

S-01 &amp; 02 June, 2016 AC after Circulars from Circular No.100 &amp; onwards

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**DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY****CIRCULAR NO. SU/Sci./B.Sc. Syllabi/100/2016**

It is hereby notified for information to all concerned that, on the recommendation of the Ad-hoc Board in Computer Science and I.T. the Academic Council at its meeting held on 01 & 02 June, 2016 has accepted the following revised syllabi as mentioned against their names under the Faculty of Science :-

Sr. No.	B.Sc. III Year Revised Syllabus	Semester
[1]	B.Sc. Computer Science Degree Course	V & VI
[2]	B.Sc. Information Technology Degree Course	V & VI
[3]	B.C.A. Science Degree Course	V & VI
[4]	B.Sc. Animation Degree Course	V & VI
[5]	B.Sc. Computer Science Optional	V & VI
[6]	B.Sc. Information Technology Optional	V & VI
[7]	B.C.A. Science Optional	V & VI
[8]	B.Sc. Computer Maintenance Optional	V & VI

This is effective from the Academic Year 2016-2017 and onwards.

These syllabi are also available on the University Website [www.bamu.ac.in](http://www.bamu.ac.in)

All concerned are requested to note the contents of this circular and bring the notice to the students, teachers and staff for their information and necessary action.

University Campus,  
Aurangabad-431 004.  
REF.NO.SU/B.Sc./2016/2389-639  
**A.C.M.A.I.No.10**

Date:- 07-06-2016.

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**Director,**  
*Board of College and  
University Development.*

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S-01 & 02 June, 2016 AC after Circulars from Circular No.100 & onwards

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**Copy forwarded with compliments to :-**

- 1] **The Principals, affiliated concerned Colleges,  
Dr. Babasaheb Ambedkar Marathwada University.**

**Copy to :-**

- 1] The Controller of Examinations,
- 2] The Section Officer, [B.Sc. Unit],
- 3] The Section Officer, [B.C.S. Unit],
- 4] The Programmer [Computer Unit-1] Examinations,
- 5] The Programmer [Computer Unit-2] Examinations,
- 6] The In-Charge, E-Suvidha Kendra, [Professional Unit], Rajarshi  
Shahu Maharaj Pariksha Bhavan, Dr. Babasaheb Ambedkar  
Marathwada University,
- 7] The Record Keeper,  
Dr. Babasaheb Ambedkar Marathwada University.

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**S\*/-0070616/-**

**NAAC Re-accredited with Grade 'A'**

**Dr. Babasaheb Ambedkar Marathwada University**

Aurangabad-431004



## **REVISED SYLLABUS OF**

**B. Sc. (Information Technology)**

**Three Year Degree Course**

**Semester – V and VI**

**(With Effective From: 2016-17)**



**हे ज्ञानिची पवित्रता | ज्ञानीचि आशि ||**

**Dr. Babasaheb Ambedkar Marathwada University**

Aurangabad-431004.

Tel.No. : 0240-2403400/431, Fax:0240-2403113

Website : [www.bamu.ac.in](http://www.bamu.ac.in), <http://bamua.digitaluniversity.ac.in>

**Curriculum Structure and Scheme of Evaluation: B.Sc.(I.T.)**

Sr. No.	Paper Number	Name of the Paper Titles	Scheme of Teaching	Scheme of Evaluation(Marks)		
			Theory / Practical (Lect./week)	Theory / Practical ( Marks )	Exam Duration ( in hrs.)	Total Mark
V Semester						
1	IT501-T	Software Project Management II	3	50	2	50
2	IT502-T	Data Communication & Networks	3	50	2	50
3	IT503-T	Beginners Programming with PHP	3	50	2	50
4	IT504-T	Ethical Hacking	3	50	2	50
5*	IT505-T	Data Warehousing	3	50	2	50
6*	IT506-T	Computer Graphics	3	50	2	50
7 <sup>#</sup>	IT507-T	Core Java-II	3	50	2	50
8 <sup>#</sup>	IT508-T	eXtended Markup Language (XML)	3	50	2	50
9	IT509-P	Pr. Based on DCN	4	100	2	100
10		Pr. Based on PHP	4		2	
11	IT510-P	Pr. Based on DW/ CG	4	100	2	100
12		Pr. Based on Core Java-II / XML	4		2	
VI Semester						
1	IT601-T	Software Testing & Quality Assurance	3	50	2	50
2	IT602-T	Wireless Networking	3	50	2	50
3	IT603-T	Advanced Programming with PHP	3	50	2	50
4	IT604-T	Cyber Law and Security	3	50	2	50
5*	IT605-T	Data Mining	3	50	2	50
6*	IT606-T	Cloud Computing	3	50	2	50
7 <sup>#</sup>	IT607-T	C# Programming	3	50	2	50
8 <sup>#</sup>	IT608-T	AJAX	3	50	2	50
9	IT609-P	Pr. Based on PHP	4	100	2	100
10		Pr. Based on C# / AJAX	4		2	
11	IT610-P	Major Project	8	100	3	100
12						

**\* and #: Any one paper is to be opted from the group**

## PATTERN OF QUESTION PAPERS

Note : 1) All questions carry equal marks.

2) All questions are compulsory.

Q. No.	Format	Marks
<b>1.</b>	Multiple Choice/Fill in the blank/Match the pair/ one line answer. 1) 2) : : 10)	1 x 10 = 10
<b>2.</b>	a) b)  OR a)	5 * 2 = 10  10
<b>3.</b>	a) b)  OR a)	5 * 2 = 10  10
<b>4.</b>	a) b)  OR a)	5 * 2 = 10  10
<b>5.</b>	Write Short Notes On: (Any Two ) a) b) c)	5 * 2 = 10
	<b>Total</b>	<b>50</b>

# **B.Sc.(Information Technology)**

## **Semester –V**

**Course: B.Sc(I.T.)**

**Semester-V**

**Topic: Software Project Management II**

**Paper No.: IT 501-T**

### **Unit - I**

- **Software Efforts estimation**

Introduction, where estimates done, problems with over and under estimates done, basics for software estimating, estimation techniques, function point analysis, COCOMO model.

- **Activity Planning**

Objectives, project schedule, projects and activities, sequence and schedule, adding time dimension, identifying the critical path.

### **Unit – II**

- **Risk Management:**

Risk, category of risk, frame work for dealing with risk, risk identification, risk assesment, risk planing, risk management, PERT Technique.

- **Resource Allocation**

Nature of resources, identifying resource requirement, scheduling resources, counting the cost, scheduling sequence.

### **Unit – III**

- **Monitoring and control**

Framework creation, data collection, visualizing progress, monitoring of cost and prioritizing.

- **Software Quality**

Importance, defining software quality, product versus process quality management, Quality plan.

### **Books for Study:**

1. Bob Hughes and Mike Cotterell - Software project management – fourth edition - McGraw Hill
2. Walker Royce - Software Project Management - Addison Wesley.

**B.Sc. (I.T.)****Semester V****Topic: Data Communication and Networks****Paper Code: IT502-T****Unit -I**

**Introduction :** Data Communication System and its components, Computer network and its goals. Protocols, Standards, Standards Organizations , Data Flow, broadcast and point to point networks, Network topologies.

**Data and Signals:** Analog and Digital Data, Analog and Digital Signals, Periodic and Nonperiodic Signals, periodic analog signals, Sine Wave, Phase, Wavelength, Time and Frequency Domains, Composite Signals, Bandwidth, Digital Signals, Bit Rate, Bit Length, Digital Signal as a Composite Analog Signal, Transmission of Digital Signals. Transmission of impairment :Attenuation, Distortion, Noise.

**Transmission Media:** Guided Media : Twisted-Pair Cable, Coaxial Cable, Fiber-Optic Cable, Unguided Media : Radio Waves, Microwaves, Infrared.

**Unit -II**

**Digital Transmission:** Line Coding, Line Coding Schemes, Block Coding, Scrambling, Pulse Code Modulation, Delta Modulation, Transmission modes: Parallel & Serial Transmission.

**Analog Transmission:** Aspects of Digital to Analog Conversion, Amplitude Shift Keying, Frequency Shift Keying, Phase Shift Keying, Quadrature Amplitude Modulation, Amplitude Modulation, Frequency Modulation, Phase Modulation.

**Unit -III**

**Multiplexing:** Frequency-Division Multiplexing, Wavelength-Division Multiplexing, Synchronous Time-Division Multiplexing, Statistical Time-Division Multiplexing.

**Switching:** Circuit switching: Circuit switching networks switching concepts, Datagram networks, Virtual circuit networks, Routing in circuit switched networks, Packet switching principles, - Routing in packet switching,

**Text Book**

- 1) Data Communication & Networking (Forouzan), Tata McGraw-Hill Education.

**Additional Reference**

- 1) Computer Networks and Internets - Douglas Comer, Prentice Hall
- 2) Computer Networks - Andrew Tanenbaum, Prentice Hall
- 3) William Stallings, Data and Computer Communications Fifth Edition, Prentice Hall of India, 1997.



**Course: B.Sc.(IT )**

**Semester : V**

**Topic : Beginners Programming with PHP**

**Paper Code: IT-503-T**

**Unit-1:**

**Introduction to PHP:** what is PHP? Why PHP? Evolution of PHP.

**Installation:** PHP on windows and Linux, Configuring: Apache & PHP,  
Running & Testing PHP Script, Combining PHP with HTML.

**PHP Language Basics:** Building blocks of PHP: Variables, Data Types,  
Operators and Expressions and Constant.

**Decision within PHP:** *if, if.. else, if.. elseif.. else, switch*, Ternary Operator

**Unit – 2:**

**Looping within PHP:** *while, do...while, for, Break & Continue* statement

**Functions in PHP:** What is function, why functions, Calling function,  
Returning Value from function, Recursive function.

**Arrays in PHP:** What & Why Array, Creating Array, Associative Array,  
Multidimensional Arrays, Accessing Array, Manipulating  
Arrays, Sorting Arrays, Merging Arrays,

**Unit -3:**

**Objects in PHP:** What is Class & Object, Creating a Class & Object, Object  
properties, object methods, Overloading, inheritance,  
Constructor and Destructor.

**String in PHP:** Creating and Accessing String, formatting String, Searching  
String, Manipulating String.

**Date and Time:** Understanding TimeStamp, Getting Date and time,  
Extracting values of date-time, Formatting date-time.

**Reference Books:**

- 1) **Beginning PHP 5.3** , Author: Matt Doyle, Wiley Publishing, Inc.
- 2) **SAMS Teach yourself PHP in 24 hours**, Author: Matt Zandstra, Sams Publishing.
- 3) **“PHP, MySQL and Apache All in One”** , Author: Juliea C. Meloni, SAMS series

**Course: B.Sc.( IT)**

**Semester : V**

**Topic: Ethical Hacking**

**Paper code: IT 504-T**

### **Unit -I**

Concept of Ethical Hacking

#### **Introduction**

What is hacking, Hackers, types of hackers, why hackers hack? Prevention from hacker, steps performed by hackers, working of ethical hacker

#### **Email Hacking**

How email works? Email service protocol's, Email Security, email spoofing, Methods to send fake Emails, email spamming, phishing, prevention from phishing, email tracing, keystroke loggers

### **Unit -II**

#### **Trojans**

Introduction, types of Trojans, components of Trojan, mode of Transmission for Trojans, detection and Removal, Counter measures.

#### **Mobile Hacking**

Introduction, Call Spoofing/forging, SMS Forging, Bluesnarfing.

#### **Sniffers**

What is Sniffers? Defeating Sniffers, Ant Sniff

### **Unit -III**

#### **What is Penetration Testing?**

Introduction, Setting the Stage, Introduction to Kali and Backtrack Linux: Tools. Lots of Tools, Working with Your Attack Machine: Starting the Engine, The Use and Creation of a Hacking Lab, Phases of a Penetration Test

### **Reference Books**

1. "Hacking for Beginners" by Manthan Desai
2. "The Basics of Hacking and Penetration Testing: Ethical Hacking and Penetration Testing Made Easy" second Edition by Patrick Engebretson, ELSEVIER.

**Course: B.Sc.(IT )****Semester : V Sem****Topic: Data Warehousing****Paper Code: IT 505-T****Unit -1**

**Concept of Data Warehousing(DW):** Need for Data Warehousing, Need & Characteristics of Strategic Information, Decision Support System: History Features & disadvantages, Differentiation of Operational & informational System. Data warehousing: Definition & Advantage.

**Data warehouse Building blocks:** Features, Data warehouse Applications, Types of Data warehouse, Differentiate DW and operational DB, Data Warehouses and Data Marts: Approaches, Overview of the Components, Metadata in Data Warehouse.

**System Process:** Process Flow in Data Warehouse,

**Unit -2**

**Architecture:** Business Analysis Framework, 3 – tier DW Architecture, DW Models, Load Manager, Warehouse Manager, query Manager.

**Multidimensional Data Models:** Data cube, Dimensional Modeling, Lattice of cuboids, DW schemas: Star schema, Snowflake schema, Fact Constellation, Schema Definition.

**Unit - 3**

**OLAP:** Definition, types of OLAPs, OLAP operations: roll-up, drill-down, slice and dice, pivot.

Relational OLAP: Feature, Architecture, pro & cons.

Multidimensional OLAP: Feature, Architecture, pro & cons.

**Data Warehousing and the Web:** Web-Enabled Data Warehouse, Web-Based Information Delivery, OLAP and the Web, Building a Web-Enabled Data Warehouse.

**Reference Books:**

- 1) DATA WAREHOUSING FUNDAMENTALS: A Comprehensive Guide for IT Professionals, By, PAULRAJ PONNIAH, Wiley-Interscience Publication.
- 2) Data mining Techniques, By Arun K. Pujari, Universities Press.
- 3) Mastering Data Warehouse Design, By, Claudia Imhoff, Nicholas Gallemmo, Jonathan G. Geiger, Wiley Publishing.
- 4) DWH tutorial from Tutorial Points.

Weblink: <http://www.tutorialspoint.com/dwh/>

**Course: B.Sc. (IT)****Semester : V****Topic: Computer Graphics****Paper Code : IT506-T****Unit-I****Basics Concept in Computer Graphics**

Introduction to Computer Graphics, Application of Computer Graphics, Classification of Computer Graphics, Types of Graphics Devices, Video Display Devices, Input Devices, Display File and its Structure, Display file Interpreter, Display Processor, Graphics file Format.

**Graphics in C:**

Introduction to graphics in C : initgraph(), detectgraph() and closegraph() function, Drawing object in C , Line, Circle, Rectangle, Ellipse, Changing foreground & background colors, Filling object by color function.,drawpoly, fillpoly, floodfill, getcolor, settext, outtext,style,fonts,coloring.

**Unit-II****2-D Transformation**

Translation, Rotation, Scaling, Homogenous Coordinates for Translation, Homogenous Coordinates for Rotation, Homogenous Coordinates for Scaling, Composogation from 2D Transformation, Other Transformation Reflection, Shear, and Inverse Transformation.

**Unit-III****Line, Circle and Character Generation**

Basics concept in line Drawing, Line Drawing Algorithm, Digital Differential Analyzer, Bresenham's Line Algorithm, Antialiasing of Lines, Method of Antialiasing, Increasing Resolution, Unweighted Area Sampling, Pixel Phasing, Representation of Circle ,Polynomial Method, Trigonometric Method, Circle Drawing Algorithm, DDA Circle Drawing Algorithm, Bresenham's Circle Drawing Algorithm, Character Generation, Stroke Method, Starbust Method, Bitmap Method.

**Text Books:**

1. Procedural Elements for Computer Graphics: D.F.Rogers
2. Mathematical Elements for Computer Graphics: D.F.Rogers and J.A.Adams
3. Computer Graphics : A.P.Godse, ( IIIrd Edition) ,Technical Publication

**Reference Books:**

1. Computer Graphics by M. Pauline Baker, Donald Hearn, (2ndEdition) PHI Publication
2. Principles of Interactive Computer Graphics By. William. M. Newman. (IIInd Edition) Mc.Graw Hill Publication.
3. Computer Graphics by V.K. Pachghare, (II nd Edition), Laxmi Publication

**B.Sc. (I.T.)**  
**Topic: Core Java-II**

**Semester: V**  
**Course : IT 507-T**

**Unit – I**

**Input/Output Stream:** File, Directories, FilenameFilter, Byte stream, Character stream, InputStream, OutputStream, Working with Reader classes, InputStreamReader, BufferedReader, FileInputStream, FileOutputStream, Writer classes

**Utilities:** Simple Type Wrapper: Number, Character, Boolean, Enumerations: Dictionary and StringTokenizer, Date, Math : Transcendentals, Exponential, Rounding function,

**Unit -II**

**Applets :** Introduction to Applet, Types of Applet, Applet vs Application, Applet class, advantages of Applet, Applet Lifecycle, My First Applet, Applet tag, Passing Parameters to Applet.

**Graphics:** Basic Shapes: drawLine, drawArc, fillArc, drawPolygon, fillPolygon, Color & Color Methods, Fonts.

**Unit III**

**Java Database Connectivity (JDBC):** Design of JDBC, JDBC configuration, Executing SQL statement, QueryExecution, Scrollable and updatable resultsets, row sets, metadata, Transaction Processing.

**Networking:** InetAddress, Datagrams, Socket for client and Server, URL, URL Connection.

**Reference Books:**

1. Java Complete Reference, Herbert Schildt, Seventh Edition, Tata McGraw Hill.
2. Java Handbook, Herbert Schildt, Tata McGraw Hill.
3. Java EE 6 for Beginners, Sharanam Shah, Vaishali Shah, Shroff Publishers and Distributors
4. Advanced Java™ 2 Platform How to Program by H. M. Deitel, P. J. Deitel, S. E. Santry Prentice Hall publication.

**Course: B.Sc. (IT)****Semester: V****Topic: eXtended Markup Language****Paper Code: IT508-T****Unit -1**

**Introduction to XML:** XML history & origin, XML Syntax, Components of XML, CDATA & PCDATA, State of XML, Modeling Data, XML Declaration, XML first program, XML namespace.

**Document Type Definition (DTD):** Fundamental, Internal & External DTDs, Valid & well-formed document,

Elements of Document type Definition, types of Element: empty, element-only, mixed element, ANY.

Attributes of DTD, types of Attributes: String, Enumerated, Tokenized.

Creating a valid document from a DTD.

**Schema:** XML Schema & W3c Schema, Benefits of Schema,

XML Schema Vocabulary: Schema Element, datatype Element, ElementType Element, element Element, group Element, AttributeType Element, attribute Element, description Element.

XML Data types, Conversion of DTD to Schema.

**Unit- 2**

**Formatting XML documents:** Style sheets Basics, Evolution of CSS & XSL, Comparing XSL & CSS.

**CSS:** Introduction, CSS Style Properties, Creating CSS Style Sheets, Formatting XML with CSS.

**XSL:** Processing an XSL style sheet, Architecture of XSL, XSL Style Sheet: Templates and Patterns, XSLT template Constructs, Develop XSL Style Sheet.

**Unit – 3**

**XSLT Transformation:** What is XSLT, XSLT Processor work, Source Tree, Foundational XSLT Elements <xsl:output> element, Conditional

Processing: <xsl:if> & <xsl:choose>, <xsl:for:each>, <xsl:sort> ,

XSLT Modes, XSLT Variables and Parameters, Named template and the <xsl:call-template> elements.

XSLT Functions.

**Reference Books:**

- 1) “XML Unleashed”, by Michael Morrison, Techmedia Publication.
- 2) “Beginning XML”, By, David Hunter and ed. Al, Wrox Publication.
- 3) “XML Bible”, By Elliotte Rusty Harold, IDG Books Worldwide Publication.

**Course: B.Sc.(I.T.)****Semester : V**

**Topic: Practical Based on DCN****Paper No.: IT509P (A)**

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1. Study of Networking Devices & tools
2. Study of IP Address with Class
3. Virtual Setup of Practical setup of Intra-Network.
4. Installation of Server & Client System
5. Peripheral Device Sharing of Devices in LAN
6. Proxy Network Setting.

Note : Any Five Addition practical Assignment as per faculty directive.

**Course: B.Sc.(I.T.)****Semester : V****Topic: Practical Based on PHP****Paper No.: IT509P (B)**

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Minimum 10 Practicals to be performed as per the guidelines of teaching Faculty depending upon all theory units of concerned subject.

**Course: B.Sc.(I.T.)****Semester : V****Topic: Practical Based on DW/C.G.****Paper No.: IT510P (A)**

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Minimum 10 Practicals to be performed as per the guidelines of teaching Faculty depending upon all theory units of concerned subject.

**Course: B.Sc.(I.T.)****Semester : V****Topic: Practical Based on Core Java-II / XML****Paper No.: IT510P (B)**

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Minimum 10 Practicals to be performed as per the guidelines of teaching Faculty depending upon all theory units of concerned subject.

# **B.Sc.(Information Technology)**

## **Semester –VI**



**Course : B.Sc. (I.T.)**

**Semester: VI**

**Paper: Software Testing and Quality Assurance**

**Paper No. : IT601-T**

### **Unit-I**

#### **Introduction:**

Software Quality, Role of testing, verification and validation, objectives and issues of testing, Testing activities and levels, Sources of Information for Test Case Selection, White.

### **Unit-II**

#### **Unit Testing:**

Concept of Unit Testing , Static Unit Testing ,Dynamic Unit Testing , Outline of Control Flow Testing, Overview of Dynamic Data Flow Testing, Data Flow Graph, Data Flow Terms, Data Flow Testing Criteria, Comparison of Data Flow Test Selection Criteria, Feasible Paths and Test Selection Criteria, Comparison of Testing Techniques.

### **Unit-III**

#### **System Integration Testing:**

Concept of Integration Testing, Different Types of Interfaces and Interface Errors, Test Plan for System Integration, System Test Categories: Basic Tests, Functionality Tests, Robustness Tests, Interoperability Tests, Performance Tests, Reliability Tests, and Documentation Tests.

### **Text books:**

1. "Effective methods for Software Testing "William Perry, Wiley.
2. "Software Testing and Quality Assurance: Theory and Practice", Sagar Naik, University of Waterloo, Piyu Tripathy, Wiley , 2008

### **Reference Books:**

1. "Software Testing - A Craftsman's Approach", Paul C. Jorgensen, CRC Press, 1995.
2. "The Art of Creative Destruction", Rajnikant Puranik, SPD.
3. "Software Testing", Srinivasan Desikan and Gopalaswamy Ramesh - Pearson Education 2006.

**Course : B.Sc. I.T.****Semester VI****Topic : Wireless Networking****Paper Code : IT 602T****Unit 1**

Wireless Communication: Growth, History, Mobile Communications Fundamentals, Wireless Migration

First Generation (1G) : 1G System Architecture, MTSS Configuration, Cell Site Configuration, Handoff, Frequency reuse, Spectrum Allocation, 1G Systems.

Second Generation (2G) : Enhancements over 1G Systems, GSM, IS-136 System Description, IS-95 System Description, iDEN, CDPD

Third Generation (3G) : UMTS Services, UMTS Air Interface, 3GPP Release 1999 Network Architecture, 3GPP Release 5 All-IP Network Architecture, CDMA 2000

**Unit 2**

UTMS : UTMS Basic, WCDMA Air Interface, UTRAN Architecture, Handover, UTMS Core Network

CDMA2000: Radio and Network Components, Network Structure, Packet Data Transport Process Flow, Radio Network

Voice-over-IP Technology: VoIP, Basic of IP Transport, VoIP Challenges, SIP, SS7, Quality Service

GSM/GPRS/EDGE, TDMA, AMPS, LMDS, WiMAX, WiFi, PtP and PSCS : Network Design, Advantages and disadvantages of each.

**Unit 3**

Network Design Considerations: Traffic Forecasts, Build-ahead, Network Node Dimensioning

Antenna System Selection : Base Station Antennas, Performance Criteria, Diversity, Installation Issues, dBi and dBd, Intelligent Antennas

UTMS System Design: Network Design Principles, CDMA200 Design methodology, Development Guidelines, Radio Elements, Requirements, Traffic Model

Communication Sites: Types, Installation, Towers, In-building, Intermodulation, Isolation, Communication Site, 4G Cellular

**Books**

1. 3G Wireless Network by: Clint Smith, Daniel Collins McGraw-Hill
2. Wireless Network by P. Nicopolitidis M. S. Obaidat, Wiley India Pvt. Ltd
3. Introduction to Wireless Systems by Bruce A. Black, Philip S. DiPiazza , Bruce A. Ferguson, David R. Voltmer, and Frederick C. Berry
4. Wireless Telecommunications Systems and Networks, by Gary J. Mullett. ISBN-10: 1401886590; Publisher: Thomson Delmar Learning; 1 edition (September 6, 2005)

**Web Sites**

1. <http://www.wirelesscommunication.nl/about.htm>
2. <http://www.pdfdrive.net/wireless-communication-fundamentals-introduction-aspects-of-mobility-e3310152.html>
3. <https://www.ukessays.com/essays/computer-science/fundamentals-of-cellular-communications-computer-science-essay.php>

**Course: B.Sc.(IT )****Semester –VI****Topic : Advanced Programming with PHP****Paper Code: IT 603-T****Unit-1:**

Handling HTML Forms in PHP: Creating HTML Form, Capture Data Sent, Handling: Empty form data, Multi-Value fields, Validating Form Data, Difference between GET and POST, Global and Environment Variables, Generating Web-form in PHP, Create Multi-step Form, Hidden fields, Redirecting the user.

**Unit – 2:**

Cookies and user sessions in PHP: State and Stateless Webpage,  
Cookies: Anatomy of cookies, Setting a cookies with PHP, Deleting a cookies, Creating Session Cookies,  
QueryString: Working with QueryString, Creating QueryString.  
Session: Using PHP Session to Store Data: Creating a Session, Reading & Writing Session Data, Destroying a Session, Create a User Login System.

**Unit – 3:**

Introducing Database and SQL: Basics of MySQL, Connecting to the Database Server, Creating Database, Creating Table.  
Retrieving data: Limit the number of results returned, Order and group results, Query multiple tables at once, Use various MySQL functions and other features to build more flexible queries  
Manipulating data from SQL with PHP: Inserting new records into tables using INSERT statements, changing field values within records with UPDATE statements, deleting records using DELETE statements.

**Reference Books:**

- 1) **Beginning PHP 5.3** , Author: Matt Doyle, Wiley Publishing, Inc.
- 2) **SAMS Teach yourself PHP in 24 hours**, Author: Matt Zandstra, Sams Publishing.
- 3) **“PHP, MySQL and Apache All in One”** , Author: Juliea C. Meloni, SAMS series

**Course: B.Sc (I.T.)**

**Semester: VI**

**Topic: Cyber Law and Security**

**Paper No.:IT 604 -T**

### **Unit-I**

Basic Concepts of Technology and Law, Understanding the Technology of Internet, Scope of Cyber Laws , Cyber Jurisprudence.

Law of Digital Contracts The Essence of Digital Contracts. The System of Digital Signatures the Role and Function of Certifying Authorities. E-Governance Cyber Crimes and Cyber Laws

### **Unit-II**

Introduction: Cyber Security and its problem-Intervention Strategies: Redundancy, Diversity and Autarchy. The Ethics of Computer Security

Intellectual Property & Security : Piracy, Insider Threat.

Defensive Information; Computer Network Security, Computer Break-Ins, Cryptographic Techniques.

### **Unit-III**

#### **Information Technology Act 2000 Cyber Law**

Issues in E-Business Management Major issues in Cyber Evidence Management Cyber Law Compliancy Audit.

### **Text books:**

1. Godbole, "Information Systems Security", Wiley
2. Mark F Grady, Francesco Parisi, "The Law and Economics of Cyber Security", Cambridge University Press, 2006
3. Merkov, Breithaupt, "Information Security", Pearson Education
4. Yadav, "Foundations of Information Technology", New Age, Delhi
5. Schou, Shoemaker, "Information Assurance for the Enterprise", Tata McGraw Hill
6. Sood, "Cyber Laws Simplified", Mc Graw Hill
7. Furnell, "Computer Insecurity", Springer

**Course: B.Sc.(IT )**

**Semester VI**

**Topic: Data Mining**

**Paper Code: IT 605-T**

**Unit -1**

**Data Mining Introduction:**

What is Data Mining?, Definition, DBMS Vs Data Mining, DM Techniques, Issues and Challenges in DM, DM Application Areas, DM Applications-Case Studies, Current Trends Affecting DM, Basic Data Mining Task.

**Unit – 2**

**Association Rule:**

What is an Association rule?, Method to discover Association Rule, A Priori Algorithm, Partition Algorithm.

**Clustering Techniques:** Clustering Paradigm, Partitioning Algorithm, Similarity and Distance Measure, Hierarchical Algorithm.

**Unit – 3**

**Decision Tree:** What is a decision tree? Tree Construction Principle, Best Split, Splitting indices, Splitting Criteria

**Web Mining:** Introduction, Web Content Mining, Web Structure Mining, Web Usage Mining.

**Reference:**

1. **Data Mining Techniques :** Arun K. Pujari ,
2. **Data Mining: Introductory and Advanced Topics:** M.H.Dunham Pearson Education.
3. **Data Mining: Concepts & Techniques,** Morgan Kaufman. 2006

**Course : B.Sc.(IT)****Semester : VI****Topic : Cloud Computing****Paper Code : IT 606-T****UNIT I****Cloud Computing Fundamentals:** Introduction, Layers of Cloud Computing,

Types of Cloud Computing: Public, Private, Hybrid cloud.

Cloud Services: Infrastructure as a Service (IAAS), Platform As a Service (PAAS), Software As a Service (SAAS).

Enabling Technologies, Cloud Computing Features, Cloud Computing platform, Cloud Computing Challenges, First movers in the cloud, When you use the cloud computing, Benefits, Limitations.

**UNIT II****Cloud Computing Technologies and Applications:** Cloud Computing: IT as a Service, Cloud Computing Security, Cloud Computing Model Application Methodology, Cloud Computing in Development/Test,**Key Enabling Technologies for Virtual Private Clouds:** Virtual Private Clouds, Virtual Data Centers and Applications.**UNIT III****Role of Networks in Cloud Computing:** Introduction, Cloud Deployment Models and the Network, Network Architectures for Clouds: Data Center Network & Data Center Interconnect Network, **Foundation:** Virtualization, Automation and Standards,**Data-Intensive Technologies for Cloud Computing:** Data-Intensive Computing Applications, Data-Parallelism, The “Data Gap”,**Characteristics of Data-Intensive Computing Systems:** Processing Approach, Grid Computing**Data-Intensive System Architectures:** Google MapReduce & Hadoop**Text Book:**

1. Handbook of Cloud Computing, Editors: Borko Furht · Armando Escalante, Springer
2. Cloud Computing A Practical Approach, Anthony T. Velte, Toby J. Velte, Robert Elsenpeter, McGraw Hill Education (India) Private Limited.

**References:**

1. Cloud Computing Bible, Barrie Sosinsky, WILAY India Pvt. Ltd
2. . CLOUD COMPUTING, Michael Miller, PEARSON Publication.
3. CLOUD COMPUTING Principles and Paradigms, Rajkumar Buyya, James Broberg, Andrzej Goscinski, WILAY India Pvt. Ltd.
4. Hybrid Cloud for DUMMIES, Judith Hurwitz, Marcia Kaufman, Dr. Fern Halper, Danies Kirsch, WILAY India Pvt. Ltd

**Course : B.Sc. (IT)**

**Semester : VI**

**Topic : C# Programming**

**Paper Code : IT 607-T**

**UNIT I :**

Introduction: Basic Concepts, Features, Common Language Specification

C# Types: Simple type, Struct type, Object type Class type, Interfaces, String type, Arrays , Boxing & unboxing Conversions , Implicits , Explicits , Standard & User Defined Conversions.

**UNIT II :**

Control Statements: Selection Statements – if , Switch, Iteration Statements – For, For-Each, While , Do statements.

Classes & Methods: Constructors & Destructors ,Methods- Parameters, Overriding, Hiding class properties , Indexes , Modifiers, Class member Access, Multi cast delegates

Inheritance & Polymorphism: Inheritance- Basic class & Derived Class, Polymorphism , Base class with Virtual method, Derived class with override methods

**UNIT III :**

Interfaces : Base, , body , members , methods , properties , events, indexes , mapping , implementation

Exception Handling : Checked & Unchecked statements, compiler settings for overflow checking , Programmatic overflow checking , Exception handling statements – try & catch , try & finally , try- catch- finally , throwing exception & rethrowing exception

**Reference Books :**

- 1 . C# : A Beginners Guide – Childt , Herbert ( Tata Mcgraw Hill , New Delhi )
2. C# The basics , Vijay Mukhi ( BPB Publications)
3. C# Programming ( Wrox Publications)
4. C# Programming Black Book – Matt Telles (DreamTech Publications)

**Course : B.Sc. (IT)**

**Semester : VI**

**Topic : AJAX**

**Paper Code : IT 608-T**

## **Unit-I**

### **Introduction**

Evolution of web applications, Problems in web Applications, Ajax web Application model, Creating an Ajax Application.

### **JavaScript for Ajax**

Basics of JavaScript, DOM, DOM Levels, JavaScript and Ajax,

## **Unit-II**

### **Asynchronous data transfer**

XMLHttpRequest Object, XMLHttpRequest vs IFrames, reading a file, performing validation, reading response header, Loading Dynamic List Boxes, Auto Refreshing page, Dynamic Progress bar, Providing Auto Complete, Using IFrames,

## **Unit-III**

### **Ajax Frameworks**

Overview of Ajax Frameworks, JQuery Framework, Prototype Framework, Script.aculo.us Framework, Dojo Toolkit Framework, DWR Framework, JSPan Framework, Rico Framework, Spry Framework, Commonly used Framework, Implementation of all frameworks.

Creating Maps in Ajax

Yahoo! Maps and Google Maps API, Map Types, Limitations of Yahoo! Maps and Google Maps. Handling Yahoo! Maps and Google Maps Control.

## **Reference Books:**

1. "Ajax Black Book" Kogent Solutions Inc. Published by Dreamtech press
2. "Head First Ajax" by Rebecca M. Riordan O'REILLY SPD pvt.ltd.



**Course: B.Sc.(I.T.)****Semester : VI****Topic: Practical Based on PHP****Paper No.: IT609P (A)**

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Minimum 10 Practicals to be performed as per the guidelines of teaching Faculty depending upon all theory units of concerned subject.

**Course: B.Sc.(I.T.)****Semester : VI****Topic: Practical Based on C# /AJAX****Paper No.: IT609P (B)**

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Minimum 10 Practicals to be performed as per the guidelines of teaching Faculty depending upon all theory units of concerned subject.

**Course: B.Sc.(I.T.)****Semester : VI****Topic: Major Project****Paper No.: IT610P**

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**Note:**

- 1) It is expected that concerned Faculty is to introduce and make the students aware about the Project Development Environment as well as distribute all the students in group with minimum 2 and maximum 4 student's strength.

**Minimum contents of Project Report**

1. Introduction
2. Problem definition.
3. System Requirement Specification
  - 3.1. User Interview
  - 3.2. Current System flow diagram
  - 3.3. Proposed System.
4. E-R Diagram
5. DFD
6. Sample Screens
7. Conclusion

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