

Cornwall-Lebanon School District Curriculum Overview

High School- Advanced Computer Science Topics

16	length of time in weeks	Concepts & Competencies	Common Assessments	Academic Standards
Unit 1	5	<p style="text-align: center;"><u>Data Structures</u></p> <p>Student will be able to create a program that uses a 2D array to store data. Student will be able to create a program using structures to organize heterogeneous data types. Student will be able to create a program using a stack structure. Student will be able to create a program using a queue structure. Student will be able to compare/contrast stacks and queues.</p>	<ul style="list-style-type: none"> ➤ Individual Programming Project Completion ➤ Group Programming Project Completion ➤ Unit 1 Test 	<p>3A-A-2-1 3B-A-5-7 3B-A-5-9 3B-A-4-13</p>
Unit 2	3	<p style="text-align: center;"><u>Usability and Human Computer Interaction</u></p> <p>Student will be able to define usability and identify software/websites that lack usability. Student will be able to define three criteria to measure usability. Student will be able to identify user-centered considerations at each phase of SDLC. Student will be able to define HCI and demonstrate understanding of human factors involved in software design and development.</p>	<ul style="list-style-type: none"> ➤ House of the Future Project ➤ Programming Project Completion ➤ Website Observation Completion 	<p>3A-A-5-5 3A-I-6-29 3B-A-6-21</p>
Unit 3	3	<p style="text-align: center;"><u>Discrete Math</u></p> <p>Student will be able to define three key CS concepts that use discrete math. Student will be able to do bitwise operations using OR, AND and XOR logical operators. Student will be able to calculate truth values of give propositions using fuzzy logic. Student will be able to find the complement, union and intersection of given integer sets using bitstring operations. Student will be able to use modulus operator to demonstrate hashing functions. Student will be able to use modulus operator to encrypt string messages.</p>	<ul style="list-style-type: none"> ➤ Programming Project Completion ➤ Unit 3 Test 	<p>3A-A-5-6 3A-N-3-34 3B-A-3-17</p>
Unit 4	5	<p style="text-align: center;"><u>Software Engineering</u></p> <p>Student will be able to demonstrate an understanding of the software development process and what activities are involved with each. Student will be able to list the five groups that rely on accurate requirements gathering and</p>	<ul style="list-style-type: none"> ➤ Culminating Project Completion 	<p>3B-A-2-1 3B-A-2-2 3B-A-6-21</p>

	documentation. Student will be able to identify key parts of a Software Design Document (SDD). Student will be able to demonstrate an understanding of the testing process and at what stages of development it occurs.		
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