



# THE EDGE

## Dual certification Syllabus

### Master of Science Information Technology (MSC-IT) With Software Engineering infrastructure management system

#### Programme Structure & Syllabus for M.Sc. I.T. Programme

##### Programme Structure

##### First Semester

Subject Code	Subject Title	Type of Course	Credits	CIA	Ext.	Total Marks
MIT 101	Introduction to Information Technology	C	4	40	60	100
MIT 102	Introduction to Programming Language through C (C)	C	4	40	60	100
MIT 103	Operating Systems and System Software (OS)	C	4	40	60	100
MIT 104	Data Structures and Algorithms	C	4	40	60	100
MIT 105	Basic Electronics and Communication (E&C)	C	4	40	60	100
MIT 106	Lab 1 (based on C, OS and E&C)	C	4	40	60	100
SS	Soft Skill Elective	SS	4	40	60	100

##### Second Semester

MIT 201	Computer Organization & Architecture	C	4	40	60	100
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MIT 202	Data Base Management System (DBMS)	C	4	40	60	100
MIT 203	Object Oriented Programming Structures (OOPS)	C	4	40	60	100
MIT 204	Data Communication and Computer Networks	C	4	40	60	100
MIT 205	Lab 2 (based on DBMS)	C	4	40	60	100
MIT 206	Lab 3 (based on OOPS)	C	4	40	60	100
SO	Social Orientation Elective	SO	4	40	60	100

### Third Semester

MIT 301	Software Engineering	C	4	40	60	100
MIT 302	Formal Languages and Automata Theory	C	4	40	60	100
MIT 303	Introduction to Java	C	4	40	60	100
MIT 304	Visual Language Programming	C	4	40	60	100
Elective	Elective Course- I	E	4	40	60	100
MIT 306	Lab 4 ( based on Java)	C	4	40	60	100
MIT 307	Lab 5 ( based on Visual Programming)	C	4	40	60	100

### Fourth Semester

MIT 401	Computer Graphics	C	4	40	60	100
Elective	Elective Course– II	E	4	40	60	100
MIT 403	Lab 6 (based on Computer Graphics)	C	4	40	60	100





MIT 404	Industrial Training	C	4	40	60	100
MIT 405	Project	C	12	120	180	300

**Notes:****C: Core****E: Elective****SS: Soft Skill****SO: Social Orientation****1. Soft Skill Electives:**

SS 01 - I T Skills (Not available to MSc. I.T students.)

SS 02 - Communication Skills (Not available to MA English students.)

SS 03- Management Skills (Not available to MBA students.)

**2. Social Orientation Electives:**

SO 01 - Human Rights

SO 02 - Disaster Management

SO 03 - Environment and sustainable Development

**3. List of Electives for Elective Course I and Elective Course II.** MIT E01 - Web design & development

MIT E02 - Artificial Intelligence

MIT E03 - Network Security MIT

E04 - Distributed Computing MIT

E05 - E-Commerce

MIT E06 - Compiler Design

MIT E07 - Object Oriented Analysis and Design

MIT E08 - Bioinformatics

MIT E09 - Pattern Recognition

MIT E10 - Multimedia Database Systems

MIT E11 - Soft Computing

MIT E12 - Embedded Systems

MIT E13 - Mobile Computing

MIT E14 - Data Mining

MIT E15 - Multimedia Technologies MIT

E16 - Managing Information System MIT

E17 - Management Science

MIT E18 - Enterprise Resource Planning (ERP)

MIT E19 - Open Elective





## NEW SYLLABUS SEIMS

# Software Engineering infrastructure management system

Revised 2013-2015



ISO 9001-2008  
Registered Under Government of India



Semester - 1 Duration: 740 hrs. The edge

Semester 1 is designed for the novice entries into IMS the world of Infrastructure Management Service. The curriculum in this semester is tailored to gear up students to develop the basic IMS knowledge and further it is fashioned to guide them from basics to advanced topics.

The students, to start with, will be educating or upgrading their skill set pertaining to Digital Electronics. MS Office 2007 is the next essential syllabus which would enhance the students' acquaintance on the most popular applications used regularly such as Word, Excel, PowerPoint, Outlook and Access.

Learning A+ will augment the students' comprehension about the fundamentals of computer and the skill set pertaining to assembling and troubleshooting a computer system. In Network+, they learn about networking standards and troubleshooting networks. Learning about the operating systems in A+, the students will step further to discover the latest revolution of Microsoft, the Windows 7 OS. This is one of the latest and most popular client operating systems that is currently phenomenal in the job market.

Since Red Hat Linux is one of the most popular flavors of UNIX, the students will be introduced to the basics of Linux operating systems. It becomes important to understand how to operate laptops, use the special features of laptops, troubleshoot and maintain laptops, all of which are roofed under the topic Laptop Maintenance.

C programming is one of the most popular programming language, the students will be introduced to the basics of c programming

Organizations are growing smarter with potential growth in the IT industry. Along with quality work they emphasis on public relations which becomes the essence of the business. In order to fulfill both, the students must acquire technical skills as well as the communication and personality development skills which is learnt by students in this semester.

**Syllabus and certification are covered in this semester**

- Microsoft Certified Application Specialist on Microsoft Office 2007 100Hrs
- A+ IT technician 40Hrs
- Network + 140Hrs
- MCTS: Windows 7 Configuration 20HRs
- Desktop & laptop Maintenance 40Hrs
- Red Hat System Administration I (RH124) 160Hrs
- C & C++ Programming 80Hrs
- Advance communication 160Hrs

**Once the students complete this semester they'll be exposed to various job profiles like:**

- Application Specialist on Microsoft Office 2007
- Hardware Engineer
- PC Support Engineer
- Tech Support Specialist
- Desktop Support Technician and many more.
- Data Entry Operator





### Desktop & Laptop Maintenance

- Desktop & Laptop Features and Function keys
- Common Desktop & Laptop Problems
- Function of Desktop & Laptop
- Power Options For Desktop & Laptops
- Hibernate Features
- Standby Features
- Laptop battery
- Common laptop problems
- Best practices
- General maintenance of the Desktop & laptop

### Microsoft Certified Application Specialist on Microsoft Office 2007 Word 2007 Basics

- Editing and Proofreading a Document
- Bulleting and Numbering
- Working with Tables
- Word Styles
- Word Art, Clip Art
- Mail Merger
- Excel 2007 Basics
- Printing in Excel
- Charting
- Creating Tables
- Excel Workbook
- Special Features
- PowerPoint 2007 Basics
- Charts and Objects
- Customizing PowerPoint
- Online Presentation
- Access 2007 Basics
- Forms
- Sorting Records
- Filters
- Information Accuracy
- Outlook 2007 Basics
- Electronic Mails
- Inbox Management
- Calendar
- Events and Meetings

### Installing and Configuring Windows 7 (MCTS)

- Installing Windows 7
- Preparing the Windows 7 Installation Source
- User and Group Management
  - Password Reset Disk





- Parental Control
- Upgrading to Windows 7
- User Profiles Management
- System Images Capturing
- Virtual Hard Disk Files
- Application Compatibility
- Introducing Windows 7
- Windows Aero and Mouse operations
- Switching Users
- Disks and Device Drivers
- Network Settings
- IPv4/IPv6 Configuration
- Network Configuration
- Folder and File Access
- Branch Cache
- Printers in Windows 7
- Windows 7 Desktops Security
- Windows 7 Client Computers
- Mobile Computing and Remote Access in Windows 7

#### A+

- Computer Components Identification
- Assemble and Disassemble Computer Components
- Components in Portable Computers
- Devices Installation and Configuration
- Characteristics of Cabling and their Connectors
- Common IDE, SCSI and Peripheral Devices
- Optimize PC Operations Optimization
- Determine the Issues that must be Considered when upgrading a PC
- Popular CPU Chips
- Types of Memory (RAM)
- Types of Motherboards and their Components
- Printer Technologies, Interfaces and Options/Upgrades
- Troubleshoot Common Printer Problems
- Operating System Fundamentals OS Installation
- Common Error Codes Interpretation
- Networking Capabilities of Windows
- Basic Internet Protocols and Terminologies
- Procedures for Establishing Internet Connectivity

#### Network +

- Logical or Physical Network Topologies
- Networking Standards
- Characteristics of Different Types of Cables
- Different media Connectors and Describe their uses
- Purposes, Features and Functions of Network Components





- General Characteristics of the Different wireless technologies
- Different Network Protocols
- Classful IP and Their Subnet Masks
- Subnetting
- Private and Public network addressing schemes
- WAN Technologies
- Security protocols and authentication protocols
- Basic capabilities different server operating systems
- Benefits and characteristics of using a firewall and proxy service
- Main characteristics and purpose of extranets and intranets
- Antivirus software
- Fault Tolerance
- Network Utility to Troubleshoot Networks
- Impact of modifying, adding or removing network services
- Network Troubleshooting with Physical Topology

#### Red Hat System Administration I (RH124)

- Get Started with the GNOME Graphical Desktop
- Manage Files Graphically with Nautilus
- Get Help in a Graphical Environment
- Configure Local Services
- Manage Physical Storage I
- Manage Logical Volumes
- Monitor System Resources
- Manage System Software
- Get Started with Bash
- Get Help in a Textual Environment
- Establish Network Connectivity
- Administer Users and Groups
- Manage Files from the Command Line
- Secure Linux File Access
- Administer Remote Systems
- Configure General Services
- Manage Physical Storage II
- Install Linux Graphically
- Manage Virtual Machines  Control the Boot Process
- Deploy File Sharing Services
- Secure Network Services

#### C & C++ Programming

- Logic
- Techniques (PLT)
- I/O Statements
- Operator,
- Control Statements,







- Loops,
- Arrays,
- Strings,
- Pointers,
- Functions,
- Structures, □ Unions,
- Dynamic Memory Allocation.
- OOP Concepts,
- Classes & Objects,
- Constructor
- Destructor
- Operating Overloading
- Inheritance
- Polymorphism □ Exception Handling.

#### Communication Skills and Personality Development

- Importance of Effective Communication
- Types of Communication
- Scope of Written Communication
- Types of Writing
- Effective Writing
- Reading Skills
- Listening
- Improving one's Vocabulary
- Root words
- Usage of words with similar meaning
- Homophones, Synonyms & Antonyms
- Personality, its types
- Significance of Personality-An organizational perspective □ Public Speaking - As part of personality development
- Group Discussion - A practice of corporate personality development Interviews
- Presentation Skills - The root of Personality Development
- Acting your speech (intonation)- Effective public speaking tips
- Public Presentation
- Nature and scope of a group discussion

Semester - 2Duration: 980 hrs.

With an ample essence of basics, the students are set to learn the advanced topics in semester II. Here the focus is on much adored technologies such as object-oriented programming (OOPs), C# programming. Semester II includes the latest trend using Rapid Application Development (RAD) on the .NET framework for the students.

This semester is designed to give you as strong foundation object-oriented programming (OOPs) approaches and the fundamentals of C# programming language. It will familiarize you with Structure Query Language (SQL) and enables you to query and manage database using SQL Server. Further you will also get exposure to Windows-based GUI Application development using Rapid Application Development (RAD) on the



.NET framework. This semester will also develop your skills on database connectivity technologies such as ADO.NET and develop and deploy Web applications using ASP.NET. As a successful developer, you need to understand and implement software testing. In this process you will have to assess the acceptability of the software product to its end users.

With Logic Building and Effective Problem Solving, students will learn to how to apply logic and short out the problem of program, then after student will learn Object Oriented Programming Using C#

After this student will learn about Querying and Managing Data Using SQL Server & Developing advanced applications using my SQL and PHP student will also have Introduction to the Relational Database Management System manage with eXtensible Markup Language As well student will learn Visual Studio 2008 and how to Develop Data Centric Applications Using ADO.NET

Student will have a knowledge on Developing Web Applications Using ASP.NET with Developing Distributed Applications Using .NET Framework also student will learn software testing method through Rational Principles of Software Testing for Testers with Essentials of IBM Rational Performance Tester Especially about MY SQL is a relational database management system (RDBMS). MY SQL stands for "My Structured Query Language". The program runs as a server providing multi-user access to a number of databases. MY SQL is often used in free software projects which require a full-featured database management system, built on the LAMP software stack. It is also used in very high-scale World Wide Web products including Wikipedia, Google and Face book. PHP is the scripting language used for developing dynamic data-driven Web sites. PHP with a MY SQL database is a powerful combination because of the stability, the lower server costs (Apache HTTP Servers) than hosting on other platform offerings. This program is being released for learners who want to learn about open source web development language such as PHP. Learning PHP along with MY SQL will enable the learner to develop web applications. This covers fundamentals of RDBMS as well as programming. In addition, the semester covers creating Web applications using PHP and MY SQL. Furthermore, this semester provides in-depth knowledge on MY SQL database and its components to create dynamic data-driven Web applications.

To further enhance the personality traits of the students, they are exposed to Personality Development and Communications skills training at advanced levels. Effective communication, public speaking, leadership qualities, time management and interview skills are the few essential topics and certification are covered in this semester.

**Syllabus and certification are covered in this semester**

- Logic Building and Effective Problem Solving 40Hrs



- Object Oriented Programming Using C# 60Hrs
- Querying and Managing Data Using SQL Server 80Hrs
- Developing advanced applications using my SQL and PHP 60Hrs
- Introduction to the Relational Database Management System 40Hrs
- eXtensible Markup Language 60Hrs
- 6460A Visual Studio 2008: Windows Presentation Foundation (MOC) 60Hrs
- Developing Data Centric Applications Using ADO.NET 60Hrs
- Developing Web Applications Using ASP.NET 80Hrs
- Developing Distributed Applications Using .NET Framework 60Hrs
- Rational Principles of Software Testing for Testers 40Hrs
- Essentials of Test Management with IBM Rational TestManager 60Hrs
- Essentials of IBM Rational Functional Tester, .NET 2005 Scripting 100Hrs
- Essentials of IBM Rational Performance Tester 60Hrs
- Personality Development 120Hrs
- Project

Once the students complete this semester they'll be exposed to various job profiles like:

- Database Designer
- MS SQL Server operator
- Web Content Developer
- Developer Server Applications
- Developing Advanced Applications with My SQL and PHP

#### Logic Building and Effective Problem Solving

- Identify input and output requirements of a computer problem.
- Define programs and programming languages.
- Identify various tools used in problem solving.
- Solve problems using flowcharts.
- Represent decisions and repetitive processes in a flowchart.
- Use the dry run table.
- Solve problems using pseudocode.
- Use variables and constants.
- Define data types.
- Use operators.
- Perform conditional execution.
- Identify repetitive processes.
- Work with arrays.
- Manipulate arrays using loops.

#### Object Oriented Programming Using C#

- Explain features and phases of the object-oriented approach.
- Write and execute C# programs.
- Implement encapsulation in C# by using the various access specifiers.
- Identify and use operators including arithmetic, assignment, unary, comparison, and logical.
- Use decision-making constructs and loop constructs.
- Describe memory allocation.
- Implement structures, enumerations, arrays and collections.
- Identify the need for constructors and destructors.
- Implement polymorphism and overload functions and operators.
- Describe the various types of relationship such as inheritance, composition, utilization, and instantiation.
- Use various stream classes to implement file handling.





- Develop single and multithreaded applications. □ Explain and use delegates and events.

#### Introduction to the Relational Database Management System

- Define a Database Management System (DBMS).
- Describe the types of data models.
- Create an entity-relationship model.
- Map an entity-relationship diagram to tables. □ Normalize and denormalize data in tables.

#### Querying and Managing Data Using SQL Server

- Identify SQL Server tools.
- Query data from a single table.
- Query data from multiple tables.
- Manage databases and tables.
- Manipulate data in tables.
- Implement indexes, views, and full-text search.
- Implement stored procedures and functions.
- Implement triggers and transactions.
- Implement managed code.
- Implement services for message-based communication.

#### Developing advanced applications using my SQL and PHP

- Programming Logic and Techniques
- Introduction to RDBMS
- Developing Web Applications using My SQL and PHP
- My SQL 5.0 for Developers

#### eXtensible Markup Language

- Identify the need for XML as a standard data interchange format.
- Create an XML schema.
- Declare attributes in an XML schema.
- Identify the need for XML namespaces.
- Reuse XML schema components.
- Create groups of elements and attributes in an XML schema.
- Use the sequence, group, choice, all, and attributeGroup schema elements.
- Create a CSS document.
- Create an Extensible Style Sheet Language Transformation (XSLT) to format data.

#### 6460A Visual Studio 2008: Windows Presentation Foundation (MOC)

- Create a WPF application.
- Build a UI in a WPF application.
- Customize the appearance of a WPF application.
- Bind UI controls to data sources.
- Bind UI controls to collections.
- Create new controls in a WPF application.
- Manage documents in a WPF application.
- Add graphics and multimedia support to a WPF application. □ Configure and deploy WPF applications.





#### Developing Data Centric Applications Using ADO.NET □

Create and manage connections using ADO.NET.

- Identify the disconnected and connected environment in ADO.NET. □ Create datasets and datatables.

#### Developing Web Applications Using ASP.NET

- Create, control access, and deploy a Web application.
- Manage the state for a Web application.
- Make Web applications available to mobile devices.
- Build dynamic Web applications.
- Optimize the performance of Web applications.
- Implement personalization and themes in Web applications.
- Build Web part pages and Web parts. □ Manipulate data using LINQ.

#### Developing Distributed Applications Using .NET Framework

- Identify the architecture of distributed applications.
- Implement .NET Remoting.
- Create and use Web and Windows Common Foundation(WCF) services.
- Configure serialisation and encoding.
- Implement transactions in WCF.
- Develop peer-to-peer applications. □ Work with RESTful services.

#### Rational Principles of Software Testing for Testers

- Understand and describe the basic concepts of functional (black box) software testing.
- Identify a number of test styles and techniques and assess their usefulness in your context.
- Understand the basic application of techniques used to identify useful ideas for tests.
- Help determine the mission and communicate the status of your testing with the rest of your project team.
- Characterize a good bug report, peer-review the reports of your colleagues, and improve your own report writing. □ Understand where key testing concepts apply within the context of the Rational Unified Process.

#### Essentials of Test Management with IBM Rational TestManager

- Create a Project in IBM® Rational® TestManager.
- Create Users and Groups.
- Build a test plan.
- Define test inputs.
- Define project iterations, configurations, and computers.
- Design and configure test cases.
- Create and execute a test suite.
- Create and execute a Manual Test.
- Run planning reports.
- Log a defect

#### Essentials of IBM Rational Functional Tester, .NET 2005 Scripting

- Describe the function and purpose of Functional Tester.
- Navigate the Functional Tester interface.
- Record automated scripts.





- Play back automated scripts.
- View and analyze results.
- Modify scripts to extend the capability to test the application.
- Use test object maps.
- Control objects recognition. □ Create data-driven tests.

#### Essentials of IBM Rational Performance Tester

- Recall performance testing basics and document your plan for performance testing using a Workload Analysis Document □  
Explore a training application (system under test) and exercise it in conjunction with IBM® Rational® Performance Tester. □  
Use Rational Performance Tester to.
- Create, run, and modify performance tests.
- Manage test data using datapools and data correlation.
- Enhance tests with verification points, loops, and custom code.
- Design and enhance workload scenarios and schedules.
- Monitor test execution and analyze results.

#### Project

- Design user-friendly interface for a web application.
- Establish database connectivity with Microsoft SQL Server database. □ Implement appropriate business logic in the application.

#### Communication Skills and Personality Development

##### Scope of verbal Communication

□

- Formal Communication
- Informal Communication
- Phonetics
- Pronunciation
- Listening
- Accent and Neutral Accent
- Reading a formal Text
- Pace of Communication
- Dictionaries
- Interviews and its types
- Skills required for facing an interview
- Effective Presentation Skills
- Significance of Leadership
- Factors of Leadership
- Qualities of a good leader
- Interviewer and Interviewee - Roles and Responsibilities

Semester - 3 Duration: 840 hrs.

In this semester, the topics covered move to a more advanced level. In this semester will familiarize you with the knowledge of object oriented programming (OOPs) language using Java. In addition, you will Also be trained in skills required to develop web-based components using servlets and Java Server Pages (JSP). On successful completion of this certificate you will be able to build robust back-end functionality using Enterprise JavaBeans (EJB).

According to Programming Logic and Techniques student will develop their skill in programming and will be able to develop their skills for logic after learning this student will learn Oracle 10g: Introduction to SQL Ed 3 after this student will enter in java for learning Java Fundamentals then after will learn Java™ Programming Language and JDBC and This focuses on Developing Enterprise Web Applications using J2EE, XML and Java Web Services and core technologies that are implemented for Developing Enterprise Applications in Java. after this student will be go





thorough Object Oriented Analysis and Design Using UML after this Web Component Development With Servlet and JSP Technologies will be learn by student.

After successful completion of java will go thorough Business Component Development With Enterprise JavaBeans™ Technology and Rational Principles of Software Testing for Testers in details with Essentials of Test Management with IBM Rational TestManager&Essentials of IBM Rational Functional Tester, Java Scripting after completing this module Essentials of IBM Rational Performance Tester and Employability Orientation Program end of module student have to develop the project

Finally this semester will also teach how to face the interview how you have to present in front of your interviewer how your curriculum should represent you

**Syllabus and certification are covered in this semester**

• Programming Logic and Techniques	80Hrs
• Oracle 10g: Introduction to SQL	60Hrs
□ Java Fundamentals	60Hrs
□ Java™ Programming Language and JDBC	60Hrs
□ Developing Enterprise Applications & Web Services using J2EE Technologies	60Hrs
□ Object Oriented Analysis and Design Using UML	80Hrs
□ Web Component Development With Servlet and JSP Technologies	40Hrs
□ Business Component Development With Enterprise JavaBeans™ Technology	60Hrs
□ Rational Principles of Software Testing for Testers	40hrs
□ Essentials of Test Management with IBM Rational TestManager	60Hrs
□ Essentials of IBM Rational Functional Tester, Java Scripting	80Hrs
□ Essentials of IBM Rational Performance Tester	60Hrs
□ Employability Orientation Program	40Hrs
• Interview Skill	60Hrs
• Project	

**Once the students complete this semester they'll be exposed to various job profiles like;**

- Java script developer
- Java Programmer
- Object Oriented Developer
- Jsp technologist
- Web developer
- Site designer

**Programming Logic and Techniques**

- Represent logic by using flowcharts.
- Identify data and data types.
- Use operators.
- Represent decisions in a flowchart.
- Identify repetitive processes.
- Represent complex conditions and iterations by using flowcharts. □ Break down a problem into modules.

**Oracle 10g: Introduction to SQL Ed 3**

- Identify the major structural components of Oracle Database 10g.
- Retrieve row and column data from tables with the SELECT statement .





- Create reports of sorted, restricted and aggregated data.
- Run DML statements to update data in Oracle Database 10g. □ Obtain metadata by querying the dictionary views.

#### Java Fundamentals

- Describe the concept and features of object-oriented programming.
- Declare and work with variables, literals, and arrays .
- Create classes and objects and add methods to a class. □ Identify the various types of access specifiers.

#### Java™ Programming Language and JDBC

- Create Java™ technology applications that leverage the object-oriented features of the Java language, such as encapsulation, inheritance, and polymorphism.
- Execute a Java technology application from the command line .
- Use Java technology data types and expressions.
- Use Java technology flow control constructs.
- Use arrays and other data collections.
- Implement error-handling techniques using exception handling.
- Create an event-driven graphical user interface (GUI) by using Java technology GUI components: panels, buttons, labels, text fields, and text areas.
- Implement input/output (I/O) functionality to read from and write to data and text files.
- Create multithreaded programs.
- Create a simple Transmission Control Protocol/Internet Protocol (TCP/IP) client that communicates through sockets. □ Define the layers in JDBC architecture.
- Identify different types of JDBC drivers.
- Manage transactions and perform batch updates in JDBC.
- Create JDBC applications to access and query a database.

#### Developing Enterprise Applications & Web Services using J2EE Technologies

- Implement server side programming using Servlets
- Implement various session management techniques
- Handle errors and exceptions in Servlets Application
- Implement inter-Servlets Communication
- Develop JSP Applications
- Define and implement JSP custom tags
- Implement JavaBeans in JSP
- Identify the usage of different design patterns, such as value object, Model view controller, Data Access objects, and Business delegate
- Identify the various authentication techniques to validate user credentials
- Parse an XML document using SAX API and DOM API
- Implement XSLT API to transform an XML document
- Implement JAX-RPC API to create a Web service
- Implement JAX-RPC API to create a standalone client and J2EE Web client
- Define Enterprise JavaBeans and identify its features
- Identify different types EJB
- Identify EJB components
- Create home, remote and local interfaces of an EJB □ Create deployment descriptor of an EJB
- Define session beans and identify its different types
- Create, deploy and access a stateless session bean
- Create, deploy and access a statefull session bean
- Define entity beans and identify their different types
- Create, deploy and access a Bean-Managed Persistence (BMP) entity bean





- Create, deploy and access a Container-Managed Persistence (CMP) entity bean
- Define container-managed relationships (CMR)
- Implement CMR in a CMP entity bean
- Describe EJB QL
- Implement EJB QL in a CMP entity bean
- Define transactions and identify its different types  Implement BM and CM transactions



- Implement JDBC and JTA transactions
- Define message-driven beans and their features
- Create, deploy and access a message-driven bean

#### Object Oriented Analysis and Design Using UML

- Identify the types of UML diagrams.
  - Analyze a problem by using business and system modeling.
  - Set system boundaries, define project scope, and refine the system definition.
  - Apply the concepts of static modeling.
  - Apply the concepts of dynamic modeling.
  - Apply frameworks and patterns to design a software system. Web Component Development With Servlet and JSP Technologies
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- Write servlets using the Java programming language (Java servlets) .
  - Create robust web applications using Struts, session management, filters, and database integration .
  - Write JSP pages .
  - Create easy to maintain JSP pages using the Expression Language, JSP Standard Tag Library (JSTL), and the Struts Tiles framework.
  - Create robust web applications that integrate Struts and JSP pages.

#### Business Component Development With Enterprise JavaBeans™ Technology

- Implement Enterprise JavaBeans™ (EJB™) 3.0 session beans.
- Implement Java Persistence API entity classes.
- Implement entity composition, association, and inheritance.
- Use the Java Persistence API query language.
- Develop Java EE technology applications using messaging.
- Create message-driven beans.
- Implement transactions.
- Implement exception handling for EJB technology.
- Add timer functionality to EJB components. □ Implement security for Java EE technology.

#### Rational Principles of Software Testing for Testers

- Understand and describe the basic concepts of functional (black box) software testing.
- Identify a number of test styles and techniques and assess their usefulness in your context.
- Understand the basic application of techniques used to identify useful ideas for tests.
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- Build a test plan.  
Define test inputs.  
Define project iterations, configurations, and computers.  
Design and configure test cases.  
Create and execute a test suite.  
Create and execute a Manual Test. Run  
planning reports.
- Log a defect.

#### Essentials of IBM Rational Functional Tester, Java Scripting

- Describe the function and purpose of Functional Tester.
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- Use Rational Performance Tester to.
- Create, run, and modify performance tests.
- Manage test data using data pools and data correlation.
- Enhance tests with verification points, loops, and custom code.
- Design and enhance workload scenarios and schedules. □ Monitor test execution and analyze results.

#### Employability Orientation Program

- Understand the Prospects in the Information Technology (IT) industry.
- Understand and appreciate the importance of effective communication.
- Communicate effectively over a telephone and through writing.
- Prepare and deliver an effective presentation.
- Understand the various personality theories and personality traits.
- Identify the growth aspects in IT with respect to personality traits.
- Understand the art of cracking an interview

#### Project

- Design user-friendly interfaces for an enterprise application.
- Establish database connectivity .
- Implement appropriate business logic using EJB in an enterprise application

#### Advance Communication, Personality & Interview Skill

- Grammar, Pronunciations, General knowledge

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- Debates, Communication skill
- Group discussion, Voice clarity
- Vocabulary generation
- Accent neutralization
- Body language, texture
- Dressing style
- Aptitude & awareness
- Sitting style, Positive behavior
- Good manners
- Skills to face an interview □ Boosting self confidence Enhancing personal skill  
Corporate manner  
Time management Group  
discussion  
Mock interview  
Making curriculum vitae

Semester - 4Duration: 840 hrs.

Semester IV, is the final step to complete the much sought after SEIMS courseAfter attending Semester IV, the students will have basic understanding of application development basics on the Android platform. Post completion of the programme, the student will be awarded certification in - "Introduction to Android: An Open Source Mobile Device Platform" AlsoIn this semester teaches a process oriented approach in designing, deploying and managing Storage Networking solutions. This semester builds on the technology concepts and principles learned in STF (prerequisite) and challenges participants to apply their knowledge to real-world scenarios. Lectures and work-shop style case studies provide a thorough exposure to Storage Networking requirements analysis, business value justification, and design considerations for technology and performance in the implementation and management of Storage Networking solutions.

This semester also provides a comprehensive coverage on all aspects of planning, building and managing Information Availability solutions. In addition to providing the required technical exposure to Backup and Recovery, Local and Remote replication, NAS Business Continuity, and Content Addressed Storage and Archiving, the semester covers the design and implementation of the appropriate solution based on availability requirements. This semester builds on the technology concepts and principles learned in STF (prerequisite) and challenges participants to apply their knowledge to real-world scenarios. Lectures and work-shop style case studies provide a thorough exposure to the technology components, design considerations, and best practices on various aspects of Information Availability.Developing Mobile Applications using J2ME in this Candidate will become a Java Developer for Mobile Application

In this semester The UNIX Essentials Featuring the Solaris 10 Operating System (SA-100-S10) semester will equip a student with the knowledge, which is required to use the basic Solaris OS commands. The semester covers managing the desktop of a Solaris system and understanding the operating system components. This semester also makes a student familiar with handling files and directories, working with print devices, and creating archives The Solaris 10 Operating System (OS) is a recent implementation of the UNIX platform, a leading platform in the IT industry. Solaris 10 OS integrates powerful new capabilities to deliver high level performance, availability, and security. The Intermediate System Administration for Solaris 10 OS on x64/x86 Based Systems semester will equip students with the knowledge, which is required to perform System Administration tasks in the Solaris 10 OS on both x64/x86. These include installing software, managing file systems, performing system boot procedures, performing user and security administration, managing network printers and system processes, and performing system backups and restores. This program aims at familiarizing participants with working in a multi-user operating system environment using Linux

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6.0. You will learn to work with the Command Line Interface (CLI) as well as the Graphical User Interface (GUI) in Linux. With VC#

Information Technology Service Management (ITSM) will help the students to manage problems in a network. The students will be introduced to the fundamental concepts associated with cloud computing such as its architecture, and practical applications. The last but very essential topic in this final semester is the Soft skills development.

**Syllabus and certification are covered in this semester**

- Zend Framework: Fundamentals 80Hrs
- Zend Server 40Hrs
- Getting started with android application development 60Hrs
- Storage networking design and management and management 40Hrs □ Information availability design
- Developing mobile applications using j2me 40Hrs
- Unix essentials featuring the solaris 10 operating system for solaris 10 os (sa-201-s10) 60Hrs 100Hrs Intermediate system administration
- Linux power user 60Hrs
- Vc# 60Hrs
- Information storage and management (ism) 60Hrs
- Itsm 80Hrs
- Cloud computing 40Hrs

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- Soft Skill development

60Hrs

Once the students complete this semester they'll be exposed to various job profiles like:

Android application developer  
Networking Design and Manager  
Mobile Applications developer  
Data Protection specialist  
Storage and Security manager Storage foundation specialist  
EMC Storage Management Administrator and many more

Zend Framework: Fundamentals

- Introduce Zend Framework.
- Create an MVC based application structure using Zend Framework.
- Understand BOOTSTRAP architecture.
- Create controller components and controller execution methods.
- Create Zend Framework model components.
- Create Zend Framework view components.
- Implement Front Controllers and Action Helpers.
- Implement authorization and authentication.

Zend Server

- Introduce Zend Server.
- Setup Zend Server components.
- Implement application monitoring and caching rules.
- Optimize and debug the deployed application.

Getting started with android application development

Module 1: Adobe ® Flash ® CS3

- Understand and appreciate the need for mobile applications
- Understand Android application development basics
- Identify tools required for Android application development
- Develop basic Android applications
- Deploy Android applications

Introduction to Android: An Open Source Mobile Device Platform

- Changing lifestyle and mobile device landscape
- Android : as an Open Source mobile device platform
- Features of Android-based devices
- Steps to configure and use the key features of Android devices

Storage Networking Design and Management

- Explain Application classes and their demands for storage; describe cost elements of a Storage Networking environment, and create business value justification for its implementation



- Demonstrate a detailed technical knowledge of SAN, NAS, and other hybrid technologies
- Design an appropriate Storage Networking solution with the understanding of business requirements, application service level targets and the inter-dependence of technology infrastructure
- Develop implementation and risk mitigation plans based on the storage design Implement Storage Networking administration and management procedures based on service goals

#### Information Availability Design and Management

- Describe and establish an Information Availability infrastructure
- Describe the technology components, considerations for designing, deploying, and managing a
- Backup and Recovery solution
- Local and remote replication solutions
- Network Attached Storage (NAS) business continuity solution
- Content Addressable Storage (CAS) and Archiving solutions

#### Developing Mobile Applications using J2ME

- Identify the need for J2ME
- Identify the goals and characteristics of J2ME specifications
- Identify the MIDlet development lifecycle
- Execute a MIDlet by using the J2ME Toolkit
- Explain the profiles and configurations in J2ME technology
- Develop, package, and run MIDlet suites by using J2ME wireless toolkit
- Describe MIDP User Interface components and their hierarchy
- Work with screen and its elements
- Create User Interfaces by using High Level UI APIs
- Create a mail application user interface that implements High Level APIs
- Create user interfaces by using low level APIs
- Manage a wall paper from a mobile device
- Store data in MIDlet by using RMS
- Add, modify, and delete records from a PDA
- Establish network connection by using the GCF
- Implement classes and interfaces in javax.microedition.io package
- Develop an application that connects Ticker with server and download ring tones from the server
- Implement MIDlet Security
- Develop a Banking Application
- Play sounds and videos by using MMAPI package
- Develop an application to download and play ring tones
- Create, send, and receive SMS messages by using WMA
- Send and Receive SMS by using WMA
- Implement the classes in Game API
- Develop a Tic-Tac-Toe application by using Game API
- Identify the usage of Push Registry
- Deploy MIDlets through Local Machine and Web Server

#### Unix essentials featuring the solaris 10 operating system

- Identify the hardware components
- Identify SunOS Components
- Use the desktop environment
- Execute commands from the command line
- Use online documentation





- Manage files and directories
- Create & modify files and directories and Print files
- Understand Shell variables
- Use command redirection and work with user initialization files
- Work with the vi editor
- Set file and directory permissions and access Control Lists
- Search Files
- Use the Solaris OS processes and manage jobs in a Korn shell
- Run shell scripts and archive files
- Establish a remote login session and transfer files between systems

#### Intermediate system administration for solaris 10 os (sa-201-s10)

- Identify the fundamentals of Solaris Installation
- Install Solaris 10 OS
- Understand / (root) subdirectories
- Identify File Components
- Identify File Types
- Use Hard links
- Understand basic architecture of a disk
- Partition Hard disk
- Manage Disk labels
- Work with file system
- Perform mounts and unmounts
- Install packages
- Install patches
- Configure and test devices
- Perform boot and shutdown procedures
- Manage user accounts
- Perform system security
- Configure and use printer
- Take backups
- Restore backups

#### Linux Power User

- Communicating with Network Users
- Sending and receiving e-mail Chatting
- Creating and Maintaining Documents
- Using Vi Editor Organizing Documents
- Automating tasks
- Filters and Pipes
- Working with Shell scripts
- Variables-Local and Global
- Implementing Security
- Setting and changing file and directory permissions
- Viewing existing file and directory permissions
- Setting and changing passwords
- Working with the Linux Graphical User Interface
- Working with KDE Desktop
- Working with KOrganizer

#### Information Storage and Management (ISM)







- Explain storage technology concepts
- Understand storage systems environment
- Identify networked storage, components, and its functions
- Implement RAID for data protection
- Identify storage networking technologies such as NAS, SAN, IP SAN, and storage virtualization
- Identify logical and physical components of a storage infrastructure
- Identify the core elements of a data center infrastructure
- Plan for disaster recovery and business continuity
- Identify the need for backup/recovery, and local and remote replication
- Secure the data storage infrastructure
- Understand the need for managing and monitoring the data center

#### VC#

- Identify different types of application architecture
- Understand the various components and advantages of the .NET Framework
- Identify the Components of the Visual Basic .NET IDE and various features of Visual C#
- Create Windows Form by using various form controls
- Implement the CommonDialog classes and work with menus and MDI applications
- Understand the features of ADO.NET and types of data binding
- Access a database using data adapter and datasets and also filter and sort data
- Display data from multiple tables in a single Windows Form and access data through Crystal Reports
- Create and use components and user controls and understand the role of Assemblies in VC#
- Understand the standard design guidelines for building accessibility applications and the role of Globalization and Localization in designing world ready applications
- Deploy application resources using satellite assemblies
- Implement the help system
- Implement different deployment strategies and create and use editors in a deployment project
- Debug a window-based application and configure and Secure windows-based application **ITSM**
- Life cycle of a service
- Service strategy
- Service design
- Service Transition
- Service Operation
- Models and concepts of service management
- Service management functions and roles

#### Cloud Computing

- Cloud Computing
- History and Evolution of Cloud Computing
- Private and Public clouds
- Cloud Computing architecture and industry frameworks
- Cloud computing infrastructure
- Practical applications of cloud computing
- Vendors and products for Cloud computing
- Audit and security risk with Cloud computing
- Risk Mitigation methodology for Cloud computing
- Infrastructure as a service (IaaS)
- Platform as a service (PaaS)
- Software as a service(SaaS)



#### Soft Skills Development

- Transition from College to Corporate
- Business Written Communication
- Email etiquette
- SMS etiquette
- Business Spoken Communication
- Telephone etiquette
- Net and web meetings etiquette
- Working in Teams
- Attitude At Work
- Work Ethics

