

IMS/DB™ Programming

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| Course No. | 1300 |
| Description | This course enables participants to work with the IMS™ Data Base Management System. Participants develop and test batch application programs that load, read and update IMS hierarchical databases. Testing is accomplished by using the Batch Terminal Simulator II. |
| Audience | This course is recommended for Application Developers who need to write programs using the IMS™ hierarchical database facility. |
| Prerequisites | Participants should have experience or appropriate training as application developers. They should be proficient in coding COBOL or PL/I, and should be familiar with compiling and testing application programs. |
| Objectives | <ul style="list-style-type: none">• Understand general database concepts• Examine IMS™ hierarchical database structures• Understand how IMS™ communicates with the application program• Learn to structure an IMS™ call correctly and efficiently• Become aware of IMS advanced topics, such as Boolean SSAs, IMS™ Access• Investigate Methods, Field Level Sensitivity, and Secondary Indexing• Discuss program testing with BTS II |
| Major Topics | <ul style="list-style-type: none">• Database Concepts• Database Structures• IMS Control Blocks• Application Program Structure• Database Processing - Add• Database Processing - Retrieve• Data Base Processing - Update• Command Codes• Advanced Topics• Testing Under BTS II |
| Duration | 4 days |

Course Contents

1. Database Concepts

- Definition of a Database
- Data Storage Methods
- Database Concepts
- Hierarchical Database Storage
- 3 Major Components of IMS
- IMS™ Database System
- IMS™ Components Overview
- Reasons for Using IMS/DB™
- IMS/DB™ Facilities

2. Database Structures

- IMS Hierarchical Structure
- IMS Database Record
- Twin Processing
- Design Consideration
- Sequential Processing
- Random Processing
- Program's View of the Database
- IMS Database Rules
- Concepts & Terminology Review
- Structure Quiz

3. IMS Control Blocks

- Defining an IMS Database
- DBD Source
- DBD Generation Control Statements
- Defining the Program's View of the Database
- PSB Source
- PSB Generation Control Statements
- Application Control Block
- Summary of IMS Libraries and
- Associated Control Blocks

4. Application Program Structure

- IMS™ Corrections to Application Program
- IMS™ Application Environment
- A Subprogram of IMS
- Requesting IMS Processing
- Communicating Processing Requests-DLI Calls
- Parm Count
- Call Function
- Program Communication Block (PCB) Mask
- PCB Mask Format

- Application Interface Block (AIB) Mask Format
- I/O Area
- Segment Search Argument (SSA)
- SSA Format
- Building an SSA
- SSA Coding Rules
- SSA Relational Operator
- SSA Example
- SSA Example: Vendor SSA
- Vendor SSA Qualification Example
- SSA's Multiple Level Call
- Status Code
- Basic IMS Program Components

5. Database Processing - Add

- Positioning
- Status Code Checking
- Insert Call
- ISRT Call Format
- Inserting a New Segment Occurrence
- Using the Insert to Load a Database
- Insert Processing Exercise

6. Database Processing - Retrieve

- Unique Call
- Get Unique Call Format
- Get Unique Call Example
- Get Next Call
- Get Next Call Format
- Get Next Call Example
- Retrieval Processing Exercise
- Parentage
- Get Next Within Parent Call
- Get Next Within Parent Call Format
- Get Next Within Parent Call Example
- Parentage Processing Exercise

7. Database Processing - Update

- Get Hold Calls
- Get Hold Call Format
- Get Hold Call Example
- Replace Call
- Replace Call Format
- Replace Call Example

- Delete Call
- Delete Call Format
- Delete Call Example
- Update Processing Exercise
- Sequential Processing Review
- Direct/Random Processing Review

8. Command Codes

- What is a Command Code?
- SSA Format
- Command Code Example
- 'D' Command Code
- 'N' Command Code
- 'F' Command Code
- 'L' Command Code
- 'C' Command Code
- 'P' Command Code
- 'Q' Command Code
- 'U' Command Code
- 'V' Command Code

9. Miscellaneous Topics

- Using Boolean Operators in SSAs
- Boolean SSA Structure
- Boolean SSA Examples
- Types of IMS Programs
- IMS™ Access Methods
- GSAM
- HSAM
- SHSAM
- HISAM

- IMS Access Methods
- SHISAM
- HDAM
- HIDAM
- Summary of Access Methods
- Level Sensitivity
- Field Level Sensitivity Example
- Secondary Indexing Overview
- Secondary Indexing Segments
- Secondary Indexing Example
- Secondary Indexing PSB's
- Secondary Indexing Processing Requests
- Secondary Indexing Limitations

10. Testing Under BTS II

- Overview of BTS
- BTS System Flow
- BTS Output
- BTS Commands - /T
- T - Call Trace Features
- Defining Output - /O
- Other BTS II Commands

Appendix

- Status Codes Quick Reference Table
- IMS/ESA Version 5 Library

About Keane

Keane partners with businesses and government agencies to *optimize* IT investments by delivering exceptional evolution, operation, and maintenance of mission-critical systems and business processes. A US company with a large offshore capability, Keane combines local knowledge and local senior leadership with scalable global delivery that results in low-risk, actionable, cost-effective services and solutions – and a partnership that feels like an extension of your organization.

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