SACRED HEART COLLEGE (AUTONOMOUS)

Tirupattur – 635 601, Tamil Nadu, S.India

Resi : (04179) 220103
College : (04179) 220553
Fax : (04179) 226423

Ready for
Every Good Work

A Don Bosco Institution of Higher Education, Founded in 1951 * Affiliated to Thiruvalluvar University, Vellore * Autonomous since 1987
Accredited by NAAC (4th Cycle – under RAF) with CGPA of 3.31 / 4 at 'A+' Grade

Sacred Heart College (Autonomous), Tirupattur District

1.2.1 List of New Courses

Department: BCA

BCA

Sem	Subject Code	Part	Subject	L	P	CD	CA	SEM
I	LT114	I	Tamil – I	5		3	50	50
	LE115BT	II	English – I	5		2	50	50
	CE103	II	Communicative English - I			1	50	50
	AM114D	III	Mathematical Foundations – I	6		4	50	50
	CA107	III	Digital Computer Fundamentals	4		4	50	50
	CA108	III	Internet Concepts and Web Design	4		4	50	50
	PCA104	III	Practical - I : Internet Concepts and Web Design		2	2	50	50
	SK104	IV	Communication Skills	2		1	-	100
	VE105B / VE105A	IV	Value Education - I / Christian Religion - I	2		1	-	100
	LE115BP		English Lab - I			1	-	100
				28	2	23		
II	LT214	I	Tamil – II	5		3	50	50
	LE215BT	II	English – II	5		2	50	50
	CE203	II	Communicative English - II			1	50	50
	AM214D	III	Mathematical Foundations – II	6		4	50	50

	CA207	III	Programming with C	4		4	50	50
	CA208	III	Operating System	4		4	50	50
	PCA204	III	Practical-II : Programming with C		2	2	50	50
	SK204	IV	Leadership Skills	2		1	-	100
	VE205B / VE205A	IV	Value Education - II / Christian Religion – II	2		1	-	100
	LE215BP		English Lab – II			1	-	100
				28	2	23		

Sem	Subject Code	Part	Subject	L	P	CD	CA	SEM
III	CA312	III	Computer Networks	4		4	50	50
	CA313	III	Programming with JAVA	4		3	50	50
	CA314	III	Data Structures using C	4		4	50	50
	AC309	III	Allied – Financial Accounting - I	6		4	50	50
	CA315A/ B/C	III	Discipline Specific Elective I	4		3	50	50
	PCA306	III	Practical -III - Data Structures using C		2	2	50	50
	PCA307	III	Practical-IV : Programming with JAVA		2	2	50	50
	SK304	IV	Technical Skills	2		1	-	100
	VE306	IV	Human Rights	2		1	-	100
		VI	Certificate Course - I #			2#		
				26	4	24+2#		
IV	CA412	III	Software Engineering	4		4	50	50
	CA413	III	Enterprise Applications using .NET	4		3	50	50
	CA414	III	Relational Database Management System	4		4	50	50
	AC411	III	Allied – Financial Accounting - II	6		4	50	50
	CA415	III	Emerging Computing Paradigms	4		3	50	50
	PCA406	III	Practical – V : Enterprise Applications using .NET		2	2	50	50

	PCA407	III	Practical–VI : Relational Database Management System		2	2	50	50
	SK404	IV	Employability Skills	2		1	-	100
	VE406	IV	Environmental Science	2		1	-	100
	CO-DED	V	Outreach Programme			2		
	C0-SHE	V	Groups and Movements			2		
		VI	Certificate Course – II#			2#		
				26	4	28 + 2#		

Sem	Subject Code	Part	Subject	L	P	CD	CA	SEM
V	CA514	III	Software Testing and Quality Assurance	4		4	50	50
	CA515	III	Computer Graphics	4		4	50	50
	CA516	III	Enterprise Applications using JAVA	5		4	50	50
	CA517	III	Programming with Python	5		4	50	50
	PCA505	III	Practical - VII - Enterprise Applications using JAVA		6	4	50	50
	PCA506	III	Practical - VIII - Programming with Python		4	4	50	50
	NCA504	IV	Non Major Elective I : Introduction to Information Technology	2		1	-	100
		VI	Self Study Paper I- Inplant Training*	-		1*		
				20	10	25 + 1*		
VI	CA612	III	Cloud Computing	4		4	50	50
	CA613	III	Mobile Application Development	5		4	50	50
	CA614	III	Web Programming using PHP	5		5	50	50
	CA615A/B/C	III	Discipline Specific Elective II	4		3	50	50
	PCA608J	III	Project Work		6	4	-	100

	PCA607	III	Practical IX - Mobile Application Development and PHP		4	4	50	50
	NCA604	IV	Non Major Elective – II : Multimedia	2		1	-	100
		VI	Self Study Paper II: NPTEL*	-		1*		
				20	**10**	**25+1***		

B.Com (CA) Allied course

SEMESTER	PART	SUBJECT	L	P	CD
I	III	Office Automation	4		3
	III	Practical -I : Office Automation		2	1
II	III	Internet Concepts and Web Design	4		3
	III	Practical -II : Internet Concepts and Web Design		2	1
III	III	Programming with C	4		3
	III	Practical -III: Programming with C		2	1
IV	III	Relational Database Management System	4		3
	III	Practical -IV: Relational Database Management System		2	1
V	III	Computer Organization	4		4
	III	Web Programming Using PHP	4		4
	III	Practical -V: Web Programming Using PHP		2	2
VI	III	Management Information System	4		4
		TOTAL	**28**	**10**	**30**

Sacred Heart College (Autonomous), Tirupattur District

1.2.1 List of New Courses

Department: BCA

S.No.	Course Code	Course Name
1.	CA312	Computer Networks
2.	CA313	Programming with JAVA
3.	CA315A	Discipline Specific Elective I – Angular JS
4.	CA315B	Discipline Specific Elective I – Object Oriented Analysis and Design
5.	CA413	Enterprise Applications using .NET
6.	CA414	Relational Database Management System
7.	CA415	Emerging Computing Paradigms
8.	PCA406	Practical – V : Enterprise Applications using .NET
9.	PCA407	Practical–VI : Relational Database Management System

Semester – III   4 Hours/4 Credits

COMPUTER NETWORKS

1. COURSE OBJECTIVES
- To understand the organization of computer networks.
- To test and implement the different network connections.
- To understand the performance of network layers like IPv4 and IPv6 addresses.
- To understand the way protocols currently in use in the Internetwork and the requirements for designing network protocols.
- To understand the concepts of WWW and electronic mail.

2. COURSE OUTLINE

UNIT–I: INTRODUCTION TO COMPUTER NETWORKS
History of Computer Networking and the Internet – Data Communications –Networks– Network Types– The OSI Model–Multiplexing– Transmission Media–Guided Media and Unguided Media.

UNIT–II: DATALINK LAYER
Introduction to Data Link Layer – Error Detection and Correction – Block Coding –Cyclic Codes: Cyclic Redundancy Check. Data Link Control: DLC Services – HDLC– PPP: Services, Framing and Transition Phase.

UNIT– III: NETWORK LAYER
Network Layer Services – Network Layer Performance – IPV4 Addresses: Address Space, Classful Addressing, Classless Addressing and DHCP. IPV6addressing–Packet Format – Mobile IP.

UNIT–IV: TRANSPOR TLAYER

Introduction to Transport Layer – Transport Layer Protocols: Simple Protocol – Stop-and-Wait Protocol – Go-Back-N Protocol and Selective Repeat Protocol. UDP, TCP: Services, Features and Connection – SCTP.

UNIT–V: APPLICATION LAYER

Introduction–ClientServerProgramming–WWWandHTTP–FTP–ElectronicMail –Telnet– DNS – SNMP: Managers and Agents – Management Components.

3. TEXTBOOK
1) Behrouz A Forouzan, "Data Communication and Networking", 5th Edition, McGraw Hill Education, 2013.

Unit– I	:	Ch. 1.1 – 1.5, 2.3, 6.1, 7.1 – 7.3
Unit– II	:	Ch.9.1 – 9.2, 10.1 – 10.4, 11.1 – 11.4
Unit– III	:	Ch. 18.1, 18.3 – 18.4, 19.1, 22.1 – 22.2,19.3
Unit– IV	:	Ch. 23.1 – 23.2, 24.1 – 24.4
Unit– V	:	Ch. 25.1 – 25.2, 26.1 – 26.4, 26.6, 27.2

4. REFERENCES

1) James F.Kurose and Keith W.Ross, "Computer Networking: A Top-Down Approach Featuring the Internet", 6th Edition, Pearson Education, 2017.
2) Larry L.Peterson and Bruce S.Davie, "Computer Networks: A System Approach", Elsevier, 4th Edition, 2007.
3) Andrew S.Tanenbaum, "ComputerNetworks",4th Edition, Prentice-Hall of India, 2003

5. WEB REFERENCES

- https://www.rfc-editor.org/
- https://www.hpe.com/us/en/networking.html.html
- https://www.tutorialspoint.com/data_communication_computer_network/index.htm
- https://www.w3schools.in/types-of-network-protocols-and-their-uses/

6. SUPPLEMENT LEARNING

- Periodic Analog Signals
- SONET
- IEEE 802.11 Project
- Connecting Devices and Virtual LANS
- Cryptography and Network Security

Semester – III

PROGRAMMING WITH JAVA

Course Code	CA313	Credit	3
Instruction Hours per Week	4	Marks	CIA (50) / SE (50)
Course Objective	- To understand the basics of Object Oriented Programming concepts, Character Set, tokens, variables, data types, operators and control structure. - To understand the fundamental concept of Java like class and object, array, methods, constructors and inheritance. - To understand the concept of package, Exception Handling and Threading. - To understand the concepts of Applets, AWT and SWING.		

COURSE OUTLINE

UNIT - I: BASIC CONCEPTS

Foundations of Java – Java Essentials: Elements – Java API – Variables and Literals – Data types – String Classes – Operators – Constants - Comments – Control Statements – Arrays – String Handling

UNIT - II: CLASSES AND OBJECTS

Classes and objects – General form, creation, constructors, constructor overloading, copy constructor, "this" keyword, Static members, finalize method, Inner class and anonymous classes, Inheritance – inheriting, abstract classes and final classes, Interfaces – structure, implementation, interface inheritance.

UNIT - III: PACKAGES, EXCEPTION HANDLING AND THREADING

Packages – Package Hierarchy, Import Statement, Hiding the Classes, Access Control Modifiers, Exception Handling – Default Exception – User Defined Exception Handling, Exception and Error Classes, Throw and Throws. Threading – Life Cycle, Creating and Running, Methods in Thread Class, Priority Thread, Synchronization, Dead Lock, Inter Thread Communication.

UNIT - IV: APPLETS AND AWT

Applets – Life Cycle - Applet Class – Developing Applet Program – Passing values through parameters – Graphics in Applet – Event Handling – GUI - AWT Components: Frames, panels, dialog boxes, FileDialog – Layout Managers, labels, textfileds, buttons, checkbox, radio buttons, choice lists, lists, scrollbars, menu bars and menu items.

UNIT - V: SWING

SWING – Component Classes – JFrame – JPanel – JpasswordField – Jtable – JoptionPane – JtabbedPane – Jtree – JProgressBar – JfileChooser – JcolorChooser – Jslider - Developing SWING Application.

3. TEXTBOOK

1) Sagayaraj, Denis, Karthik and Gajalakshmi, "Java Programming for Core and advanced Learners", Universities Press, 2018

   Unit – I : Ch. 1, 2, 3, 5, 6

   Unit - II : Ch. 4, 7, 8, 9, 10, 11

   Unit - III : Ch. 16

   Unit – IV : Ch. 12, 13

   Unit – V : Ch. 13, 14

4. REFERENCES

1) C. Muthu, "Programming with Java", Tata McGraw Hill, 2006.
2) Herbert Schildt, "The Complete Reference – Java 2", 4th Edition, Tata McGraw Hill, 2001.
3) Balaguruswamy, "Programming with JAVA", Tata McGraw Hill, 1999.

5. WEB REFERENCES

Online Tutorial

- http://www.tutorialspoint.com/java/
- http://javabeginnerstutorial.com/core-java/

Online Quiz

- https://www.tutorialspoint.com/java/java_online_quiz.htm
- http://withoutbook.com/OnlineTestStart.php?quizId=2

Online Compiler

- https://www.codechef.com/ide
- https://www.tutorialspoint.com/compile_java_online.php

6. SUPPLEMENT LEARNING

- Keyboard Inputs
- Multidimensional Arrays
- Exception Catch Block search pattern
- JDBC Connections
- Files creation and Random Access Files

ELECTIVE – I ANGULAR JS

1. COURSE OBJECTIVES

- To helps the reader understand how Angular JS differs from other frameworks
- To set up a test environment for Angular JS
- To shows why Angular JS is a better framework for building modern web applications and websites
- To working on a functional application and implement testing
- To covers search engine optimization as it relates to Angular JS applications and websites.

2. COURSE OUTLINE

UNIT - I: INTRODUCTION TO ANGULAR JS

Introduction to Angular JS - JavaScript Client-Side Frameworks - Single-Page Applications -Bootstrapping the Application - Dependency Injection - Angular JS Routes - HTML5 Mode - Modern Search Engines - Angular JS Templates - Angular JS Views (MVC) - Angular JS Models (MVC) - Angular JS Controllers (MVC) - Controller Business Logic - Integrating Angular JS with Other Frameworks - Testing Angular JS Applications

UNIT - II: IDE AND ANGULAR JS PROJECTS

The IDE - Editing the HTML Code - Editing the JavaScript Code - Creating the Templates- Running the Applications - Testing Angular JS Applications in the IDE – JsTestRunner - Karma Test Runner - Protractor

UNIT - III: MVC AND ANGULAR JS

Angular JS Controllers – JS Test Drivers – Testing with Karma – End-to-End Testing with Protractor – Angular JS Models – Services and Business Logic – Angular JS Directives

UNIT - IV: ANGULAR JS VIEWS AND BOOTSTRAP

Angular JS Templates - Creating the Blog Project - Adding a New Blog Controller - Adding a New Blog Template- Twitter Bootstrap - Adding a Bootstrap Menu - Adding Mock Blog Data - Using CSS3 to Style the Page - Adding Styles and Presentation Logic - Viewing the Blog Post - Running the Blog Application – Angular JS and REST Services

UNIT - V: ANGULAR JS SECURITY AND SEO

Authentication - Adding a Login Service - Adding a Login Controller - Security Modifications to Other Controllers - Adding a Logout Controller - Adding a Login Template - Adding New Routes - Adding a Logout Link - Running the Blog Application – MEAN Cloud and Mobile – Angular JS and SEO

3. TEXTBOOK

1) Ken Williamson (O'Reilly). "Learning Angular JS", by Copyright 2015 Ken Williamson.
   Unit – I: Ch. 1
   Unit – II: Ch. 2
   Unit – III: Ch. 3, 4, 7, 8, 9
   Unit – IV: Ch. 5, 6
   Unit – V: Ch. 10, 11, 12

4. REFERENCES

- Asim Hussain, "Angular: From to Practice". CodeCraft, 1st Edition, 2017

5. WEB REFERENCES

- https://angularjs.org
- https://docs.angularjs.org
- https://www.w3schools.com/angular

6. SUPPLEMENT LEARNING

- Moderate knowledge of HTML, CSS and JavaScript
- Basic MVC Concepts
- JavaScript Events, Functions and Error Handling

ELECTIVE – I: OBJECT ORIENTED ANALYSIS AND DESIGN

1. COURSE OBJECTIVES

- To understand the diagrams UML.
- To prepare the students to draw class modeling diagrams.
- To make the students to understand the importance of state modeling diagrams.
- To become knowledgeable in interaction modeling diagrams.
- To understand the basic concept of system conception and design.

2. COURSE OUTLINE

UNIT – I: MODELING IN GENERAL

Introduction to OO development - Modeling Concepts: Modeling – Abstraction - The Three Models – Overview of Unified Modeling Language and introduction to UML diagrams. Class Modeling: Object and Class Concepts – Link and Association - Inheritance - Advanced Class Modeling: Advanced Object & Class Concepts - Association Ends -N-ary Associations – Aggregation – Abstract Classes – Multiple Inheritance –Metadata – Reification – Constraints - Derived Data – Packages.

UNIT – II: STATE MODELING

State Modeling: Events – States – Transitions & Conditions - State diagrams - State Diagram Behavior - Advanced State Modeling: Nested State Diagrams - Nested States – Signal Generalization – Concurrency - Sample State Model - Relation of Class & State Models.

UNIT – III: INTERACTION MODELING

Interaction Modeling: Use Case Models – sequence Models – Activity Models – Advanced Interaction Modeling: Use Case Relationship – Procedural sequence Models – Special Constructs for Activity Models.

UNIT – IV: SYSTEM ANALYSIS AND DESIGN

Process Overview: Development Life Cycle – System Conception : Devising a System Concept – Elaborating a Concept – Preparing a problem statement. System Design : Overview of system Design – Estimating performance – Making a Reuse plan – Breaking a system into Subsystems – Identifying Concurrency – Allocation of Subsystems – Management of Data Storage – Handling Global Resources – Class Design.

UNIT – V: IMPLEMENTATION

Overview of implementation – fine-tuning classes- fine tuning generalizations – realizing associations – testing – Databases: Introduction – Implementing structure basic and advanced – implementing functionality – object oriented databases.– Star UML (Open Source)

3. TEXTBOOK

1) Michael Blaha and James Rumbaugh, "Object-Oriented Modeling and Design with UML", Prentice Hall of India Private Limited, New Delhi,2006.

Unit– I	: Ch. 1 – 4
Unit– II	: Ch. 5 – 6
Unit– III	: Ch. 7 – 8
Unit– IV	: Ch. 10, 11-15
Unit– V	: Ch. 17, 19

4. REFERENCES

1) Ali Bahrami, "Object-oriented Systems Development using UML", McGraw Hill, Boston, 1999.
2) Satzinger Jackson Burd, "Object Oriented Analysis and Design", First Edition 2005.
3) Ivan Jacobon, Christerson Johnson, "Object Oriented Software Engineering", Fifth Edition, Pearson publication, 2000.

5. WEB REFERENCES

Online Tutorial

- http://dev.tutorialspoint.com/object_oriented_analysis_design/index.htm
- http://ooaduml.com/
- https://onlinecourses.nptel.ac.in/noc16_cs19/preview

Online Quiz

- https://gcc.gnu.org/onlinedocs/
- http://interviewquestionsanswers.org/quiz/Designing/Object-Oriented-Analysis-and-Design-OOAD

StarUML Tool

- https://staruml.io/

6. SUPPLEMENT LEARNING

- Domain Analysis
- Application Analysis
- Databases
- Iterative Development
- Legacy Systems

ENTERPRISE APPLICATIONS USING .NET

1. COURSE OBJECTIVES
- To know the differences between desktop and web application.
- To create and manipulate GUI components in C#.
- To configure an asp.net application.
- To create ASP.Net applications using standard .net controls.
- To develop a data driven web application.
- To connect the data sources and managing them.

2. COURSE OUTLINE

UNIT - I: INTRODUCTION TO C#
Introduction to .NET – Features of C# - Data Types – Value Types – Reference Types - Variables and Constants – Declaring – Assigning values – variables of nullable types – Operators – Type Conversions – Implicit and Explicit Type Conversions – Arrays – Single Dimensional and Multidimensional – Control Flow Statements – Selection – Iteration and Jump – Classes and Objects – Access Modifiers – Defining a Class – Variables – Properties and Methods – Creating Objects – Inheritance – Polymorphism- Constructor and Destructors.

UNIT - II: WINDOWS FORMS
Windows Forms – Form Class – Common Operations on Forms – Creating a Message Box –Handling Events – Mouse Events – Keyboard Events – Common Controls in Windows Forms – Label – TextBox – Button – Combo Box – List Box – Check Box – Radio Button – Group Box – Picture Box – Timer – Open File Dialog – Save File Dialog – Font Dialog – Color Dialog – Print Dialog – Tree View – Menu.

UNIT – III: WEB FORMS
Setting up ASP.NET and IIS - .NET Architecture - IIS manager - Creating a Virtual Directory-Virtual Directories and Applications - Folder Settings - ASP.NET Applications – File Types – The bin Directory Application Updates – A Simple Application - The Page Lifecycle. – Input Controls – Display Controls – Action Controls – Selection Controls

UNIT –IV: VALIDATION AND RICH CONTROLS
Validation and Rich Controls – The Calendar Control – Formatting the Calendar – Restricting Dates – The AdRotator – Validation Controls – Validation Process Validation Classes – Server Side Validation – Manual Validation – Understanding Regular Expressions – Literals and Meta characters – Finding a Regular Expression.

UNIT-V: DATA ACCESS
About ADO.NET-Data objects-Simple Data access – Simple Data Updates – Creating a Connection – Defining a Select Command – Using a Command with a DataReader – Updating Data – Selecting Multiple Tables – Grid View – Reporting Plugins.

4. TEXTBOOKS

1) Kogent Solutions, " C# 2008 Programming Black Book", Dream Tech Press, New Delhi, Platinum Edition, 2009

   Unit – 1: Ch. 3 - 6
   Unit – II: Ch. 8

2) Mathew MacDonald, "ASP.NET: The Complete Reference", Tata McGraw Hill Publishing Company Ltd., New Delhi 2018.

   Unit – III: Ch. 7
   Unit – IV: Ch. 9
   Unit – V: Ch. 13

4. REFERENCES

1) Rebecca M.Riordon, "Microsoft ADO .Net 2.0 Step by Step", Prentice Hall of India Private Limited, New Delhi, 2007.
2) Vikas Gupta , "Comdex .NET Programming " , Dream Tech Press, New Delhi, 2011.
3) David S.Platt , "Introducing Microsoft .Net", Prentice Hall of India(Private) Limited, Third Edition, New Delhi, 2006.
4) Stephen Walther," ASP.NET 2.0 Unleashed", Second Edition, Pearson Education, 2005.

5. WEB REFERENCES

- http://csharp.net-tutorials.com/index.php
- http://csharp.net-tutorials.com/classes/introduction/
- http://www.homeandlearn.co.uk/csharp/csharp.html
- http://www.indiabix.com/c-sharp-programming/questions-and-answers/
- https://www.wiziq.com/online-tests/43860-c-basic-quiz
- http://www.withoutbook.com/OnlineTestStart.php?quizId=71
- http://www.compileonline.com/compile_csharp_online.php
- http://www.ideone.com
- http://www.careerride.com/test.aspx?type=ASP.NET

6. SUPPLEMENT LEARNING

- ASP.NET Administrative Tasks
- AJAX extensions
- Working with XML data
- WCF
- SQL Basics

RELATIONAL DATABASE MANAGEMENT SYSTEM

Course Code	CA414	Credit	4
Instruction Hours per Week	4	Marks	CIA (50) / SE (50)
Course Objective	• To understand the basic concepts of Database and Data Models • To learn how to implement the query language in database. • To understand the advance features query language used to des efficient database • To know database design models exist. • To understand the consequences of bad database design and I can be overcome.		

1. COURSE OUTLINE

UNIT – I: BASIC CONCEPTS AND DATA MODELS

Basic Concepts: Data modelling for database - The three level architecture proposal for DBMS – Components of DBMS - Advantage and Disadvantage of a DBMS. Data Models: Data Models Classification - Entity Relationship Model – Relational Data Model – Network Data Model - Hierarchical Model - Comparison.

UNIT – II: INTRODUCTION TO SQL

Overview of SQL Query Language – SQL Data Definition – Basic Structure of SQL Queries – Additional Basic Operations – Set Operators – Null Values – Aggregate Functions – Nested Sub queries – Modification of the Databases.

UNIT – III: ADVANCED SQL

Join Expressions - Views – Integrity Constraints – Authorization – Stored Procedures and Functions – Indexing: Basic Concepts.

UNIT – IV: DATABASE DESIGN AND E-R MODEL
Overview of the design process – The Entity-Relationship Model – Constraints – Entity – Relationship – Entity-Relationship Diagrams – Entity Relationship design issues – Extended E-R Features – Other aspects of Database Design.

UNIT – V: RELATIONAL DATABASE DESIGN
Features of Good Relational Designs – Atomic Domains and First Normal Form – Decomposition using Functional dependencies – Decomposition using Functional Dependencies – Decomposition using Multivalued Dependencies – More Normal Forms.

2. TEXTBOOKS

1) Bipin C Desai, "An Introduction to Database System", Galgotia Publications Pvt.Ltd, New Delhi 1999.

UNIT – I : Ch.1.1, 1.4 - 1.6, 2.3 - 2.4 & 2.6 - 2.9

2) Abraham Silberschatz , Henry F Korth, S Sudharshan , "Database System Concepts" MC Graw Hill, 6th Edition 2013.

UNIT – 2 : Ch. 3, 4

UNIT – 3 : Ch. 4.1, 4.2, 4.4, 4.6, 5, 11.1

UNIT – 4 : Ch. 7

UNIT – 5 : Ch. 8

3. REFERENCES

1) Peter Rob, Carlos Coronel, "Database Systems – "Design, Implementation and Management"c, Galgotia Publicaitons.
2) C.J. Date, "Introduction to Database System", Vol 1, Narosa Publishing House, New Delhi.
3) S. K. Singh, "Database Systems", Third Edition. 2009.
4) Ramakrishnan. Gehrke, "Database Management Systems", International Edition, 2003.
5) Rajeshkhar Sunderraman, "Oracle 8 Programming A Primer", Addition Wesley Publication, New Delhi, 2000.

5. WEB REFERENCES

Online Tutorial

- https://www.tutorialspoint.com/sql/sql-rdbms-concepts.htm
- http://searchoracle.techtarget.com/tutorial/Learning-Guide-RDBMS-fundamentals

Online Quiz

- https://www.quia.com/quiz/164512.html
- https://www.wiziq.com/online-tests/22152-rdbms-concepts

Online Compiler

- https://www.tutorialspoint.com/execute_sql_online.php
- https://kripken.github.io/sql.js/GUI/

6. SUPPLEMENT LEARNING

- SQL Wild cards
- Temporary Tables
- Clone Tables
- Using Sequences
- Handling Duplicates

EMERGING COMPUTING PARADIGM

1. COURSE OBJECTIVE
- To learn the benefits of E-Commerce and the features available in e-business.
- To introduce the basics of Block Chain and its applications.
- To know and implement content management system and various CMS models exist.
- To know and understand machine learning and its different categories of algorithms.
- To understand the basics and uses of Artificial Intelligence System and quantum computing.

2. COURSE OUTLINE

UNIT I : E-COMMERCE
Introduction: E-commerce as Business need-commerce Types, Advantages, Disadvantages, e-Commerce Architecture, Internet Payment Systems - Characteristics - 4C Payment Methods - SET Protocol for Credit Card Payment - E-Cash,E-Check - Overview of Smart Card

UNIT II : BLOCK CHAIN
Introduction, Advantage over conventional distributed database, Blockchain Network, Mining Mechanism, Distributed Consensus, Merkle Patricia Tree, Gas Limit, Transactions and Fee, Anonymity, Reward, Chain Policy, Life of Blockchain application, Soft & Hard Fork, Private and Public blockchain – Distributed Consensus – Crypto currency.

UNIT III : CONTENT MANAGEMENT SYSTEM
The Basics : Content, content management and content management system – Types of content management system – Why to use CMS – Do's and don'ts of CMS - Four acquisition models of CMS: open-source, commercial on-premise, commercial as a service, building own model - Tools for CMS. **Case Study: Any one Tool (**Wordpress, Joomla, Drupal)

UNIT IV : MACHINE LEARNING
INTRODUCTION Machine learning -Examples of Machine learning applications - Learning Associations - Classification – Regression - Unsupervised Learning - Reinforcement Learning-Supervised learning: Learning a class from Examples – Regression - Model Selection and Generalization Case Study: Familiarity with R tool and Python programming language and libraries

UNIT V: ARTIFICIAL INTELLIGENCE AND QUANTUM COMPUTING
Introduction- Agents and Environments, Good Behavior: The Concept of Rationality, The Nature of Environments, The Structure of Agents. Problem-Solving Agents, Example Problems, Searching for Solutions, Uninformed Search Strategies, Avoiding Repeated States, Searching with Partial Information – Introduction to Quantum Computing.

3. REFERENCE BOOKS
1) Bharat Bhaskar, Electronic Commerce; Framework, Technology and Application, 4th Edition, McGraw Hill Education, 2006.
2) Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller and Steven Goldfeder, "Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction", Princeton University Press (July 19, 2016).
3) Deane Barker, Web Content Management: System, Features and Best Practices, 1st Edition, O'Reilly Publication.
4) Ethem Alpaydin, "Introduction to Machine Learning", The MIT Press, September 2014, ISBN 978-0-262-02818-9.
5) Stuart Russell, Peter Norvig, "Artificial Intelligence – A Modern Approach", Pearson Publication, 2nd Edition, 2002.

6) P Kaye, R Laflamme and M Mosca, "An Introduction to Quantum Computing", Oxford University Press, 2007.
7) Martin Kutz, Introduction to E-Commerce, bookboon.com, 1st Edition, 2016.
8) Mehryar Mohri, Afshin Rostamizadeh, Ameet Talwalkar, "Foundations of Machine Learning", MIT Press (MA) 2012.
9) Jeff Heaton, Artificial Intelligence for Humans-Fundamental Algorithms, Create space Independent Pub; 1st edition, 2013.
10) Nils J. Nilsson, Artificial Intelligence: A New Synthesis, Morgan Kaufmann 1998.

4. WEB REFERENCES

- https://www.tutorialspoint.com/e_commerce/e_commerce_tutorial.pdf
- https://www.ncertbooks.guru/e-commerce-full-notes/
- https://www.w3schools.in/wordpress-tutorial/introduction-to-content-management-system-cms/
- https://www.tutorialspoint.com/management_information_system/content_management_system.htm
- https://www.javatpoint.com/blockchain-tutorial
- https://www.tutorialspoint.com/blockchain/index.htm
- https://www.javatpoint.com/machine-learning
- https://www.mygreatlearning.com/blog/machine-learning-tutorial/
- https://www.javatpoint.com/artificial-intelligence-tutorial
- https://www.tutorialspoint.com/artificial_intelligence/index.htm
- https://www.edn.com/the-basics-of-quantum-computing-a-tutorial/
- https://www.geeksforgeeks.org/introduction-quantum-computing/

5. SUPPLEMENT LEARNING

- Security and Encryption
- Limitations in Crypto currency
- Web Development using CMS
- Regression and Classification Algorithms
- Languages and Tools used for Artificial Intelligence

Semester – IV   **2 Hours/2 Credits**

PRACTICAL – V: ENTERPRISE APPLICATIONS USING .NET

1) Variables and Control Structures and Arrays
2) OOP Concepts
3) Windows Form Controls (Label, Text, Button, Check Box, Radio, List, Combo, Timer, Group Box, Picture Box, Menu)
4) Sample ASP.NET Application
5) Web Controls (Input and Display)
6) Web Controls (Action and Selection)
7) Validation Controls
8) Rich Controls
9) Data Access
10) Grid View (Reporting)

Semester – IV   **2 Hours/2 Credits**

PRACTICAL – VI: RELATIONAL DATABASE MANAGEMENT SYSTEM

SQL

1) DDL (Create, Alter, Drop, Rename) and DML (Insert, Update, Delete)
2) Single row functions and Aggregate Functions using SELECT
3) TCL (Commit, SavePoint, RollBack) and DCL (Grant, Revoke)
4) Using Constraints, Subqueries and Views
5) Joins

PL/SQL – Stored Procedures and Functions

1) Create, Execute and Drop Procedure
2) Procedures with Variables and Constants
3) Procedures with Control Structures
4) Procedures with Exceptions
5) Functions