Course Outline
PC Visual Basic Programming

Course Description:
IN108. PC Visual Basic Programming. 3 credit hours. This course enables the student to use structured programming techniques to develop applications using MS Visual Basic as their application development language. The course will be presented in a lecture with lab format and will emphasize program development within a GUI (Graphical User Interface) environment. This course is for the student interested in Information Systems & Technology application development as a profession. Before enrolling in PC Visual Basic Programming, the student should be competent in basic computer operation, use the Internet for research and the use of standard office software like MS-Word, MS-Excel and MS-Access.

Course Relevance:
Successful Information Technology workers must posse a fundamental understanding of computer information systems and basic problem solving techniques. In general, they need to understand how to define a problem and how to propose, develop, test and evaluate problem solutions. In particular, they need to understand how computers, computer programs and computer information systems can be used to solve particular business problems. They also need to have a commitment to continuing education and skill development. This course provides a basic introduction to computers and computer programming by providing the student with a fundamental understanding of how computers work, how data is stored and manipulated within computer information systems. It introduces the basics of structured programming, algorithmic thinking and structured problem solving. It also provides a foundation in object-oriented programming, which is necessary for success in more advanced programming courses and in the modern business workplace.

Required Materials and Supplies:
Note: This material includes both the Deitel & Deitel Visual Basic 6 How to Program book and the Visual Basic 6 Visual Basic Programming Cyber Classroom software.

Supplemental Materials:
Subscription to Brainbench Certification (www.brainbench.com).
Daily access to a computer with online access
Visual Basic software: Microsoft Visual Basic 6.0 Professional Edition or Microsoft Visual Studio 6.0

Learning Outcomes:
The intention is for the student to be able to:
1. Convert business problems into programmable solutions via basic top-down, step-wise design techniques
2. Use the Visual Basic language to implement and test the solutions
3. Effectively communicate and operate within a team development environment
4. Identify the basic elements of Object Oriented Programming and Design
5. Define and utilize the common principles of structured programming

Learning PACT Skills Developed and/or Documented in this course:
Primary skills developed and documented:
1. Teamwork
   Through the study of project management and the use of project development teams, the student will demonstrate teamwork skills.
2. **Problem Solving**
   Through the use of standard algorithmic design techniques in the development of their Visual Basic programming projects, the student will demonstrate problem solving skills.

3. **Writing**
   Through the delivery of a variety of required program design documents, the student will demonstrate skill in technical writing.

**Assessment Tasks:**
The learning outcomes will be demonstrated by:
1. Observing and participating in classroom demos of Visual Basic programming hardware and software
2. Successfully completing tests over Visual Basic programming design, tools, and project management
3. Preparing a final project that evaluates specific Visual Basic programming examples in terms of their design aesthetic, audience appeal, and technical proficiency
4. OPTIONAL: Brainbench Information Technology certifications, particularly those in the BCIP (Brainbench Certified Internet Professional) program. See www.brainbench.com for details.

**Course Content:**

I. **Themes**—key recurring concepts that run throughout the course:
   A. Design and Usability
   B. Technology
   C. Team and Project Management

II. **Issues**—key issues that will be addressed in this course; areas of conflict that must be understood in order to achieve the intended outcome:
   A. Balancing audience needs, technical restraints and design goals
   B. Identifying constantly changing skills, hardware, and software needed to produce Visual Basic programming
   C. Managing the production process

III. **Concepts**—that must be understood to address the issues:
   A. Multiple definitions of Visual Basic programming
   B. Visual Basic programming teams: required skills, training, job titles
   C. Design principles applied to elements of Visual Basic programming
   D. Evolving production tools: hardware, software
   E. Internet as delivery system and research resource
   F. Design effectiveness in light of audience definition and usability factors

IV. **Skills/Competencies**
   A. Define Visual Basic programming
      1. Describe skills and training needed to produce Visual Basic programming
      2. Articulate basic Visual Basic programming design principles
      3. Discuss the effect of media selection on design
      4. Recognize and apply the design principle of proximity
      5. Recognize and apply the design principle of alignment
      6. Recognize and apply the design principle of repetition
      7. Recognize and apply the design principle of contrast.
   B. Describe hardware used in Visual Basic programming production
      1. Differentiate between Macintosh and Windows production platforms
      2. List popular production peripherals.
   C. Identify software used to create and manage Visual Basic programming
   D. Describe guidelines for working with elements of Visual Basic programming
      1. List guidelines for selecting typography
      2. Explain color as seen through monitors
      3. Discuss technical and design aspects of Visual Basic programming images
      4. Describe types of animation used in Visual Basic programming
      5. Describe technical considerations of incorporating sound into Visual Basic programming
6. Describe technical considerations of incorporating video into Visual Basic programming.

E. Discuss the Internet as delivery system for Visual Basic programming
   1. Describe the history of the Internet and World Wide Web
   2. Explain the role of search engines in indexing the World Wide Web.

F. Describe the web page production process
   1. Define web pages
   2. Identify planning needed before producing a web site
   3. Describe steps in building a web site
   4. Explain how sites are tested and updated
   5. Describe the process of uploading a site
   6. Explain the benefits of site registration.

G. Describe Visual Basic programming project production
   1. Outline methods for planning and costing a Visual Basic programming project
   2. Discuss interface and navigation design
   3. List guidelines for managing content and talent

H. Evaluate good and bad Visual Basic programming design

Learning Units:
I. Basic Computer Concepts
II. Introduction to the Integrated Development Environment (IDE)
III. Introduction to Visual Basic and GUI Programming Concepts
IV. Structured Programming Concepts & Algorithmic Concepts
V. Modular Programming, Sub and Function Procedures
VI. Arrays, Strings, Date & Time Data Types
VII. Simple Graphic Concepts
VIII. Advanced GUI Programming Concepts
IX. Error Handling & Program Debugging
X. Optional: Advanced Object-Oriented Programming Concepts
XI. Optional: File and Database Processing Concepts

Learning Activities:
Learning activities will involve the student in examining various aspects of design, technology, and project management. Lectures, discussions, worksheets, small group projects, readings, viewing of various types of Visual Basic programming, research assignments, quizzes, tests, etc. prepare the student to be equipped to successfully complete the major assessment tasks.

Grade Determination:
Students will be graded on satisfactory completion of major assessment tasks, various other graded learning activities, attendance and adequate participation (discussion).