

Sona College of Technology, Salem
(An Autonomous Institution)
Courses of Study for MCA V Semester under Regulations 2015
Branch: Master of Computer Applications

S. No	Course Code	Course Title	Lecture	Tutorial	Practical	Credit
Theory						
1	P15MCA501	Cloud Computing	3	0	0	3
2	P15MCA502	C# and .NET Programming	3	0	0	3
3	P15MCA707	Elective - E - Learning Techniques	3	0	0	3
4	P15MCA703	Elective - Wireless Sensor Networks	3	0	0	3
	P15MCA717	Elective - Software Project Management				
5	P15MCA715	Elective - Management Information Systems	3	0	0	3
	P15MCA718	Elective - Object Oriented Analysis and Design				
Practical						
6	P15MCA503	Cloud Computing Laboratory	0	0	4	2
7	P15MCA504	C# and .NET Programming Laboratory	0	0	4	2
8	P15MCA505	Mini Project	0	0	4	2
Total Credits						21

Approved by

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Copy to:-

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P15MCA501 - CLOUD COMPUTING

L	T	P	C	M
3	0	0	3	100

COURSE OBJECTIVES:

This course will enable the student to:

- Understand Cloud computing its services and virtualization techniques.
- Explain the concept of cloud database and analyze the various categories of cloud risks with its security concerns.
- Describe the different cloud implementation types
- Discuss the storage and testing in cloud
- Describe the building of own cloud.

UNIT I - OVERVIEW OF CLOUD COMPUTING 8

Evolution of cloud Computing - Introduction to Cloud Computing - Types of Services - Comparison of Services - Virtualization techniques - Cloud architecture - A case study - Load balancing.

UNIT II - DATABASE AND SECURITY 9

Cloud databases and File systems - Cloud Disaster Recovery - Cloud security and existing security solutions - Handling threats in Cloud - Cloud middleware and best practices.

UNIT III - CLOUD IMPLEMENTATION TYPES 8

Private Cloud computing - Role of cloud: Big data - IoT - Mobile storage - Infrastructure - Applications - CRM.

UNIT IV - TESTING AND STORAGE IN CLOUD 12

Cloud testing - Advanced cloud application and supporting services - Cloud optimized storage: scalability - Replications options - Data archiving methods - Physical storage facilities: Data center operations - Virtual and physical storage - Planning and designing data centers - Data monitoring strategies - Case Study: Demo of Cloud Techniques.

UNIT V - BUILDING YOUR OWN CLOUD 8

Consideration before adopting cloud architecture - Development and environments for service development - Best practices- Economics of choosing a cloud platform for an organization - Consumer services case studies.

TOTAL = 45 Hours

COURSE OUTCOMES:

At the end of the course the student should be able to:

- Apply the service models and deployment models used in cloud computing in real time.
- Experiment the databases of cloud, VM security challenge and describe the need of middleware in cloud services offerings in real time scenarios.
- Demonstrate the details of testing and storage in cloud computing.
- Demonstrate the application of CRM in cloud computing.
- Illustrate all the strategies needed to build own cloud.

REFERENCES

1. Rishabh Sharma , "Cloud Computing - Fundamentals , Industry approach and trends" ,Wiley Pub, 1st Edition 2015.
2. Barrie Sosinsky , " Cloud Computing Bible " , Wiley pub , 2011.
3. Buyya, Selvi ,Vecchiola" Mastering Cloud Computing - Foundations and application programming " ,TMH Pub, 1st Edition, 2013
4. Gautam Shroff, Enterprise Cloud Computing Technology Architecture Applications, Cambridge University Press (14 October 2010) [ISBN: 978-0521137355]
5. Toby Velte, Anthony Velte, Robert Elsenpeter, Cloud Computing, A Practical Approach, McGraw-Hill Education; 1 edition (1 November 2009) [ISBN: 0071626948]
6. Liz Kao, Jon Paz , "Salesforce.com for dummies " , Wiley , 6th Edition , 2016.
7. Dan Appleman,"Advanced Apex Programming", 2nd Edition ,2013 , Desaware Publishing.
8. Website : cloud.oracle.com

P15MCA502 - C# AND .NET PROGRAMMING

L	T	P	C	M
3	0	0	3	100

COURSE OBJECTIVES:

This course will enable the student to:

- Explain how C# fits into the .NET platform and analyze the basic structure of a C# application.
- Discuss the object oriented aspects of C#.
- Develop applications using C# on .NET
- Design and develop Web based applications on .NET
- Understand the foundations of CLR execution.

UNIT I - INTRODUCTION TO C#

9

Introducing C#, Understanding .NET, overview of C#, Literals, Variables, Data Types, Operators, checked and unchecked operators, Expressions, Branching, Looping, Methods, implicit and explicit casting, Constant, Arrays, Array List, String, String Builder, Structure, Enumerations, boxing and unboxing.

UNIT II - OBJECT ORIENTED ASPECTS OF C#

9

Class, Objects, Constructors and its types, inheritance, properties, indexers, index overloading, polymorphism, sealed class and methods, interface, abstract class, abstract and interface, operator overloading, delegates, events, errors and exception.

UNIT III - APPLICATION DEVELOPMENT ON .NET

9

Building windows application, Creating our own window forms with events and controls, menu creation, inheriting window forms, SDI and MDI application, Dialog Box(Modal and Modeless), accessing data with ADO.NET, DataSet, typed dataset, Data Adapter, updating database using stored procedures, SQL Server with ADO.NET

UNIT IV - WEB BASED APPLICATION DEVELOPMENT ON .NET

9

Programming web application with web forms, ASP.NET introduction, validating controls in ASP.NET, working with XML and .NET, Creating Virtual Directory and Web Application, session management techniques, web.config, web services, passing datasets, returning datasets from web services, MVC web application.

UNIT V - CLR AND .NET FRAMEWORK

9

Assemblies, Versioning, Attributes, reflection, viewing meta data, type discovery, reflection on type, marshalling, remoting, Introduction to LINQ.

TOTAL = 45 Hours

COURSE OUTCOMES:

At the end of the course the student should be able to:

- Gain a comprehensive understanding of the philosophy and architecture of C-Sharp programming
- Learn how to implement web applications using web forms, including programs that interact with databases.
- Attain a detailed knowledge of the building blocks of Web application, including C-Sharp, ASP.NET, Web Services
- develop Rich Internet Web applications by using C#, ASP.NET, ADO.NET
- Deploy web application using ADO.NET

REFERENCES

1. E. Balagurusamy, "Programming in C#", Tata McGraw-Hill, 3 edition 2010
2. Jesse Liberty, "Programming C# 4.0", Sixth Edition, O'Reilly, 2010.
3. Herbert Schildt, "The Complete Reference: C# 4.0", Tata Mc Graw Hill, 2012.
4. Christian Nagel et al. "Professional C# 2012 with .NET 4.5", Wiley India, 2012.
5. Andrew Troelsen , "Pro C# 2010 and the .NET 4 Platform, Fifth edition, A Press, 2010.
6. Kogent Learning Solutions Inc ".NET 4.5 Programming 6-in-1" Black Book, Dreamtech Press, 2013.
7. Dr. Ashutosh Kumar Bhatt , Kamlesh Padaliya, "C # PROGRAMMING with .Net Framework", Bharti Publications; 1ST edition, 2016

P15MCA503 - CLOUD COMPUTING LABORATORY

		L	T	P	C	M
P15MCA503	Cloud Computing Laboratory	0	0	4	2	100

Course Objectives:

- Relate the application of cloud computing with real time.
- Develop mobile application that interacts with cloud.
- Develop sample programs in any of the on demand CRM in the market
- Create applications in CRM in a very short time without any developmental cost.
- Develop custom applications in CRM

List of Programs:

Develop the following programs in CRM.

1. Create developer account with the following specifications in a CRM
 - Create objects and required fields to maintain the student database in cloud.
 - Create formula fields to calculate total marks, Grade and the result.
 - Apply validation rules when entering marks more than the certain criteria.
2. Create developer account with the following specifications in a CRM
 - Create Employee object, Manager Object and leave object and its required fields.
 - Submit leave request to respective staff using approval process email alert.
 - Notify the student and update the leave object fields when the leave request is approved or rejected.
3. Create developer account with the following specification in a CRM
 - Create an application for Insurance Company.
 - Create object and required fields.
 - Send the notification to user when due date is reached using workflow email alert.
 - Send the notification to the user when amount due paid using workflow email alert.
4. Create developer account with the following specification in a CRM
 - Create student object with required fields.
 - Load the given date using data loader tool. (Data will be provided by CSV format in excel sheet.)
 - Export the data using data loader with the given criteria.
 - Change the exported record values and update it in object.
5. Develop a Login android application that communicates with cloud to store the data.
6. Develop a blood group informer application in android that communicates with cloud to store the data.
7. Create a trigger to achieve the below scenario. (Scenarios can be changed if we need.)
 - Create a custom object called Customer address details.
 - Create two address fields called Billing address and Shipping Address.
 - Create a checkbox called copy billing address to shipping Address.
 - When saving record if user enter the checkbox value to true copy the billing address to shipping address.
 - Events can be: Before insert, Before Update.

8. Create a trigger to achieve the below scenario.
 - Create custom object called employee to calculate salary with some required fields.
 - create employee email field on custom object
 - When a salary record is created or updated send an email alert to the employee using apex triggers
 - Events: After insert, After Update.

9. Create Custom object called Student table with the few fields called Student name, address, Department, Marks, Total, and Grade
 - Create Visualforce page to get the student details from visualforce pages using custom controller.
 - Add few basic validation rules in visualforce page.
 - Write the test class to achieve minimum 75% of code coverage.

10. Create Custom object called Employee table with the few fields called Employee name, address, Department, Phone number, and Salary.
 - Create sample records using Salesforce standard layout.
 - Display all the records in visualforce page using custom controller and iterative components (Pageblock table and Data table)
 - Write the test class to achieve minimum 75% of code coverage.

Course Outcomes:

At the end of the course the student should be able to:

- Create real time developer account applications in CRM.
- Illustrate the implementation of triggers for a real time application in CRM
- Develop sample android applications that communicate with cloud to store the data.
- Illustrate the implementation of Visualforce pages in CRM.
- Create sample records in CRM and manipulate these records for a given real time scenario.

P15MCA504 - C# AND .NET PROGRAMMING LABORATORY

P15MCA504	C# and .Net Programming Laboratory	L	T	P	C	M
		0	0	4	2	100

COURSE OBJECTIVES:

The student should be made to:

- Learn to develop a Window based ,Web based application and Console based application
- Gain a working knowledge of the C# programming language and learn how to build object-oriented applications using C#.
- Acquire a working knowledge of creating rich internet Web applications using the .NET Framework and Visual Studio.
- Configure and deploy a Microsoft ASP.NET Web application.
- Learn how to implement web applications using web forms, including programs that interact with databases.

LIST OF PROGRAMS

1. Develop and generate a Window application for student Information System using Branching statements
2. Develop a console based application using Interface.
3. Design a Windows application to count the Number of Words, Number of Characters, Number of Numerals, and Number of Special Characters using Methods, Arrays and Strings.
4. Create and develop an Arithmetic calculator using Structures and Enumerations.
5. Design and develop a window form application for Employee management system.
6. Create and Design a C# Window form application to find the area of Triangle, Circle and Rectangle using polymorphism.
7. Using Inheritance concepts, Develop a window based application to declare a base class Course and derived classes BA Course, B.Com Course and B.Sc Course. Print Hall ticket for the students in these courses.
8. Create and design a Scientific Calculator widget window form application with CGPA calculations.
9. Design and develop an online bookstore using window application.
10. Develop a window application and integrate Multimodule assembly to perform the arithmetic operations.
11. Design and implement a website for creating a Web registration form using ASP.NET.
12. Create a Campus registration form and perform data access tasks with ADO.NET.

COURSE OUTCOMES:

At the end of the course the student should be able to:

- Design, document, code and test small C# console and GUI applications.
- Design, document, code and unit test class libraries as part of a larger project.
- Create and develop a ADO.NET database application.
- Create simple web applications and window applications.
- choose an engineering approach to solving problems, starting from the acquired knowledge of programming

P15MCA505 - MINI PROJECT

		L	T	P	C	M
P15MCA505	Mini Project	0	0	4	2	100

Every student is required to carry out in-house Mini Project work under the supervision of a faculty member of the department. The students can do a project in a group of size between 3 and 4. The guide shall monitor progress of the student continuously. A candidate is required to present the progress of the Mini Project work once in a month during the semester at an appropriate time decided by the Department. There will a final presentation of the Mini Project work at the end of the semester. It is recommended that Mini Project is to be chosen which should have some direct relevance in day-to-day activities of the candidates in his/her institution.

The purpose of the project is to motivate them to work in emerging / latest technologies, help the student to develop ability to apply theoretical and practical tools/techniques to solve real life problems related to industry, academic institutions and research laboratories, this project will helps the student make ease and provides enough experience to carry out the larger project in the fifth and sixth semester.

OBJECTIVES

- Application of knowledge and techniques learnt in theoretical classes for developing the software for real problems.
- Gives an insight into the working of the real organizations/companies.
- Gaining deeper understanding in specific functional areas.
- Helps in exploring career opportunities in their areas of interest.

Mini Project involves requirement analysis, feasibility analysis, Database design, coding, testing, implementation and maintenance.

MINI PROJECT PROPOSAL (SYNOPSIS) STRUCTURE

Mini Project proposal should be prepared in consultation with the guide. It should clearly state the objectives and environment of the proposed Mini Project to be undertaken. Ensure to include the following items while submitting your Mini Project synopsis. Mini Project synopsis may contain 10-20 pages and sequence of contents strictly should be in the following order:

1. Cover and Title page
2. Synopsis Approval Performa duly filled and signed by the student
3. Index
4. Acknowledgement
5. Introduction and objective of the Mini Project
6. Analysis (Feasibility Study, DFD 0 Level, 1- Level and 2 Level/ER Diagram etc)
7. H/W and S/W Requirement
8. Table and Structure, Number of Modules, Detail of Modules, Data Structure
9. Types of Reports
10. Scope of future application

COMMUNICATION OF SYNOPSIS APPROVAL

A list of approved synopsis will be put on the notice board of the Institute as per the dates mentioned in the activity schedule. In case of non approval, the suggestions for reformulating the Mini Project will be communicated to the student. Students can resubmit the modified synopsis to Project In-Charge of the Department of Master of Computer Applications as per the specified time given in activity schedule.

MINI PROJECT REPORT STRUCTURE

The Mini Project should be prepared in consultation with the guide and may contain 100-150 pages (including coding). Mini Project Report should strictly follow the points given below:

Details

1. Cover and Title page
2. Synopsis Approval Certificate
3. Index
4. Acknowledgement
5. Certificate of Originality
6. Introduction/ Aims and Objective
7. System Analysis
 - Identification of Need
 - Preliminary Investigation
8. Feasibility Study
 - 8.1. Technical Feasibility
 - 8.2. Economic Feasibility
 - 8.3. Operational Feasibility
9. Analysis (Feasibility Study, DFD 0 Level, 1- Level and 2 Level/ER Diagram, and Data structure, Table structure etc)
10. S/W Engineering Paradigm applied
11. S/W & H/W Requirement Specification
12. System Design
13. Screen Shots
14. Coding
15. Validation Checks
16. Implementation and Maintenance
17. Testing (Testing techniques and Testing strategies)
18. System Security measures
19. Various types of Reports/Modules
20. Pert Chart/Gantt Chart
21. Future scope of the Mini Project
22. Bibliography/References/Glossary
23. Original Copy of the Approved Synopsis

SUBMISSION OF A MINI PROJECT REPORT

Only one Copy of the Mini Project report in bound form is to be submitted to the Project In-Charge of the Department of Master of Computer Applications. Another copy of the Mini Project Report must be retained by the student which should be produced before the examiner at the time of the Viva-voice.

MINI PROJECT EVALUATION

As per the norms Mini Project Report shall be evaluated by the examiner at the end of the semester. However there will be continuous monitoring of the Mini Project progress report during the semester and distribution of marks shall be as follows:

Sessional	Semester End Exam
5 reviews - 30 (6 marks for each review) Documentation - 20 Viva - 10	Viva - 10 Project Evaluation - 30
Total - 100	

LIST OF BROAD AREAS OF APPLICATION AND RELATED TOOLS

TECHNOLOGY Visual Studio 2008, .NET Framework 3.5

FRONT END/GUI Tools Visual Basic 6, Power Builder, X-Windows, VC++,

Oracle Developer 2000

RDBMS/BACK END Sybase, SQL, SQL Server 2008, Oracle 10g

LANGUAGES C, C++, JAVA, VC++, C# 3.5

INTERNET TECHNOLOGIES HTML, DHTML, CSS, Java Script, DOM, JQuery, AJAX, ASP, ASP .NET, XML, Perl & CGI Script, SWING, JSP, Java Beans, Java Servlets, COBRA, UML, EDA, Broadvision, ATG, XSL, NET Dynamics, Silver Stream, Cold Fusion etc.

WEB SERVER IIS, APACHE, TOMCAT, J2EE etc.

REPORTING Crystal Report XI

NETWORKING TECHNOLOGIES ATM, Frame Relay, TCP/IP, SNMP, GSM, VOIP, PPP, IP-PSTN, SONET/SDH

WIRELESS TECHNOLOGIES Blue Tooth, 2G, 3G, ISDN, EDGE, Wi-fi

REALTIME OS/EMBEDED SKILLS QNX, LINUX, OSEK, DSP, VRTX, RTXC, Nucleus

OPERATING SYSTEMS WINDOWS XP/VISTA/7, WINDOWS SERVER 2008, DOS, LINUX SUN, VRTX, SOLARIS, HP/UX, PSOS, IRIX

PROJECT MANAGEMENT TOOLS: JIRA

APPLICATIONS Financial / Manufacturing / Multimedia / Computer Graphics Instructional Design / Real-time application software / DBMS / Internet / Intranet / Computer Networking Communication Software / E-Commerce / ERP / MRP / TCP/IP Internals / Routing Protocols, Socket Programming Implementation of Switches and Routers.

COURSE OUTCOMES:

At the end of the course the student should be able to:

- Develop software for real time problems.
- Analyze the functional areas of a given problem.
- Discover team-building skills required to support successful performance
- Synthesize a given real time problem
- Use the latest technologies in the project.

P15MCA707 - E - LEARNING TECHNIQUES

L	T	P	C	M
3	0	0	3	100

COURSE OBJECTIVES:

This course will enable the student to:

- Apply knowledge about modern technology for learning.
- Develop and acquaint with the e-Learning Tools.
- Learn technologies involved in e-learning application development.
- Become aware of the current business potential of e-learning based business.

UNIT I - INTRODUCTION 9

Introduction - Understanding ICT - Impact of ICT on learning - ICT makes a difference in learning - ICT as an enabler - The relationship between ICT and e-learning - Challenges in e-learning adoption - E-learning: Definitions - Characteristic features of e-learning - Evolution - Different uses of e-learning - Academic e-learning and corporate e-learning: Differences.

UNIT II - E-LEARNING FRAMEWORK AND ANALYSIS 9

Introduction - The need for a holistic framework - Significance of process orientation in the framework - Visual Communication Design - Instructional Design - Working with Instructional Design models - Role of an instructional designer in e-learning - E-learning technologies - Significance of analysis - Need for holistic analysis - Informed decision making in different contexts Getting started with analysis.

UNIT III - DESIGN AND DEVELOPMENT 9

The relationship between analysis and design - The significance of design - Developing the instructional and visual strategy - Three levels of design decision making - Bloom's taxonomy - cognitive, affective and psychomotor domains - Working with content - visual strategy - The strategy in action - prototyping
Getting started with design - The development process - Pre-production - Production - Post-production
Assessments - Types of content development processes - Getting started with content development.

UNIT IV - DELIVERY AND EVALUATION 9

Introduction - Significance of this phase - Delivery options - Emerging trends in e-learning delivery - Modes of delivery - Content delivery process illustrated with an LMS - Significance of the evaluation phase - Conducting summative evaluation - Kirkpatrick's model for summative evaluation - Evaluation and ROI.

UNIT V - OPENSOURCE E-LEARNING APPLICATION 9

Moodle 2.0 E-Learning Course Development - Features - Architecture - Installation and configuring site - Adding static course material - Evaluating student.

TOTAL = 45 Hours

COURSE OUTCOMES:

At the end of the course the student should be able to:

- Apply the Standard approach to planning and one can use in their organization.
- Work with technologies involved in e-Learning Applications.
- Design and Develop e-Learning Application and working with e- Learning tools.
- Evaluate e-learning programmes and estimate the ROI
- Create and Deliver e-learning courses in Moodle software

REFERENCES

1. Madhuri Dubey, "Effective E-learning: Design, Development and delivery",University Press 2011 edition. (Unit 1,2,3,4)
2. Moodle 2.0 E-Learning Course Development by William Rice, 2012, Packet publishing (Unit V).
3. Bryn Holmes, John Gardner, "E-Learning - Concepts and Practice", SAGE Publications,2012.
4. Caroline Haythornthwaite, Richard Andrews," E-learning Theory and Practice", SAGE Publications,2011
5. William Horton,"E-Learning by design", John Wiley & Sons, 2011.

P15MCA703 - WIRELESS SENSOR NETWORKS

L	T	P	C	M
3	0	0	3	100

COURSE OBJECTIVES:

This course will enable the student to:

- Understand the basic concept of Wireless Sensor Networks
- Be familiar with the architecture of Sensor networks
- Acquire knowledge about the Physical layer and its fundamentals
- Identify the fundamental of MAC protocols and other related protocols of MAC
- Learn the concepts of naming and addressing along with their issues.
- Formulate the approaches of various routing protocols in wireless sensor networks.

UNIT I - INTRODUCTION & WIRELESS TRANSMISSION 9

Introduction - The vision of Ambient Intelligence - Types of application - Challenges for WSNs - Why are sensor networks different? - Architecture - Single-node architecture - Energy consumption of sensor nodes - Operating systems and execution environments - Some example of sensor nodes Mica Mote, Eyes nodes - Network Architecture - Design principles for WSNs - Service interfaces of WSNs- Gateway concepts.

UNIT II - PHYSICAL LAYER , MAC & LINK LAYER 9

Physical layer - Introduction -Physical layer and transceiver design considerations in WSNs - MAC protocols - Fundamentals of (wireless) MAC protocols - Contention-based protocols - Schedule- based protocols - the IEEE 802.15.4 MAC protocol - Link Layer - Fundamental: tasks and requirement - Link management.

UNIT III - NAMING AND ADDRESSING & TIME SYNCHRONIZATION 9

Fundamentals - Address and name management in wireless sensor networks - Assignment of MAC addresses - Content-based and geographic addressing - Time synchronization - Introduction to the time synchronization problem - Protocols based on sender/receiver synchronization -Lightweight time synchronization protocol (LTS) - Protocols based on receiver/receiver Synchronization-Reference broadcast synchronization (RBS).

UNIT IV - LOCALIZATION AND POSITIONING & TOPOLOGY CONTROL 9

Localization and positioning - Properties of localization and positioning procedures - Possible approaches - Single-hop localization - Positioning in Multihop environments - Topology control - Motivation and basic ideas - Hierarchical networks by clustering - Combining hierarchical topologies and power control.

UNIT V - ROUTING PROTOCOLS 9

Routing protocols - The many faces of forwarding and routing - Gossiping and agent-based unicast forwarding - Energy-efficient unicast -Broadcast and multicast - Geographic routing - Mobile nodes.

TOTAL = 45 Hours

COURSE OUTCOMES:

At the end of the course the student should be able to:

- Explain the basics of Wireless Sensor Networks.
- Choose the required functionality at each layer for given application.
- Identify the problems and provide solutions for Sensor Networks at each layer.
- Apply the principles of naming and addressing techniques in MAC addresses.
- Select the appropriate routing protocol for a given application.

REFERENCES

1. Holger Karl, Andreas Willig, " Protocols and Architectures for Wireless Sensor Networks" John Wiley & Sons, Ltd 2005.
2. Feng Zhao & Leonidas J. Guibas, "Wireless Sensor Networks- An Information Processing Approach", Elsevier, 2007.
3. Kazem Sohraby, Daniel Minoli, & Taieb Znati, "Wireless Sensor NetworksTechnology, Protocols, And Applications", John Wiley, 2007.
4. Anna Hac, "Wireless Sensor Network Designs", John Wiley, 2003.
5. Walteneus W. Dargie (Author), Christian Poellabauer, "Fundamentals of Wireless Sensor Networks: Theory and Practice (Wireless Communications and Mobile Computing", Wiley, 1st edition (5 July 2011)

P15MCA717 - SOFTWARE PROJECT MANAGEMENT

L	T	P	C	M
3	0	0	3	100

COURSE OBJECTIVES:

This course will enable the student to:

- Discuss the plans, methods and methodologies of project management.
- Describe the effort, estimation and activity planning of project management
- Discuss the tools and techniques of Project management.
- Examine the project monitoring and control.
- Describe the organizational behavior, decision making and different types of contracts.

UNIT I - INTRODUCTION

8

Importance - Plans, Methods and Methodologies- Setting Objectives- Project Evaluation - Cost Benefit Evaluation- Risk Evaluation- Program Management - Resource Allocation Management -Benefit Management - Overview of Project Planning.

UNIT II - EFFORT ESTIMATION AND ACTIVITY PLANNING

9

Problems with Over and Under Estimates- Basics- Bottom up-Top Down-Parametric Model-Albrecht Function Point Analysis –Function Points Mark II–Cosmic full function points-Capers Jones Estimating Rules of Thumb- Activity Planning- Sequencing and Scheduling Activities- Network Planning Model- Forward, Backward Pass -Critical Path- Activity Float-Activity -on-Arrow Networks.

UNIT III - PROJECT MANAGEMENT TOOLS AND TECHNIQUES

12

Risk Management- Categories -Framework -Evaluating Risk to Schedule- Applying PERT Technique- Monte Carlo Simulation- Critical Chain Concepts- Resource Allocation - Scheduling Resources- Creating Critical Path- Counting the Cost- Scheduling Sequence- Tools- MS Office Project Server- MS Office Project Web Access Tools-Sure Track- Primavera Project Management Software- Gantt Project -Atlassian JIRA - Base Camp- Smart Sheet.

UNIT IV - PROJECT MONITORING AND CONTROL

9

Project Tracking - Activities Tracking -Defect Tracking - Issues Tracking - Status Reports-Milestone Analysis - Activity Level Analysis using SPC- Defect Analysis and Prevention - Pareto Analysis-Causal Analysis- Process Monitoring and Audit.

UNIT V - MANAGING CONTRACTS AND PEOPLE

7

Types of Contract- Stages in Contract Placement- Contract Management - Understanding Behavior - Organizational Behavior- Instruction in the Best Methods - Motivation - The Oldham-Hack man Job Characteristics Model - Working in Teams- Decision Making - Organization and Team Structures- Dispersed Virtual Teams- Communication Genres.

TOTAL = 45 Hours

COURSE OUTCOMES:

At the end of the course the student should be able to:

- Prioritize the evaluation of project/cost benefit / risk and manage the allocation of resources in real-time projects.
- Analyze the estimation of efforts and the planning of activities.
- Use the project management tools and techniques in real time projects.
- Implement the different ways of monitoring and controlling the projects in real time.
- Assess the organizational behavior and the different types of contract and use it in real time.

REFERENCES

1. Bob Hughes and MikeCotterell, "Software Project Management", Fifth Edition, TATA McGraw Hill Edition, 2012.(Unit 1,2,3,5)
2. Pankaj Jalote "Software Project Management In Practice", Pearson Education, 2000.(Unit 4).
3. S. A. Kelkar," Software Project Management" PHI, New Delhi, Third Edition, 2013.
4. Walker Royce, "Software Project Management - A Unified Framework", Pearson Education,2013.
5. Ramesh Gopaldaswamy, "Managing Global Projects", Tata McGraw Hill, 2001.
6. Royce, "Software Project Theory", Pearson Education, 1999.

P15MCA715 - MANAGEMENT INFORMATION SYSTEMS

L	T	P	C	M
3	0	0	3	100

COURSE OBJECTIVES:

This course will enable the student to:

- Provide students with basic concepts in information system and the benefits with these systems in modern society
- Manage the data resources.
- Understand functional business systems and E- commerce
- Identify several methods to enhance and develop information systems and to manage the information system recourses.
- Know the ethical and social challenges in IT.

UNIT I - FOUNDATION CONCEPTS & INFORMATION TECHNOLOGIES 9

Foundations of information systems in Business - The components of information systems- fundamental of strategic advantage -using information technology for strategic advantage - Computer hardware - computer software.

UNIT II - RESOURCE MANAGEMENT & TELECOMMUNICATIONS AND NETWORKS 9

Managing data resources - Technical foundations of database management - The networked enterprise - telecommunication network alternatives.

UNIT III - BUSINESS APPLICATIONS 9

Enterprise business systems - functional business systems - Electronics commerce fundamentals- E-commerce applications and issues - Decision support in business- artificial intelligence technologies in business.

UNIT IV - DEVELOPMENT PROCESS 9

Developing business systems- IS development-Web system-the system approach- the system development cycle-prototyping-starting the systems development process- system analysis-system design-end user development. Implementing business systems - Implementation- implementing new systems- Evaluating hardware and software and services-other implementation activities- managing organizational change.

UNIT V - MANAGEMENT CHALLENGES 9

Security, ethical and social challenges of IT - Security management of Information technology - managing information technology - managing global IT.

TOTAL = 45 Hours

COURSE OUTCOMES:

At the end of the course the student should be able to:

- Define the concepts and definition of the information systems
- Manage data resources
- Construct an E-commerce application
- Implement a new business system with required hardware and software
- Use the security mechanism and manage the Information technology.

REFERENCES

1. James A.O'Brien, " Introduction to information systems", Tata McGraw-Hill Edition, 12th edition, 2012.
2. R. G. Murdick, J. E. Ross and J. R. Clagget, "Information Systems for Modern Management", third edition by PHI - 1994.
3. James O'Brien and George M. Marakas," Enterprise Information Systems", 15th ed., McGraw Hill - 2010.
4. Laudon & Laudon, "Management Information Systems", 10th Edition, Prentice Hall - 2007.
5. Raymond McLeod & George Schell, "Management Information Systems",10th ed, Prentice Hall 2006.

P15MCA718 - OBJECT ORIENTED ANALYSIS AND DESIGN

L	T	P	C	M
3	0	0	3	100

COURSE OBJECTIVES:

This course will enable the student to:

- Understand an overview of object-oriented analysis in software process.
- Discuss Case studies based project specifications
- Develop object-oriented models and identify implementation strategies.
- Develop object oriented analysis and design models.
- Develop testing techniques for object oriented software.

UNIT I - INTRODUCTION 9

An overview - Object basics - Object state and properties - Behavior - Methods - Messages - Information hiding - Class hierarchy - Relationships - Associations - Aggregations- Identity - Dynamic binding - Persistence - Metaclasses - Object oriented system development life cycle.

UNIT II - METHODOLOGY AND UML 9

Introduction - Survey - Rumbaugh, Booch, Jacobson methods - Patterns - Creational - Abstract Factory - Factory Method - Behavioral - Momento - Mediator - Structural - Decorator - Facade -Concurrency Patterns -Lock - Reactor - Scheduler - Frameworks - Unified approach - Unified modeling language - Static and Dynamic models - UML diagrams - Class diagram - Use case diagrams - Dynamic modeling - Model organization - Extensibility.

UNIT III - OBJECT ORIENTED ANALYSIS 9

Identifying Use case - Business object analysis - Use case driven object oriented analysis - Use case model - Documentation - Classification - Identifying object, relationships, attributes, methods -Super-sub class - A part of relationships Identifying attributes and methods - Object responsibility.

UNIT IV - OBJECT ORIENTED DESIGN 9

Design process and benchmarking - Axioms - Corollaries - Designing classes - Class visibility -Refining attributes - Methods and protocols - Object storage and object interoperability - Databases- Object relational systems - Designing interface objects - Macro and Micro level processes - The purpose of a view layer interface-OOUI - MVC Architectural Pattern and Design - Designing the system.

UNIT V - QUALITY AND TESTING 9

Quality assurance - Testing strategies - Test cases - Automated Testing Tools - Case Study - Cryptanalysis - Health Care Systems- Inventory Control System - Rational Rose Suite.

TOTAL = 45 Hours

COURSE OUTCOMES:

At the end of the course the student should be able to:

- Apply the object oriented concepts to identify state & behavior of real world objects.
- Analyze the appropriate object oriented methodologies for solving the problem with the help of various case studies.
- Apply the concept of analysis, design & testing to develop a document for a project.
- Able to implement analysis, design & testing phases in developing a software project.
- Apply the testing strategies with the automated testing tools.

REFERENCES

1. Ali Bahrami, "Object Oriented System Development", McGraw Hill International Edition, 2008.
2. Craig Larman, Applying UML and Patterns, 2nd Edition, Pearson, 2002.
3. Brahma Dathan, Sarnath Ramnath, "Object-Oriented Analysis, Design and Implementation", Universities Press, 2010.
4. Grady Booch, James Rumbaugh, Ivar Jacobson, "The Unified Modeling Language User Guide", Addison Wesley Longman, 1999.
5. Bernd Bruegge, Allen H. Dutoit, Object Oriented Software Engineering using UML, Patterns and Java, Pearson 2004.
6. Martin Fowler, "UML Distilled A Brief Guide to Standard Object Modeling Language", 3rd Edition, Addison Wesley, 2003.
7. Russ Miles, Kim Hamilton, "Learning UML 2.0", O'Reilly, 2008.