

## Introduction to z/OS

### Course Summary

#### Description

Students who complete this course will be able to describe the characteristics of modern IBM mainframes, including general hardware components and concepts and terminology used in z/OS, the IBM 64-bit mainframe operating system.

#### Objectives

After taking this course, students will be able to:

- Describe the concepts underlying IBM zSeries computer systems in general (hardware: processors, memory, tape, disk, devices in general; software: operating systems, application environment, application programs)
- Correctly use terms related to mainframe computer systems: such as data set / file, fields, records, data set organization
- Understand terms specifically related to z/OS, such as DDname, data set name, PDS, PDSE, VSAM, label, VTOC, directory, catalog, TSO, ISPF, JCL
- Describe the role SMS (System Managed Storage) plays in z/OS
- Describe the roles played in application development of CLIST, REXX, JCL, and TSO/ISPF
- Describe the role of Unicode in the mainframe world, and the support for Unicode provided in z/OS
- Describe capabilities of the latest compilers from IBM for COBOL, PL/I, and C as well as the Assembler, the binder, and Language Environment
- Describe the capabilities of DB2, in broad, general terms, and understand the salient features of the latest version of DB2
- Compare and contrast the two major transaction processing environments: CICS/TS and IMS, and the role of MQSeries
- Describe the facilities available under z/OS for running UNIX applications, including hosting a web server and email
- Send text messages to a cell phone and / or emails to the Internet from a batch job, (providing their system is configured to do so).

#### Topics

- z/Architecture - hardware
- z/OS - software
- Describing data
- Tape layout
- DASD organization
- TSO/ISPF role and concepts
- ISPF changes overview
- CLIST, REXX, and Dialog Manager
- SMS - System Manged Storage
- Unicode - an introduction
- DB2 - the IBM relational data base system
- Transaction monitors: CICS, IMS
- The Role of MQSeries
- Languages / Language Environment
- Assembler changes
- Enterprise COBOL
- Enterprise PL/I
- C/C++ for z/OS
- The Binder
- Sending emails and text messages
- z/OS UNIX
- z/OS.e and zNALC

## Introduction to z/OS

### Course Summary (cont'd)

#### **Audience**

This course is designed for technical people with MVS or OS/390 backgrounds who need a quick update on changes introduced by zArchitecture hardware and z/OS software, or technical people with non-IBM-mainframe backgrounds who need a quick introduction to modern IBM mainframe terminology and capabilities. This includes a brief look at the zEnterprise EC12 (zEC12 for short) series and the zBX BladeCenter Extension.

#### **Prerequisites**

Before taking this course, you should have a technical background in computers.

#### **Duration**

One day

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### Course Outline

- I. z/Architecture - A hardware overview**
  - A. zSeries
  - B. CPC - Central Processor Complex
  - C. I/O Channels
  - D. PR/SM, LPARs, and Sysplex
  - E. zBX
  - F. Tapes and Disk
- II. z/OS - A software overview**
  - A. Large numbers
  - B. The Road to z/OS
- III. z/OS Workloads**
  - A. Capacity utilization
  - B. Workload manager
  - C. z/OS Workloads
  - D. Tuning
- IV. z/OS Fundamentals**
  - A. Data management terms
  - B. Data organizations
  - C. Sequential data set
  - D. VTOC
  - E. Partioned Data Set (PDS)
  - F. Catalog
  - G. PDSE
  - H. The UNIX File model: the Hierarchical File System (HFS)
  - I. Batch
  - J. JCL
  - K. TSO/ISPF
  - L. CLIST and REXX
  - M. Dialog manager
  - N. SMS - System Managed Storage
- V. Unicode**
  - A. What is Unicode?
  - B. z/OS support for Unicode
- VI. DB2 - IBM's Premier relational data base**
  - A. The Basics
  - B. Indexes
  - C. DB2 Architecture
  - D. Embedded SQL
  - E. Components
  - F. DB2 UDB
- VII. Transaction monitors**
  - A. CICS/TS
  - B. IMS
  - C. The role of MQSeries
- VIII. Languages**
  - A. Common threads
  - B. Language Environment (LE)
  - C. Assembler
  - D. Enterprise COBOL
  - E. Enterprise PL/I
  - F. C/C++
  - G. The program binder
- IX. z/OS and UNIX System Services**
  - A. TSO User ID
  - B. Profiles
  - C. UNIX User ID
  - D. z/OS UNIX - The shell interface under OMVS
  - E. Things you can do under z/OS UNIX
    1. Standard commands and utilities
    2. Compile / assemble / bind
    3. HTTP server - host web site
    4. Use sed file to convert flat file to HTML
    5. Use sendmail and ftp
    6. Code / compile / run Java
    7. WebSphere
- X. Sending notes, e-mails, and text messages**
  - A. Communications possibilities
  - B. Sending emails from a batch job
  - C. Sending text messages from a batch job to a cell phone
  - D. SMTP notes
  - E. Communications possibilities conclusion
- XI. Conclusion**
  - A. z/OS.e and zNALC
  - B. Final thoughts