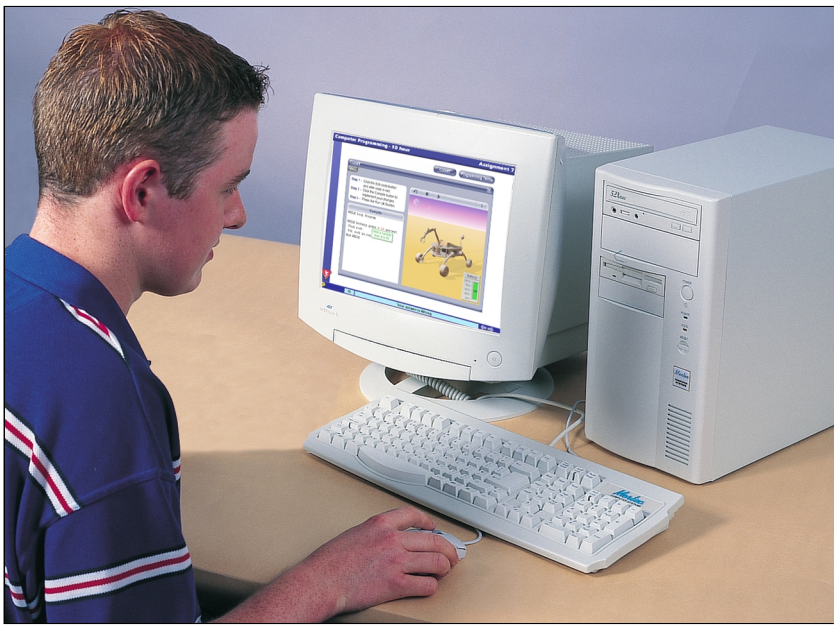
PRODUCT FACT SHEET

Computer Programming (40-assignment)



This is an integrated instructional module designed specifically to operate within a Modular Program environment. It is ideal for use with our Scantek Technology or IT2020 Information Technology programs. It includes a 10-assignment exploratory curriculum and a further 30-assignment in-depth curriculum. The exploratory curriculum and the in-depth curriculum are each split into two parts. Each part includes a pre-test and post test. The module includes software and curriculum materials sufficient to provide a complete learning experience.

The curriculum incorporates continuous assessment through questions. When used in conjunction with a ClassAct networked management system, this provides instant feedback of student performance. The assessments begin with a comprehensive pre-test. This quiz includes questions for each subsequent assignment, together with questions that will specifically test math and reading ability.

Every assignment starts with a series of questions designed to track inventory. These ensure that any missing items are located before they are needed.

Each assignment is divided into a series of tasks. Hands-on tasks introduce students to computer programming, and are accompanied by research tasks based upon reading and on-screen applications. Assessment questions are incorporated into each task.

Exploratory Phase Topics:

- History of Information Technology
- Programming languages
- Algorithms
- Pseudo code
- Flowcharts
- Data types
- Logical data
- Modules
- Procedures
- Functions
- Operators
- Decision logic
- Case logic
- Loops
- Nested Loops
- Arrays
- Software Systems Design Cycle
- Object oriented programming

Exploratory Phase activities:

- Identifying individuals and milestones in the development of information technology.
- Exploring a range of languages used in software development.
- Designing program logic using pseudo code and flowcharts.
- Identifying types of data used in programming.
- Exploring the use of modules, procedures, functions and operators.
- Investigating decision and case logic control structures.
- Examining the application of REPEAT, WHILE, FOR NEXT, and nested loops.
- Investigating the use of one and two-dimensional arrays.
- Identifying the key stages of the Software Systems Design Cycle.
- Investigating the concept of objects, class, and inheritance in object oriented programming.

Advanced Specialization Phase topics:

- Variables and constants
- Implementing controls
- Data structures
- Program flow control methods
- Multidimensional arrays
- Procedures and functions
- Strings and characters
- Classes
- Objects
- Visual inheritance
- Multiple document interfaces
- Error handling and debugging
- Using graphics in VB. NET
- Storing data in collections
- Text controls
- Commenting code
- Databases
- Providing help in applications
- Dialog boxes
- Web forms and services
- Deploying applications

Advanced Specialization Phase activities:

- Examining the components used in the development of windows applications.
- Creating a program that adds two variables together.
- Creating a program that uses a data structure and user defined data types.
- Exploring different controls with the creation of a user interface application.
- Writing click event procedures.
- Designing a calculator.
- Investigating flow control structures.
- Exploring one-dimensional and multi-dimensional arrays.
- Investigating an overview of procedures and sub-routines.
- Investigating system-defined functions in code.
- Creating an application incorporating a student built function.
- Exploring how strings are used and how they are processed by a computer.
- Investigating character data and the 'Char' class.
- Exploring class by creating an application with a new class.
- Exploring objects, including what they are and the code used to create them.
- Investigating visual inheritance by creating an application and using a pre-built form class.
- Exploring menus and menu items in application interfaces.

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Advanced Specialization Phase activities (continued):

- Exploring the different types of error encountered and the tools that can be used to find and resolve them.
- Investigating the drawing and creation of graphics.
- Creating an application that displays a rectangle and an ellipse.
- Creating an application that incorporates different methods of storing data.
- Creating a text editor application.
- Creating an application that demonstrates different help utilities.
- Writing an application that can open and save files.
- Discovering how to add a color dialog box and a font dialog box to an application.
- Adding comments to code to aid readability and legibility.
- Creating an application that retrieves and displays data from a database.
- Developing a web based application.
- Investigating XML web services.
- Investigating the deployment and distribution of applications.

Each assignment is designed around a list of performance objectives. These lists include academic, technical and occupational objectives. The assignments are written in such a way as to enable a student to attain the performance objectives, with the assessment questions linked to these in order to provide a measure of true competency.

The performance objectives are used by the ClassAct management system to generate a comprehensive portfolio of student competency reports. Default reports supplied with this module include:

- Entry report
- Technical/Occupational Exit report
- Basic Skills report based upon the federal SCAN's report.

The items supplied with this instructional module include:

- 10-assignment On-Screen Student Assignment Guide CD
- 10-assignment Student Worksheets
- 10-assignment Instructor's Guide
- 30-assignment Student Assignment Guide
- 30-assignment Student Worksheets
- 30-assignment Instructor's Guide
- 30-assignment on-screen Reference Guide containing:
  - Computer aided instruction materials
  - Interactive instruction sheets
  - Glossary of programming terms
- Microsoft Visual Basic .NET 2003 Standard Edition

Additional requirements:

- Computer running Windows 2000 Professional (Service Pack 4 or later) or Windows XP Professional.
- Internet Information Services (IIS) must be installed and configured on this PC.
- Students must have a sufficient level of security access to use Visual Basic .NET features. This normally requires them to be members of the Power Users group.
- In the final assignment of the 30-assignment module, students will require administrator rights to a separate test computer on which they can test the program they have built.

Module Facts

For Technology Program, order as:
ST600/40 Computer Programming

For IT Program, order as:
PSD1C Computer Programming

	No.	Average time
Assignments	40	60 minutes
Extension Activities	2	60 minutes
	Total	42 hours

LJ Technical Systems
Web site: www.ljgroup.com

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