

Variable Stipend (Act 31-II), Fiscal Year 2001-2002
Computer Programming Track
Computer Information Systems/Telecommunications Dept.

**COMPUTER PROGRAMMING
COMPUTER INFORMATION SYSTEMS/TELECOMMUNICATIONS**

Coherent Sequence

The courses in the First Semester (Introduction to computers and Visual BASIC I) are designed to teach the students computer concepts and software use for personal, educational, and business purposes. It also provides them with introductory Visual Programming skills.

The Second Semester courses (Visual BASIC II, Microcomputer Applications, and Internet) are designed to teach students advanced event driven programming techniques, database access and report generation through Crystal Report and skills in software productivity tools (MS Office). This semester also provides the students with introductory concepts of how everything is connected together to make communications possible through the Internet, advanced e-mail and search techniques, and creating home pages using Front Page and HTML.

The Third Semester courses (Visual C I, Java I, and Computer Graphics) are designed to teach students Object Oriented Programming basics and use of Java in programming Java applets and applications. It also teaches students how to use computer graphics to create user-friendly GUI available in commercial computer applications.

The Fourth Semester courses (Visual C II, Java II, and Database Management) are designed to show to students how to bring together the skills they have learned in the previous semesters. Students are taught how to design and code computer applications using advanced computer programming and database management skills.

Relation to Job Skills and Knowledge of the Occupation:

A review of the computer periodical indicate that computer programming field within the last 30 years has been changing rapidly in order to keep up with the developments in the computer hardware and computer communications fields. These changes have required new computer languages and thus new programming methods to develop.

Computer Programming is designed to teach students "Visual Programming", "Event Driven Programming", and "Object Oriented Programming" methods through use of variety of compilers and software utilities.

A student who has completed the required curriculum for Computer Programming will be able to be employed as a Visual BASIC Programmer and/or Visual C programmer and/or Java Programmer.

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New/Change Program Form (ACT 31-II)
 Summary Analysis of Occupational Programs
 Community College Act 31 (Variable Stipend)
 Fiscal Year 2000-2001

Type of Program
Advanced Technology
Statewide
Other Occupational

Type of Degree
Associate Degree
Certificate
Diploma

Reason for Submission
New Program
Changed Program
5-Year Review

Committee Use
Approved
Disapproved

Institution:		Completed By:		Date:	
Program Title:					
CIP Code		CIP Program			
Number:		Title: Number:			
Catalog Page #: _____		Credits Required: _____			

Total Number of Courses: 13	Total Number of 40	Total Number of Courses: 9	Total Number of Credits: 27

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Form 3 - Advanced Technology Programs (ACT 31-III)
Summary Analysis of Advanced Technology Programs
Community College Act 31 (Variable Stipend)
Fiscal Year 2001-2002

Reason for Submission	Total Credit Hours in Program: <u>67</u>	GIP Code: _____
<input type="checkbox"/> New Program	Total Contact Hours in Program: _____	Advanced Technology Contact Hours: <u>414</u>
<input checked="" type="checkbox"/> Changed Program	Catalog Edition: <u>2000 - 2001</u>	Minimum for Certificate Program: <u>100</u>
<input type="checkbox"/> 2001 Review		Minimum for Degree Program: <u>150</u>

Institution: Community College of Beaver County
 Program: Computer Programming - Computer Information Systems/Telecommunications
 Title: _____

List Advanced Technology Outcomes:

1. Design and code interactive application programs using OOP method.
2. Design and code interactive application programs using Visual Programming method.
3. Create Web pages using MS FrontPage for a given application.
4. Code animated objects to be utilized for Web application using JAVA.
5. Given an application, code the client side applet and its associated event handling methods in JAVA.
6. Design and code database management systems for business applications.
7. Test, debug, and maintain computer programs coded in Visual BASIC.
8. Test, debug, and maintain computer programs coded in C++ and Visual C++.
9. Test, debug, and maintain computer programs coded in JAVA.
10. Utilize Microsoft Office to produce documents, spreadsheets and graphs, access databases, and prepare presentations for a given application.
11. Acquire on the job experience in the field of computer programming and computer applications development tools.

Course Number	Page Number	Lecture Hours	Lab Hours	Advanced Tech Contact Hours	Specific Advanced Technology Instructional Activities, Including Any Analytical Understanding of and Hands on Use of Equipment
BD150	107	45	20	30	Study of computer hardware: input/output devices, storage devices, processors through use of microcomputers. Basic operating system functions through use of the latest version of Windows operating system. Study of computer communications hardware and software: NIC, modems, cables, hubs, browsers, search engines, e-mail using computers connected to the Internet via a LAN.
BD151	107	45	20	0	
BD160	108	45	20	35	A study of "Event Driven Programming" through use of Visual BASIC: VB controls and their associated properties and procedures calls, building interactive GUI based on common interface standards. General programming logic and syntax. Developing Event Driven applications using variables, arithmetic, relational, and logical operators. Use of the Menu editor.

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BD165	108	45	20	35	Study of the tools and methods available in Visual BASIC (OLE, ActiveX Controls) to increase the interaction between a user and the computer. Study of loops, advanced decision structures, and data validation. Use of VisData to create databases. Use of OSL instructions in VB environment. Use of Crystal Report to access data stored over variety of DBMS.
BD170	108	45	20	35	A study of the Internet's structure and TCP/IP protocol suite, use of search engines to access the information available on the Internet for academic and business use, use of POP3 e-mail and ftp; designing and coding Home Pages using HTML and MS Front Page.
TC172 (Recommended Elective)	124	30	30	54	Desktop computer media presentation. Scanned image manipulation. Structured, bitmap, and 3-D graphics techniques. Digital composition, image isolation techniques. Graphical content analysis. Web graphics.
BD177		45	25	35	Install and configure a programming environment for JAVA, code applets/applications through use of custom-made objects and their associated methods, determining events created by a user when using a JAVA applet and providing the appropriate event handling method.
BD212	108	45	25	35	OOP (Object Oriented Programming) concepts using Visual C++; study of the necessary C++ codes to define "Classes", "Objects", use of "Polymorphism", "Inheritance", "Operator Overloading" in order to increase the efficiency of an application written in C++.
BD213	108	45	25	35	The study of MFC, OLE available in Visual C++, CASE methods. Developing "Message and Event Driven" applications in Visual C++.
BD228	108	45	20	0	
BD233	108	45	25	35	Data base and DBMS concepts; design and implement microcomputer based data bases using MS Access; use of SQL to retrieve and manipulate data in any of the standard DMBS currently available.
BD235		45	25	35	Developing advanced user interfaces with the AWT. Class rules, Error handling and security. Handling data through JAVA streams. Communicating across the Internet, JAVABeans, Designing a user interface and handling user events with Swing.
BD241	108	45	20	35	An introductory level study of microcomputer based decision support systems and productivity tools; use of electronic spreadsheets to create mathematical and statistical, and business models; use of data base management to design, collect and generate reports for business applications; use of presentation software to prepare presentations for variety of occasions.
BD280		0	90	15	Install and configure compilers, create and/or debug computer codes in COBOL, Visual BASIC, Visual C, and JAVA. Develop Web pages using HTML and/or FrontPage. Design and implement applications utilized by businesses using industry standard application development tools.

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