Career and Technical Education
Adapted CTE Course Blueprint
of
Essential Standards

Business, Finance, and Information Technology Education

6421 Computer 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 of Essential Standards

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.

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 the certifying body. 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. Also included are the relative weights of the units and essential standards within the course.

This document will help teachers plan for curriculum delivery for the course, prepare daily lesson plans, and construct valid formative, benchmark, and summative assessments. Assessment for this course is written at the level of the ***ESSENTIAL STANDARD*** and assesses the intended outcome of the sum of its indicators.

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 6421 COMPUTER 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	**INTRODUCTION TO COMPUTER PROGRAMMING**	**20%**	
1.00	**Understand ethics, security, and the history of computer programming.**	**9%**	**B2**
	1.01 Understand the evolution of computers and computer programming languages. (3%) 1.02 Understand numbering systems. (3%) 1.03 Understand ethics and security in the programming process. (3%)		
2.00	**Understand the solution development process.**	**11%**	**B2**
	2.01 Understand the programming process. (3%) 2.02 Understand problem solving tools to design programming solutions. (5%) 2.03 Understand proper program documentation, code comments, Use Cases, and Requirements Definition. (3%)		
B	**THE VISUAL STUDIO PROGRAMMING ENVIRONMENT**	**14%**	
3.00	**Apply procedures to construct Windows forms.**	**6%**	**C3**
	3.01 Apply controls associated with the Windows form. (3%) 3.02 Apply the properties associated with controls. (3%)		
4.00	**Understand variables and naming conventions.**	**8%**	**C3**
	4.01 Understand variables and data types. (5%) 4.02 Understand object naming and naming conventions and standards. (3%)		
C	**COMPUTER PROGRAMMING ELEMENTS**	**66%**	
5.00	**Apply programming and conditional logic.**	**23%**	**C3**
	5.01 Understand different types of programming errors. (3%) 5.02 Understand breakpoint, watch window, and try and catch to find errors. (3%) 5.03 Apply operators and Boolean expressions. (3%) 5.04 Apply decision-making structures. (6%) 5.05 Apply looping statements. (8%)		
6.00	**Apply tools and procedures to obtain and validate user input.**	**9%**	**C3**
	6.01 Apply tools to develop menus, List Box and Combo Box objects. (3%) 6.02 Apply tools to develop message, input, and dialog boxes. (3 %) 6.03 Apply procedures for validation of user input. (3%)		
7.00	**Apply advanced logic**	**22%**	C3
	7.01 Apply sub procedures/methods and user defined functions. (9 %) 7.02 Apply one-dimensional arrays. (7%) 7.03 Apply built-in Math functions. (3%) 7.04 Apply built-in String Methods. (3%)		
8.00	**Apply procedures to develop graphics applications.**	**12%**	**C3**
	8.01 Understand coordinate systems. (3%) 8.02 Apply procedures to create picture boxes using images. (4%) 8.03 Apply animation and graphic methods in a Windows form. (5%)		