Rev for Fall, 2018

CFISD Computer Science III K

Scope and Sequence

Course Description:

Computer Science III K is a continuation of Computer Science II AP A and builds upon such topics as object-oriented programming, inheritance, and classes. Students go on to address advanced topics such as stacks, queues, advanced recursion, linked lists, binary trees, and advanced sorting, and searching topics in preparation for and alignment with college-level computer science. (1 credit)

- Grades 11 and 12
- Required prerequisite: Computer Science II AP A
- Lab supplies or fee may be required.

TEKS

Cluster: STEM / Information Technology

Endorsement: STEM / Business & Industry

- Meets advanced course requirement (Y/N): Yes
- Meets foundation requirement for math, science, fine arts, English, LOTE (Y/N-area): N

Industry Certification/Credentials: Oracle Certified Associate Java SE 8 Programmer

Instructional Units	Pacing
Unit 1: User interfaces 1. Design 2. Events Unit 2: Sorting and Searching Algorithms 2.1 Unit 2: Advanced Two-Dimensional Arrays 1. Matrices 2. Matrix operations 3. Ragged Arrays Unit 3: Collections Sets 1. Hash Tables 2. Hash Set 3. Iterator 3.4 Trees Set Unit 4: Collections Maps 1. Hash Map 2. Views 3. Tree Maps 4. Multi-Maps	1st grading period
Unit 5: Stacks and Queues 1. Stacks 2. Stack Algorithms 3. Queues 4. Queue Algorithms 5.5 Priority Queue Unit 6: Linked Lists 1. Basic Notation 2. Linked List Algorithms 3. API Class Design Unit 7: Linked Lists (Advanced)	2nd grading period

Rev for Fall, 2018

Instructional Units	Pacing
1. Reverse 2. Double 7.3 Circular	
Unit 8: Advanced Recursion 1. Fractals Unit 9: Binary Trees 1. Iterate 2. Traversal 3. Insertion 4. Deletion 9.5 Heap Unit 10: Graph Theory 1. Adjacency matrix 10.4 Breadth-First-Search / Depth-First-Search	3rd grading period
Unit 10: Year End Project (Choice) 1. Robotics 2. Game Design and Theory 3. Mobile Apps 4. Client Server Connectivity	4th grading period

Primary Instructional Materials: Java

Secondary Instructional Materials, depending on project: Lego Mindstorm robots, App development tools