

VoCATS Course Blueprint

Technology Education

8141 Structural Systems

*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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Special thanks to the following educators who developed this blueprint.

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This blueprint has been reviewed by business and industry representatives for technical content and appropriateness for the industry. Contact bmoye@dpi.state.nc.us 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

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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TECHNOLOGY EDUCATION
COURSE BLUEPRINT for 8141-Structural Systems
(Recommended hours of instruction: 135-180 Hours)

Comp # Objective #	Unit Titles/Competency and Objective Statements (The Student will be able to:)	Time Hours	Course Weight		Type Behavior	Integrated Skill Area	Core Supp
			Cognitive	Performanc e			
1	2		4	5	6	7	8
			100%				
	Total Course Weight		40%	60%			
A.	INTRODUCTION		6%	4%			
SS01.00	Analyze the importance of structural systems to society.		6%	4%	C1 P	SC/SS	Core
SS01.01	<i>Describe structural systems technology and its importance to society.</i>		2%		C1	SS	Core
SS01.02	<i>Identify historical & technological developments in structural systems.</i>		2%	2%	C1	SC/SS	Core
SS01.03	<i>Identify the use of different types of structural systems.</i>		2%	2%	C3P	SC/SS	Core
B.	STRUCTURAL MATERIAL AND ELEMENTS		11%	24%			
SS02.00	Analyze structural materials and elements.		11%	24%	C3P	SC/M	Core
SS02.01	<i>Describe the characteristics of common structural materials.</i>		2%		C1	SC	Core
SS02.02	<i>Describe the properties of common structural materials.</i>		3%		C1	SC	Core
SS02.03	<i>Analyze the physical properties of common structural materials.</i>			12%	C3P	SC/M	Core
SS02.04	<i>Describe the relationship of common shapes and forms to structural systems.</i>		3%		C2	SC	Core
SS02.05	<i>Describe common structural elements.</i>		3%		C1	SC	Core
SS02.06	<i>Analyze the effect of loads on structural elements.</i>			12%	C3P	SC/M	Core
C.	LIFE SUPPORT SYSTEMS		5%	3%			
SS03.00	Analyze components of life support systems in structures.		5%	3%	C3P	SS/H	Core
SS03.01	<i>Describe how structural systems support our basic needs.</i>		3%		C1	SS/H	Core
SS03.02	<i>Describe how technological systems support communities.</i>		2%		C1	SS	Core
SS03.03	<i>Analyze the elements of community and urban planning.</i>				C3	SS	Core
SS03.04	<i>Develop a model of a community based on design criteria.</i>			1%	C3P	SS/H	Core

Comp # Objective #	Unit Titles/Competency and Objective Statements (The Student will be able to:)	Time Hours	Course Weight		Type Behavior	Integrated Skill Area	Core Supp
			Cognitive	Performanc e			
1	2		4	5	6	7	8
D.	STRUCTURAL SYSTEM DESIGN		12%	25%			
SS04.00	Analyze factors affecting structural systems and design.		12%	25%	C3P	SC/SS/M/E	Core
<i>SS04.01</i>	<i>Analyze environmental factors.</i>		<i>2%</i>	<i>1%</i>	<i>C3P</i>	<i>SC</i>	<i>Core</i>
<i>SS04.02</i>	<i>Determine appropriate materials and systems used in structures.</i>		<i>2%</i>	<i>1%</i>	<i>C3P</i>	<i>SC</i>	<i>Core</i>
<i>SS04.03</i>	<i>Determine the objectives and constraints of structural design.</i>		<i>3%</i>	<i>1%</i>	<i>C3P</i>	<i>SC/SS</i>	<i>Core</i>
<i>SS04.04</i>	<i>Use communication skills and techniques in research and development.</i>		<i>3%</i>	<i>2%</i>	<i>C3P</i>	<i>E/CS</i>	<i>Core</i>
<i>SS04.05</i>	<i>Create a structural system based on principles of research and development.</i>			<i>15%</i>	<i>P</i>	<i>SC/M</i>	<i>Core</i>
<i>SS04.06</i>	<i>Evaluate a structure based on principles of research and development.</i>		<i>2%</i>	<i>5%</i>	<i>C3P</i>	<i>SC/M</i>	<i>Core</i>
E.	IMPACTS OF STRUCTURAL SYSTEMS		6%	4%			
SS05.00	Analyze social and personal impacts of structural systems.		6%	4%	C3P	H/SC/SS/ CD	Core
<i>SS05.01</i>	<i>Investigate the major positive and negative impacts of structural systems on society and the environment.</i>		<i>2%</i>	<i>1%</i>	<i>C3P</i>	<i>SS</i>	<i>Core</i>
<i>SS05.02</i>	<i>Describe trends affecting structural systems.</i>		<i>1%</i>	<i>1%</i>	<i>C1</i>	<i>SC/SS</i>	<i>Core</i>
<i>SS05.03</i>	<i>Produce a career development plan related to structural systems.</i>		<i>1%</i>	<i>1%</i>	<i>C3P</i>	<i>CD</i>	<i>Core</i>
<i>SS05.04</i>	<i>Apply safety in the workplace.</i>		<i>2%</i>	<i>1%</i>	<i>C3P</i>	<i>H</i>	<i>Core</i>