YOSEMITE REGIONAL OCCUPATIONAL PROGRAM

COMPUTER PROGRAMMING I

CBEDS Code: 4619

JOB TITLES	DOT NO.
Computer Programmer	030.162.010
Programmer – Analyst	030.162-014
Programmer – Operator	609.262-010
Programming Equipment Operator	726.685-062
Web Developer/Design	

Course description:

This program is designed as a first course in computer programming. It is intended to train students (hands-on approach) in the basic skills needed to: (1) operate a networked computer and (2) write programs using visual basic and html. The curriculum also introduces internet access, computer graphics, and web page design.

Qualified graduates of this course should be at entry level for a number of jobs in the programming field, web page design, and computer graphics.

Recommended Prerequisites: Demonstrated proficiency at Practical Math or higher

DURATION: 180 - 360 hours

CREDIT: 5 -10 units/semester

INSTRUCTIONAL STRATEGIES

ARTICULATED WITH POSTSECONDARY INSTITUTIONS:

REPLACES:

INSTRUCTIONAL MATERIALS

ISBN: 13-978-0-13-212856-8 / ISBN: 10-0-13-212856-X
An Introduction to Programming Using Visual Basic 2010, 8E
Pearson Education, David I Schneider

ISBN: 13-978-1-4354-5000-9/ISBN: 10-1-4354-5500-2
Python Programming for the Absolute Beginner, 3E
Course Technology, Cengage Learning, Michael Dawson

ISBN: 13-978-1-4239-2721-1/ ISBN: 10-1-4239-2721-4
HTML Complete Concepts and Techniques, 5E
Course Technology, Cengage Learning, Shelly Woods

Instructional Content Instruction will include:	**Student Outcomes** At the end of instruction, the student will be able to:			**Hours** CL=Classroom CC=Comm. Class.	
		Anchor/ CR	**CTE**	**CL**	**CC**
1. Introduction to Computer Programming I 1. Terminology	***Goal: The students will have a common knowledge of commonly used vocabulary words associated with the computer environment.*** A. Understand basic terminology and their definitions.	1.0 2.0-2.8 4.1 4.3 5.1 6.2-6.6 8.7 8.8 10.1-10.7 CR 1 and 2		10-20	
2. Introduction to basic computer systems types and concepts 1. Concepts and functions of a computer system 2. Operating systems, hardware, and peripherals 3. File management 4. Source documents 5. Computer Systems	***Goal: The students will understand the basic computer system types and concepts.*** A. List components of a computer system and their functions. B. Understand the difference between network user and single user computer. C. Understand batch processing and interactive processing. D. Describe input, output and storage devices. E. Describe the differences between entering data (information) and program instruction. F. Identify the systematic procedure in developing a computer program. G. Identify computer by manufacture/model number.	1.0 4.0-4.6 5.0-5.12 9.1-9.3 9.7 10.0-10.14 11.5 CR 1 and 4	C1.0-C1.6	10-20	
3. Introduction to an operating system 1. Computer Systems 2. File Management 3. Information Resources	***Goal: The students will have a basic knowledge and understanding of an operating system*** A. Identify the operating system of a computer. B. Describe the operating commands and functions. C. Describe three operating systems. D. Enter, compile, save, retrieve, list, delete, correct and execute a program in VISUAL BASIC language. E. Identify a source and object program	1.0 4.0-4.6 5.3 5.5 5.10 5.11 8.8 10.9 10.10 10.11 CR 1 and 4	C1.0-C1.6 C2.0-C2.5 C3.0-C3.3	10-20	

Instructional Content Instruction will include:	**Student Outcomes** At the end of instruction, the student will be able to:	**Anchor/ CR**	**CTE**	**Hours** CL=Classroom	 CC=Comm. Class.
4. Introduction to VISUAL BASIC programming language 1. Programming commands and their functions 2. File Management commands 3. Formatting 4. Editing 5. Deleting 6. Problem Solving 7. Technical Documentation 8. Save	***Goal: The student will have the basic knowledge and understanding of the VISUAL BASIC programming language.*** A. Identify VISUAL BASIC programming commands and explain their functions. B. Format a VISUAL BASIC Program (with one decision) from a given flowchart C. Use appropriate methods to debug a VISUAL BASIC program which contains errors D. Document a visual BASIC program using REMARK statements. E. Save VISUAL BASIC programs as EXE files	1.0 2.0-2.8 4.0-4.6 5.0-5.12 7.4 7.5 7.7 8.3 8.4 8.8 9.1 9.2 10.0-10.14 11.5 CR 1,2,4,5,9 .10 and 11	C1.0-C1.6 C2.0-C2.5 C3.0-C3.3 C4.0-C4.11 C5.0-C5.6 C6.6	65-130	
5. Introduction of a program flowchart 1. Create 2. Format 3. Edit 4. Problem Solving 5. File Management	***Goal: The student will demonstrate the understanding of a program flowchart*** A. Design and flowchart a program using VISUAL BASIC programming language. B. Demonstrate the basic symbols used in program flowcharting and list their functions.	1.0 2.3 2.4 2.7 4.1 4.2 4.2 5.0-5.12 7.4 7.5 9.1 9.2 11.5 CR 1,2,4,5, and 9	C1.0-C1.6 C2.0-C2.5	10-20	
6. Introduction to computer peripherals 1. Computer hardware 2. Operating Systems 3. Information retrieval 4. Analyze equipment	***Goal: The student will demonstrate knowledge of various computer peripherals*** A. Understand the uses and advantages of CD-ROM drives; CD writer; zip drives; hard drives; removable drives; monitors; scanners; network servers; printers and graphics output. B. Identify four input devices and four output devices.	1.0 2.0-2.8 4.1 4.3 5.1 6.2 6.6 CR 1,2,4,5, and 9		5-10	

Instructional Content Instruction will include:	**Student Outcomes** At the end of instruction, the student will be able to:			**Hours** CL=Classroom CC=Comm. Class.	
		Anchor/ CR	**CTE**	**CL**	**CC**
7. Introduction to web page design 1. Global Communications 2. Problem Solving 3. Technical Documentation 4. Telecommunications	***Goal: Student will demonstrate the knowledge of other programming languages*** A. Build a web page using web design software. B. Edit web pages using html. C. Use other programming languages and the advantages of each language.	1.0 2.0-2.8 4.1 4.3 5.1 6.2 6.6 CR 1,2,4,5, 9,10 and 11	C1.0 C2.0 C3.0 C4.0 C5.0 D6.6 C7.0	35-60	
8. Career planning and management 1. Hiring practices 2. Career advancement 3. Personal Qualities	***Goal: The students will show knowledge of occupations in programming and computer related fields*** A. Identify programming and computer occupations. B. Identify continuing education possibilities.	1.0 2.0-2.8 3.0-3.9 7.3 7.4 7.7 8.3 8.4 8.6 8.7 9.0-9.7 10 10.4 10.14 11.5 CR 1,2,3,7,8 , and 12		5-10	
9. Introduction to Internet 1. Access 2. Search 3. Copy 4. Edit 5. Download	***Goal: Students will show ability to access the internet*** A. Identify different web browsers and crawlers. B. Access internet. C. Research topics. D. Bring internet information and other programs/software.	1.0 2.0-2.8 4.0-4.6 5.4 5.6 5.9 6.2 7.4 7.5 8.0-8.8 10.11 10.12 10.13 10.14 CR 1,2,4,5, 7,8, 11 and 12	C3.3	5-10	

Instructional Content Instruction will include:	**Student Outcomes** At the end of instruction, the student will be able to:			**Hours** CL=Classroom CC=Comm. Class.	
10. Introduction to Graphic Design 1. Create 2. Edit 3. Integrate	***Goal: Students will show knowledge of graphics software*** A. Identify and use tools of computer graphics software. B. Knowledge of formats (i.e. JPEG, TIFF, GIF, etc.) C. Alter pictures using selection tools and color variations. D. Integrate altered pictures into web page design.	**Anchor** 1.0 2.5 4.1 5.1 5.2 5.3 5.6 7.4 7.5 8.8 10.0-10.14 11.5 CR 1,2, 4 and 10	**CTE** C6.0-C6.7	**CL** 15-30	**CC**
11. Introduction to Python Programming Language 1. Planning 2. Editing 3. Creation	***Goal: Students will show knowledge of Python Programming*** A. Branching, looping, generating random numbers B. Knowledge of software objects C. Create classes, write mechanics, create attributes. D. Create graphic windows, test for collision between sprites.	1.0 2.0-2.8 4.0-4.6 5.0-5.12 7.4 7.5 7.7 8.3 8.4 8.8 9.1 9.2 10.1-10.14 11.5 CR 1,2,4,5,8, 10 and 11	C1.0-C1.6 C2.0-C2.5 C2.0-C3.3 C4.0-C4.11 C5.0-C5.6 C6.6	15-30	