

# Strand Analysis

# Computer Science III

## Computer Science III - 2004

<b>Strands</b>	<b>Courses</b>	<b>The Learner will be able to...</b>
<b>Introduction to Visual Basic .Net</b>		
Writing Windows Applications	Computer Science III	describe the process of visual program design and development.
Object Oriented and Even Driven Programming	Computer Science III	explain the term event-driven programming; explain the concepts of objects, properties, and methods
Writing Visual Basic Projects	Computer Science III	list and describe the three steps for writing a Visual Basic project; describe the various files that make up a Visual Basic project; identify compile errors, run-time errors, and logic errors
The Visual Basic Environment	Computer Science III	identify elements of the Visual Basic environment
<b>Controls</b>		
Introducing Controls	Computer Science III	use text boxes, frames, check boxes, option buttons, images, shape, and lines effectively; set the appearance property to make controls appear flat or three-dimensional
Multiple Controls	Computer Science III	select multiple controls and move them, align them, and set common properties
Designing User Friendly Applications	Computer Science III	make projects easy for the user to understand and operate by defining access keys, setting the default and a cancel button, controlling the tab sequence, and resetting the focus during program execution
Coding the Controls	Computer Science III	clear the contents of text boxes and labels; change font attributes, code multiple statements using With; concatenate strings of text; make a control visible or invisible
<b>Variables, Constants, and Calculations</b>		
Data - Variables and Constants	Computer Science III	distinguish between variables, constants, and controls; differentiate among the various data types; apply naming conventions incorporating standards and indicating scope and data type

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Calculations	Computer Science III	convert text input to numeric using the Val function; apply order of operations; perform calculations using variables and constants; accumulate sums and generate counts.
Formatting Data	Computer Science III	format data for output using special characters
<b>Decisions and Conditions</b>		
If Statements	Computer Science III	use block Ifs to control the flow of logic; understand and use nested Ifs
Conditionals	Computer Science III	evaluate conditions using the relational operators; combine conditions using the logical operators And and Or
Using If with Buttons and Check Boxes	Computer Science III	test the Value property of option buttons and check boxes; perform validation of numeric fields; call event procedures from other procedures
Using Message Boxes	Computer Science III	create message boxes to display error conditions; apply the message box constants
Debugging Visual Basic Projects	Computer Science III	debug projects using breakpoints, stepping program execution, and displaying intermediate results
<b>Menus, Sub Procedures, and Sub Functions</b>		
Menus	Computer Science III	create menus and submenus for program control
Common Dialog Boxes	Computer Science III	display and use the Windows common dialog boxes
Writing General Procedures	Computer Science III	write reusable code in sub procedures and function procedures, and call the procedures from other locations; create an executable file that can run from the Windows environment
<b>Multiple Forms</b>		
Multiple Forms	Computer Science III	create project with multiple forms; use the Show and Hide methods to display and hide forms
Standard Code Modules	Computer Science III	create procedures that are accessible from multiple form modules
Variables and Constants in Multiple Forms Projects	Computer Science III	differentiate between variables that are global to a project and those visible only in a form
About Box, Splash Screens	Computer Science III	create an About box using a form; add a splash screen to a project

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<b>Strands</b>	<b>Courses</b>	<b>The Learner will be able to...</b>
<b>Lists, Loops, and Printing</b>		
List Boxes and Combo Boxes	Computer Science III	create and use list boxes and combo boxes; enter items into list boxes using the Properties window and the AddItem method; determine which item in a list is selected; use the ListCount property to determine the number of items in a list; display a selected item from a list; differentiate among the available types of combo boxes
Do/Loops and For/Next Loops	Computer Science III	use Do/Loops and For/Next statements to iterate through a loop
The MsgBox Function	Computer Science III	use the MsgBox function to determine the button pressed by the user
String Functions	Computer Science III	use string functions Left, Right, and Mid to refer to a part of a string; use the Len function to count the number of characters in a string
Sending Information to the Printer	Computer Science III	send information to the printer using the Print method; control the format of printing using commas, semicolons, the Tab function, and the Spc function
<b>Arrays</b>		
Control Arrays	Computer Science III	set up and use a control array
Case Structures	Computer Science III	code selection logic using a Select Case statement
One-Dimensional Arrays	Computer Science III	establish an array of variables and refer to individual elements in the array with variable subscripts
User-Defined Data Types	Computer Science III	create user-defined data types for multiple fields of related data; accumulate totals using arrays
Table Lookup	Computer Science III	distinguish between direct access and indirect access of a table
Using List Boxes with Arrays	Computer Science III	combine the advantages of list box controls with arrays; coordinate lists and arrays using the ItemData property
Multidimensional Arrays	Computer Science III	store data in multidimensional arrays; perform operations on multidimensional arrays

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<b>Strands</b>	<b>Courses</b>	<b>The Learner will be able to...</b>
<b>Data Files</b>		
Data Files	Computer Science III	create data files; read and write records to disk; determine the appropriate locations for data file
Opening and closing files	Computer Science III	use Open and Close statements
Sequential files	Computer Science III	differentiate between sequential and random files; trap user errors and handle errors to avoid run-time errors; incorporate fixed-length strings into user-defined data types
Random files	Computer Science III	read and write random files; perform add, delete, and edit operations on random files; allow users to input data using the InputBox function
<b>Accessing Database Files</b>		
Visual Basic and database files	Computer Science III	use database terminology correctly
Using data control	Computer Science III	differentiate between the data control and data-bound controls
Viewing a database file	Computer Science III	create a project to view an existing database table
List boxes and combo boxes	Computer Science III	use list boxes and combo boxes as data-bound controls
Lookup tables	Computer Science III	set up a loopup table for a database field
Updating databases	Computer Science III	change records, add new records, and delete records in a database table
<b>Graphics</b>		
The graphics environment	Computer Science III	understand the measurements in the graphics coordinate system
Colors	Computer Science III	display and change colors using the RGB and QBColor functions
The Graphics Methods	Computer Science III	create graphics using graphics methods (Pset, Line, and Circle)
Layering	Computer Science III	understand the graphics-layering principles
Graphics controls	Computer Science III	load and change pictures at run time
Animation	Computer Science III	create simple animations
Graphics techniques	Computer Science III	use the timer control; use scroll bars to move and resize an image