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Semester - VI

Course Code	**US06MACIT01**	Title of the Course	**Software Engineering**
Total Credits of the Course	**04**	Hours per Week	**04**

Course Objectives:	1. To understand the principles and techniques for designing and developing high-quality software systems. 2. To learn the software development life cycle. 3. To understand testing and quality assurance techniques. 4. To study the basic concepts of software project planning.

Course Content		
Unit	Description	Weightage (%)
1.	**Introduction to Software and Software Engineering** – Software and Software Engineering – Characteristics of Software process – Phases of Software Development – Component of Software Process **Process Models**: Waterfall, Prototype, Iterative Enhancement, Spiral Model	25
2.	**Requirement Specification and Software Project Planning** – Introduction: SRS and Needs – Problem Analysis – Characteristics & Components of SRS – Structure of SRS – Requirement Modeling – Validation of SRS – Requirement Specification (SRS) – Requirement Analysis and Requirement Elicitation – Introduction to software projects, Planning, Categories of Software projects – Overview of Cost Estimation, Uncertainty in cost estimation, size estimation. – Risk Management (Upto Risk Monitoring)	25
3.	**Software Design** – Introduction: System Design, Design Objectives. – Design Principles/Concepts: Problem Partitioning and Hierarchy, Abstraction, Modularity, Top-Down and Bottom-Up Strategies	25

	– Module Level Concepts: Coupling, Cohesion – Functional v/s Object-oriented approach – Introduction: Detailed Design, Module Specification and its Properties, Functional module Specification, Data Abstraction Specification – Verification - Design Walkthrough, Critical Design, review, Consistency checkers (Definition Only)	
4.	**Software Coding, Testing & Maintenance** – Introduction: Coding, Top Down & Bottom-Up Approach for – Coding – Coding Process: Incremental Coding Process (ICP), Test Driven Development (TDD) – Error, Fault Failure and Reliability (Definitions only) – Verification and Validation Techniques (V&V) – Testing Methods/Types - Unit testing - Integration testing - System testing - Acceptance testing - White box testing - Black box testing – Overview of Testing Tools – Types of S/W Maintenance	25

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classrooms teaching as well as usage of ICT tools.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written Examination (As per CBCS R.6.8.3) Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	50%
2.	University Examination	50%

Course Outcomes: Having completed this course, the learner will be able to develop	
1.	understanding of the fundamental concepts related to software engineering, different phases of software development and various process models.
2.	understanding of the basic concepts related to requirement specification and software project planning.
3	basic knowledge about the concepts related to system design, coding and testing.

Suggested References:	
Sr. No.	**References**
1.	Engineering Software as a Service An Agile Software Approach, Armando Fox and David Patterson, 2014.
2.	An Integrated Approach to Software Engineering by Pankaj Jalote, Narosa Publishing House, Second Edition,1997.
3.	Software Engineering a practitioner's approach by Roger S. Pressman, Tata McGraw-Hill, Fifth Edition, 2001.
4.	Software Engineering Fundamentals by Richard Fairley, Tata McGraw- Hill, 2017.
5.	Software Engineering, By Ian Summerville, Addition-Wesley, Fifth Edition, 2000.

On-line Resources
1. https://www.geeksforgeeks.org/software-engineering/
2. https://www.javatpoint.com/software-engineering

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Course Code	**US06MACIT02**	Title of the Course	**Advanced Web Development Technology**
Total Credits of the Course	4	Hours per Week	4

Course Objectives:	1. To acquire knowledge about the features of ASP.NET technology. 2. To understand Web application development using ASP.NET. 3. To learn database programming using ASP.NET.

Course Content		
Unit	Description	Weightage (%)
1.	**Introduction To ASP.NET** – Introduction to .NET Platform and Web – Introduction to ASP (Server-side Technology), .NET Framework (FCL and CLR), Overview of IIS, Processing of ASP.NET page (Execution model), Features of. NETIDE, Features ofASP.NET, Working withASP.NET, Coding Model (Inline and Code - behind) **Introduction to Web-forms and its Events** – ASP.NET Built-in directory Structure – App_data, App_code,Bin – ApplicationConfiguration: Global.asax file, Web.config – Commonproperties: AccessKey, BackColor, BorderWidth, BorderStyle, CSSClass, Enabled, Font, ForeColor, Height, TabIndex, Tooltip, Width, ID, Runat, Text – Using Visual C# in ASP. NET: Introduction, Variables, Data Types, Value Types, Scope of Variables, Operators, OOPs Concepts (Encapsulation, Inheritance, Polymorphism and Abstraction)	25%
2.	**Information Passing, Standard Controls and Master Page** – Passing Information from one page to another – Web Server Controls : Button, Image Button, Link Button, Textbox, – Hyperlink, ImageMap control (Creating Hotspots), CheckBox, RadioButton, CheckBoxList, RadioButtonList, ListBox, DropdownList – Rich Controls: Calendar, Adrotator control – XML file and Database, FileUpload control – Grouping Controls: Panel, PlaceHolder – Using Navigation Controls: TreeView, SiteMapPath, Menu,	25%

	– Creating Sitemap file for navigation – Designing Master page	
3.	**State Management, Validation and Login controls** – State Management: Using View State, QueryString, Cookies, Session State, Application State and Profile – Validation controls: Required Field Validator, Range validator – Login Controls: Login, LoginView, PasswordRecovery, – LoginStatus, LoginName, CreateUserWizard, ChangePassword. – Creating and Managing Roles – Creating and Managing Access Rules – Creating and Managing Profile	25%
4.	**ADO.Net and Data Controls** – Introduction to ADO.NET and Architecture (Connected and Disconnected) – ADO .NET : Connection, DataSet, CommandBuilder – Data controls: GridView, DataList, FormView, DetailsView, Repeater	25%

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classrooms teaching as well as usage of ICT tools

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written Examination (As per CBCS R.6.8.3) Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	50%
2.	University Examination	50%

Course Outcomes: Having completed this course, the learner will be able to	
1.	gain knowledge about the features of ASP.NET technology.
2.	develop Web applications using ASP.NET.
3.	understand database programming using ASP.NET.

Suggested References:	
Sr. No.	References
1.	ASP.NET 4.0 Covers C# 2010 & VB 2010 codes BLACK BOOK, DreamtechPress, 2010.
2.	Programming in C#, E Balagurusamy, TataMcGraw-Hill, 2017.
3.	The Complete Reference C# 4.0, Herbert Schildt, Tata McGraw Hill, 2011.
4.	ASP.NET 4 UNLEASED by Stephen Walther (Pearson), 2010.

On-line Resources
1. https://www.tutorialspoint.com/
2. https://www.w3schools.com/

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Course Code	**US06MACIT03**	Title of the Course	**Practical based on US06MABIT02**
Total Credits of the Course	**4**	Hours per Week	**8**

Course Objectives:	1. To acquire knowledge about the features of ASP.NET technology. 2. To understand Web application development using ASP.NET. 3. To learn database programming using ASP.NET.

Course Content		
	Description	Weightage (%)
	Practical Based on Programming Fundamental Using ASP.NET	100%

Teaching-Learning Methodology	Practical-based learning in small groups and Hands on training through required ICT tools.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Practical Examination (As per CBCS R.6.8.3) Internal Continuous Assessment in the form of Practical, Viva-voce, Attendance (As per CBCS R.6.8.3)	50%
2.	University Examination	50%

Course Outcomes: Having completed this course, the learner will be able to	
1.	gain knowledge about the features of ASP.NET technology.
2.	develop Web applications using ASP.NET.
3.	understand database programming using ASP.NET.

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Course Code	**US06MICIT04**	Title of the Course	**Web Programming using PHP – I**
Total Credits of the Course	**2**	Hours per Week	**2**

Course Objectives:	To learn the basic programming concepts of PHP.

Course Content		
Unit	Description	Weightage (%)
1.	**Introduction to PHP** – Overview of Scripting Language, Open Source and PHP – Features, Merits and Demerits of PHP – PHP Program Structure and Syntax, Comments in PHP – Variables and Scope of Variables – Datatypes and Constants (using define()) – Displaying Output (echo() and print()) – Escaping from HTML (ways to differentiate PHP code from other code) – PHP Operators (Arithmetic, Comparison, Logical, Assignment, Ternary, String or Concatenation)	50
2.	**Programming in PHP** – Control structures in PHP (Conditional and Looping) – Flow control statements (Break and Continue) – Array and its types (Index, Associative and Multidimensional) – Array functions (array(), count(), list(), sort() and unset()) – 1-D Array & its manipulation (Creation, Storing Data, Assigning, Accessing Array Elements, Displaying) – User Defined Functions – Super global Variables ($_GET, $_POST, $_SERVER) – Interaction with HTML Forms – Validating HTML forms (Empty String, Input Length, e-mail)	50

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written Examination (As pe r CBCS R.6.8.3) Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	50%
2.	University Examination	50%

Course Outcomes: Having completed this course, the learner will be able to	
1.	understand the basic programming concepts of PHP.

Suggested References:	
Sr. No.	References
1	PHP – A Beginner's guide, Vikram Vaswani, TMH, 2009.
2	PHP6 and MySQL Bible by Joyce Park, Steve Suehring, and Tim Converse, 2009.
3	Web enabled commercial application development using HTML, Javascript, DHTML and PHP by Ivan Bayross, BPB Publication, 2010.

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Course Code	**US06MICIT05**	Title of the Course	**Practical based on US06MIBIT04**
Total Credits of the Course	**2**	Hours per Week	**4**

Course Objectives:	To learn the basic programming concepts of PHP.

Course Content		
	Description	Weightage (%)
	Practical based on PHP scripting	100%

Teaching-Learning Methodology	Practical-based learning in small groups and Hands on training through required ICT tools.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Practical Examination (As per CBCS R.6.8.3) Internal Continuous Assessment in the form of Practical, Viva-voce, Attendance (As per CBCS R.6.8.3)	50%
2.	University Examination	50%

Course Outcomes: Having completed this course, the learner will be able to	
1.	implement the basic programming concepts of PHP.

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Course Code	**US06AECIT06**	Title of the Course	**Business Communication and Etiquettes**
Total Credits of the Course	**02**	Hours per Week	**02**

Course Objectives:	To expose students and prepare them for job market, to gain confidence and enhance their personality, prepare students to face global challenges.

Course Content		
Unit	Description	Weightage (%)
1.	– Business Etiquettes – An Overview – Work place Etiquettes – Telephone Etiquettes – Multicultural Challenges	50%
2.	– Business Letters – Sales letters and Inquiry letters – Order letters and Execution letters – Complain letters and Adjustment letters	50%

Teaching-Learning Methodology	Multiple teaching approaches: lectures and discussion, demonstrations, interactions, role play and presentations.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written Examination (As pe r CBCS R.6.8.3) Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	50%
2.	University Examination	50%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Confidently communicate with the stake holders at the work place by both means –

	Verbal and Written.

Suggested References:	
Sr. No.	References
1.	Barbara Pachter, Marjorie Brody. Complete Business Etiquette Handbook. Prentice Hall, 2015.
2.	Raghu Palat. Indian Business Etiquette, Jaico Books, 2015.
3.	Nancy Mitchell. Etiquette Rules : A Field Guide to Modern Manners. Wellfleet press, 2015
4.	Meenakshi Raman, Prakash Singh. Business Communication- Second Edition, 2012
5.	Raymond V Lesikar, Marie E Flatly, Kathryn Rentz, Neerja Pande. Business Communication – Making Connection in a Digital World. Eleventh Edition, 2009.
6.	Kishan Mohan, Meera Banrji. Developing Communication Skills, 2009.

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Course Code	**US06SECIT07**	Title of the Course	**Internship**
Total Credits of the Course	**4**	Hours per Week	**8**

Course Objectives:	To undergo project-based learning on software development applications for solving various real-life problems.

Course Content		
	Description	Weightage (%)
	In-house project development	100%

Teaching-Learning Methodology	Project-based learning and hands-on training through required ICT tools.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Project Examination (As per CBCS R.6.8.3) Internal Continuous Assessment in the form of Practical, Viva-voce, Attendance (As per CBCS R.6.8.3)	50%
2.	University Examination	50%

Course Outcomes: Having completed this course, the learner will be able to	
1.	develop software applications for solving various real-life problems.