



NEW SYLLABUS SPE

Software programming & Engineering

Revised 2013-2015





Duration: 740 hrs. The edge

Syllabus is designed for the novice entries into Software programming the world of Software programming & Engineering . 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, next essential syllabus which would enhance the students' acquaintance on the most popular applications used regularly such as Word, Excel, PowerPoint, Outlook and Access.

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.

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

- Module 1 Microsoft Certified Application Specialist on Microsoft Office 2007 100Hrs
- Module 2 installing and configuring Windows 7 (MCTS) 20Hrs
- Module 3 C & C++ Programming 80Hrs
- Module 4 Logic Building and Effective Problem Solving 40Hrs
- Module 5 Object Oriented Programming Using C# 60Hrs
- Module 6 Querying and Managing Data Using SQL Server 80Hrs
- Module 7 Developing advanced applications using my SQL and PHP 60Hrs
- Module 8 Introduction to the Relational Database Management System 40Hrs
- Module 9 eXtensible Markup Language 60Hrs
- Module 10 6460A Visual Studio 2008: Windows Presentation Foundation (MOC) 60Hrs
- Module 11 Developing Data Centric Applications Using ADO.NET 60Hrs
- Module 12 Developing Web Applications Using ASP.NET 80Hrs
- Module 13 Developing Distributed Applications Using .NET Framework 60Hrs
- Module 14 Rational Principles of Software Testing for Testers 40Hrs
- Module 15 Essentials of Test Management with IBM Rational TestManager 60Hrs
- Module 16 Essentials of IBM Rational Functional Tester, .NET 2005 Scripting 100Hrs
- Module 17 Essentials of IBM Rational Performance Tester 60Hrs
- Module 18 Advance communication & Personality Development 280Hrs
- Module 19 Project 120 Hrs

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

- PC Support Engineer
- Tech Support Specialist
- Desktop Support Technician and many more.
- Data Entry Operator
- Database Designer
- MS SQL Server operator
- Web Content Developer
- Developer Server Applications
- Developing Advanced Applications with My SQL and PHP

Module 1 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

Module 2 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

Module 3 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.

Module 4 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.

Module 5 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.

Module 6 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.

Module 7 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.

Module 8 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

Module 9 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.

Module 10 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.

Module 11 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.

Module 12 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.

Module 13 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.

Module 14 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.

Module 15 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

Module 16 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.

Module 17 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.

Module 18 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
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

Module 19 project will be given by Class or student has to choose



