multisoft
Systems

Mainframe Assembler Training

COURSE CONTENT

GET IN TOUCH

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About Multisoft

Train yourself with the best and develop valuable in-demand skills with Multisoft Systems. A leading certification training provider, Multisoft collaborates with top technologies to bring world-class one-on-one and certification trainings. With the goal to empower professionals and business across the globe, we offer more than 1500 training courses, which are delivered by Multisoft's global subject matter experts. We offer tailored corporate training; project Based Training, comprehensive learning solution with lifetime e-learning access, after training support and globally recognized training certificates.

About Course

Mainframe Assembler Training by Multisoft Systems is designed to help professionals gain expertise in low-level programming for IBM mainframe systems. This training provides in-depth knowledge of assembly language concepts, instruction formats, registers, addressing techniques, control sections, macros, and memory management used in enterprise computing environments.

Module 1: Introduction to Mainframe Systems

- ✓ Overview of IBM Mainframe Environment
- ✓ Introduction to z/OS Operating System
- ✓ Mainframe Architecture Fundamentals
- ✓ Understanding TSO/ISPF Environment
- ✓ Dataset Concepts and Types
- ✓ Job Processing Basics

Module 2: Fundamentals of Assembly Language

- ✓ Introduction to Assembly Language Programming
- ✓ Structure of an Assembler Program
- ✓ Machine Language vs Assembly Language
- ✓ Understanding Opcodes and Operands
- ✓ Symbolic Coding Concepts
- ✓ Program Execution Flow

Module 3: IBM Mainframe Architecture

- ✓ CPU and Register Structure
- ✓ Storage and Memory Organization
- ✓ Addressing Modes
- ✓ Data Representation in Mainframe Systems
- ✓ Instruction Formats and Types
- ✓ Program Status Word (PSW)

Module 4: Assembler Instructions

- ✓ Data Movement Instructions
- ✓ Arithmetic Instructions
- ✓ Logical Instructions
- ✓ Compare and Branch Instructions

- ✓ Looping and Conditional Execution
- ✓ Decimal and Packed Data Operations

Module 5: Registers and Addressing Techniques

- ✓ General Purpose Registers
- ✓ Base Registers and Index Registers
- ✓ Address Calculation Methods
- ✓ Address Constants and Literals
- ✓ Using USING and DROP Statements
- ✓ Addressability Concepts

Module 6: Data Definition and Storage Management

- ✓ Defining Variables and Constants
- ✓ Storage Allocation Techniques
- ✓ Working with Character and Numeric Data
- ✓ Packed Decimal and Binary Data Handling
- ✓ Initialization Methods
- ✓ Managing Working Storage

Module 7: Program Control and Branching

- ✓ Conditional Branching
- ✓ Unconditional Branching
- ✓ Loop Processing Techniques
- ✓ Subroutine Handling
- ✓ Return Codes and Program Exit
- ✓ Control Flow Optimization

Module 8: Macro Programming

- ✓ Introduction to Macros

- ✓ Macro Definition and Expansion
- ✓ Parameterized Macros
- ✓ Conditional Assembly Techniques
- ✓ Reusable Coding Concepts
- ✓ Macro Libraries and Utilities

Module 9: Input and Output Processing

- ✓ Sequential File Processing
- ✓ Dataset Handling Techniques
- ✓ Reading and Writing Records
- ✓ File Control Blocks
- ✓ Access Methods Overview
- ✓ Batch File Operations

Module 10: Debugging and Troubleshooting

- ✓ Common Assembler Errors
- ✓ Syntax and Logic Error Handling
- ✓ Using Debugging Utilities
- ✓ Abend Analysis Basics
- ✓ Dump Reading Techniques
- ✓ Performance Troubleshooting

Module 11: Linking, Loading, and Execution

- ✓ Assembly and Compilation Process
- ✓ Linkage Editor Concepts
- ✓ Load Modules and Execution
- ✓ Understanding JCL for Assembler Programs
- ✓ Execution Parameters and Libraries
- ✓ Program Testing Methods

Module 12: Advanced Assembler Concepts

- ✓ Reentrant and Reusable Programs
- ✓ Dynamic Storage Allocation
- ✓ Supervisor Calls (SVC)
- ✓ Interfacing with COBOL Programs
- ✓ System-Level Programming Concepts
- ✓ Performance Optimization Techniques

Module 13: Integration with Mainframe Utilities

- ✓ Working with JCL Utilities
- ✓ SORT and IDCAMS Utilities
- ✓ Dataset Management Tools
- ✓ Interaction with DB2 and VSAM
- ✓ Utility Program Execution
- ✓ Batch Job Monitoring

Module 14: Real-Time Enterprise Use Cases

- ✓ Banking and Financial Application Scenarios
- ✓ Insurance Industry Mainframe Processing
- ✓ Transaction Processing Concepts
- ✓ High-Performance Batch Systems
- ✓ Enterprise Data Processing Workflows
- ✓ Legacy System Maintenance Strategies

Module 15: Project and Practical Implementation

- ✓ Real-World Assembler Programming Project
- ✓ Program Development and Testing
- ✓ Code Optimization Exercises
- ✓ Debugging Practical Sessions

- ✓ Performance Analysis
- ✓ Best Practices for Enterprise Mainframe Development