3	PST.04.01 PST.04.02	4
Determine construction design for legal specifications: width, length, weight, etc.				G-CO-1 G-CO-6 G-CO-7 G-CO-12 G-GMD-4 G-GM-1 G-GM-3	PST.04.01 PST.04.02	4
Identify and correct project defects by approved methods.				G-CO-1 G-CO-6 G-CO-7 G-CO-12 G-GMD-4 G-GM-1	PST.04.01 PST.04.02 PST.04.04	4

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				G-GM-3 RST11-12.3		
Perform assembly procedures.				G-CO-1 G-CO-6 G-CO-7 G-CO-12 G-GMD-4 G-GM-1 G-GM-3 SL11-12.4	PST.01.03 PST.04.04	2
Describe why a project should have a finish.				L11-12.6 SL11-12.4	PST.03.03 PST.04.04	2
Determine actual cost of materials and labor for project.				N-Q-1 N-Q-2 N-Q-3	PST.04.01 PST.04.03	4
Use hand and power tools in completing a project.					PST.01.03 PST.02.01 PST.02.02 PST.04.04	2
Demonstrate an understanding of the skills and procedures necessary to build a project by selecting an appropriate project; devising elevation drawings, a bill of materials, and a plan of procedure for the project; and applying their plan to complete the project within the allotted time.				N-Q-1 N-Q-2 N-Q-3 G-CO-1 G-CO-6 G-CO-7 G-CO-12 G-GMD-4 G-GM-1 G-GM-3 L11-12.6 RST11-12.9 WHST11-12.2	CS.01.01 CS.06.03 CS.07.01 CS.07.04 CS.08.01 CS.08.02 CS.08.03 PST.01.03 PST.02.01 PST.02.02 PST.04.01 PST.04.02 PST.04.03	4

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					PST.04.04	
ASSESSMENT DESCRIPTIONS*: (Write a brief overview here. Identify Formative/Summative. Actual assessments will be accessed by a link to PDF file or Word doc.4)						
<p>As part of the instructional strategies and activities for this unit, students will complete an estimated bill of materials, a list of tools and procedures and safety precautions, and a time estimation sheet for sample project plans included with the unit. For the performance-based assessment activity, students will apply the skills and procedures discussed in the unit to select, plan, and complete an appropriate project.</p> <p>Assessment will be based on the overall quality of the work and the ability to safely and correctly complete the project within the available time.</p>						
*Attach Unit Summative Assessment, including Scoring Guides/Scoring Keys/Alignment Codes and DOK Levels for all items. Label each assessment according to the unit descriptions above (i.e., Grade Level/Course Title/Course Code, Unit #.)						
Obj. #	INSTRUCTIONAL STRATEGIES (research-based): (Teacher Methods)					
	1. Lecture					
	2. Demonstration, Monitoring, Individualized Instruction					
Obj. #	INSTRUCTIONAL ACTIVITIES: (What Students Do)					
	1. Students will engage in study questions in lessons 1 through 14.					
	2. Students will complete “HO 2.1, Project Construction Check List”; “WS 3.1, Estimated Bill of Materials”; “WS 3.3, Where Are Materials Obtained?”; “WS 4.1, List of Tools and Procedures”; “WS 4.2, Tools—Safety Precautions”; “WS 5.1, Time Estimation Sheet”; “WS 6.1, Interpreting the Project Plan for a Pipe Sawhorse”; “WS 10.1, Quality Control — Project Evaluation Check List”; “WS 13.1, Actual Costs of Materials and Labor”; and “WS 14.1, Hand and Power Tools Used in Completing a Project.”					
	3. Additional activities that relate to the unit objective can be found under the heading “Other Activities” in the following locations:					

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p. VI-5 (1, 3, 4), p. VI-15 (2), pp. VI-25–VI-26 (2, 3), p. VI-41 (1, 2, 3, 4), p. VI-51 (1, 2), p. VI-57 (1, 2), p. VI-68 (2, 4), p. VI-79 (1, 2, 3), p. VI-91 (2, 3, 4), p. VI-99 (1, 3, 4), p. VI-118 (2, 3), and p. VI-131 (1, 2).

UNIT RESOURCES: (include internet addresses for linking)

- *Agricultural Construction Volume I*. University of Missouri-Columbia, Instructional Materials Laboratory, 1989. www.mcce.org
- *Agricultural Mechanics Building Plans*. University of Missouri-Columbia, Instructional Materials Laboratory, 1994. www.mcce.org
- *Agricultural Mechanics Plans (Set)*. University of Missouri-Columbia, Instructional Materials Laboratory. www.mcce.org
- *Lincoln Electric* Lincoln Electric. Accessed January 15, 2012, from <http://www.lincolnelectric.com/>.
- *Miller Electric*. Accessed January 15, 2012, from <http://www.millerwelds.com/>.
- *Master Plans Trailer Plans Store*. Accessed January 15, 2012, from <http://www.trailerplans.com/>