Introduction to z/OS Application Programming (2 Days)

DESCRIPTION: Students who complete this course will be able to describe what's involved in doing development or maintenance on the IBM mainframe, including data design, program design, and testing. They will also learn (or review) how to work with binary and hexadecimal number systems.

PREREQUISITES: Beginning application programmers with little or no programming background, or with a programming background on a non-z/OS platform

AUDIENCE: A combination of Lecture, Exercises and Labs (when/where available).

COURSE OBJECTIVES:

On successful completion of this course, the student should be able to:

- Describe the major issues in program design
- Describe inputs and outputs for a program, down to the field level
- Design program logic for basic programs
- Describe the steps necessary to complete the process to code, compile, link, and test a program
- Describe these fundamental data types of IBM mainframe machines: character, packed decimal, binary
- Convert numbers between binary and decimal and hexadecimal
- Perform basic arithmetic with binary and hexadecimal numbers.

Course Outline

Introduction To Application Programming
- APPLICATION
- The Application Programmer's Job
- Platforms
- Program functions
- Program design
- The Output - Describing What We Want
- The Input - Describing What We've Got
- Data
- Data organizing
- Pseudo-descriptions
- Exercise: Describing data

Program Design
- Computer Systems Organization
- Buffers and Work Areas
- Pseudo-Code
- Goto
- Loops
- Conditions
- The End of File Condition
- A Sample Program
- Exercise: Designing a Program

Testing
- Pseudo-Testing - Playing Computer
- Padding / Filler
- Initial Values
- Coding - Converting Your Design to Code
- Sample Code
- COBOL
- PL/I
- C
- Assembler
- Exercise: Pseudo-Testing and Finalizing the Design

The Next Steps
- TSO
- ISPF
- Keying in Your Code
- Making Your Code Executable
- Running Programs
- Testing Your Program
- Error Handling
- Cutting Over
- Maintenance

Behind The Scenes - Hardware
- Modern IBM Mainframe Computer System
- A CPU and Memory
- Binary - The Language of Computers
- Exercise: Number Conversions
- Computer Memory
- Data Representation
- Hexadecimal
- Exercise: Number Conversions
- Data Formats
- Memory Addressing

Behind The Scenes - Data
- Tape Layout
- A Sequential Data Set
- DASD Concepts
- A Partitioned Data Set
- A Catalog

Behind The Scenes - Software
- Virtual Storage Concepts
- z/OS Architecture
- Batch Application Environments
- Online Application Environments