Career and Technical Education
Adapted CTE Course Blueprint
of
Essential Standards

Business, Finance, and Information Technology Education
6428 SAS Programming I

Public Schools of North Carolina
State Board of Education • Department of Public Instruction
Academic Services and Instructional Support
Division of Career and Technical Education
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Special thanks to the following educators who developed this Adapted CTE Course Blueprint.

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This Adapted CTE Course Blueprint has been reviewed by business and industry representatives for technical content and appropriateness for the industry.

Adapted CTE Course Blueprint

Essential standards are big, powerful ideas that are necessary and essential for students to know to be successful in a course. Essential standards identify the appropriate verb and cognitive process intended for the student to accomplish. Essential standards provide value throughout a student's career, in other courses, and translate to the next level of education or world of work.

This document lays out the essential standards for a specific course leading to industry certification. SAS provides the curriculum, which is used to write the essential standards. The essential standards use Revised Bloom's Taxonomy (RBT) category verbs (remember, understand, apply, analyze, evaluate, create) that reflect the overall intended cognitive outcome of the indicators written by SAS. Each essential standard and indicator reflects the intended level of learning through two dimensions; The Knowledge Dimension is represented with letters A-C, and the Cognitive Process Dimension by numbers 1-6.

The Adapted CTE Course Blueprint includes units of instruction, essential standard(s) for each unit, and the specific indicators aligned with industry certification. Also included are the relative weights of the units and essential standards within the course. The industry certification reflected in this document is SAS Base Programming Exam for SAS 9 http://support.sas.com/certify/creds/testbp9.html.

This document will help teachers plan for curriculum delivery for the year, prepare daily lesson plans, and construct valid formative, benchmark, and summative assessments. Curriculum for this course is not provided by NCDPI. Assessment for this course is written at the level of the ***ESSENTIAL STANDARD*** and assesses the intended outcome of the sum of its indicators. SAS has provided a third-party multiple-choice assessment for this course.

For additional information about this blueprint, contact the Division of Career and Technical Education, North Carolina Department of Public Instruction, 6361 Mail Service Center, Raleigh, North Carolina 27699-6361.

Reference: Anderson, Lorin W. (Ed.), Krathwohl, David R. (Ed.), et al., *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives,* Addison Wesley Longman, Inc., New York, 2001.

Interpretation of Columns on the NCDPI Adapted CTE Course Blueprint

No.	1	2	3	4
Heading	Essential Std #	Unit Titles, Essential Standards, and Indicators	Course Weight	RBT Designation
Column information	Unique course identifier and essential standard number.	Statements of unit titles, essential standards per unit, and specific indicators per essential standard. If applicable, includes % for each indicator.	Shows the relative importance of each unit and essential standard. Course weight is used to help determine the percentage of total class time to be spent on each essential standard.	Classification of outcome behavior in essential standards and indicators in Dimensions according to the Revised Bloom's Taxonomy. **Cognitive Process Dimension:** 1 Remember 2 Understand 3 Apply 4 Analyze 5 Evaluate 6 Create **Knowledge Dimension:** A Factual Knowledge B Conceptual Knowledge C Procedural Knowledge

Career and Technical Education conducts all activities and procedures without regard to race, color, creed, national origin, gender, or disability. The responsibility to adhere to safety standards and best professional practices is the duty of the practitioners, teachers, students, and/or others who apply the contents of this document.

Career and Technical Student Organizations (CTSO) are an integral part of this curriculum. CTSOs are strategies used to teach course content, develop leadership, citizenship, responsibility, and proficiencies related to workplace needs.

Adapted CTE Course Blueprint of Essential Standards for
6428 SAS PROGRAMMING I
(Recommended hours of instruction: 135 - 180)

Essential Std #	Units, Essential Standards, and Indicators (The Learner will be able to:)	Course Weight	RBT Designation
1	2	3	4
	Total Course Weight	**100%**	
A	**SAS PROGRAMMING FUNDAMENTALS**	**53%**	
1.00	**Apply SAS Base programming concepts.**	27%	C3
	1.01 Apply basic Base procedures to access libraries and enhance readability. (9%)		
	1.02 Apply editing and debugging techniques to programming procedures. (3%)		
	1.03 Apply DATA STEP programming to create and debug data sets. (10%)		
	1.04 Apply an understanding of the fundamentals of SAS Syntax and rules of SAS programming to successfully run a program. (5%)		
2.00	**Apply techniques to create basic and advanced reports.**	26%	C3
	2.01 Apply PROC PRINT with options to create basic reports. (10%)		
	2.02 Apply PROC FORMAT, PROC REPORT, PROC MEANS, PROC SORT AND PROC FREQ to generate advanced reports. (11%)		
	2.03 Utilize Output Delivery System (ODS) to create, customize and manage output. (5%)		
B	**ADVANCED DATA MANIPULATION TECHNIQUES**	**47%**	
3.00	**Apply advanced programming techniques to manipulate data sets.**	17%	C3
	3.01 Apply decision structure methods to conditionally assign values when creating and managing variables. (5%)		
	3.02 Apply modifying options to manipulate output. (7%)		
	3.03 Apply advanced programming methods to combine and manipulate data sets. (5%)		
4.00	**Apply advanced programming techniques to manipulate data.**	9%	C3
	4.01 Apply functions to manipulate and convert data. (4%)		
	4.02 Apply iterative processing and SAS arrays. (5%)		
5.00	**Apply advanced techniques to read data into SAS and manipulate records.**	21%	C3
	5.01 Apply SAS programming methods to read and handle standard and non-standard numeric data as well as standard and non-standard fixed-field data. (9%)		
	5.02 Apply SAS formats and informats to handle SAS date and time values. (6%)		
	5.03 Apply advanced SAS programming methods to read multiple records sequentially and non-sequentially to create a single record as well as to create multiple observations from a single record. (3%)		
	5.04 Apply advanced SAS programming procedures to read hierarchical files (3%)		