

BREA OLINDA HIGH SCHOOL
Computer Science

Visual Basic

- I. Course Description: Visual Basic is an elective course designed for students interested in creating new software applications. Visual Basic programming is a basic object-oriented programming environment that includes many of the elements of the C++ and Java languages and is used to create powerful, attractive graphical user interfaces (GUI's).
- II. Course Expectancies: All students should be able to:
 - A. Demonstrate an understanding of object-oriented programming.
 - B. Demonstrate a general knowledge of Graphical User Interface (GUI) principals and design.
 - C. Demonstrate knowledge of the front-end processing in a client/server environment.
 - D. Create graphical user interfaces.
 - E. Discuss and communicate (using appropriate vocabulary) the basic concepts related to object-oriented interfaces and object-oriented programming.
 - F. Design and implement computer-based solutions to problems in several application areas.
- III. Instructional Methods and Strategies:
 - Lecture
 - Cooperative work groups
 - Discovery and problem solving
 - Projects
- IV. Performance Evaluation:
 - Projects
 - Tests
 - Homework
 - Participation
 - Quizzes
 - Research (library/internet)
- V. Technology: Students have access to the Internet in the classroom, school computer lab and school library. Instruction and assignments include the use of a variety of computer software applications, electronic reference materials. Students will demonstrate the ability to evaluate and ethically use information gathered with these tools and to communicate their research findings using appropriate technology.
- VI. Career Connection: Students will be given an overview of the knowledge and skills needed in careers such as software design, tech support, business and teaching.

Course Objectives

Students will use technology as a tool for effective communication, personal productivity and lifelong learning.

Students will understand and practice ethical and legal standards for communications using technology including demonstrating an awareness of District procedures and guidelines regarding the ethical use of electronic media and ethical considerations regarding plagiarism.

Students will learn the fundamental concepts and skills required to develop computer programs that run in Microsoft Windows environment. Students will work with tools to create windows called forms with such elements as menus, text boxes, command buttons, option buttons, check boxes, list boxes and scroll bars. Students will create interactive graphical user interfaces based on these tools. Specific course objectives will include:

- I. Programs and Visual Basic including:
 - What is Visual Basic?
 - Creating applications
- II. Project Structure and Visual Basic programming tool including:
 - Visual Basic project structure
 - Overview of controls
 - Command button control
 - Label control
 - Timer control
 - The Visual Basic environment
- III. Data: Constants and Variables including:
 - Kinds of data
 - Constants
 - Variables
 - Form control
 - Variable scope
- IV. Data: Calculations and Manipulating Data: Expressions including:
 - Expressions, operators and functions
 - Arithmetic expressions
 - String expressions
 - Text box control
 - Logical expressions
- V. Decision-Making process including:
 - If...then.. else statements
 - Nested If statements
 - Message box function
 - Option button control
 - Check box control
 - Select case statement
- VI. Sub procedures and Functions including:

- General sub procedures
- Procedures with parameters
- Code modules
- VII. Loop Structures including:
 - The do...loop
 - The do while loop
 - For...next structure
 - Counter variables
 - Nested loops
 - List box and combo box controls
- H. Data Base Processing including:
 - The data control
 - Bounding controls
 - Linking to a database such as Access
- I. Arrays including:
 - Solving problems with arrays
 - Declaring arrays
 - Applications of arrays

Text & Supplemental Instructional websites

Title: "Programming in Visual Basic.Net"
 Authors: Julia Case Bradley and Anita Millspaugh
 Publisher: McGraw-Hill
 ISBN: 0-07-2459003-4
 Copyright: 2003

Mount San Antonio College of Walnut uses the same text to instruct their Basic Programming course. The topics covered in this text are the same as the college setting but are done in a typical secondary school year verses a semester at a community college level.

WebSites: <http://msdn.microsoft.com/academic>
<http://msdn.microsoft.com/vbasic>

Key Assignments: This is a tentative list of assignments. The instructor reserves the right to change any assignment based on school schedule time tables or as a new updated assignment.

Topics	Key Assignments
How to Create a project	Hello-World assignment where student learns how to use an IDE. The assignment teaches students how to document projects correctly.
Text boxes, radio buttons, check boxes, group boxes, picture box controls	Weather project – Using learned objects students will create project that identifies various weather patterns

	through the manipulation of controls and properties of control.
Variables, Constants and data types	Car Rental program requires students to develop a business application for a car rental agency. Students manipulate customer data and calculate rental charges to understand global versus local variables.
Calculations, Try/Catch exception handling- Error control	Car Rental project cont.
Decision statements	Create project for business that sells T-shirts. Calculates extended prices on shirt purchases for individual customers and summary information on cumulative purchases. Uses all previously learned material and demonstrates scope of variables
Menus, sub procedures, common dialog boxes	T-shirt project cont
Lists, Loops, Printing	T-shirt project cont.
Mid-Term project	Match Game- Use all previous skills to create a game using 8 pairs of images. User can select only two images at a time.
Arrays	Aquarium simulation – represent fish in an aquarium using 2 dimensional arrays
ADO.net database files	Create a Windows application to display customer data in a Windows application. Program allows navigating through data set binding data to controls
Graphics,Pens, Brushes, Timers	Screen Saver- create a screen saver that moves images randomly
Final Project-	VideoGame- Use all previous skills to make a video game where user can move graphics. Program keeps track of image positions on grid

Instructional Methods and Strategies:

- A. Reading of the chapter with written outline identifying key terminology
- B. Hands on programming examples directed by presentation from teacher
- C. Programming exercises assigned as written work or small objective oriented computer programs.
- D. Review Questions addressing topics discussed in the chapter.
- E. Case Studies of large on going programming problems may be individual or assigned to teams

Assessment Methods:

- A. Every chapter has a multiple choice and true-false exam approximately 50 questions.
- B. Small programming problems assigned to be completed in a single class period.
- C. Large programming assignments that take several class periods to complete.
- D. Presentations of major programming assignments including midterm project and final project.
- E. Midterm Project/Midterm Exam
 - 1. Midterm Project is large programming assignment
 - 2. Midterm exam of multiple choice and true-false questions
- F. Final Project/Final Project
 - 1. Final Project is large programming assignment
 - 2. Final exam of multiple choice and true-false questions
- G. Participation is required to present major programming assignments

Grading

Good attendance is important to academic success. Students are expected to attend each and every class session fully prepared and ready to participate. Grades will be weighted and determined on scales similar to the ones below.

Grade Weights

Homework/Classwork/Projects	45%
Tests/Quizzes/Projects	50%
Participation (On Task)	5%

*** Participation is considered actively participating in the course. Showing up to class, is not considered participation. Students often have group projects which require a group presentation. If a child is not present during a group presentation, it actively affects the entire class.

Grading Scale: Scale by percentage in the course

A	90-100
B	80-89
C	70-79
D	60-69
F	Below 60

School Vision and Mission

Our school community believes that education is the cornerstone of a better world. Our mission is to provide an effective, comprehensive education for every student which fosters high academic

achievement, positive self-worth, and responsible citizenship in an environment of mutual respect, trust and cooperation among students, staff, and parents.

Expected School-Wide Learning Results

Our school adopted Expected School-wide Learning Results (ESLRs) as part of the Western Association of Schools and Colleges (WASC) self-study process. The following is the statement of our ESLR"s:

"Our students are well-rounded citizens, innovative and global thinkers, and life-long learners who are respectful of diversity. They communicate effectively by applying information and technology to think critically, and seek skills for the future."

Learning Goals

Brea Olinda High School students will be WILDCATS:

- Well-rounded citizens,
- Innovative and global thinkers, and
- Life-long learners who are respectful of
- Diversity. They
- Communicate effectively by
- Applying information and technology to
- Think critically and
- Seek skills for the future