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**

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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:: [2] ::

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.

-=**=-

S/-0070616/-*

NAAC Re-accredited with Grade 'A'

Dr. Babasaheb Ambedkar Marathwada University

Aurangabad-431004

REVISED SYLLABUS OF

B.C.A.(Science)

Three Year Degree Course

Semester – V and VI

(With Effective From: 2016-17)

हे ज्ञानिची पवित्रता | ज्ञानीचि आथि ||

Dr. Babasaheb Ambedkar Marathwada University
Aurangabad-431004.
Tel.No. : 0240-2403400/431, Fax:0240-2403113
Website : www.bamu.ac.in, http://bamua.digitaluniversity.ac.in

Curriculum Structure and Scheme of Evaluation: B.C.A.(Sci.)

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	**CA501-T**	Software Project Management –II	**3**	**50**	**2**	**50**
2	**CA502-T**	Computer Graphics-I	**3**	**50**	**2**	**50**
3	**CA503-T**	Core JAVA-II	**3**	**50**	**2**	**50**
4	**CA504-T**	Data Warehouse	**3**	**50**	**2**	**50**
5*	**CA505-T**	Ethical Hacking	**3**	**50**	**2**	**50**
6*	**CA506-T**	Data Communication Networking	**3**	**50**	**2**	**50**
7#	**CA507-T**	Beginning with PHP Programming	**3**	**50**	**2**	**50**
8#	**CA508-T**	ASP.NET-I	**3**	**50**	**2**	**50**
9	**CA509-P**	**Pr. Based on Comp. Graphics**	**4**	**100**	**2**	**100**
10		**Pr. Based on Core Java-II**	**4**		**2**	
11	**CA510-P**	**Pr. Based on Ethical Hacking/ DCN**	**4**	**100**	**2**	**100**
12		**Pr. Based on PHP / ASP.NET**	**4**		**2**	
VI Semester						
1	**CA601-T**	Software Testing and Quality Assurance	**3**	**50**	**2**	**50**
2	**CA602-T**	Computer Graphics-II	**3**	**50**	**2**	**50**
3	**CA603-T**	Java Server Pages (JSP)	**3**	**50**	**2**	**50**
4	**CA604-T**	Data Mining	**3**	**50**	**2**	**50**
5*	**CA605-T**	Network Security	**3**	**50**	**2**	**50**
6*	**CA606-T**	Cloud Computing	**3**	**50**	**2**	**50**
7#	**CA607-T**	Advanced Programming with PHP	**3**	**50**	**2**	**50**
8#	**CA608-T**	ASP.NET-II	**3**	**50**	**2**	**50**
9	**CA609-P**	**Pr. Based on JSP**	**4**	**100**	**2**	**100**
10		**Pr. Based on PHP / ASP.Net**	**4**		**2**	
11	**CA610-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
1.	Multiple Choice/Fill in the blank/Match the pair/ one line answer. 1) 2) . . 10)	1 x 10 = 10
2.	a) b) OR a)	5 * 2 =10 10
3.	a) b) OR a)	5 * 2 =10 10
4.	a) b) OR a)	5 * 2 =10 10
5.	Write Short Notes On: (Any Two) a) b) c)	5 * 2 =10
	Total	**50**

* Not More than 3 bits should be asked in each question of 10 Marks.

(Only for Paper Setter)

Semester –V

Course: B.C.A.(Sci.) - V Semester **Max. Marks:** 50
Topic: Software Project Management -II **Paper No.:** CA 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, identificying 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.

Course: B.C.A.(Sci.) - V Semester **Max. Marks:** 50
Topic: Computer Graphics-I **Paper No.:** CA 502-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 TransformationReflection, 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.Rogersand 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. (IInd Edition) Mc.Graw Hill Publication.
3. Computer Graphics by V.K. Pachghare, (II nd Edition), Laxmi Publication

Course: B.C.A.(Sci.) - V Semester **Max. Marks:** 50
Topic: Core JAVA-II **Paper No.:** CA 503-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 :Tramsendentals, 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.C.A.(Sci.) - V Semester **Max. Marks:** 50
Topic: Data Warehouse **Paper No.:** CA 504-T

Unit -I

- **Concept of Data Warehousing(DW):** Need for Data Warehousing, Need & Characteristics of Strategic Information, Decision Support System: History Features & disadvantageous, 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 -II

- **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 - III

- **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, Universsities Press.
3) Mastering Data Warehouse Design, By, Claudia Imhoff, Nicholas Galemmo, Jonathan G. Geiger, Wiley Publishing.
4) DWH tutorial from Tutorial Points.
   Weblink: http://www.tutorialspoint.com/dwh/

Course: B.C.A.(Sci.) - V Semester **Max. Marks:** 50
Topic: Ethical Hacking **Paper No.:** CA 505-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 spaoofing, Methods to send fake Emails, email spaming, 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.C.A.(Sci.) - V Semester **Max. Marks:** 50
Topic:Data Communication Network **Paper No.:** CA 506-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.C.A.(Sci.) - V Semester **Max. Marks:** 50
Topic: Beginning with PHP Programming **Paper No.:** CA 507-T

Unit-I

- **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 – II

- **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 –III

- **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.C.A.(Sci.) - V Semester **Max. Marks:** 50
Topic: ASP.NET-I **Paper No.:** CA 508-T

UNIT I -

Web designing, web browser, web pages, home page, web site, web servers, world wide web , Concepts of hypertext, hypermedia, versions of HTML ,Evolution of .NET, Benefits of .NET Framework, Architecture of .NET Framework, Components of .NET Framework.

UNIT II –

ASP.NET Page Life Cycle, understanding ASP.NET controls, applications, web servers, installation of IIS. Web forms, web form controls, server controls, client controls, adding controls to web form, buttons, text box, labels, checkbox, radio buttons, list box, drop, down list, Ad rotator control . Adding controls a runtime, Running a web application.

UNIT III –

Creating a multiform web project, Form validation: client side and server side validation, Validation controls: Required Field Validator, Range Validator, Comparison Validator, Regular Expression Validator, Custom Validator, Validation Summary, Calendar control.

References:

1) .NET 4.0 Programming(6-in-1) Black Book- (Dremtech Press)
2) The Completer Reference ASP.NET – Mathew Macdonald (TMH)
3) Professional ASP.NET – Wrox publication
4) VB.NET Programming Black Book – Steven Holzner (Dreamtech pub.)
5) Introduction to .NET framework – Wrox publication.
6) ASP.NET Unleashed - bpb publication.

Course: B.C.A.(Sci.) **Semester : V**

Topic: Practical Based on Comp. Graphics **Paper No.: CA509P (A)**

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

Course: B.C.A.(Sci.) **Semester : V**

Topic: Practical Based on Core Java-II **Paper No.: CA509P (B)**

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

Course: B.C.A.(Sci.) **Semester : V**

Topic: Practical Based on Ethical Hacking / DCN **Paper No.: CA510P (A)**

Ethical Hacking:

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

DCN:

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.C.A.(Sci.) **Semester : V**

Topic: Practical Based on PHP / ASP.Net **Paper No.: CA510P (B)**

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

SEMESTER-VI

Course: B.C.A.(Sci.) - VI Semester **Max. Marks:** 50
Paper: Software Testing and Quality Assurance **Paper No. :** CA 601-T

Unit-I

1. 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

2. 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

3. 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

Course: B.C.A.(Sci.) - VI Semester **Max. Marks:** 50
Paper: Computer Graphics-II **Paper No. :** CA 602-T

Unit-I

1. **3-D Transformation and clipping**

Translation, Scaling Rotation, Shearing, Reflection, Multiple Transformation Projection, Perspective Projection, Parallel Projection, Types of Parallel & Perspective Projection, Vanishing Points. Diffuse Illumination, Specular Reflection.

Clipping, Point clipping, Line clipping, Sutherland and Cohen subdivision line clipping, Mid point subdivision algorithm, Liang-Barsky Line clipping algorithm

Unit-II

2. **Curves and Fractals**

Curve Generation, Representation of Parametric & Non-Parametric Curves, Spline Representation Parametric Representation of Circle & Ellipse, Bezier curves, B-Spline curves Fractals, classification of fractals, Topological Dimension, fractal Dimension, Hilbert's curves ,Koch curve.

Unit-III

3. **Colour Model and Animation**

Properties of Light, CIE Chromaticity Diagram, Colour Primary Systems, Color Matching Experiments, Colour Models: RGB, CMY and HSV.Introduction of Animation, Animation Using Colour Table, Animation of Wireframe Models.

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 by M. Pauline Baker, Donald Hearn, (2nd Edition) PHI Publication

Reference Books:

1. Computer Graphics: A.P.Godse, (IIIrd Edition), Technical Publication
2. Principles of Interactive Computer Graphics By. William. M. Newman. (II nd Edition) Mc.Graw Hill Publication.
3. Computer Graphics by V.K. Pachghare, (II nd Edition), Laxmi Publication

Course: B.C.A.(Sci.) - VI Semester **Max. Marks:** 50
Paper: Java Server Pages (JSP) **Paper No. :** CA 603-T

UNIT I

- Introduction to JSP, Architecture of JSP page , Life cycle of JSP page , Scripting tags – (Scriptlet , Declarative, Expression)

UNIT II

- Implicit objects(all 9 objects) , Directive tags (Page, Include Tag lib)
- ActionTags:<include>,<forward>,<param>,<usebean>,<setproperty>,<getproperty>, <plugin>, <params>,<fallback>,<attribute>,<body>,<element>,<text>
- JSP & Java Beans

UNIT III:

- Database Access to JSP page , Session Tracking , Session API in JSP.
- Introduction to JSTL, Core tag library, XML tag library, Internationalization tag library, SQL tag library, Functions tag library.

Reference Books:

1. **JSP : The Complete Reference - Phil Hanna (Tata Mcgraw Hill)**
2. **Java Server Programming Java EE6(J2EE 1.6) – Black Book (Dreamtech Publication)**

Course: B.C.A.(Sci.) - VI Semester **Max. Marks:** 50
Paper: Data Mining **Paper No. :** CA 604-T

Unit -I

- **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 – II

- **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 Books:

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.C.A.(Sci.) - VI Semester **Max. Marks:** 50
Paper: Network Security **Paper No. :** CA 605-T

Unit - I

Introduction Basic concepts: confidentiality, integrity, availability, security policies, security mechanisms and assurance.

Basic Cryptography, Historical background , Transposition/Substitution, Caesar Cipher Introduction to Symmetric crypto primitives, Asymmetric cryptoprimitives, and Hash functions

Secret Key: Cryptography Data Encryption Standard (DES) Encrypting large messages (ECB, CBC,

OFB, CFB, CTR) Multiple Encryptions DES (EDE)

Unit-II

Public Key: Cryptography Theory: Euclidean algorithm, Euler Theorem, RSA, multiplicative and additive inverse RSA, Selection of public and private keys

Authentication Security: Handshake pitfalls Online vs. offline password guessing
Reflection attacks Per-session keys and authentication tickets Key distribution centers and certificate authorities

Trusted Intermediaries: Public Key infrastructures, Certification authorities and key distribution centers Kerberos

Unit - III

Real-time Communication Security: Introduction to TCP/IP protocol, security protocols and implications, IPsec: AH and ESP IPsec: IKE SSL/TLS

Electronic Mail Security: Source authentication, message integrity, non-repudiation, proof of submission, proof of delivery, message flow confidentiality.,

Pretty Good Privacy (PGP): Firewalls and Web Security, Packet filters Application level gateways,Encryptedtunnels,Cookies

Text Book:

1. William Stallings, "Cryptography And Network Security - Principles and Practices",

Prentice Hall of India,. Third Fditinn, ?003.

REFERENCES

1. Atul Kahate, "Cryptography and Network Security", Tata McGraw-Hill, 2003.

2. Bruce Schneier, "Applied Cryptography", John Wiley & Sons Inc, 2001.

3. Charles B. Pfleeger, Shari Lawrence Pfleeger, "Security in Computing", Third Edition,

Pearson Education, 2003.

Course: B.C.A.(Sci.) - VI Semester **Max. Marks:** 50
Paper: Cloud Computing **Paper No. :** CA 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, Miichael Miller, PEARSON Publication.
3. ClOUD COMPUTING Principles and Paradigms, Rajkumar Buyya, James Broberg, Andrzehj 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.C.A.(Sci.) - VI Semester **Max. Marks:** 50
Paper: Advanced Programming with PHP **Paper No. :** CA 607-T

Unit-I

- **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 – II

- **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 – III

- **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.C.A.(Sci.) - VI Semester **Max. Marks:** 50
Paper: ASP.NET-II **Paper No. :** CA 608-T

Unit-I

Overview of ADO.NET: From ADO to ADO.NET, ADO.NET architecture, Accessing data using data adapters and datasets, using command and data reader, binding data to data bind controls, displaying data in data grid

Unit-II

XML in .NET : XML Basics, XML validation, Introduction to Web Services ,State Management, using session in ASP.NET Application, Caching in ASP.NET

Unit-III

Threading: Introduction to Threading , Difference between process and thread, Creating a thread, starting a thread, putting a thread to sleep, suspend and resuming a thread, Multi threading, Thread Priorities.

References:

1) .NET 4.0 Programming(6-in-1) Black Book- (Dremtech Press)
2) The Completer Reference ASP.NET – Mathew Macdonald (TMH)
3) Professional ASP.NET – Wrox publication
4) VB.NET Programming Black Book – Steven Holzner (Dreamtech pub.)
5) Introduction to .NET framework – Wrox publication.
6) ASP.NET Unleashed - bpb publication.

Course: B.C.A.(Sci.) **Semester : VI**

Topic: Practical Based on JSP **Paper No.: CA 609P (A)**

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

Course: B.C.A.(Sci.) **Semester : VI**

Topic: Practical Based on PHP / ASP.Net **Paper No.: CA 609P (B)**

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

Course: B.C.A.(Sci.) **Semester : VI**

Topic: Major Project **Paper No.: CA- 610 P**

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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