

JAMAL MOHAMED COLLEGE :: TIRUCHIRAPPALLI – 620 020

CHOICE BASED CREDIT SYSTEM – PG PATTERN 2008 – 2009

NAME OF THE PROGRAMME PGDCA

SEM	SUBJECT CODE	COURSE	SUBJECT TITLE	HRS/ WEEK	CREDIT	MARK
I	08DCA1401	CORE COURSE I	DIGITAL COMPUTER FUNDAMENTALS	6	4	100
	08DCA1402	CORE COURSE II	PRINCIPLES OF PROGRAMMING	6	4	100
	08DCA1403	CORE COURSE III	PRINCIPLES OF OPERATING SYSTEMS	6	4	100
	08DCA1404	CORE COURSE IV	DATABASE SYSTEMS	6	4	100
	08DCA1405P	CORE COURSE V a	C PROGRAMMING LAB	3	2	50
	08DCA1406P	CORE COURSE V b	PC PACKAGES LAB	3	2	50
TOTAL				30	20	500
II	08DCA2407	CORE COURSE VI	SYSTEM ANALYSIS AND DESIGN	6	4	100
	08DCA2408	CORE COURSE VII	OBJECT ORIENTED PROGRAMMING WITH C++	6	4	100
	08DCA2409	CORE COURSE VIII	VISUAL PROGRAMMING	6	4	100
	08DCA2410	CORE COURSE IX	INTERNET AND WEB DESIGN	6	4	100
	08DCA2411P	CORE COURSE X a	C++ PROGRAMMING LAB	3	2	50
	08DCA2412P	CORE COURSE X b	VISUAL PROGRAMMING LAB	3	2	50
TOTAL				30	20	500
GRAND TOTAL				60	40	1000

Semester : I
Code : 08DCA1401

Hours/week : 6
Credit : 4

DIGITAL COMPUTER FUNDAMENTALS

Objectives:

To acquire a thorough knowledge in the various concepts of digital computers and their fundamentals.

UNIT I

Number Systems: Decimal System – Counting in The Binary System – Binary Addition – Subtraction – Multiplication – Division – Converting Decimal to Binary – Use of Compliments To Represent Negative Numbers – Binary Number Complements – BCD Number Representation – Octal and Hexadecimal Number Systems.

UNIT II

Boolean Algebra and Gate Networks: Fundamental Concepts of Boolean Algebra – AND Gates and OR Gates- Complementation and Inverters – Evaluation of Logical Expressions – Basic Laws of Boolean Algebra – De Morgan’s Theorem – Sum of Products and Product of Sums – NAND and NOR Gates – Map Method For Simplifying Expressions.

UNIT III

Logic Designs: Flip-Flops – Clocks – Flip-Flop Designs – Gated Flip-Flops- Master Slave Flip-Flop – Shift Register Binary Counter – BCD Counters – Integrated circuits.

UNIT IV

The Arithmetic Logic Unit: The Construction of The ALU – Binary Half-Adder – A Parallel Binary Adder – Addition and Subtraction in a Parallel Arithmetic Element – Full-Adder Designs – BCD Adder – Multiplexers.

UNIT V

Memory Unit: Random Access Memories – Decoders – Static and Dynamic Random Access Memories – Read Only Memories – Magnetic Disk Memories – Flexible-Disk Storage Systems – The floppy Disk – Magnetic Bubble and CCD Memories.

Text Book

Digital Computer Fundamentals” by Thomas C. Bartee – Sixth Edition (TMH) 1991.

Reference Book

1. Computer Fundamentals (Architecture and Organization) by B. Ram – Third Edition(New Age International Pvt. Ltd. Publishers).
2. Digital principles and Applications by Albert Paul Malvino and Donald P. Leach – Fourth Edition (TMH) 1991.

Semester : I
Code : 08DCA1402

Hours/week : 6
Credit : 4

PRINCIPLES OF PROGRAMMING

Objectives:

To provide complete knowledge in the concepts of programming in C language.

UNIT I

Overview of C: Introduction-Sample C program-Basic structure of C Program-keywords and identifiers-constants-variables-datatypes.

UNIT II

Operators, Expressions and I/O operations: Arithmetic operators-relational operators-Assignment operators-Increment and decrement operators-Conditional operators-Bitwise operators-evaluation of expressions I/O operations: getch(),putc(),scanf(),printf() functions

Unit III

Decision Making and looping: If statement-If...Else statement-Else..If ladder-Switch statement-While statement-For statement

UNIT IV

Arrays and pointers: One-dimensional arrays-Two dimensional arrays
Functions: User defined functions-Built-in Functions-Return values and their types-calling a function-Recursion-Structures-Unions Pointers: Understanding pointers-declaring and initializing pointers

UNIT V

File Management in C: Defining and opening a file-closing a file-I/O operations-Random access to files-programming example.

Text Book

“Programming in ANSI C” by E.Balaguruswamy (TMH) second Edition.

Reference Book

B.S. Gottfried- Programming with C- Schuams outline series (TMH)-1997 edition.

Semester : I
Code : 08DCA1403

Hours/week : 6
Credit : 4

PRINCIPLES OF OPERATING SYSTEMS

Objectives:

To Acquire a Thorough Knowledge in Memory Management, Processor Management, Device Management and Information Management of OS.

UNIT I

Introduction: Importance of Operating Systems – Operating System Resource Manager – Operating Systems-Hierarchical and extended Machine View – Other Views of an Operating System – General Design Considerations. **I/O Programming:** Types of I/O Channels – I/O Programming Concepts – I/O Processor Structure-360 & 370 – Communication Between CPU and Channel – I/O Example Using Single Buffering – I/O Example Using Double Buffering – Multiple card Buffering. **Interrupt Structure and Processing:** Interrupt Types – Interrupt Mechanism – Interrupt Handlers.

UNIT II

Memory Management: Single Contiguous Allocation – Partitioned Allocation – Relocatable Partitioned Memory Management – Paged Memory Management – Demand-Paged Memory Management – Segmented Memory Management – Segmented Demand-Paged Memory Management

UNIT III

Processor Management: **State Model – Job Scheduling – Process Scheduling – Synchronization – Multiprocessor Systems.**

UNIT IV

Device Management: Techniques for Device Management – Device Characteristics – Channels and Control Units - Device Allocation considerations – Virtual Devices.

UNIT V

Information Management: A Simple File System – General Model – Symbolic File System – Basic File System – Logical File System – Physical File System.

Text Book

“OPERATING SYSTEMS” by Stuart E. Madnick and John J. Donovan – (TMH).

Reference Books

1. Computer Fundamentals (Architecture and Organization) by B. Ram – Third Edition (New Age International Pvt. Ltd. Publishers).
2. Digital principles and Applications by Albert Paul Malvino and Donald P. Leach – Fourth Edition (TMH) 1991.

Semester : I
Code : 08DCA1404

Hours/week : 6
Credit : 4

DATABASE SYSTEMS

Objectives:

To acquire a thorough knowledge in all the concepts of database systems.

UNIT I

Introduction: The Evolution of Database Systems – Architecture of a DBMS – The Future of Database Systems – **Database Modeling:** Introduction to Object Definition Language – E/R Diagrams – Design Principles – Subclasses – Weak Entity Sets – Models of Historical Interest.

UNIT II

The Relational Data Model: Basics of the Relational Model – Functional Dependencies – Rules about Functional Dependencies – Multivalued Dependencies.

UNIT III

Operations in the Relational Model: An Algebra of Relational Operation – A Logic for Relations – From Relational Algebra to Datalog – Constraints on Relations – Other Extension to the Relational Model.

UNIT IV

Database Language SQL: Simple Queries in SQL - Queries Involving More Than One Relation – Sub Queries – Duplicates - Aggregation – Database Modifications – Defining a Relation Scheme in SQL – View Definition

UNIT V

Constraints and Triggers in SQL: Keys in SQL – Referential Integrity and Foreign Keys. – Triggers in SQL3 – SQL in Programming Environment – **Object oriented query language:** Query Related Features of ODL – Introduction to OQL.

Text Book

A First Course in Database Systems – Jeffrey D.Ullman and Jennifer Widom – Addison Wesley Longman Pte.Ltd.,delhi – 2001.

Reference Books

1. Fundamentals of Database Systems – Third Editions – Ramez Elmasri – Shamkant B. Navathe – Addison Wesley Longman Pte .Ltc – Delhi 2001.
2. Database Management Systems – Alexis Leon and Mathews Leon – Vikas publishing House Pvt. Ltd – New Delhi – 2002.

Semester : I
Code : 08DCA1405P

Hours/week : 3
Credit : 2

C PROGRAMMING LAB

1. Sorting of numbers and names
2. Pascal triangle
3. Finding the roots of Quadratic equation
4. String Manipulations
5. Matrix manipulations
6. Finding the largest and smallest from a list given N numbers
7. Inventory updating using pointers
8. File processing
9. Mark Sheet processing using file manipulation
10. Electricity bill preparation using files.

Semester : I
Code : 08DCA2406P

Hours/week : 3
Credit : 2

PC-PACKAGES LAB

MS-WORD

1. Prepare Bio-data using Text Manipulation.
2. Prepare a document in a newspaper format.
3. Table Creation.
4. Mail merge.

MS-EXCEL

1. Mark sheet Preparation
2. Data Sorting
3. Inventory Preparation
4. Pay bill Preparation
5. Drawing Graphs.

MS-POWERPOINT

1. Inserting Clip and Pictures.
2. Insertion of new slides
3. Slide Show.

Semester : II
Code : 08DCA2407

Hours/week : 6
Credit : 4

SYSTEMS ANALYSIS AND DESIGN

Objectives:

To acquire a thorough knowledge in the concepts of and systems analysis and design

UNIT I

Systems Concepts and Information systems Environment: System Definition- Characteristics of a system-Elements of a system-Types of systems-Dynamic personnel Information System Model.

System Development Cycle: The System Development life cycle-considerations for candidate systems-Prototyping.

The role of the system Analyst: Definition-Interpersonal skills of Analyst-Multifaceted Role of the Analyst-Analyst/User Interface-The place of Analyst in the MIS organization.

UNIT II

Systems Planning and the Initial Investigation: Bases for planning in systems Analysis-Initial Investigation.

Information gathering: Kinds of information-Information Gathering Tools- Tools for Structured Analysis.

UNIT III

Feasibility Study: System performance Definition- Feasibility considerations-Steps in feasibility Analysis- feasibility Report

Cost/Benefit Analysis: Cost and Benefit Categories-Procedure for Cost/Benefit Determination-System Proposal.

UNIT IV

The process and stages of Systems Design: The Process of design-Design Methodologies-Major Development Activities-Audit Considerations.

Input/Output and Form Design: Input Design-output Design-Form Design.

UNIT V

File Organisation and Database Design: File Structure-File organization-database Design.

System Testing and Quality Assurance: System testing-Test plan-quality assurance.

Implementation and S/W maintenance: Activity Network for conversion-post implementation review-S/W maintenance.

Text Book

“Systems Analysis and design” by Elias M.Awad, Second edition, 2001,
Galgotia publications(p) Ltd, New Delhi.

Reference Book

Lee B. and Lee “Introducing System Analysis And Design” Volume I,II,
Galgotia Publication Pvt Ltd. New Delhi, 1982

Semester : II
Code : 08DCA2408

Hours/week : 6
Credit : 4

OBJECT ORIENTED PROGRAMMING WITH C++

Objectives:

To get acquainted with object oriented programming using C++ and develop programs efficiently.

UNIT I

Overview of C++: Introduction to OOP-classes-functions-constructors and destructors-inline functions- passing objects to functions-returning objects from functions-friend functions

UNIT II

Arrays and Pointers: Arrays of objects-Using pointers to object- function overloading-operator overloading.

UNIT III

Inheritance: Base class control-protected members-Constructors and destructors and inheritance- Multiple inheritance-virtual Base class.

UNIT IV

Virtual function and templates: Introduction to virtual functions-more about virtual functions-polymorphism-generic functions-generic classes.

UNIT V

I/O streams-using I/O manipulators-creating own manipulators-file I/O basics-Customized I/O and files.

Text Book

Herbert Schildt – Teach yourself C++ , III edition (TMH) –1999.

Reference Book

J.P.cohon and J.W Davidson, C++ program design- An Introduction to Programming and Object oriented Design II edition (TMH) –1999.

Semester : II
Code : 08DCA2409

Hours/week : 6
Credit : 4

VISUAL PROGRAMMING

Objectives:

To provide the basics of visual environment and programming aspects of Visual Basic.

UNIT I

Navigating within windows-working with files and folders-customizing windows-managing software- Internet Explorer-Networking.

UNIT II

Visual Basic:

Programming fundamentals- Data types- control structures- For...Next – Do...Until –Do ...While ...Loop –While...Wend- If...Else...Endif- Select Case...Endselect- Go To – Forms- Controls and menus –creating a user interface-managing projects.

UNIT III

Visual Basic standard controls- Programming with objects-. Mouse and keyboard events.

UNIT IV

Error Handling- Drivers, Folders and files- Programming with components.

UNIT V

Communicating with other window Applications- Database Features- Using the Data Control- Programming with data control- monitoring the database- SQL Basics- Database objects.

Text Books

UNIT I

1. “Teach Yourself Windows 98 in 21 days” by Paul cassel and Michel Hart Techmedia, First Edition, New Delhi, 1998.

UNIT II, III, IV

2. “Microsoft VB 6.0 Programmer’s Guide”, Microsoft press, 1998.

UNIT V

3. “Visual Basic –6 from the Ground Up”, by Gary Cornell, Tata-McGraw Hill Publication, New Delhi, 1997.

Semester : II
Code : 08DCA2410

Hours/Week : 6
Credits : 4

INTERNET AND WEB DESIGN

Objectives:

To present the fundamental concepts of Internet, Internet Technologies, and to give the knowledge on basic web designing concepts.

UNIT I

Introduction to Internet –, Internet Access, Internet Services' features. Getting started – TCP/IP Vs Shell accounts, Telnet, The World Wide Web – Introduction, Web page, Net Surfing.

UNIT II

Internet/Web browsing – Introduction, Microsoft Internet Explorer, Netscape Navigator, Internet Addressing – IP Address, Domain name, Electronic mail, Uniform Resource Locator. Internet Protocols – Transmission Control Protocol/Internet Protocol, File Transfer Protocol, Hypertext Transfer Protocol -Gopher.

UNIT III

Searching the Web – Web Index, Web Search Engine, Web Meta-Searcher. Electronic Mail – E-mail messages, Pine, Finding an E-mail Address, Mailing Lists, E-mail Ethics, E-mail Advantages and Disadvantages, Useful E-mail services.

UNIT IV

Introduction to HTML - History of HTML, HTML Documents, Anchor Tag, Hyper Links. Head and body sections - Header Section - Title, Prologue, Links, Colorful Web Page, Comment Lines.

UNIT V

Designing Body Sections -Heading printing, Aligning the headings, Horizontal rule, Paragraph, Tab Settings, Lists, Unordered Lists, Ordered Lists.

Text Books

1. For **UNIT I, II, III**, “Internet For Everyone” by Alexis Leon, Mathews Leon”, Leon VIKAS.
2. For **UNIT IV, V**, , “World Wide Web Design with HTML”, by C. Xavier Tata McGraw-Hill Publishing.

Semester : II
Code : 08DCA2411P

Hours/week : 3
Credit : 2

C++ PROGRAMMING LAB

1. Programs using Functions that pass and receive objects.
2. Programs using constructors and destructors.
3. Programs using Constructor overloading
4. Programs using function overloading
5. Programs using operator overloading
6. Programs using inheritance
7. Programs using virtual functions
8. Programs using friend functions
9. Programs using templates
10. Creation and processing of student and employee files.

Semester : II
Code : 08DCA2412P

Hours/week : 3
Credit : 2

VISUAL PROGRAMMING LAB

1. Developing a Scientific calculator
2. Develop Free hand drawing
3. Image Manipulation
4. Design a Menu
5. Employee Information System
6. Pay Bill preparation
7. Simple Mark Sheet Processing
8. Simple Banking Transaction
9. Develop a Text Editor using common dialog Box
10. Develop a Text Editor without using common dialog Box