Rajarshi Shahu Mahavidyalaya, Latur
(Autonomous)

Department of Computer Science and Information Technology
Syllabus for under graduation course (BCA)

(With Effect from Academic Year:2015-16)

Programme Name: Bachelor of Computer Application (Third Year Semester V + VI)

Semester : V

Code No	Course Name	Maximum Marks		Total Marks	Credits
		Theory / Practical	Internal		
U-APR-596	Aptitude and Reasoning	30	20	50	2
U-CYS-597	Cyber Security	30	20	50	2
U-ORA-598	Oracle 10g SQL PL/SQL	30	20	50	2
U-COR-599	Core Java	30	20	50	2
U-CON-600	Computer Network Administration	30	20	50	2
U-LAC-601	Cyber Security	50	-	50	2
U-LAC-602	Oracle 10g SQL PL/SQL	50	-	50	2
U-LAC-603	Core Java	50	-	50	2
U-LAC-604	Computer Network	50	-	50	2
U-PRO-618	Mini Project	50	-	50	2
	Environmental Studies (***NCBC***)	50	-	50	2

Semester : VI

Code No	Course Name	Maximum Marks		Total Marks	Credits
		Theory / Practical	Internal		
U-CNE-696	C#.Net	30	20	50	2
U-DIP-697	Digital Image Processing	30	20	50	2
U-WPU-698	Web programming using PhP	30	20	50	2
U-ORD-699	Oracle 10g DBA	30	20	50	2
U-CLC-700	Cloud Computing	30	20	50	2
U-LAC-701	C#.Net	50	-	50	2
U-LAC-702	DIP	50	-	50	2
U-LAC-703	PhP	50	-	50	2
U-LAC-704	DBA	50	-	50	2
U-PRO-	Major Project	50	-	50	2

BCA.S5.596
Aptitude and Reasoning

Total Teaching Hours: 50 **Total Marks: 50**
Credit: 2

Learning objective

- Tests of General or Global Ability (also called "g", intelligence, IQ)
- Tests of Specific Cognitive abilities (Abstract Reasoning, Verbal Reasoning, Numerical Reasoning)

Course outcomes

- **Aptitude** and ability **tests** are designed to assess your logical reasoning or thinking performance. They consist of multiple choice questions and are administered under **exam** conditions. They are strictly timed and a typical **test** might allow 30 minutes for 30 or so questions.

Syllabus

UNIT - I

1. Quantitative Ability

1.1. Number Systems
1.2. LCM and HCF
1.3. Percentages
1.4. Profit, Loss and Discount
1.5. Interest (Simple and Compound)
1.6. Speed, Time and Distance
1.7. Time and Work
1.8. Averages
1.9. Ratio and Proportion
1.10. Linear Equations
1.11. Quadratic Equations
1.12. Complex Numbers

UNIT - II

2. Quantitative Ability

2.1. Logarithm
2.2. Progressions (Sequences & Series)
2.3. Binomial Theorem
2.4. Surds and Indices
2.5. Inequalities
2.6. Permutation and Combination
2.7. Probability
2.8. Functions
2.9. Set Theory
2.10. Geometry
2.11. Co-ordinate Geometry

2.12. Trigonometry
2.13. Mensuration

UNIT – III Data Interpretation
3.1. Data Interpretation
3.2. Tables
3.3. Column Graphs
3.4. Bar Graphs
3.5. Line Charts
3.6. Pie Chart
3.7. Venn Diagrams

UNIT – III Logical Reasoning
4.1. Logical Reasoning
4.2. Number and Letter Series
4.3. Calendars
4.4. Clocks
4.5. Cubes
4.6. Venn Diagrams
4.7. Binary Logic
4.8. Seating Arrangement
4.9. Logical Sequence
4.10. Logical Matching
4.11. Logical Connectives
4.12. Syllogism
4.13. Blood Relations

Reference books :
1. Analytical and Logical reasoning By Sijwali B S
2. Analytical and Logical reasoning for CAT and other management entrance test By Sijwali B S
3. How to prepare for the interpretation and logical reasoning for the CAT By Sharma Arun
4. Quantitative aptitude (Numerical Ability) by Agrawal Chandresh
5. Quantitative aptitude for Competitive examination By R S A

Course Code: U-CYS-597

Course Title: Cyber Security

Total Teaching Hours: 60 **Total Marks: 50**

Credit: 02

Learning Objectives: The Cyber security Fundamentals Online Course will provide learners with principles of data and technology that frame and define cyber security. Learners will gain insight into the importance of cyber security and the integral role of cyber security professionals. The interactive, self-guided format will provide a dynamic learning experience where users can explore foundational cyber security principles, security architecture, risk management, attacks, incidents, and emerging IT and IS technologies.

Course Outcome:

• Explain the core information assurance (IA) principles

• Identify the key components of cyber security network architecture

• Apply cyber security architecture principles

• Describe risk management processes and practices

• Identify security tools and hardening techniques

• Distinguish system and application security threats and vulnerabilities

• Describe different classes of attacks

• Define types of incidents including categories, responses and timelines for response

• Describe new and emerging IT and IS technologies

• Analyze threats and risks within context of the cyber security architecture

• Appraise cyber security incidents to apply appropriate response

• Evaluate decision making outcomes of cyber security scenarios

• Access additional external resources to supplement knowledge of cyber security

Syllabus

UNIT – I :

1 Object and Scope of the IT Act

1.1 Genesis

1.2 Object

1.3 Scope of the Act

2 Encryption

2.1 Symmetric Cryptography

2.2 Asymmetric Cryptography

2.3 RSA Algorithm

2.4 Public Key Encryption

UNIT – II

3 Digital Signature

3.1 Technology behind Digital Signature

3.2 Creating a Digital Signature

3.3 Verifying a Digital Signature

3.4 Digital Signature and PKI

3.5 Digital Signature and the Law

UNIT – III

4 Domain Name Disputes and Trademark Law

4.1 Concept of Domain Names

4.2 New Concepts in Trademark Jurisprudence

4.3 Cyber squatting, Reverse Hijacking, Meta tags, Framing, Spamming,

4.4 Jurisdiction in Trademark Dispute

5 Cyber Regulations Appellate Tribunal

5.1 Establishment & Composition Of Appellate Tribunal

5.2 Powers of Adjudicating officer to Award Compensation

5.3 Powers of Adjudicating officer to Impose Penalty

UNIT – IV

6 The Cyber Crimes

6.1 Tampering with Computer Source Documents

6.2 Hacking with Computer System

6.3 Publishing of Information Which is Obscene in Electronic Form

6.4 Offences : Breach of Confidentiality & Privacy

6.5 Offences : Related to Digital Signature Certificate

References:

1) Cyber Law in India by Farooq Ahmad – Pioneer Books

2) Information Technology Law and Practice by Vakul Sharma – Universal Law Publishing Co. Pvt. Ltd.

3) The Indian Cyber Law by Suresh T Vishwanathan – Bharat Law house New Delhi.

4) Hand book of Cyber & E-commerce Laws by P.M. Bakshi & R.K.Suri – Bharat Law house New Delhi.

5) Guide to Cyber Laws by Rodney D. Ryder – Wadhwa and Company Nagpur.

Course Code: U-ORA-598

Oracle 10g SQL & PL/SQL

Total Teaching Hours: 60 **Total Marks: 50**

Credits: 02

Learning Objective:

- Execute PL/SQL data type conversion functions
- Display output through PL/SQL programs
- Manipulate character strings in PL/SQL programs

Course Outcome :

- After completing this course, you should be able to:
- Describe the fundamentals of the PL/SQL programming language
- Write and execute PL/SQL programs in SQL*Plus
- Debug PL/SQL programs

SYLLABUS

UNIT – I

1. SQL Statements & Working with tables

1.1. DDL, DML, DQL, DCL

1.2. Data types in SQL

1.3. Creating & Managing Tables

1.4. Manipulating Data

1.5. Retrieving data using SELEC T Command WHERE, Order by, Distinct clause

1.6. Using Column Aliases

1.7. Oracle view

2. Grouping Data in SQL

2.1. Using Group By & Having clause

2.2. Substitution Variables

2.3. Using &, &&, Define, Verify

UNIT – II

3. SQL Functions

3.1. Single Row Functions

3.2. Character Functions, Case Manipulation, Character Manipulation

3.3. Number Functions

3.4. Date Functions

3.5. Conversion Functions

3.6. General Functions

4. Joining Tables &Working with Sub queries

4.1. What is Join?

4.2. Natural Join/Inner Join/Equijoin/self join

4.3. Joining With 'USING' Clause

4.4. Joining With 'ON' Clause

4.5. Outer Join

4.6. Subqueries: Single Row Sub query, Multiple Row Sub query

UNIT - III

5. Security

5.1. Creating User

5.2. Privileges: System Level Privileges, Object Level Privileges

5.3. Granting Privileges

5.4. Revoking Privileges

5.5. Roles: Study of default roles, Creating roles, Granting and Revoking roles

6. PL/SQL

6.1. An Introduction to PL/SQL

6.2. PL/SQL Overview

6.3. Declaration section

6.4. Executable Commands section

6.5. Condition logic

6.6. Loops

UNIT - IV

7. Advance in PL/SQL

7.1. Exception Handlings

7.2. Triggers: Triggers Syntax, Types of triggers, Enabling and Disabling Triggers, Replacing and Dropping Triggers

7.3. Oracle Cursor concept: Implicit & Explicit cursor

7.4. PL/SQL Procedure & Functions

Reference Books -

1. Oracle Database 10g SQL (Osborne ORACLE Press Series)by Jason price, McGrawHill, 0-07-222981-0.

2. Oracle Database 10g PL/SQL Programming by Scott Urman , Ron HARDMAN, MichaleMc Laughlin, Oracle Press, TMH, ISBN-0-07-059779-0.

3. Oracle Database 10g The Complete Reference By Kevin Loney, Bob Bryla Oracle Press (TATA McGraw Hill Edition) ISBN-13:978-0-07-059425-8, ISBN-10: 0-07-059425-2

Course Title-:Core Java
Course Code U-COR-599

Total Credit :-02

Learning Objective:
Syllabus helps to learn basic knowledge of Core Java.
Develop dynamic web applications. Create final year project .
Students can get job of Java developer as well as android application devopler .

Course outcomes:

- Implement Object Oriented Programming Concepts.
- Use and create packages and interfaces in a Java program .
- Create final year project with database connectivity.

SYLLABUS

Unit I: Introduction of Java Programming Basics

1. An Introduction to Java:
A Short History of Java, Features of Java, Comparison of Java and C++, Java virtual machine, Java program structure, Creating and Running Java Programs, Command Line Arguments

2. Programming Construct : Decision making statement, switch statement, looping statement

Unit II: Object Oriented concepts in java programming

3. Classes and Objects :
Introduction, Defining a class, Adding variables, Adding Methods, Creating Objects, Accessing Class Members, Constructors. Method Overloading, Static Members.

4. Inheritance:
Extending a class, Overriding Method, using super, Final variable and Methods, this keyword.

Unit III: Arrays, Packages and Interface

5. Arrays, Strings:
Introduction, One-dimensional and Two-dimensional Arrays, String Arrays, String Method.

6. Packages and Interface :
Java API package, Using system packages, Creating Packages & Using a Package, Interface Introduction, creating and using interfaces.

Unit IV: Multi Threading and applet

7. Multithreaded Programming:
Introduction, Life Cycle of a Thread, Creating Threads, Extending the Thread Class, Stopping and Blocking a Thread, Thread Priorities.

8. Applets : Life cycle of Applet, Creation and Execution of Java Applets, Applet tag, Parameter Passing to applet.

Reference Books :
1) Complete reference Java by Herbert Schildt(5th edition)
2) Programming with Java , A primer ,Forth edition , By E. Balagurusamy

Websites links

- **http://tutorialpoint.com**
- **https://www.w3schools.in/java-tutorial**

Course Code: U-CON-600

Course Title: Computer Networks and Administration

Total Teaching Hours: 60 **Total Marks: 50**

Credits : 02

Learning Objectives: At the end of the course, the students will be able to:

- Build an understanding of the fundamental concepts of computer networking.
- Familiarize the student with the basic taxonomy and terminology of the computer networking area.
- Introduce the student to advanced networking concepts, preparing the student for entry Advanced courses in computer networking.
- Allow the student to gain expertise in some specific areas of networking such as the design and maintenance of individual networks.

Course Outcomes:

After completing this course the student must demonstrate the knowledge and ability to:

- Independently understand basic computer network technology.
- Understand and explain Data Communications System and its components.
- Identify the different types of network topologies and protocols.
- Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer.
- Identify the different types of network devices and their functions within a network
- Understand and building the skills of subnetting and routing mechanisms.
- Familiarity with the basic protocols of computer networks, and how they can be used to assist in network design and implementation.

SYLLABUS

UNIT-I : Networking Fundamentals And Network Components

1) Networking Fundamentals

Terminologies Client, Server, Topology, Types of Network, Hierarchical Central Computer, Peer to Peer

Network, Client Server Network, Types of Network Topologies, Types of Network Technologies, Types of Data passing Schemes

2) Network Components

Types of Cablings- Coaxial, UTP, STP, FOC, Types of Connectors- RJ-45, Terminator, T-Connector, BNC, HUB, Switch, Router

UNIT-II : Network Hardware and Components And Protocols and Services

3) Network Hardware and Components

Introduction of Network Cable like UTP, STP, Fiber Optics, Hub, Unmanageable Switch, Manageable Switch, Router, Modem, Wi-Fi, Access Point, PCI Wireless Card, USB Wireless Device, Print Server, USB Network Sharer, Backup Device, Server Hardware etc. Network Interface Card, Crimping tools and Color standards for straight crimping and Cross crimping, Repeaters, Hub, Switches, Routers, Bridges.

4) Protocols and Services

HTTP, FTP and other Different types of protocols, Media Access Method, DNS services, DHCP services, WINS services and RAS services, Web services, Proxy Services etc.

UNIT-III : Device Installation And Diagnostic Tools & PC Maintenance

5) Device Installation

Graphics Card, Sound Card, LAN Card, Wireless LAN Card, SCSI Card, External Drive, Flash Cards, Web Camera, CCTV Camera, Mobile Devices, Pen Drive, Firewire Cards, Modem, Plotter, Wireless LAN, Access Point etc.

6) Diagnostic Tools & PC Maintenance

Introduction, Virus and its types, Effect of Virus for Computer System, Scanning and Antivirus remover tools, Antivirus Utilities for Diagnostic, Safety and Preventive Maintenance Tools, Data Recovery,

Concept of Fax and E-mail, PC care and Maintenance, Electrical Power Issues, Troubleshooting PC Hardware:- O/S Troubleshooting issues in computer System.

UNIT-IV :) Network Introduction & Installation And Network Administration

7) Network Introduction & Installation Introduction About Network, Installing Network Operating System Windows 2003 Server and Windows 2008 Server, Cable Crimping, Network Sharing and user Permission, Internet Connection.

8) Network Administration

Installing and Configuring Wire & Wireless Network, Network Troubleshooting, Installing Manageable Switches, Routers, Wi-Fi Device.

Reference Books :

1) James F. Kurose & Keith W. Ross, "Computer Networking : A Top-Down Approach ", 6th edition , Pearson / Addison Wesley 2013 .

2) Networking Complete BPB Publication

3) Computer Networking Andrew S. Tanenbawan by PH

U-LAC-601(Cyber Security)

Practical Total Marks: 50 **CREDIT: [02]**

Learning Objectives: The Cyber security Fundamentals Online Course will provide learners with principles of data and technology that frame and define cyber security. Learners will gain insight into the importance of cyber security and the integral role of cyber security professionals. The interactive, self-guided format will provide a dynamic learning experience where users can explore foundational cyber security principles, security architecture, risk management, attacks, incidents, and emerging IT and IS technologies.

Course Outcome:

- Explain the core information assurance (IA) principles
- Identify the key components of cyber security network architecture
- Apply cyber security architecture principles
- Describe risk management processes and practices
- Identify security tools and hardening techniques
- Distinguish system and application security threats and vulnerabilities
- Describe different classes of attacks
- Define types of incidents including categories, responses and timelines for response
- Describe new and emerging IT and IS technologies
- Analyze threats and risks within context of the cyber security architecture
- Appraise cyber security incidents to apply appropriate response
- Evaluate decision making outcomes of cyber security scenarios
- Access additional external resources to supplement knowledge of cyber security

Proposed Practical List:

1.IP address - Fundamentals of Computers
2. MAC Address 1)Static IP 2) Dynamic IP
3. Installation of Windows 8
4. Physical Security 1)Syskey. 2) ERD Commander 3) Passwords 4) Cain• & able.
5 .Browser Security.
6. Web browser Security IE 1) Mozilla Firefox 2) Google Crom.3) Firebug 4) PGP.
7. Cryptography Truecrypt.
8. Steganography Snow.
9. Email Security Email Tracker pro.
10. Mobile Security Apps. encryption.

U-LAC-602 (Oracle 10g SQL and PL/SQL)

Practical Total Marks: 50 **CREDIT: [02]**

Learning Objective:

- Execute PL/SQL data type conversion functions
- Display output through PL/SQL programs
- Manipulate character strings in PL/SQL programs

Course Outcome :

- After completing this course, you should be able to:
- Describe the fundamentals of the PL/SQL programming language
- Write and execute PL/SQL programs in SQL*Plus
- Debug PL/SQL programs

Proposed Practical List:

1. STUDY OF DDL STATEMENTS
2. STUDY OF DML STATEMENTS
3. STUDY OF DCL STATEMENTS
4. STUDY OF SELECT STATEMENTS WITH DIFFERENT OPERATORS.
   (Arithmetic Operators ,Logical Operators, Range Searching, Pattern Matching, Column Alias)
5. STUDY OF Data Constraints.
6. STUDY OF ORACLE FUNCTIONS.
7. STUDY OF ORACLE JOIN& SUBQUERIES.
8. STUDY OF Grouping Data from tables.
9. STUDY OF ORACLE VIEWS.
10. INTRODUCTION OF PL/SQL.
11. LOOPING & CONDITIONAL STRUCTURES.
12. ORACLE CURSORS
13. ORACLE STORED PROCEDURES & FUNCTIONS.
14. ORACLE TRIGGERS
15. ORACLE EXCEPTIONAL HANDLAERS.

U-LAC-603(Core Java)

Practical Total Marks: 50 **CREDIT: [02]**

Learning Objective:

Syllabus helps to learn basic knowledge of Core Java.
Develop dynamic web applications. Create final year project .
Students can get job of Java developer as well as android application devopler .

Course outcomes:

- Implement Object Oriented Programming Concepts.
- Use and create packages and interfaces in a Java program .
- Create final year project with database connectivity.

Practical Code:-U-LAC-603

1. **Program to demonstrate simple java program**
2. **Program to demonstrate class and object**
3. **Program to demonstrate Static member function**
4. **Program to demonstrate method overloading**
5. **Program to demonstrate this and super keyword**
6. **Program to demonstrate method overriding.**
7. **Program to demonstrate use of String functions**
8. **Program to demonstrate creating and using packages**
9. **Program to demonstrate simple applet program**
10. **Program to demonstrate reading data from keyboard**
11. **Program to demonstrate applet**
12. **Program to demonstrate simple multithreading application**
13. **Program to demonstrate Inheritance using interface**

U-LAC-604(Computer Network)

Practical Total Marks: 50 **CREDIT: [02]**

Learning Objectives: At the end of the course, the students will be able to:

- Build an understanding of the fundamental concepts of computer networking.
- Familiarize the student with the basic taxonomy and terminology of the computer networking area.
- Introduce the student to advanced networking concepts, preparing the student for entry Advanced courses in computer networking.
- Allow the student to gain expertise in some specific areas of networking such as the design and maintenance of individual networks.

Course Outcomes:

After completing this course the student must demonstrate the knowledge and ability to:

- Independently understand basic computer network technology.
- Understand and explain Data Communications System and its components.
- Identify the different types of network topologies and protocols.
- Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer.
- Identify the different types of network devices and their functions within a network
- Understand and building the skills of subnetting and routing mechanisms.
- Familiarity with the basic protocols of computer networks, and how they can be used to assist in network design and implementation.

Proposed Practical List:

1. Study of network devices in detail.
2. Study of basic network command and network configuration command.
3. Explain installation of LAN card and LAN cabling.
4. Test TCP/IP Setup and create user accounts and user group.
5. Study of network IP.
6. To study about installation of network and file sharing.
7. To study about installation and configuration of printers.
8. Connect the computers in Local Area Network.
9. Interfacing with the network card (Ethernet).

Course code: U-CNE-696
Course Title: C#.Net

Total Teaching Hours: 50 **Credits:02**

Learning Objectives:

- To understand the DOTNET framework and C# language features
- To develop object oriented programs on C#.
- To develop windows based applications on .NET framework.

Course Outcome:

- Describe basic concepts and develop programs in C# using object oriented features, delegates, events, errors and exceptions.
- Interpret data access and develop windows applications.
- Explain Common language runtime (CLR) as a platform for managed code.
- Describe the features of Common language runtime (CLR) and develop efficient code with C# on .NET framework.
- Develop windows based applications & services on .NET framework.
- Describe overview of .NET framework
- Apply an understanding of the .NET technology and C#.net components to develop a windows based application which solves specified problem domain
- Use of ADO.NET technology for developing database oriented applications
- Understand the professional responsibility
- Apply an understanding of the need for high ethical standards in the practice of engineering towards people and the environment

SYLLABUS

UNIT I : Introduction to .net, Arrays and operators
What is .net?,.Net Framework, CLR, Visual Studio.net & .net Languages, Integrated Development Environment, Project types, c#.net History & design Goals, How c# differs from c++, Characterstics of c#.net,I/O Statement with C#.net, Boxing & Unboxing, Short Circuiting Operators, Array &ArrayList class, Jagged Array,String Class

UNIT II : Properties, Events, Delegatesand C# namespaces

Properties & its type, Event, Delegate & Multicast Delegate, Creating & Starting thread, Exception handling,usingkeyword,creating and using namespaces,interface,Method overloading & method overriding,Partial Class

UNIT III : Windows Application
Event Driven Programming,.Building windows application with visual studio,TextBox, Label & Button Control,ComboBox, ListBox ,CheckBox&GroupBoxControl,DateTimePicker , Timer control,Building Menu,. MDI Form,PictureBox , ProgressBarControl,Common Dialog boxes,Introduction to WPF

UNIT IV: Ado.Net and Database Oriented Applications
How Ado.net differs from Ado,Advantages of Ado.net,Connected& Disconnected Architecture,Dataset, DataReader&DataAdapter,Managed Data Providers,DataGridViewControl,Developing Ado.net Based Application,Insert, Update & Delete operation on table, Filling the Dataset

Reference books:

1. Programming in C# A Primer - Second Edition By - E Balagurusamy
2. C#.Net Programming Wrox Publication
3. .Net 4.0 programming black book by KOGENT LEARNINGSOLUTIONS INC.
4. C# 2010 programming black book by KOGENT LEARNINGSOLUTIONS INC.

Course Code: U-DIP-697
Course Title: Digital Image Processing

Total Teaching hours: 60 **Marks: 50**
Credits: 02

Learning Objective:

1. The fundamentals of digital image processing
2. Image transform used in digital image processing
3. Image enhancement techniques used in digital image processing
4. Image restoration techniques and methods used in digital image processing
5. Image compression and Segmentation used in digital image processing

Course Outcome:

After completion of this course, students should be able to:

- Understand the basics of fundamentals of digital image processing
- Understand how computers represent and manipulate images
- Understand image arithmetic and convert between different data classes
- Understand basics of intensity transformations
- Understand and manipulate image histograms.
- Working with image filtering and noise removal.

The student will be able to:

- Understand the basics of fundamentals of digital image processing
- Understand how computers represent and manipulate images
- Understand image arithmetic and convert between different data classes
- Understand basics of intensity transformations
- Understand and manipulate image histograms.
- Working with image filtering and noise removal.

SYLLABUS

UNIT- I: Introduction to DIP

What is digital image processing? Example fields of digital image processing, Fundamental steps in digital image processing, Components of image processing system. Elements of visual perception, Lights and electromagnetic spectrum, Image sensing and acquisition, Image sampling and quantization, Some basic relationship between pixels.

Unit –II Digital Image Representation using Matlab

Digital Image Representation: Coordinate Conventions, Images as Matrices
Reading Images, Displaying Images, Writing Images, Data Classes, Image Types: Intensity Images, Binary Images, Converting between Data Classes and Image Types: Converting between Data Classes, Converting between Image Classes and Types, Array Indexing: Vector Indexing, Matrix Indexing, Selecting Array Dimensions, Some Important Standard Arrays. Introduction to M-Function Programming: M-Files, Operators, Flow Control, Code Optimization, Interactive I/O

Unit- III Intensity transformation using Matlab

Intensity Transformation Functions: Function imadjust, Logarithmic and Contrast-Stretching Transformations, Some Utility M-Functions for Intensity Transformations

Histogram Processing and Function Plotting: Generating and Plotting Image Histograms, Histogram Equalization, Histogram Matching (Specification)

Spatial Filtering: Linear Spatial Filtering, Nonlinear Spatial Filtering

Unit –IV Frequency Domain Processing and Histogram Processing

Frequency Domain Processing: The 2-D Discrete Fourier Transform, Computing and Visualizing the 2-D DFT in MATLAB, Filtering in the Frequency Domain: Fundamental Concepts, Basic Steps in DFT Filtering, A Model of the Image Degradation/Restoration Process, Color Image Representation in MATLAB: RGB Images, Indexed Images IPT Functions for Manipulating RGB and Indexed Images.

Reference Books:

1. Digital Image Processing Using MATLAB by Rafael C. Gonzalez, Richard E. Woods, Steven L. Eddins
2. Digital Image Processing by Rafael C. Gonzalez, Richard E. Woods

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Course Code:- U-WPU-698

Course Title: Web Programming Using PHP

Total Teaching Hours: 60 **Total Marks: 50**

Credits:02

Learning Objective :- Learn Designing of Web Pages, writing PHP code, JoinHTML with PHP, testing application on Browsers, object oriented programming with php, MySql connectivity etc.

Course Outcome:- Student should design Web Pages, Writing HTML page with PHP Code, run web page on various browsers, create php classes, works with different phpclasses, perform database connectivity with Mysql

SYLLABUS

UNIT- I:

1. Introduction: HTTP basics, Introduction to Web server and Web browser, Introduction to PHP, advantages of PHP.

2. Programming Constructs: PHP syntax, Variables, Constants, Data types, Operators and Expressions**,** Conditional and Loop statement, Switch statement, Break and Continue.

UNIT- II:

3. Function and String : Defining and calling a function, Default parameters, Variable parameters, Printing functions, Types of strings in PHP, Encoding and escaping, Comparing strings, Manipulating and searching strings.

4. Arrays and array function: Indexed Vs Associative arrays, Multidimensional arrays, Converting between arrays and variables, Traversing arrays, Using arrays, some important functions of Array.

UNIT- III:

5. Introduction to Object Oriented Programming: Classes, Objects, Serialization, Inheritance, Interfaces, Encapsulation.

6. Working With Data: FORM element, INPUT elements, Validating user input, Passing variables between pages, Passing variables through a GET, Passing variables through a POST, Passing variables through a REQUEST, MVC Architecture.

UNIT- IV:

7. Cookies & Sessions : Anatomy of a cookie , Setting a cookie with PHP, Deleting a cookie, Creating session cookie, **Sessions :** Starting a session, Working with session variables, Destroying a session.

8. **Introduction to MySQL:** Introduction to MySql , Benefits of MySql, Types of commands, **Clauses :** where, order by, between, Connectivity with PHP.

Reference Books :

1. Programming PHP Rasmus Lerdorf and Kevin Tatroe O'Reilly publication

2. Beginning PHP 5 Wrox publication

3. PHP and MYSQL O'Reilly publication

4. www.php.net.in

5. www.W3schools.com

6. www.wrox.com

BCA TY V Sem
Course Code: U-ORA-699
Course Title: Oracle 10G DBA

Total Teaching Hours: 50 **Total Marks: 50**
Credit 2

Learning Objective

A Database Administrator is responsible for maintaining all aspects of a database. These professionals can be found working in a variety of industries. Database Administrators work to ensure databases are secure and that they are performing properly. They may also troubleshoot problems and work on development as well. They make sure that data is consistent in the database and that it is clearly defined. Depending on their level, Database Administrators may monitor user access, determine user needs, design databases, perform tests, ensure standards are maintained and work with other IT professionals and managers to ensure database integrity and security are kept up with. Important skills include technical, communication, analytical and problem-solving skills.

Course Outcome

The purpose of database administration is to provide reliable, consistent, secure, and available corporate-wide data. This discusses the roles performed by database administration, distinguishes database administration and data administration, and describes several database operation and maintenance issues.

Although database administration (DBA) means different things to different organizations, the overall objective is to achieve centralization and control of the corporation's data resource.

SYLLABUS

Unit I DBA Basics and Tablespaces

1 Basics of DBA

Functions of DBA, Oracle Instance- Starting and Stopping Instance, Memory Architecture- Oracle 10G **Memory structure, Background Process, Physical Database Structure -Control file , Data file , Online Redo log file, Archive file, trace file, alert log file, parameter file SP file password file, Manual Database creation**

2 Tablespaces

Introduction to Tablespaces - Types of Tablespaces - SYSTEM , SYSAUX, Big file, Undo, default, temporary, online, offline Tablespaces ,read only Tablespaces, Working with Tablespaces - Creating Tablespaces, altering Tablespaces, modifying Tablespaces, Management of Tablespaces

Unit II Databse Layouts and Backup & Recovery

3 Physical Databse Layouts & storage management.

Traditional disk space storage, Resizing tablespaces and database, Moving datafile, Moving online redo log file, moving control files, Undo basics - roll back, read consistency, database recovery, flash back operations

4 RAC Database and Backup, Recovery options

Overview of Real Application Clusters , RAC databsse characteristics, Logical Backup - data pump esxport/import process , Physical backup - Offline online backup, Flash Recovery area

Unit III RMAN & Database Tuning

5 Using Recovery Manager RMAN

RMAN features & components, RMAN vs Traditional backup method, Overview of RMAN commands & options

6 Database Tuning

Tuning - application design, effective table design, Distribution of CPU requirements, Effective application design, Tuning SQL, Impact of order of load rates, Additional Indexing options, Generating explain plan.

Unit IV Database Security and Auditing

7 Database security & Auditing

Non database security, database authentication methods, databsse authentication, DBA authentication, user accounts, database authorization methoda, auditing.

Reference Books

1. Oracle database 10G DBA handbook by Kevin Loney, Bob Bryla Oracle Press
2. OCP oracle database 10G New features for admininstrators exam guide By SAM R Alapati

Course Code: U-CLC-700

Course Title: Cloud Computing

Total Teaching Hours: 60 **Total Marks: 50**

Credits: 02

Learning Objectives:

The student will learn about the cloud environment, building software systems and components that scale to millions of users in modern internet, cloud concepts capabilities across the various cloud service models including Iaas, Paas, Saas, and developing cloud based software applications on top of cloud platforms.

Course Outcomes:

- Understanding the key dimensions of the challenge of Cloud Computing
- Assessment of the economics , financial, and technological implications for selecting cloud computing for own organization
- Assessing the financial, technological, and organizational capacity of employer's for actively initiating and installing cloud-based applications.
- Assessment of own organizations' needs for capacity building and training in cloud computing-related IT areas

SYLLABUS

UNIT - I

1 Introduction Of Cloud Computing

1.1 Cloud Computing

1.2 Cloud computing compared with other technologies

1.3 Benefits of cloud computing

1.4 Disadvantages of Cloud Computing

1.4 Issues with cloud computing

2 Cloud Deployment Models

2.1 Private cloud

2.2 Public Cloud

2.3 Hybrid Cloud

2.4 Community cloud

2.5 Popularity of Cloud deployment models

UNIT - II

3 . Cloud Service Models

3.1 Introduction

3.2 Platform as a Service (PaaS)

3.3 Software as a Service (SaaS)

3.4 Infrastructure as a Service (IaaS)

4 .Cloud computing Platforms

4.1 Infrastructure as a service: Amazon EC2

4.2 Platform as a service: Google App Engine

4.3 Microsoft Azure

UNIT - III

5.Cloud Technologies: Web Services, AJAX and MASHUPs

5.1 web services: SOAP and REST

5.2 SOAP versus REST

5.3 AJAX:asynchronous ‘rich’ interfaces

5.4 Mashups: User interface services

UNIT - IV

6.Cloud development: Data In the Cloud

6.1 Relational Databases

6.2 Cloud file systems: GFS and HDFS

6.3 BIGTable, HBase and Dynamo

6.4 Cloud Data Stores: Data store and simpleDB

7. Dev 2.0 Platforms

7.1 Dev 2.0 Platforms

7.2 Dev 2.0 in the cloud for enterprises

7.3 Advantages ,Applicability and limits of Dev 2.0

Reference Book:

1. Enterprise Cloud Computing: Technology, Architecture, Application By Gautam Shroff

2. Cloud Computing, A Practical Approach, Anthony T Velte, Toby J Velte, Robert Elsenpeter, TMH

3. Mastering Cloud Computing, Foundations and Application Programming, Raj Kumar Buyya, Christen vecctiola, S Tammarai selvi, TMH

U-LAC-701(C#.NET)

Practical Total Marks: 50 **CREDIT: [02]**

Learning Objectives:

- To understand the DOTNET framework and C# language features
- To develop object oriented programs on C#.
- To develop windows based applications on .NET framework.

Course Outcome:

- Describe basic concepts and develop programs in C# using object oriented features, delegates, events, errors and exceptions.
- Interpret data access and develop windows applications.
- Explain Common language runtime (CLR) as a platform for managed code.
- Describe the features of Common language runtime (CLR) and develop efficient code with C# on .NET framework.
- Develop windows based applications & services on .NET framework.
- Describe overview of .NET framework
- Apply an understanding of the .NET technology and C#.net components to develop a windows based application which solves specified problem domain
- Use of ADO.NET technology for developing database oriented applications
- Understand the professional responsibility

Apply an understanding of the need for high ethical standards in the practice of engineering towards people and the environment

Proposed Practical List:

1. Program to demonstrate jagged array
2. Program to demonstrate String class and its methods
3. Program to demonstrate properties concept
4. Program to demonstrate delegate concept
5. Program to demonstrate creation of C# namespaces
6. Program to demonstrate interface concept
7. Program to demonstrate common windows controls
8. Program to demonstrate advance windows controls
9. Program to demonstrate simple database connectivity application
10. Program to perform insert, update and delete operation on database

U-LAC-702(DIP)

Practical Total Marks: 50 **CREDIT: [02]**

Learning Objective:

6. The fundamentals of digital image processing
7. Image transform used in digital image processing
8. Image enhancement techniques used in digital image processing
9. Image restoration techniques and methods used in digital image processing
10. Image compression and Segmentation used in digital image processing

Course Outcome:

After completion of this course, students should be able to:

- Understand the basics of fundamentals of digital image processing
- Understand how computers represent and manipulate images
- Understand image arithmetic and convert between different data classes
- Understand basics of intensity transformations
- Understand and manipulate image histograms.
- Working with image filtering and noise removal.

Proposed Practical List:

- Study of MatLab Enviornment
- Working with Data Classes and Image types
- Working with Array and Matrices
- Study of Basic Image operations
- Working with Image Filtering
- Working with Image Histogram plotting functions
- Working with histogram equalization and matching
- Study of Linear Spatial Filtering (Linear and non-linear)
- Working with Intensity Transformation
- M-Function: demonstration of control constructs
- M-Function: demonstration of Looping
- Study of image Restoration and Degradation functions

U-LAC-703(PHP)

Practical Total Marks: 50 **CREDIT: [02]**

Learning Objective :- Learn Designing of Web Pages, writing PHP code, JoinHTML with PHP, testing application on Browsers, object oriented programming with php, MySql connectivity etc.

Course Outcome:- Student should design Web Pages, Writing HTML page with PHP Code, run web page on various browsers, create php classes, works with different phpclasses, perform database connectivity with Mysql

Proposed Practical List:

1. HTML code to print Hello on Browser
2. HTML program with Form tag
3. HTML program with Form and Input tag
4. First PHP program
5. Php program for looping
6. Php program for Function
7. Php program for Printing Function
8. Php program for Encoding Function
9. Php program for Escaping Function
10. Php program for Inheritance
11. Php program for Interface
12. HTML &Php program for get and post method
13. Php program for Cookies
14. Php program for Session
15. Php program for Database connectivity with Mysql

U-LAC-704 (Oracle 10g DBA)

Practical Total Marks: 50 **CREDIT: [02]**

Learning Objective

A Database Administrator is responsible for maintaining all aspects of a database. These professionals can be found working in a variety of industries. Database Administrators work to ensure databases are secure and that they are performing properly. They may also troubleshoot problems and work on development as well. They make sure that data is consistent in the database and that it is clearly defined. Depending on their level, Database Administrators may monitor user access, determine user needs, design databases, perform tests, ensure standards are maintained and work with other IT professionals and managers to ensure database integrity and security are kept up with. Important skills include technical, communication, analytical and problem-solving skills.

Course Outcome

The purpose of database administration is to provide reliable, consistent, secure, and available corporate-wide data. This discusses the roles performed by database administration, distinguishes database administration and data administration, and describes several database operation and maintenance issues.

Although database administration (DBA) means different things to different organizations, the overall objective is to achieve centralization and control of the corporation's data resource.

Proposed Practical List:

1. **Using Administrative Tools**
2. **Preparing to Create a Database and Database Startup**
3. **Generating the Production Database**
4. **Administering your Database**
5. **Administering the Control Files and Redo Logs**
6. **Managing Tablespaces and Data Files**
7. **Storage Structures**
8. **Tables, Indexes and Constraints**
9. **Rollback Segments**
10. **Managing Users**
11. **Monitoring the Database**
12. **Tuning the Database**