SADAKATHULLAH APPA COLLEGE

(AUTONOMOUS)

(Reaccredited by NAAC with 'A' GRADE and ISO 9001: 2008 certified)

Rahmath Nagar, Tirunelveli – 627 011

DEPT. OF COMPUTER SCIENCE (SF)

MY LORD
VOUCHSAFE ME WISDOM

M.Sc. (Computer Science)

UNITIZED SYLLABUS (CBCS)

FOR

(2011 - 2014)

(Applicable for students admitted in June 2011 and onwards)

(Updated as per the resolutions passed in the Academic Council Meeting held on 14-03-2013)

M.Sc. - COMPUTER SCIENCE (2011- 2014)
COURSE STRUCTURE (CBCS)

I SEMESTER			II SEMESTER		
COURSE	**H/W**	**C**	**COURSE**	**H/W**	**C**
Core 1	6	5	Core 4	6	5
Core 2	6	5	Core 5	6	5
Core 3	6	5	Core 6	6	5
Core Practical - I *	6	3	Core Practical - II *	6	3
Elective - 1 (Major)	6	5	Elective - 2 (Non Major)	6	5
TOTAL	**30**	**23**	**TOTAL**	**30**	**23**
III SEMESTER			IV SEMESTER		
Core 7	6	5	Core 10	6	4
Core 8	6	5	Core 11	6	4
Core 9	6	5	Core 12	6	4
Core Practical - III *	6	3	Core 13 - Project	6	4
Elective - 3 (Non Major)	6	5	Elective - 4 (Major)	6	5
TOTAL	**30**	**23**	**TOTAL**	**30**	**21**

DISTRIBUTION OF HOURS , CREDITS , NO. OF PAPERS, & MARKS

SUBJECT	HOURS	CREDITS	NO. OF PAPERS	MARKS
Core + Practical	96	70	13 + 3	1600
Elective (Major / Non Major)	24	20	2 + 2	400
TOTAL	**120**	**90**	**20**	**2000**

* Practical Exam - End of even semester

SEM	P	TITLE OF THE PAPER	S.CODE	H/W	C	MARKS I	E	T
DEPT. OF COMPUTER SCIENCE (P.G.)								
CBCS SYLLABUS - M.Sc. - COMPUTER SCIENCE (2011 - 2014)								
I	C1	Advanced Computer Architecture	11PCCS11	6	5	25	75	100
	C2	Data Communication & Networks	11PCCS12	6	5	25	75	100
	C3	RDBMS with Internet	11PCCS13	6	5	25	75	100
	CP	Core Practical - I *	--	6	--	EXAM. II SEM.		
	E (M)	A) PHP	11PECS1A	6	5	25	75	100
		B) VC++	11PECS1B					
II	C4	Modern Operating System	11PCCS21	6	5	25	75	100
	C5	Data Structure using C++	11PCCS22	6	5	25	75	100
	C6	Advanced Java Programming	11PCCS23	6	5	25	75	100
	CP	Core Practical - I*	11PCCSP1	--	3	40	60	100
	CP	Core Practical - II *	11PCCSP2	6	3	40	60	100
	E (NM)	Choose from the NME List	11PECS2N	6	5	25	75	100
III	C7	Mobile Computing	11PCCS31	6	5	25	75	100
	C8	Software Project Management	11PCCS32	6	5	25	75	100
	C9	.Net Programming	11PCCS33	6	5	25	75	100
	CP	Core Practical - III *	--	6	--	EXAM. IV SEM.		
	E (NM)	Choose from the NME List	11PECS3N	6	5	25	75	100
IV	C10	Digital Image Processing	11PCCS41	6	4	25	75	100
	C11	Neural Networks	11PCCS42	6	4	25	75	100
	C12	Cloud Computing	11PCCS43	6	4	25	75	100
	CP	Core Practical - III *	11PCCSP3	--	3	40	60	100
	C13	Project	11PPCS44	6	4	--	100	100
	E (M)	A) Data Mining & Data Warehousing	11PECS4A	6	5	25	75	100
		B) Network Security	11PECS4B					
		TOTAL		**120**	**90**	**520**	**1480**	**2000**

*Practical exam. – End of even semester

SEM	P	TITLE OF THE PAPER	S.CODE	H/W	C	MARKS I	E	T
DEPT. OF COMPUTER SCIENCE (P.G.)								
CBCS SYLLABUS - M.Sc. - COMPUTER SCIENCE (2011 - 2014)								
Non-major Elective subject offered by PG Department of Computer Science to other major PG students								
II	E (NM) 1	MS Office	11PECS2N	6	5	25	75	100
III	E (NM) 2	Web Programming	11PECS3N	6	5	25	75	100
		TOTAL		**120**	**90**	**520**	**1480**	**2000**

I SEMESTER			
C 1	ADVANCED COMPUTER ARCHITECTURE		11PCCS11
Hrs / Week : 6	Hrs / Sem : 90	Hrs / Unit : 18	Credits : 5

UNIT I: Introduction

Basic computer organization and design – Instruction codes – Computer registers – Computer instructions – Timing and Control – Instruction cycle – Memory – Reference instructions – Input output and Interrupt – design of Basic Computer – Design of Accumulator logic.

Programming the Basic Computer – Introduction – Machine Language – Assembly Language – The assembler – Programming arithmetic and logic – subroutine.

UNIT II: Control Memory & CPU

Micro programmed control – Control Memory – Address sequencing – Micro program example – Design of Control Unit.
Central Processing Unit – General Register Organization – Stack Organization – Instruction formats – Addressing modes – Data transfer and manipulation – Program control.

UNIT III: Memory

Memory Organization – Memory Hierarchy – Main memory – Auxiliary memory – Associative memory – Cache memory – Virtual memory – Memory management Hardware.

UNIT IV: I/O

Input-output organization – peripheral devices – Input-output interface – Asynchronous data transfer – Modes of transfer – Priority interrupt – Direct Memory Access – Input-output - Processor – Serial communication.

UNIT V: Parallel Processing

RISC, CISC Characteristics – Parallel Processing - Pipe Lining - Vector Processing – Array Processors – Multi Processors – Interconnections Structures

TEXT BOOK:

Morris Mano M. – Computer System Architecture – Pearson Education. Third Edition – 2002
   Chapters 5.1-5.7,5.9,5.10,6.1-6.4,6.6,6.7,7,8.2,8.4-8.6,8.8,9.1,9.2,9.6,9.7,11,12,13.1,13.2

REFERENCE BOOK:

Carl Hamachar, Zoonko Vranesic and Safwatz Zaky – Computer Organization - McGraw Hill. International LTD. – 2003.

I SEMESTER		
C 2	**DATA COMMUNICATION AND NETWORKS**	**11PCCS12**
Hrs / Week : 6	**Hrs Sem : 90** **Hrs / Unit : 18**	**Credits : 5**

UNIT I: INTRODUCTION

Data Communications – Networks– Reference Models – Layers in the OSI Model – TCP/IP protocol suite – Analog and Digital signals – Transmission Impairment.

UNIT II: PHYSICAL LAYER

Digital transmission – Analog Transmission – Multiplexing – Switching – Transmission Media: Guided and unguided Media.

UNIT III: DATA LINK LAYER

Error Correction and Detection: Introduction – Block Coding – Linear Block Codes – Cyclic Codes - Checksum – Multiple Access: Random Access - ALOHA, CSMA, CSMA/CD, CSMA/CA – Connecting devices.

UNIT IV: NETWORK LAYER

Network Layer: Logical Addressing – IPV4 Addresses– IPV6 Addresses – Unicast Routing Protocols – Congestion control – Quality of service – Techniques to improve Quality of service.

UNIT V:SECURITY

Cryptography – Introduction – Symmetric Key Cryptography - Asymmetric Key Cryptography – Security Services – Message Confidentiality – Message Integrity – Message Authentication - Digital Signatures – Firewalls – Virtual Private Network.

TEXT BOOKS:

Behrouz A Forouzan,Introduction to Data Communications and Networking, TataMcGraw-Hill, New Delhi, 4th Edition, 2006. Chapters 1-8, 10, 15.1, 19, 24.5, 24.6,30,31.1 – 31.5, 32.1 & 31.4.

REFERENCE BOOKS:

1. Andrew. S.Tanenbaum, Computer Networks, Prentice-Hall of India Pvt. Ltd, New Delhi, 4th Edition, 2005.
2. John R.Freer, Computer Communications and Network – Affiliated East-West Press private Limited, First Edition.
3. V.K.Jain and Naveena Bajaj, Computer Networks and Communications, Cyber Tech Publications, New Delhi, First Edition 2001.
4. William, Data Communication and Networks, McGraw Hill, New York, 1998.

REFERENCE SITES:

1. www.networkmagazine.com
2. www.data.com
3. www.avaya.com
4   www.williamstallings.com

I SEMESTER		
C 3	**RDBMS WITH INTERNET**	**11PCCS13**
Hrs / Week : 6	**Hrs Sem : 90**	**Hrs / Unit : 18**	**Credits : 5**

UNIT I: DATA DICTIONARY AND ORACLE 8i

The basics of Oracle 8i – Data dictionary - database tables – creation - DDL, DML and DCL– Pseudo columns – transactions – data retrieval and manipulation.

UNIT II: OBJECTS IN ORACLE 8i AND 9i

Objects in Oracle – Views – sequences – indexes – synonyms – clusters – constraints – data control language – role – locks in Oracle.

UNIT III: PARTITION TABLE AND INDEX

Partitioned Tables and Indexes- Object Oriented concepts in Oracle 8i – Abstract data types – Object tables – object views and methods – collections – arrays and nested tables – using large objects

UNIT IV: PL/SQL

Introduction to PL/SQL - using constructs and exceptions - cursor manipulation – explicit and implicit cursors - using large objects in PL/SQL stored program units – procedures , functions and packages – database triggers – dynamic SQL.

UNIT V: SQL*PLUS AND REPORT WRITING

Report writing commands in SQL*PLUS - Embedded SQL – Enhancements in PL/SQL.

TEXT BOOKS:

1. Jose a . ramalho- Learn Oracle , BPB publication,2007
   Chapter 1, 2, 8-19 & 26

Reference books:

1. Koch &loney-Oracle 8i The complete reference, Tata McGraw hill publishing company.
2. Loney-Oracle SQL-PL/SQL Annotated archives.

I SEMESTER		
CP I	CORE PRACTICAL - I (Exam end of II Sem.)	11PCCS2P1
Hrs / Week : 6	Hrs / Sem : 90	Credits : 3

RDBMS WITH INTERNET   PRACTICAL

1. Program using SQL Queries.

2. Program using View commands.

3. Program using Partitioned Tables.

4. Library management program

5. Program using   PL/SQL

6. Program using   Purchase Report.

7. Design the Multiplication Table

8. Errorhandling program usingPL/SQL

9. Program using Procedure.

10. Program using Package

11. Program using package- Member details

I SEMESTER		
E1 A (M)	PHP PROGRAMMING	11PECS1A
Hrs / Week : 6	Hrs / Sem : 90	Hrs / Unit : 18	Credits : 5

Unit – I: Introduction

Introduction: PHP History – Unique Feature – Writing and running the script – Mixing PHP with HTML – Variables and operators: Assigning values to variable – Destroying and inspecting variable content – PHP Data Types - Manipulating variable with operators.

Unit – II: Control Statements

Controlling program flow: writing simple conditional statements – if – if else – if else if - Switch case repeating action with loops: while – do while – for loops – String functions – Numeric function.

Unit – III: Arrays

Working with Array: Storing data in Array – Assigning Array values – Nesting Arrays – for each loop – Array functions – Generating Date and Time – Format Date and Time – Date and Time functions.

Unit – IV: Functions & Cookies

Functions: Creating and invoking function – using arguments and return values - Cookies: Basics – Attributes – Headers – setting, reading and removing cookies – Session: Basics – Creating and removing sessions – Handling scripting Errors.

Unit – V: Databases

Working with database and SQL: Database, records, primary and foreign key - SQL statements – Creating database – Adding Tables – Adding Records – Executing Queries – modifying and removing records – Retrieving Data – Returning data as array and object.

Text Book:

PHP A Beginner's Guide – Vikram Vaswani – Tata Mc Graw Hill .
Chapters 1-4, 5.1, 7, 9 and 10

REFERENCE SITES:

1. www.comp.leeds.ac.uk/Perl/start.html

2. www.w3schools.com/php/default.asp

I SEMESTER			
E1 B (M)		Visual C++	11PECS1B
Hrs / Week : 6	Hrs / Sem : 90	Hrs / Unit : 18	Credits : 5

UNIT I

The Windows Environment – Windows – Programming options – Your First Windows Program – A window of one's own – An Introduction to GDI – The Device context – Drawing dots and lines – Drawing filled areas – write programs using SDK.

UNIT II

MFC Program skeleton – VC++ Programming Environment – Program through Appwizard – Mapping models – Fonts – colors- Programming a model Dialog and windows standard controls – Handling controls through ID's – Windows common controls – Modeless Dialogs.

UNIT III

Using Active X-controls: The calendar control and the Web Browser control – Internet – Explorer 4 common controls – SDI Applications – MDI Applications – Bitmaps.

UNIT IV

Timers – Multi threaded Programming – Property sheets –Toolbars & Status Bars – Rebar- Dialog bar –Form View Applications – splitter Windows.

UNIT V

Context Sensitive help –Library File – Dynamic Link Library – Database Management with Microsoft ODBC – ADO- ISAPI Programming**.**

TEXT BOOKS:

1. Programming Windows (5th Edition) – by Charles petzold chapters 1,3-5.

2. Programming Microsoft Visual C++(5 th Edition)-David J.Kruglinski, George Sepherd Scotwingo,

Microsoft Press. (Chapters 1,3-9,11-14,16-18,20-22,31,32 & 35).

REFERENCE BOOKS:

1. The Complete Reference Visual C++, (Tata McGraw Hill Publications) PappasMurray.

2. Steven Holtzner, Visual C++Programming, second Edition, PHI 2001.

II SEMESTER		
C4	**MODERN OPERATING SYSTEM**	**11PCCS21**
Hrs / Week : 6	**Hrs / Sem : 90**	**Hrs / Unit : 18**	**Credits : 5**

UNIT I: OPERATING SYSTEM CONCEPTS

Introduction – History – OS Concepts –Structure 0f OS – Interprocess communication – Process Scheduling

UNIT II: MEMORY MANAGEMENT AND FILE SYSTEM CONCEPTS

Introduction to Memory Management – Swapping – Virtual Memory – Page Replacement Algorithm – Segmentation – Introduction to File system – files – Directories – Implementation – Security – Protection Mechanism – Principles of I/O - Hardware and software.

UNIT III: DEADLOCK

Ostrich Algorithm – Deadlock Detection – Deadlock Recovery – Avoidance and Prevention

UNIT IV: Linux

Case studies the Linux operating system – users view of Linux – Implementation of Linux – command language – ADSL with linux – Dial-up connections with MP3 format – Ogg format.

UNIT V: DISTRIBUTED SYSTEM AND VIRTUALISATION

Introduction – Communication – Implementation - Emulation and Virtualization – WINCE Overview – Introduction to Mobile OS.

TEXT BOOKS:

1. Andrew S. Tannenbaum, Modem OPERATING Systems, Prentice Hall,2001, Chapters 1,2,3,4,6,7,8 and 12.
2. Asoke K. Talukder Roopa R. Yavagal, Mobile Computing, Tata Mc-Graw Hill,2006, Chapters 14 and 16

REFERENCE BOOK:

H.M.Deitel Operating Systems, Addison-welsey publishing company,2nd edition1990

II SEMESTER			
C5	**DATA STRUCTURES USING C++**		**11PCCS22**
Hrs / Week : 6	Hrs / Sem : 90	Hrs / Unit : 18	Credits : 5

UNIT I: DATA STRUCTURES – AN OVERVIEW

Basic terminology – elementary data organization – Data structures – data structure Operation algorithms, complexity, time space, trade off. Linear arrays – Representation of linear arrays in memory – traversing linear arrays – inserting and deleting – sorting: Bubble sort – searching: Linear search – binary search – multidimensional arrays – pointer –pointer arrays – Matrices – Sparse Matrices. Sorting – insertion sort – selection sort – merging – merge sort – radix sort – searching and data modification- hashing.

UNIT II: LINKED LISTS

Linked lists – Representation of Linked lists in memory – Traversing a Linked list – searching linked list – memory allocation: Garbage collection – insertion into a linked list – deletion from a linked list – Header linked lists – two way lists.

UNIT III: STACKS, QUEUES, RECURSION ALGORITHMS DESIGN TECHNIQUES:

Stacks – Array representation of stacks – arithmetic expression: Polish Notation – Quick sort, An application of stacks – Recursion – Towers of Hanoi – Implementation of recursive procedures by stacks – Queues – Deques – priority queues. **Algorithm design techniques:** divide and conquer algorithms, dynamic programming, greedy algorithms, local search algorithms.

UNIT IV: TREES

Binary trees Algorithm- Representation binary trees in memory – traversing binary trees – traversal algorithms using stacks – Header nodes: Threads – Binary search trees Algorithm – searching and Inserting and Deleting in a binary search trees – AVL Search tree- Insertion, Deletion in AVL Search tree - B Trees – Search, Insertion, Deletion - Heap: Heap sort – Huffman's Algorithm-General trees.

UNIT V: GRAPH THEORY

Graph theory terminology – Sequential representation of graphs: Adjacency Matrix: Path matrix – Warshall's algorithm: Shortest path – linked representation of a graph – operations on graphs – Traversing a graph – Posets: Topological sorting.

TEXT BOOKS:
1. Seymour Lipschutz, _Theory and Problems of Data Structures_, Schaum's series, Tata McGraw Hill Publishing Company, 1997, chapters 1,2 ,3 ,4 ,5, 6, 7, 8,9 and 10
2. B. Moret & H. Shapiro, _Algorithms from P to NP vol. 1: Design and Efficiency_, Benjamin/Cummings, 1991, chapter 1 and 2

REFERENCE BOOKS :
1. Ellis Horowitz, Sartaj sahni, _Fundamentals of Data Structures_. Galgotia BookSource publishers,1983.
2. Aaron M. Tennenbaum, Yedidyah Langsam, Moshe J. Augenstein, _Data Structures using C_, 4th edition, Prentice Hall of India (P) Limited.
3. Aho, Alfred V., Hopcroft, John E., Ullman Jeffrey D., Data Structures and Algorithms, Addison Wesley, Reading, Mass., 1982.

REFERENCE SITES:
www.owlnet.com
www.dreamincode.net
www.cplusplus.com

II SEMESTER		
C6	ADVANCED JAVA PROGRAMMING	11PCCS23
Hrs / Week : 6	Hrs / Sem : 90	Hrs / Unit : 18	Credits : 5

UNIT I: Applet and Swing

Introduction to Applet and Swing – Creating Applet in Java, Identifying various stages of an Applet life Cycle, various Graphic method in java, the AWT control Components, the Swing component class Hierarchy, using top level swing containers, using intermediate level swing containers, using the atomic component, using the Layout Manager, Flow Layout Manager, Border Layout Manager and Grid Layout Manager.

UNIT II: JDBC

Java Database connectivity :- JDBC Archiecture – Drivers - Database connections – Statements –Resultsets – Transcations – metadata - stored procedures

UNIT III: Servlet

Introduction – HTTP servlet Basics – The Servlets life cycle – retrieving information – sending html information

UNIT IV: RMI & Beans

Overview of Java RMI – Advanced Java RMI Concepts – Real World applications of Java RMI Introduction to Bean – Advantages of Java Bean **–** BDK – JAR Files – Introspection- Developing Simple Bean – Persistence – Customizers – Java Bean API

UNIT V: JSP

Introduction – Core Java Server Page Components – JSP Directives – Saving Data between requests – Interacting with java beans – Building web applications with Java Server pages and servlets.

Text Books:

1. Java Servlet Programming   - Jason Hunter, O'Reilly Series
2. Java RMI   - Troy Bryan Downing
3. Unit III: Java 2 Complete Reference
4. Unit IV: Sams Teach Yourself Java Server Pages 2.0 with Apache Tomcat in 24   Hours - Mark Wutka, Alan Moffet, Kunal Mittal.
5. Mastering Java2 – John Zukowski, BPB Publication

REFERENCE BOOKS:

1. Ken Arnold, Crosling Homles, "The Java Programming Language" Pearson Education III Edition.
2. Harley Hahn, The Internet – Complete Reference, Tata McGraw Hill 1997.
3. Advance Java Programming – Amit K. Mishra
4. Black Book – Java Programming – Dreamtech.

II SEMESTER		
CP II	CORE PRACTICAL II (Exam end of II Sem.)	11PCCS2P2
Hrs / Week : 6	Hrs / Sem : 90	Credits : 3

ADVANCED JAVA PROGRAMMING

1. Programs using Applet

2. Program using Swing

3. Developing applications using JDBC

4. Program using Servlet

5. Programs using RMI

6. Implementation of Java Bean

7. Programs using JSP

III SEMESTER		
C 7	**MOBILE COMPUTING**	**11PCCS31**
Hrs / Week : 6	**Hrs / Sem : 90**	**Hrs / Unit : 18**	**Credits : 5**

UNIT I: INTRODUCTION TO MOBILE COMPUTING

Mobility of bits and bytes – Wireless the beginning – Developing mobile Computing application – Mobile computing architecture – GSM – Architecture- Entities – Call Routing in GSM – PLMN Interfaces.

UNIT II: INTRODUCTION TO DIGITAL TRANSMISSION

Digital to Digital Conversion – Line Coding – line coding schemes – Block coding – Scrambling – Analog-to – Digital Conversion - Pulse code modulation –delta modulation – Transmission modes – Parallel Transmission – Serial Transmission.

UNIT III WAP & 3G

Introduction to WAP – MMS, GPRS Application; CDMA and 3G: Spread Spectrum technology CDMA Vs GSM – wireless data – third generation networks – application on 3G

UNIT IV: WIRELESS LAN, INTERNET NETWORKS AND INTERNETWORKING

Introduction – Wireless LAN advantages IEEE802.11 standards wireless LAN architecture – mobility in wireless LAN - Wireless LAN security – Fundamentals of call processing – Intelligence in the networks – SS#7 – INCM – softswitch – programmable networks – Technologies and interfaces for IN.

UNIT V: PROTOCOLS SUPPORTING MOBILITY

Mobile network layer protocols such as mobile IP –Dynamic Host Configuration Protocol
(DHCP)- Mobile transport layer protocols such mobile TCP, indirect –TCP – Wireless Application Protocol (WAP).

TEXTBOOKS:

1. Asoke K Talukder & Roopa R Yavagal, Mobile Computing, Tata McGraw-Hill Publishing Company Limited, 2002, Chapters 4,5 ,Chapters 1,2,8,9,10,11
2. J.Schiller, Mobile Communications, ISBN:0-321-12381-6, Addison-Wesley, 2003,
3. Behrouz A Forouzan, Data Communications and Networking, Tata McGraw-Hill Publishing Company Limited, 2002, Chapters 4.

REFERENCE BOOKS:

1. T.S. Rappaport, Wireless communications, Principle and Practice, Pearson, 2002.
2. A.S.Tanenbaum, Computer Networks, 4th edition, Publisher: Prentice Hall PTR; ISBN: 0130661023; August, 2002.

REFERENCE SITES:

1. www.dcg.ethz.ch
2. www.informatik.uni-goettingen.de
3. www.ebookee.net

III SEMESTER			
C 8	SOFTWARE PROJECT MANAGEMENT		11PCCS32
Hrs / Week : 6	Hrs / Sem : 90	Hrs / Unit : 18	Credits : 5

Unit-1: Introduction to Software Project Management (SPM)

Definition of a Software Project (SP), SP Vs. other types of projects activities covered by SPM, categorizing SPs, project as a system, management control, requirement specification, information and control in organization.

Unit-2: Stepwise Project planning

Introduction, selecting a project, identifying project scope and objectives,identifying project infrastructure, analyzing project characteristics, identifying project products and activities,estimate efforts each activity, identifying activity risk, allocate resources, review/ publicize   plan.

Unit-3: Project Evaluation & Estimation

Cost benefit analysis, cash flow forecasting, cost benefit evaluation techniques, risk evaluation. Selection of an appropriate project report; Choosing technologies, choice of process model, structured methods, rapid application development, water fall, V-process, spiralmodels. Prototyping, delivery. Albrecht function point analysis.

Unit-4: Activity planning & Risk Management

Objectives of activity planning, project schedule, projects and activities, sequencing and scheduling activities, network planning model, representation of lagged activities, adding the time dimension, backward and forward pass, identifying critical path, activity throat, shortening project , precedence networks.Risk Management: Introduction, the nature of risk, managing risk, risk identification, risk analysis, reducing the risks, evaluating risks to the schedule,   calculating   the   z   values..

Unit-5: Resource allocation & Monitoring the control

Introduction, the nature of resources, identifying resource requirements, scheduling resources creating critical paths, counting the cost, being specific, publishing the resource schedule, cost schedules, the scheduling sequence.Monitoring the control: Introduction, creating the frame work, collecting the data, visualizing progress, cost monitoring, earned value, prioritizing monitoring, getting the project back to target, change control.

Unit-6: Managing contracts and people

Introduction, types of contract, stages in contract, placement, typical terms of a contract, contract management, acceptance, Managing people and organizing terms: Introduction, understanding behavior, organizational behavior: a back ground, selecting the right person for the job, instruction in the best methods, motivation, working in groups, becoming a team, decision making, leadership, organizational structures, conclusion, further exercises..

Text Book:
1. Software Project Management (2nd Edition), by Bob Hughes and Mike Cotterell, 1999, TMH
Reference Books:
1. Software Engineering – A Practitioner's approach, Roger S. Pressman (5th edi), 2001, MGH
2. Software Project Management, Walker Royce, 1998, Addison Wesley.
3. Project Management 2/c. Maylor
4. Managing Global software Projects, Ramesh, 2001, TMH.

III SEMESTER		
C 9	**.NET PROGRAMMING**	**11PCCS33**
Hrs / Week : 6	**Hrs / Sem : 90** **Hrs / Unit : 18**	**Credits : 5**

UNIT I

Introducing Visual C# - What Constitutes a Visual C# Program - Storing Data – developing an Application – Applying type conversion - Discovering Visual C# Operators - Understanding Visual C# Statements - Unearthing Arrays - Using Single Dimensional arrays – Using Multidimensional Arrays - Understanding Jagged arrays.

UNIT II

Understanding Classes - Creating Classes – Understanding Class Members – Getting Started with a Windows Application – Adding a button to a form – Adding code – Understanding the CommonDialog Class.

UNIT III

Getting started with ASP.Net Applications: Web Forms – Creating ASP.Net Web Forms Applications – IIS Application Roots – HTML and XML in ASP.Net.

Using ASP.Net Web Forms for Server Controls: Beginning with Server Controls – Taking a closer look at Web Controls – Illustrating Basic Web controls.

Working with validation controls: The Compare Validator control – The Range Validator control – RegularExpression Validator control - Custom Validator control – Validation Summary control – Multiple Validation control

UNIT IV

Developing ASP.Net Server Controls: Developing ASP.Net Server Controls – Creating and using Web user control – Creating ASP.Net Pages to Web user controls – Creating and using Composite controls.

Using Rich Web controls: AdRotator web server control – Calendar web server control – XML web server control.

Debugging ASP.Net Web applications: Tracing ASP.Net Applications – Handling Errors in ASP.Net Applications.

UNIT V

Using ADO .NET with ASP .NET: ADO .NET - ADO .NET Object Model – Creating a Data Aware Application.

Working with XML in Visual Studio .NET: Getting to know XML – Presenting XML related specifications – Converting Data from Relational format to XML format – Data Binding with XML documents.

Deploying Web Applications: Creating a Deployment project – Testing the Installation program.

Text Book:

Mridula Parihar, Yesh Singal and Nitin Pandey, "Visual Studio .Net Programming", PHI, 2002

Reference Books:

1. Dino Esposito, Programming Microsoft ASP.NET 3.5, Microsoft, WP publishers   (P) Ltd.

2. Donis Marshall, Programming Microsoft Visual C#2008, WP Publishers (P) Ltd.

3. Nitin Pandey ," Microsoft ASP.NET", PHI,2002

4. Kiric Allen Evans, Ashwin Kamanna, Joel and Muller,"XML and ASP.NET", Pearson Education, First Indian Reprint,2002

5. "ASP.NET Made Simple", BPB Publications, First Edition, 2001

III SEMESTER		
CP III	CORE PRACTICAL III (Exam end of IV Sem)	11PCCS4P
Hrs / Week : 6	Hrs / Sem : 90	Credits : 3

Visual C#

1. Designing a Simple C# Application
2. Designing an application to work with Arrays
3. Designing an application to work with class and object
4. Designing an Windows application
5. Designing an application to work with common Dialog boxes

ASP.NET

1. Designing simple Web Forms Application
2. Designing Application with Web Controls
3. Designing Application with Validator controls
4. Designing application for Creating and using Composite controls
5. Designing application for working with Rich Web controls
6. Designing application to work with databases

IV SEMESTER		
C 10	**DIGITAL IMAGE PROCESSING**	**11PCCS41**
Hrs / Week : 6	**Hrs / Sem : 90**	**Hrs / Unit : 18** **Credits : 4**

UNIT I: INTRODUCTION TO IMAGE PROCESSING

Digital image processing – Mat lab Working environment – image representation – Reading images – Displaying images – writing images – Data classes – Image types – Converting between data classes and image types – Array indexing – M-Function programming

UNIT II: SPATIAL DOMAIN AND FREQUENCY DOMAIN PROCESSING

Intensity Transformation functions – Histogram processing and Function plotting – Spatial filtering – 2-D Discrete Fourier transformation – Filtering in the Frequency domain – Generating and Sharpening frequency domain filters

UNIT III: IMAGE RESTORATION AND COLOR IMAGE PROCESSING

Model of the image degradation / Restoration process – Noise models –Frequency domain filtering - Direct inverse filtering – Wiener filtering – Constrained least square filtering – Lucy – Richardson algorithm – color image representation

UNIT IV: IMAGE COMPRESSION

Coding redundancy – inter pixel redundancy – Psycho visual redundancy – JPEG compression

UNIT V: MORPHOLOGICAL IMAGE PROCESSING

Morphological image processing– dilation and erosion – morphological reconstruction

TEXT BOOK(S)

Rafael C.Gonzalez, Richard E.Woods, Steven L.Eddins, Digital Image Processing Using MATLAB, Pearson Education Inc , New Delhi, 2007.

REFERENCE BOOK(S)

1. Chanda.B., Dutta Majumder .D., Digital Image Processing and Analysis, Prentice Hall of India, New Delhi, 2007.
2. Gonzalez .R.C., Wintz.P., Digital Image Processing , Addison-Wesley Longman Publishing Co, New Delhi, 1987.
3. Scott E.Umbaug, Computer Vision and Image Processing, Prentice Hall International, New Delhi, 1998.

WEBSITE(S)

http://www.icaen.uiowa.edu/~dip/
http://www3.interscience.wiley.com/cgi-bin/bookhome/91014054
http://www.dip.ee.uct.ac.za/.

IV SEMESTER		
C 11	NEURAL NETWORKS	11PCCS42
Hrs / Week : 6	Hrs / Sem : 90 Hrs / Unit : 18	Credits : 4

UNIT I: Introduction to Artificial Neural Networks

Neuro – physiology – General Processing Element – ADALINE –LMS learning rule – MADALINE – MR2 training algorithm.

UNIT II: BPN and BAM

Back Propagation networks – updating of output and hidden layer weights – application of BPN – associative memory – Bi-directional Associative Memory - Hopfiled memory – traveling sales man problem.

UNIT III: Simulated Annealing and CPN

Annealing, Boltzmann machine – learning - application – Counter Propagation Network – architecture – Training – Applications.

UNIT IV: SOM and ART

Self organizing map – learning algorithm – feature map classifier applications – architecture of Adaptive resonance Theory – pattern matching in ART network.

UNIT V: Neocognitron

Architecture of neocognitron – Data processing and performance of architecture of spacio – temporal networks for speech recognition.

TEXT BOOK:

1. J.A. Freeman and B, M. Skapura, "Neural Networks, Algorithms Applications and Programming Techniques", Addison – Wesely, 1990.

REFERENCE BOOKS:

1. Neural Networks – Haykins.
2. Laurene Fausett, "Fundamentals of Neural Networks: Architecture, Algorithms and Applications", Prentice Hall, 1994.

IV SEMESTER		
C 12	**CLOUD COMPUTING**	**11PCCS43**
Hrs / Week : 6	Hrs / Sem : 90 Hrs / Unit : 18	Credits : 4

UNIT I: UNDERSTANDING CLOUD COMPUTING

Cloud Computing – History of Cloud Computing – Cloud Architecture – Cloud Storage – Why Cloud Computing Matters – Advantages of Cloud Computing – Disadvantages of Cloud Computing – Companies in the Cloud Today – Cloud Services

UNIT II: DEVELOPING CLOUD SERVICES

Web-Based Application – Pros and Cons of Cloud Service Development – Types of Cloud Service Development – Software as a Service – Platform as a Service – Web Services – On-Demand Computing – Discovering Cloud Services Development Services and Tools – Amazon Ec2 – Google App Engine – IBM Clouds

UNIT III: CLOUD COMPUTING FOR EVERYONE

Centralizing Email Communications – Collaborating on Schedules – Collaborating on To-Do Lists – Collaborating Contact Lists – Cloud Computing for the Community – Collaborating on Group Projects and Events – Cloud Computing for the Corporation

UNIT IV: USING CLOUD SERVICES

Collaborating on Calendars, Schedules and Task Management – Exploring Online Scheduling Applications – Exploring Online Planning and Task Management –Collaborating on Project Management – Collaborating on Databases – Storing and Sharing Files

UNIT V: OTHER WAYS TO COLLABORATE ONLINE

Collaborating via Web-Based Communication Tools – Evaluating Web Mail Services – Evaluating Web Conference Tools – Collaborating via Social Networks and Groupware – Collaborating via Blogs and Wikis

TEXT BOOK:

1. Michael Miller, Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online, Que Publishing, August 2008.

REFERENCE BOOK:

1. Haley Beard, Cloud Computing Best Practices for Managing and Measuring   Processes for On-demand Computing, Applications and Data Centers in the Cloud with SLAs, Emereo Ptv Limited, July 2008.

IV SEMESTER		
Core 13	PROJECT	11PPCS44
Hrs / Week : 6	Hrs / Sem : 90	Credits: 4

Objective:

Every PG student is required to prepare the project subject related – based on the guidelines of his project guide.

The following are the guidelines to be adhered to

a. The project should be an **individual one**
b. The language for the project is **English**
c. The Minimum number of page should be **60**
d. Project observations, suggestions and conclusion shall form an inevitable part of the project.

Marks for the project report will be 100 divided as **80% for project and 20% for viva-voce.**

IV SEMESTER		
E 4 A (M)	**DATA MINING AND DATAWAREHOUSING**	**11PECS4A**
Hrs / Week : 6	Hrs / Sem : 90	Hrs / Unit : 18	Credits : 5

UNIT I - Introduction

System process – Introduction – overview – typical process flow within a data warehouse – Extract and load process – clean and transform data – backup and archive process – Query management process. Process Architecture**:** Introduction – load manager –warehouse manager – Query manager.

UNIT II - System and data Warehouse process managers

Introduction – managing a data warehouse –system managers – data warehouse process manager – load manager – warehouse manager – query manager. Capacity Planning, tuning and testing**:** Introduction – process –estimating the load. - Tuning the data Warehouse**:** Introduction – accessing performance – tuning the data load – tuning queries.

UNIT III – Data Mining

Introduction - Definitions – Working of data mining – Data mining Task – Elements – Architecture of Data Mining – Classification of data mining system – Data Mining Metrics – Process – Issues – Primitives – operations of data mining – Uses – Advantages and Disadvantages of Data Mining – Limitations The knowledge Discover process : Introduction – Knowledge discover process in detail

UNIT IV - Data Mining Techniques

Introduction – Decision Tree – Neural Network – Nearest – Neighbor and clustering – genetic algorithm – rule induction - data visualization and overall perspective OLAP

UNIT V - Association Rules

Association rule mining in large database : Association rule mining – mining single – dimensional Boolean association rule from transactional database – mining different kinds of association rules – strengths and weakness of association rule analysis

TEXT BOOKS:
1**.** Data warehousing in the real world Sam Anahory, Dennis Murray, Pearson Education (LPE) thirteen Indian Re printers.
2. Data mining and Datawarehousing, Bharath Bhushan Agarwal,Sumit Prakesh Tayal

Reference Sites :

1. www.maths.anu.edu.au
2. www.thearling.com
3. www.exforsys.com
4. www.cse.iitb.ac.in

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IV SEMESTER		
E 4 B (M)	**NETWORK SECURITY**	**11PECS4B**
Hrs / Week : 6	Hrs / Sem : 90 Hrs / Unit : 18	Credits : 5

UNIT I

Introduction : Attacks, Services and Mechanisms – Security Attacks – Security Services – A model for Internet work Security – Internet Standards and RFCs – Conventional Encryption and Message Confidentiality: Conventional Encryption Principles – Conventional Encryption Algorithms – Cipher Block Modes of Operation – Location of Encryption Devices – Key Distribution.

UNIT II

Public-Key Cryptography and Message Authentication: Approaches to Message Authentication – Secure Hash Functions and HMAC – Public Key Cryptography Principles – Public-key Cryptography Algorithms – Digital Signatures – Key Management

UNIT III

Electronic Mail Security: Pretty Good Privacy – S/MIME – IP security: IP security overview – IP security Architecture – Authentication Header – Encapsulating security payload – Combining security associations – Key Management – Internetworking and Internet Protocols

UNIT IV

Web security: Web security requirements – Security Socket Layer SSL) and Transport Layer Security (TLS) – Secure Electronic Transaction(SET) Network Management Security: Basic Concepts of SNMP

UNIT V

Intruders and Viruses: Intruders – Viruses and Related threats – Problems. Firewalls: Firewall Design Principles – Trusted Systems   – Problems.

TEXT BOOK:

1. Network Security: Essentials Applications & Standards – William Stallings, Pearson EDUCATION (Singapore) Pte.Ltd. (2003 Fourth Indian Reprint).Chapters 1.3-1.7,2,3,5,6,7,8.1,9.1,10.1,11