**Delta College Computer Science and Information Technology**

**Programming Program – Program of Study**

**Associates of Science Degree (AAS)**

**April 21, 2012**



**The following computer courses are requirements for the Programming AAS Degree:**

**CST 103 Windows Foundations: Provides a basic introduction to the Microsoft Windows Operating System. Includes the creation of folders and use and review of the basic concepts of storage on floppy and hard disk. Introduces the basic features of Windows including menus, icons, dialog boxes, and the title and menu bars. Emphasizes the use of multi tasking. (15-0)**

**CST 110 Web Page Development Using HTML: Prerequisite: CST 103 or equivalent and e-mail and Internet skills. Develops skills to create and maintain a basic Web page using HTML. Includes text formatting, lists, graphics insertion, tables, and the use of links to other pages. (15-0)**

**CST 126 Unix/Linux Operating System: Provides a basic orientation to the Unix and Linux Operating Systems. Emphasizes how to create, display, copy and print files. Includes how to work with directories, and how to connect to the Internet. Credit may be earned in CST 126 or CIS 109, but not both (30-0)**

**CST 133W Computer Concepts and Competencies: Prepares the student for the on-going ethical, environmental, societal and global issues of technology. Presents computer concepts including input and output of data and how information is processed, stored, and shared. Examines the purpose of networks, their technologies, scopes, and connectivity issues. Gives major consideration to Internet technology and access emphasizing research, education, communication, e-commerce, and security. Provides an introduction to software engineering and the analysis and design of computer systems. Discusses computer platforms, architectures, and system software. Develops PC competencies and skills including file management, word processing, spreadsheets, presentation graphics, database, Internet, Web pages, and graphics. Credit may be earned in CST 133 or CIS 133, but not both. (60-0)**

**CST 155 Microsoft Excel: Presents EXCEL features using personal and business applications. Emphasizes features and techniques to develop solutions to spreadsheet problems. Includes evaluation of spreadsheets, data base, report formatting, and macros. Compares EXCEL with other electronic spreadsheets. Credit may be earned in only one of the following: CST 151, CIS 132, CST 155, or CIS 136. (45-0)**

**CST 170 Priciples of Computer Programming I: Introduces fundamental concepts and techniques used to design computer programs. Includes problem definition, algorithm development, and program documentation. A programming language will be used to implement the design concepts. (15-0)**

**CST 171 Visual BASIC Programming l: Prerequisite: CST 170 with a grade of "C" or better. Introduces Visual Basic as a first class for Micro Computer programmers. Uses BASIC commands in a Windows environment. Emphasizes implementation of objects and event driven code. Presents screen design and MicroSoft Visual Basic controls. Includes structured programming principles including internal and external program documentation; sequence, selection, and iteration constructs; and modular programming. (30-0)**

**CST 177 Principles of Computer Programming ll: Prerequisite : CST 170. Uses programmer tools to design, develop the logic, and document programs. VTOCs (Visual Table of Contents), flowcharts, state transition diagrams will be used. Emphasizes logic walk throughs and team development. Credit may be earned in CST 177 (formerly CST 270) or CIS 130, but not both. (15-0)**

**CST 180 C++ Programming: Prerequisite: MATH LEVEL 5 and CST 177 or permission of instructor. Uses the C++ language to introduce software development principles. Develops solutions to computing problems through algorithm design, development, implementation, and testing. Includes control structures, arrays, files, strings, pointers, and fundamental object-oriented programming. Credit may be earned in only one of the following: CST 180, CST 181, CIS 170, CPS 170, or EGR 170. (60-0)**

**CST 183 Java Programming: Prerequisites: CST 180 or instructor permission. Introduces the Java programming language with applications and applets. Emphasizes Java classes and object-oriented programming concepts. Includes control structures, string handling, arrays, graphics, files, and use of graphical user interface components. Introduces exception handling, multimedia, and multithreading. Credit may be earned in only one of the following: CST 183, CIS 180 or CPS 180. (45-0)**

**CST 186 Introduction to Game Programming: Prerequisite: CST 170 with "C" or better. Introduces principles of game and simulation programming through hands-on creation of simple games. Explores text-based and graphics-based game development through algorithm design, development, implementation, testing, and documentation. Incorporates text, graphics, sound, and animations in game design. Includes Top-Down Design, Object Oriented Programming, simple physics, basic Artificial Intelligence, and game engines. (30-0)**

**CST 235 Systems Analysis and Design: Prerequisite: CST 133 or CIS 133, and CST 170 or CIS 130, 1 semester of accounting, and a programming language course. Includes study of data processing systems and procedures involving analysis of various existing data processing applications in business and industry. Includes a study of integrated or total management information and data processing systems. Emphasis is given to developing detailed procedures in various areas of management. Designed to study the three phases: Analysis of present information flow; system specification and equipment; implementation and documentation of the system. Credit may be earned in CST 235 or CIS 235, but not both. (45-0)**

**CST 257 Database MS Access: Prerequisite: Any microcomputer class. Emphasizes the advantages of database processing, modeling, and design. Discusses design concepts from the standpoint of the user. Uses MicroSoft ACCESS. Credit may be earned in CST 257 or CIS 260, but not both. (45-0)**

**CST 258 Introduction to Structured Query Language: Prerequisite: CST 257. Examines SQL (Structured Query Language) which is the standard database language. Creates, updates, and retrieves information from relational databases. (15-0)**

**CST 271 Visual BASIS Programming ll: Prerequisites: CST 171. Writes programs in a Windows environment using Visual Basic to design custom user interfaces with menus and dialogue boxes. Set up menus, create functions, and create executable files. Includes multiple forms, arrays, object linking and embedding, sequential and random data files, databases, and trapping programming errors. (45-0)**

**CST 273 MS Applications Using Visual BASIC: Prerequisite: CST 171 or CIS 140. Emphasizes writing advanced applications in the windows environment using visual basic. Discusses linking to other windows applications, manipulating databases, and handling run-time errors. Includes creating user-friendly executable applications. Credit may be earned in CST 273 or CIS 241, but not both. (30-0)**

**CST 280 Advanced C++ Programming: Prerequisite: One of the following: CST 180, CST 181, CIS 170, CPS 170, EGR 170 or CPS 171. Introduces data structures and object-oriented programming. Includes array processing, sorting and searching algorithms, and pointer variables, and recursive programming. Studies data storage and retrieval using lists, stacks, queues, and trees. Utilizes object oriented programming methods including classes, composition, and inheritance. Credit may be earned in CST 280, or CST 281 and CST 282 combined, but not in more than one. (60-0)**