

Introduction to COBOL Programming

Course No.	2251
Description	This course provides a basic foundation in business application program development using the COBOL language. In addition to explanation of the correct usage of language elements, special emphasis is given to the structure of a program. With a sound knowledge of the workings of a COBOL program, along with effective use of COBOL's implementation of logic structures, programmers can develop systems that are correct, easy to understand, and easy to modify.
Audience	This course is suggested for programmers new to or re-learning the COBOL language and need to be able to read or code a basic program.
Prerequisites	Students should have an understanding of basic information systems concepts. No prior programming experience is required. Programming workshops can be conducted on the mainframe or using the personal computer. It is helpful if students are familiar with the environment (e.g. TSO, CMS, PC-COBOL, etc.)
Objectives	<ul style="list-style-type: none">• Describe the four divisions of a COBOL program• Compile, link, test and debug basic COBOL application programs• Correct syntax errors in COBOL programs• Create COBOL edit and report programs• Learn and practice the application of Structured Programming constructs to COBOL programs• Write and CALL subprograms
Major Topics	<ul style="list-style-type: none">• Structured Programming Concepts• Basic Elements of a COBOL program• Compiling and Testing• The Four Divisions of a COBOL program• Input/Output Statements• Data Manipulation Statements• Branching Statements• Report Programs/Editing• Arithmetic• Called Modules
Duration	5 days



Course Contents

1. Overview

- Objectives
- Programming Life Cycle
- What is COBOL?
- COBOL Evolution
- COBOL/MVS
- COBOL Advantages
- COBOL Limitations
- Research Support
- COBOL Preparation
- COBOL Structure
- COBOL Lines
- COBOL Syntax
- COBOL/MVS Eliminated Features
- Exercise- Allocating PDSs

2. First Three Divisions

- Objectives
- Identification Division
- Environment Division
- Data Division
- Variable Length Records
- Describing Data
- PICTURE Clause
- Compiling Procedures
- Compiler Files
- Compiler Options
- Compiler JCL
- Code Optimization
- Review
- Exercise - Program NIMS01

3. Procedure Division

- Statements and Sentences
- Paragraphs
- Sections
- Input/Output Statements
- OPEN
- CLOSE
- READ
- WRITE
- GOBACK
- STOP RUN
- RETURN-CODE

- Review - I/O Statements
- Switches
- Perform
- Perform Until
- Review – Logic
- Solution

4. Data Manipulation

- Objectives
- VALUE Clause
- Numeric Literals
- Alphanumeric Literals
- Figurative Constants
- ACCEPT
- DAY-OF-WEEK
- DAY
- DISPLAY
- MOVE
- Alphanumeric MOVE Examples
- Numeric MOVE Examples
- INITIALIZE
- INITIALIZE Examples
- Reference Modification
- Review

5. Linking

- Compile and Link PROCs
- Editor Functions
- Linkage Editor Files
- Linkage Editor Options
- Linkage Editor Control Statements
- Linking the Program
- Static/Dynamic Compile/Link
- Static Link Example

6. Branching

- EXIT
- GO TO
- Perform Times
- Perform Thru
- Inline PERFORM
- Perform Until with Test Before
- Perform Until with Test After
- Review



7. Usage

- USAGE Clause
- Display Usage
- Packed-Decimal Usage
- Binary Usage
- Moving Between Usages
- Table of Allowable MOVES
- Condition Names (88 LEVELS)
- Set to True

8. Editing

- Objectives
- IF-ELSE
- CONTINUE
- NEXT SENTENCE
- Class Condition
- Sign Condition
- Relation Condition
- Condition-Name Condition
- Table of Allowable Comparisons
- Compound & Negated IF-ELSE
- Compound Examples
- Truth Tables
- EVALUATE
- Review
- Exercise - Program NIMS10

9. Reports

- Report Components
- COBOL Report Preparation
- Data Editing
- Data Editing: Blank, Comma, Period
- Data Editing: Dollar Sign, Minus, Plus
- Editing: Credits and Debits

- Suppressing & Protecting
- Data Editing Characters – Floating
- Positioning
- Working Storage: Layout Definition
- Working Storage: Header Layouts
- Working Storage: Detail Line Layouts
- Working Storage: Footer Layouts
- Exercise - Program NIMS20

10. Arithmetic

- COBOL Arithmetic
- COBOL Arithmetic Options
- ADD
- SUBTRACT
- MULTIPLY
- DIVIDE
- COMPUTE
- Exercise - Program NIMS30

11. Called Modules

- COPY Statement
- REPLACE Statement
- COBOL Modules
- CALL Statement
- CALL Statement with Parameters
- CALL Examples
- Exercise - Program NIMS40
- Exercise - Program NIMS50

Appendices

- A. Advanced VSAM
- B. Intrinsic Functions
- C. Batch Tracing Facility

