

VoCATS Course Blueprint

Agriculture Education

6832 Agricultural Mechanics II

*Public Schools of North Carolina
State Board of Education • Department of Public Instruction
Curriculum and School Reform Services
Division of Instructional Services*

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This blueprint has been reviewed by business and industry representatives for technical content and appropriateness for the industry. Contact benjie_forrest@ncsu.edu for more information.

VoCATS Course Blueprint

A course blueprint is a document laying out the framework of the curriculum for a given course.

Shown on the blueprint are the units of instruction, the core competencies in each unit, and the specific objectives for each competency. The blueprint illustrates the recommended sequence of units and competencies and the cognitive and performance weight of the objective within the course.

The blueprint should be used by teachers to plan the course of work for the year, prepare daily lesson plans, construct instructionally valid interim assessments. Statewide assessments are aligned directly with the course blueprint.

For additional information about this blueprint, contact program area staff. For additional information about VoCATS, contact program area staff or VoCATS, Career-Technical Education, Division of Instructional Services, North Carolina Department of Public Instruction, 6358 Mail Service Center, Raleigh, North Carolina 27699-5358, 919/807-3876, email: rwelfare@dpi.state.nc.us.

Interpretation of Columns on VoCATS Course Blueprints

No.	Heading	Column information
1	Comp# Obj.#	Comp=Competency number (two digits); Obj.=Objective number (unique course identifier plus competency number and two-digit objective number).
2	Unit Titles/Competency and Objective Statements	Statements of unit titles, competencies per unit, and specific objectives per competency. Each competency statement or specific objective begins with an action verb and makes a complete sentence when combined with the stem "The learner will be able to. . ." (The stem appears once in Column 2.) Outcome behavior in each competency/objective statement is denoted by the verb plus its object.
3	Time Hrs	Space for teachers to calculate time to be spent on each objective based on the course blueprint, their individual school schedule, and analysis of students' previous knowledge on the topic.
4&5	<u>Course Weight</u> Cognitive Performance	Shows the relative importance of each objective, competency, and unit. Weight is broken down into two components: cognitive and performance. Add the cognitive and performance weights shown for an objective in columns 4 and 5 to determine its total course weight. Course weight is used to help determine the percentage of total class time that is spent on each objective. The breakdown in columns 4 and 5 indicates the relative amount of class time that should be devoted to cognitive and performance activities as part of the instruction and assessment of each objective. Objectives with performance weight should include performance activities as part of instruction and/or assessment.
6	Type Behavior	Classification of outcome behavior in competency and objective statements. (C=Cognitive; P=Performance)
7	Integrated Skill Area	Shows links to other academic areas. Integrated skills codes: A=Arts; E=English Language Arts; CD=Career Development; CS=Information/Computer Skills; H=Healthful Living; M=Math; SC=Science; SS=Social Studies.
8	Core Supp	Designation of the competencies and objectives as Core or Supplemental. Competencies and objectives designated "Core" must be included in the Annual Planning Calendar and are assessed on the statewide assessments..

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AGRICULTURE EDUCATION
COURSE BLUEPRINT FOR 6832 – AGRICULTURAL MECHANICS II
(Recommended hours of instruction: 135 -180)

Comp# Obj.#	Unit Titles/Competency and Objective Statements (The learner will be able to:)	Time	Cognitive Weight	Performance Weight	Type Behavior	Integrated Skill Area	Core/ Supp
1	2	3	4	5	6	7	8
			100%				
	Total Course Weight		45%	55%			
A	LEADERSHIP DEVELOPMENT		6%	3%			
AM01.	Demonstrate the major components of leadership involved in successful employment.		2%	1%	C3P		
<i>AM01.01</i>	<i>Identify leadership qualities desired by the agricultural mechanics industry.</i>		<i>2%</i>		<i>C1</i>	<i>CD/E</i>	<i>Core</i>
<i>AM01.02</i>	<i>Develop leadership qualities through participation in the agricultural mechanics instructional program.</i>			<i>1%</i>	<i>C3P</i>	<i>CD/E</i>	<i>Core</i>
AM02.	Adapt public speaking techniques to the audience and purpose of the communication.		2%	1%	C3P		
<i>AM02.01</i>	<i>Describe the major types of speeches and the variables to be considered when presenting the speeches.</i>		<i>2%</i>		<i>C1</i>	<i>E</i>	<i>Core</i>
<i>AM02.02</i>	<i>Use principles of public speaking to deliver a speech on an agricultural mechanics topic.</i>			<i>1%</i>	<i>C3P</i>	<i>E</i>	<i>Core</i>
AM03.	Apply Robert's Rules of Order to conduct business meetings of agricultural mechanics organizations.		2%	1%	C3P		
<i>AM03.01</i>	<i>Analyze the role of Robert's Rules of Order in the orderly conduct of business.</i>		<i>2%</i>		<i>C3</i>	<i>E/SS</i>	<i>Core</i>
<i>AM03.02</i>	<i>Use principles of parliamentary procedure to conduct an orderly transaction of business utilizing Robert's Rules of Order.</i>			<i>1%</i>	<i>C3P</i>	<i>E/SS</i>	<i>Core</i>

1	Unit Titles/Competency and Objective Statements (The student will be able to:)	Time Hrs.	Course Weight		Type Behavior	Integrated Skill Area	Core Supp
			Cognitive	Performance			
2	3	4	5	6	7	8	
B	SUPERVISED AGRICULTURAL EXPERIENCE PROGRAM		4%	3%			
AM04.	Use career objectives to design a school-to-work employment plan.		2%	1%	C3P		
AM04.01	<i>Describe the procedures for planning and implementing a school-to-work employment plan.</i>		2%		C1	CD/E	Core
AM04.02	<i>Use career objectives to create an individual written school-to-work employment plan.</i>			1%	C3P	CD/E	Core
AM05.	Develop a financial record system for use in the agricultural mechanics industry.		2%	2%	C3P		
AM05.01	<i>Identify the elements of a financial statement.</i>		2%		C1	M	Core
AM05.02	<i>Use principles of financial literacy to compose a financial statement.</i>			2%	C3P	M	Core
C	SAFE WORK PRACTICES IN AGRICULTURAL MECHANICS		8%	4%			
AM06.	Investigate safety practices that apply to agricultural mechanics.		4%		C2		
AM06.01	<i>Explain safety rules related to agricultural mechanics.</i>		2%		C2	E/H/SC	Core
AM06.02	<i>Describe fire prevention as it relates to agricultural mechanics.</i>		2%		C1	E/H/SC	Core
AM07.	Demonstrate the proper use of agricultural mechanics tools, equipment, and facilities.		4%	4%	C3P		
AM07.01	<i>Describe tools and equipment used in agricultural mechanics.</i>		2%		C1	E/SC	Core
AM07.02	<i>Explain procedures for using tools, equipment, and facilities.</i>		2%		C2	E/H/M/SC	Core
AM07.03	<i>Use tools and equipment properly and safely.</i>			4%	C3P	H/M/SC	Core
AM07.04	<i>Determine design criteria for safe and effective use and management of agricultural mechanics service centers.</i>				C3	A/H/M/SC	Supp
AM07.05	<i>Use design criteria to design plans for an agricultural mechanics service center.</i>				C3P	A/H/M/SC	Supp
D	METAL FABRICATION		9%	25%			
AM08.	Investigate procedures for fastening metal.		2%	2%	C3P		
AM08.01	<i>Explain the purposes of different metal fasteners.</i>		2%		C2	A/E/SC	Core
AM08.02	<i>Use proper procedures for fastening with bolts, nuts, washers, screws, rivets, taps, and dies.</i>			2%	C3P	M/SC	Core

Comp# Obj.#	Unit Titles/Competency and Objective Statements (The student will be able to:)	Time Hrs.	Course Weight		Type Behavior	Integrated Skill Area	Core Supp
			Cognitive	Performance			
1	2	3	4	5	6	7	8
AM09.	Use oxy-fuel welding equipment and materials.		3%	10%	C3P		
AM09.01	Explain procedures for using oxyacetylene equipment and materials.		3%		C2	E/M/SC	Core
AM09.02	Demonstrate welding various types of joints and metals.			4%	C3P	H/M/SC	Core
AM09.03	Demonstrate safe assembly of an oxyacetylene rig.				C3P	H/SC	Supp
AM09.04	Demonstrate cutting low carbon steel.			2%	C3P	H/M/SC	Core
AM09.05	Use proper procedures to solder and braze various metals.			2%	C3P	M/SC	Core
AM09.06	Heat, bend, harden, temper, and anneal metal.			2%	C3P	M/SC	Core
AM10.	Use arc welding equipment and materials.		2%	6%	C3P		
AM10.01	Explain procedures for using arc welding equipment.		2%		C2	E/H/SC	Core
AM10.02	Weld using SMAW, GMAW, and GTAW procedures.			6%	C3P	A/M/SC	Core
AM11.	Demonstrate plasma arc cutting and welding.				C3P		
AM11.01	Examine procedures of plasma arc cutting and plasma arc welding.				C2	E/M/SC	Supp
AM11.02	Cut and weld using plasma arc.				C3P	M/SC	Supp
AM12.	Weld cast iron.				C3P		
AM12.01	Recognize the characteristics and proper welding techniques of cast iron.				C1	A/M/SC	Supp
AM12.02	Explain procedures for welding cast iron.				C2	E/M/SC	Supp
AM12.03	Weld cast iron in agricultural metal fabrication.				C3P	A/M/SC	Supp
AM13.	Construct a metal fabrication project.		2%	7%	C3P		
AM13.01	Identify common symbols, abbreviations, and numbering systems used for various metals in metal fabrication.		1%		C1	A/M	Core
AM13.02	Explain procedures to design a metal fabrication project.		1%		C2	A/E/M/SC	Core
AM13.03	Use correct procedures to design a metal fabrication project.			2%	C3P	A/M/SC	Core
AM13.04	Use proper procedures to construct a metal fabrication project.			5%	C3P	A/M/SC	Core
AM14.	Examine techniques for welding plastics.				C3P		
AM14.01	Research the types of equipment and supplies needed to weld plastics.				C3P	E/SC	Supp
AM14.02	Use proper techniques to weld plastics.				C3P	A/M/SC	Supp

1	Unit Titles/Competency and Objective Statements (The student will be able to:)	Time Hrs.	Course Weight		Type Behavior	Integrated Skill Area	Core Supp
			Cognitive	Performance			
2	3	4	5	6	7	8	
AM15.	Investigate techniques for repairing synthetic materials.				C3P		
<i>AM15.01</i>	<i>Research common types of fiberglass repairs and the materials needed.</i>				<i>C3P</i>	<i>E/M/SC</i>	<i>Supp</i>
<i>AM15.02</i>	<i>Repair synthetic materials.</i>				<i>C3P</i>	<i>A/M/SC</i>	<i>Supp</i>
E	AGRICULTURAL POWER		6%	7%			
AM16.	Research types of tractors and their safe uses.		4%		C3P		
<i>AM16.01</i>	<i>Describe types of agricultural tractors and their uses.</i>		<i>2%</i>		<i>C1</i>	<i>A/E/M/SC</i>	<i>Core</i>
<i>AM16.02</i>	<i>Explain principles and procedures for safe operation of tractors.</i>		<i>2%</i>		<i>C2</i>	<i>A/E/H/SC</i>	<i>Core</i>
<i>AM16.03</i>	<i>Demonstrate the safe operation of tractors.</i>				<i>C3P</i>	<i>H/M/SC</i>	<i>Supp</i>
AM17.	Research preventive maintenance procedures for tractors, equipment, and small engines.		2%	7%	C3P		
<i>AM17.01</i>	<i>Explain preventive maintenance procedures for tractors, equipment, and small engines.</i>		<i>2%</i>		<i>C2</i>	<i>E/H/M/SC</i>	<i>Core</i>
<i>AM17.02</i>	<i>Discuss how to service tractors, equipment and small engines.</i>			<i>4%</i>	<i>C2</i>	<i>H/M/SC</i>	<i>Core</i>
<i>AM17.03</i>	<i>Use owner's manuals to troubleshoot agricultural tractors, equipment, and small engines.</i>			<i>3%</i>	<i>C3P</i>	<i>E/M/SC</i>	<i>Core</i>
F	AGRICULTURAL CONSTRUCTION		12%	13%			
AM18.	Use blueprints to plan layout and framing.		1%	1%	C3P		
<i>AM18.01</i>	<i>Identify blueprint terms and symbols.</i>		<i>1%</i>		<i>C1</i>	<i>A/M</i>	<i>Core</i>
<i>AM18.02</i>	<i>Read blueprints to plan layout and framing.</i>			<i>1%</i>	<i>C3P</i>	<i>A/M/SC</i>	<i>Core</i>
AM19.	Demonstrate safe use of layout tools and equipment.			3%	C3P		
<i>AM19.01</i>	<i>Use builder's level, tripod, and laser level.</i>			<i>2%</i>	<i>C3P</i>	<i>A/M/SC</i>	<i>Core</i>
<i>AM19.02</i>	<i>Demonstrate the 3-4-5 method to lay out a building.</i>			<i>1%</i>	<i>C3P</i>	<i>A/M/SC</i>	<i>Core</i>

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AM20.	Build the framing of a wood structure.		6%	7%	C3P		
AM20.01	Identify framing terms and materials.		2%		C1	E/M/SC	Core
AM20.02	Explain procedures used to calculate rafter lengths and angles.		1%		C2	E/M/SC	Core
AM20.03	Explain procedures used to cut and install framing materials.		3%		C2	A/E/M/SC	Core
AM20.04	Demonstrate the proper procedures to frame a wood building.			7%	C3P	A/M/SC	Core
AM21.	Maintain an agricultural water system.		3%	2%	C3P		
AM21.01	Describe pipe tools, types of pipe, fixtures, and supplies.		1%		C1	A/E/M/SC	Core
AM21.02	Explain principles and procedures to maintain and repair pipes, fixtures, and water systems.		2%		C2	A/E/H/M/ SC	Core
AM21.03	Maintain and repair pipes, fixtures, and water systems.			2%	C3P	H/M/SC	Core
AM21.04	Use principles and procedures to plan water systems.				C3P	A/M/SC	Supp
AM22.	Construct a fence.		2%		C3P		
AM22.01	Explain principles and procedures for constructing fences.		2%		C2	A/E/H/M/ SC	Core
AM22.02	Demonstrate correct principles and procedures to build a fence.				C3P	A/M/SC	Supp