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(Semester-VI)

Course Code	**US06MABIT01**	Title of the Course	**ASP .Net Programming with C#**
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 andCLR),Overview of IIS, Processing of ASP.NET page (Executionmodel), Features of .NETIDE, Features ofASP.NET, Working withASP.NET, Coding Model (Inline andCode-behind), • Introduction to Web-Forms and itsEvents • 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 (Encapsulations, 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 and • 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, Creating • Sitemap file for navigation • Designing Master page	25

3.	**State Management, Validation and Login controls** • State Management : Using View State, QueryString, Cookies, Session State, Application State and Profile • Validationcontrols : Required Field Validator, Range validator, Regular Expression validator, Compare validator, Custom validator, Validation summary • LoginControls: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, Command, DataReader, DataAdapter, DataSet, CommandBuilder • Data controls : GridView, DataList, FormView, DetailsView, Repeater	25

Teaching- Learning Methodology	Blended learning approach in corporating 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 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 to be used if available as reference material
1. https://www.tutorialspoint.com/
2. https://www.w3schools.com/

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Course Code	**US06MABIT02**	Title of the Course	**Computer Networks**
Total Credits Of the Course	**4**	Hours per Week	**4**

Course Objectives:	1. To understand the basic concepts of computer networks and data communication. 2. To acquire knowledge of basic concepts related to network protocols and standards. 3. To learn fundamentals of wireless networking.

Course Content		
Unit	Description	Weightage (%)
1.	**Introduction** • Computer networks : definition, advantages-disadvantages • Classification of computer networks • Categories of computer network : local area networks, metropolitanarea networks, wide area networks • Meaning of the basic terms : topology, data rate, modulation rate, spectrum, bandwidth, server, host	25
2.	**Data Communication Fundamentals** • Various types of transmission media • Guided transmission media : magnetic media • Twisted pair, coaxial cables, fiber optics • Serial transmission vs. Parallel transmission • Circuit switching, packet switching, message switching • Concept of multiplexing : frequency division multiplexing ,time division multiplexing	25
3.	**Layered Protocols and Satellite Communication** • Protocol significance and hierarchies • Design issues for the layers • The OSI reference model • Examples of protocols for different layers of the OSI model • Introduction communication satellites and categories (LEO, MEO,GEO)	25

4.	**Introduction to Wireless Networks and Networking Devices** • Introduction to wireless networks : Bluetooth • LAN topologies with advantages and disadvantages : bus, star, • ring, tree, mesh • Introduction to carrier sense multiple access (CSMA), carrier sense multiple access with collision detection (CSMA/CD) protocol for LAN • Functions of various networking components : modems, amplifiers, repeaters, hubs, switches, routers, gateway, bridges	25

Teaching- Learning Methodology	Blended learning approach in corporating 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 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.	ability to describe the significance and functioning of computer networks.
2.	understanding of the fundamental concepts related to data communication.
3.	knowledge of various network protocols and standards.
4.	knowledge of basic concepts related to wireless networking.

Suggested References:	
Sr.No.	References
1.	Behrouz Forouzan, introduction to data communications and networking, TataMcGraw-hill publishing co. Ltd., New Delhi, 4th edition, 1998.
2.	Tanenbaum A. S., computer networks, 3rd edition prentice-hall of India Pvt. Ltd.,New Delhi, 1997.
3	Stallings W., Data and Computer Communications, 3rd edition, Macmillan Pub.Company, New York, 1991.

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Course Code	**US06MABIT03**	Title of the Course	**Practical based on US06MABIT01**
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	**US06MIBIT04**	Title of the Course	**Programming in Python**
Total Credits of the Course	**2**	Hours per Week	**2**

Course Objectives:	1. To learn the fundamentals of the Python programming language. 2. To study the concepts of object-oriented programming in Python. 3. To learn exception handling in Python.

Course Content		
Unit	Description	Weightage (%)

1	**Basic Python**
	• Introduction to Python:
	  ○ Overview of Python, Features of Python, Major Application Areas
	• Variables, Comments, I/O statements, Output Formatting, Data Types, Type Casting:
	• Conditional Statements & Looping:
	• Non-Primitive Data Types:
	  ▪ Text Sequence Type: str
	  ▪ Sequence Type: list, tuple, range
	  ▪ Mapping Type: dict
	  ▪ Set Type: sets
		25

2.	**Functions, Exception Handling, OOPs, File Handling:** • User Defined Functions,: Various methods for passing arguments • Exception Handling Mechanism • OOP in Python: Class, Object, Constructor, Destructor, Inheritance, Polymorphism • Installing, Updating and Using Modules • File Handling • Overview of GUI Programming	25

Teaching-Learning Methodology	Blended learning approach incorporating traditional classroom teaching and online /ICT-based teaching practices.

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 develop	
1.	computer programs using the Python programming language.
2.	knowledge of manipulating different Python data types.
3.	object-oriented programs using Python.
4.	basic knowledge of exception handling.

Suggested References:	
Sr.No.	References
1.	John V Guttag. "Introduction to Computation and Programming Using Python", Prentice Hall of India, 2016.
2.	Wesley J. Chun. "Core Python Programming -Second Edition", Prentice Hall, 2006.
3	Learning Python: By Mark Lutz, David Ascher, 2009.
4	Exploring Python Book by Timothy Budd, 2011.
5	Head First Python: A Brain-Friendly Guide by Aaul Barry, 2016.
6	Introducing Python-Modern Computing in Simple Packages –Bill Lubanovic, O'Reilly Publication, 2014.
7	Introduction to Computer Science Using Python-Charles Dierbach, Wiley Publication Learning with Python ", Green Tea Press, 2002.

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Course Code	**US05MIBIT05**	Title of the Course	**Practical based on US06MIBIT04**
Total Credits Of the Course	**2**	Hours per Week	**4**

Course Objectives:	1. To learn the fundamentals of the Python programming language. 2. To study the concepts of object-oriented programming in Python. 3. To learn exception handling in Python.

Course Content		
Unit	Description	Weightage (%)
1.	Practical based on Programming Fundamentals of Python.	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 develop	
1.	ability to imlpement computer programs using the Python programming language.
2.	ability to implement object-oriented programs using Python.

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Course Code	**US06AEBIT06**	Title of the Course	**Introduction to Artificial Intelligence**
Total Credits of the Course	**2**	Hours per Week	**2**

Course Objectives:	1. To introduce the term Artificial Intelligence and its related domains. 2. To study basic concepts related to KBS. 3. To learn various search methods.

Course Content		
Unit	Description	Weightage (%)
1	**Artificial Intelligence (AI)** • Concepts and Definitions of AI • Brief history of AI • Introduction to their related fields like Expert Systems, Natural Language • Programs, Robotics, Machine Learning, Speech Recognition, Neural • Networks, etc • Application Areas of Artificial Intelligence **Search Algorithms in AI:** • Blind search search(Breadth-first search and Depth-first search) and Heuristic search algorithms(Greedy Search and A* Search)	50
2.	**Knowledge Based Systems (KBS)** • KBS Structure, Components of KBS, Categories of KBS, o Knowledge-Based Shell, Advantages, Limitations and Application of KBS • Knowledge Acquisition, Knowledge Update • Factual and Procedural Knowledge Representations • Knowledge Based Systems Development Model	50

Teaching-Learning Methodology	Multiple teaching approaches: lecture and discussion, exploration and inquiry, cooperative group work, demonstrations, 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 understand	
1.	the term Artificial Intelligence and its related domains.
2.	basic concepts related to KBS.
3.	various search methods.

Suggested References:	
Sr. No.	References
1.	Elain Rich : Artificial Intelligence,McGraw Hill, 2001.
2.	Patterson, Dan W. : Introduction to Artificial Intelligence, Prentice Hall of India (PHI), 2015.
3.	R.Akerkar : Introduction to Artificial Intelligence, PHI, 2005.
4.	Rich and Knight, Artificial Intelligence, Tata McGraw Hill Publishing Co. Ltd., 21st Indian Reprint, 2001.
5.	Akerkar RA and Sajja P S, Knowledge-Based Systems, Jones & Bartlett Publishers, Sudbury, MA, USA, 2009.

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Course Code	**US06SEBIT07**	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. o.	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.

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