

## Process Analyzers

# Maxum MaxBasic Software Development

### General Information

Course Code: PIA-PAMAXUM3  
Length: 4½ Days

### Audience

This software course is intended for individuals responsible for programming of the Maxum Gas Chromatograph and for users who need to customize the Maxum database using MaxBasic Programs.

### Prerequisites

- Maxum Operation with GCP Level 1 (PIA-PAMAXGCP1)

### Profile

2.9 CEUs (Continuing Education Credits)

Students in this course will use the Maxum workstation MaxBasic table editor to create and modify existing programs used to customize a Maxum Gas Chromatograph. The students will modify and create SQL statements and MaxBasic program commands which will manipulate the Maxum database to perform custom task in the Maxum.

A fully functional copy of the MaxBasic Language Editor CD is included with the course at no additional charge.

This course can be taught at the customer's site and customized to meet the customer's needs. With advance notice, customer specific applications can be taught.

### Objectives

*Upon completion of this course, the student shall be able to:*

- Modify a MaxBasic programs
- Compile and save the program to the Maxum database.
- Create SQL statements to read and write to the Maxum database.
- Use parameter table entries and IARGs for variables in programs
- Create simple MaxBasic programs

### Topics

#### 1. MaxBasic Overview

- a. Making a Program Basics
- b. Coding Standards
- c. Programming Basics
- d. Online Reference
- e. MaxBasic Programs
- f. Program Differences
- g. Overview of Compiler

#### 2. Maxum Basic

- a. If Then commands
- b. Structure, Variables
- c. Arithmetic Operators
- d. Arrays
- e. Sub Procedures
- f. Basic Commands
- g. For Next routines
- h. End Sub statements
- i. If Then Else Endif routines
- j. Logical Operators
- k. Truth Tables
- l. DO ... Until While statements
- m. Built-in Functions
- n. Writing Programs
- o. Structures

#### 3. Maxum Database

- a. Foreign Keys
- b. Primary Keys
- c. Database Description
- d. Database Overview

#### 4. Standard Query Language (SQL)

- a. Changing the Database
- b. Recordset Navigation
- c. Recordsets
- d. Open Table Commands
- e. AAI.BAS Overview
- f. SQL Send Statement
- g. SQL Update Statement
- h. SQL Select Statement
- i. SQL Statements
- j. SQL Overview

#### 5. Writing and Using Programs

- a. Canned Programs Examples
- b. Mvrprgm Overview
- c. Cycle Event Programs
- d. Time and Day Programs
- e. Printing
- f. Posting Alarms
- g. Using Input Arguments
- h. Parameter Table
- i. Program Scheduling
- j. Program Table Overview

#### 6. Labs

- a. Writing BASIC Programs
- b. Working with Record Sets
- c. SQL Statements
- d. Editing BASIC Programs
- e. Do Loop Programs
- f. For. Next Program
- g. If. Then Program
- h. Write an Array Program
- i. Making a Program