Directorate of Distance Education

University of Kashmir

Srinagar-190006

Curriculum

Post Graduate Diploma in Computer Applications (PGDCA) Programme 2011-2013

Structure of Curriculum

SEMESTER-I

S.NO.	Paper Code	Paper Title	Max. Internal Marks	Max. External Marks
1	DCA-101	Computer Fundamentals and Applications	25	75
2	DCA-102	Computer Programming Fundamentals Using C	25	75
3	DCA-103	Data Base Management System & Oracle	25	75
4	DCA-104	LAB-I for DCA-102	25	50
5	DCA-105	LAB-II for DCA-101/103	25	50
		Total	125	325

SEMESTER-II

S.NO.	Paper Code	Paper Title	Max. Internal Marks	Max. External Marks
1	DCA-201	Web Programming	25	75
2	DCA-202	Data Communication and Networking	25	75
3	DCA-203	Project Work	50	200
		Total	100	350

Paper Code: DCA-101

Paper Title: Computer Fundamentals and Applications

Unit-I

Introduction to Computers – Characteristics, components, Advantages & Limitations. Classification of computers, Software- Classification & Application. Introduction to Operating Systems, fundamentals of DOS & Windows OS. Working with common DOS Internal and External Commands.

Unit-II

Introduction to Algorithm-Representation, advantages & Limitations. Introduction to Flow Chart-Symbols, Levels, Rules, Advantages & Limitations. Introduction to Programming Languages-Levels & Translators. Introduction to Internet-Working & Applications..

Unit-III

Introduction to MS Office Package. MS Word- fundamentals & Advantages. Text Formatting , Bullets, Inserting Graphics, Tables, Hyperlinks, Mail Merge, Macros & Templates. MS Excel-Fundamentals & Advantages. Formulas & Functions. Inserting Charts & Graphs.

Unit-IV

MS PowerPoint- fundamentals & Advantages. Design Template & Auto Content Wizard. Color & Animation Schemes. Slide Master & Package for CD. MS Access-Fundamentals & Advantages. Tables, Queries, Forms, Reports, Macros & Modules. Understanding Field Properties, Indexing a Field.

Text Book: P.K. Sinha, Computer Fundamentals, 2005, BPB New Delhi

Reference Books :

1. P.K. Sinha, Computer Fundamentals, 2005, BPB, New Delhi
2. Peter Norton, Inside the PC, 2001, SAMS Tech Media
3. Taxali, PC Software, 2005 Tata McGraw Hills, New Delhi.
4. Suresh K. Basandra, Computers Today, 2005 , Galgotia Publications.

Paper Code: DCA-102

Paper Title: Computer Programming Fundamentals Using C

Unit-I

Introduction to C Programming Language- History, Features & Advantages, Language Constructs. Structure of a C program, Character Set & Tokens, Identifiers & Keywords, Constants & Variables, Declaration & Scope of Variables, Data Types. Simple & Compound Statements, Input/output Statements, Expressions & Operators-Arithmetic, Relational & Logical, Bitwise, Unary, Binary & Tertiary Operators. Precedence and Association. Storage Classes-Auto, Extern, Static, Register.

Unit-II

Control Flow Statements-IF-Else Statements, ElseIf Ladder, Switch-Case Statement, Goto Label Statements. Nesting of Control Flow Statements. Array-Declaration, One Dimensional and Multi Dimensional arrays. Structure– Declaration, Accessing Structure members, Nesting of Structures. Union- Declaration, Accessing Union members, Array of Structures & Unions. Difference between Union and Structure.

Unit-III

Introduction to Pointers, Pointer arithmetic, Pointer to Pointer. Introduction to String. Functions-Advantages & Signature. User Defined and Library Functions, Prototype of a function, Array as Function Argument, Structure as Function Argument. Return Statement. Recursion. Pass by Value. Pass by Address.

Unit-IV

Introduction to Header Files & Standard Library. C Pre-Processor & Macros. Standard IO Statements. Format Specifiers. File Processing in C and Command Line parameters.

Text Book : Brian Kernighan and Dennis Ritchie, "C Programming Language," PHI

Reference Books:

1. Brian Kernighan and Dennis Ritchie, " C Programming Language," PHI
2. Yashwant Kanetkar, " Let us, C", BPB
3. E. Balaguruswami, "Programming in ANSI C", Tata McGraw Hill.
4. Herbert Schild, " C The Complete Reference", Tata McGraw Hill.

Paper Code: DCA-103

Paper Title : Database Management Systems and Oracle

Unit-I

Introduction to Database- History, Characteristics, Users and Advantages, Classification of Database, Data Models, Schemas & Instances. Three Schema Architecture & Data Independence . DBMS Languages & Interfaces. Conceptual Data modeling using ER Model.

Unit-II

Relational Data Model Concepts- Domains, Attributes, Tuples, Relations & their characteristics. Relational Data Model Constraints-Entity Integrity, Referential Integrity, Foreign Keys and other Relational Database design using ER to Relational Mapping.

Unit-III

Design guidelines for Relation Schemas. Functional Dependencies. Normalization of Relation Schema. Normal Forms based on Primary Key (1NF, 2NF, 3NF, BCNF, 4NF) Lossless Join & Dependency Decomposition. Introduction to Transactions, Concurrency Control, Schedules & Serializability.

Unit-IV

SQL-History & Overview, Creating & Manipulating Tables. Introduction to Query Processing – DDL , DML & DCL, Transaction Processing. General Syntax, Clauses, Expressions, Conditions, Operators, Built-in & Group Functions. Sub-Queries and Joins, Views, Sequences, Nested Queries.

Text Book : Elmasri R. and Navathe S.B. Fundamentals of Database Systems,   Addison Wesley.

Reference Books :

1. Dates. C, " An introduction to Database Systems." Pearson Education, Asia.
2. A. Silbershatz, H.F. Korth and S. Sudarshan, " Database System Concepts", 3rd edition, 1997, McGraw-Hill , International Edition.
3. Ivan Bayross, "SQL & PL/SQL using Oracle 8i & 9i SQLJ", BPB.
4. William Page, "Using Oracle 8i-Special Edition", Que /PHI.

Paper Code: DCA-201

Paper Title: Web Programming

Unit-I

HTML – Concepts of Hypertext, Versions of HTML, Elements of HTML syntax, Head & Body Sections, Building HTML documents, Inserting texts, Images, Hyperlinks, Backgrounds and Color controls, Different HTML tags, Table layout and presentation, use of front size & Attributes List types and its tags, Use of Frames and Forms in web pages.

Unit-II

VB Script Concept: VB Script Language Elements : Constants, Variables and Data Types, Mathematical Operators, Logical Operators, Looping and Decision Structures.

VB Script Functions and Objects : Date Conversion Functions, Mathematical Functions, Data Formatting Functions, Text manipulation Functions, Date and Time Functions.

Unit-III

ASP Concepts: SSI Directives, Response Object, Request Object Cookies, Application, Session and Server Objects, Global, asa, ASPError Object, Object Context. Reading and Writing Files on Web Server.

Unit-IV

Integrating with Databases: OLEDB, ODBC, Remote Data Service, Active Data Objects, Connection Object, RecordSet and Fields Objects, Using SQL Statements to Query Data, Command and Parameter Objects, Using Error Collection, Developing ASP Application for a case Study.

Tex Book : SCOTT MITCHELL & JAMES ATKINSON, " Teach Yourself ASP in 21 Days', TECHMEDIA

Reference Books:

1. DEBORAH S. RAY, ERIC J. RAY,' HTML 4 (Dummies 101 Series)", IDG Books
2. THOMAS A POWELL, " HTML : The Complete Reference", Mc Graw Hill
3. SCOTT MITCHELL & JAMES ATKINSON, " Teach Yourself ASP in 21 Days,"
4. RUSSELL JONES, "Mastering Active server pages 3.0", BPB
5. ERIC A. SMITH, " ASP 3 Programming Bilbe", IDG Books.

Paper Code: DCA-202

Paper Title: Data Communication & Computer Networks

Unit-I

Communication concepts- Characteristics of Signal (Amplitude, Frequency, Period, Wavelength). Time & Frequency domain View of Signal. Relationship between Data Rate & Bandwidth, Analog & Digital Data Transmission. Transmission Impairments. Channel Capacity for noiseless channel (Nyquist Law) and noisy channel (Shannon's Law) . Data Rate versus Baud Rate.

Unit-II

Data Transmission Concepts-Simplex, Half Duplex & Duplex Guided Transmission Media, Twisted Pair, Co-axial Cable & Optical Fiber. Unguided Transmission Media-Terrestrial & Satellite Microwave. Factors affecting transmission Distance and Data rate.

Unit-III

Concept of Multiplexing. FDM. Synchronous and Statistical TDM. Reliable Transmission of data: Asynchronous and Synchronous transmission. Error detection: Parity –based, CRC-based.

Data encoding . Difference between modulation and encoding . NRZ-L, NRZ-I encoding. Multilevel Binary and Biphasic Coding techniques and their implementations. ASK,FSK,PSK and QPSK. PCM concepts: sampling , quantization. Delta Modulation. Amplitude Modulation.

FCS Computation. Error Control and recovery techniques. Concept of ARQ standard and its versions.

Unit-IV

Goals and applications of networks. LAN, MAN & WAN Architectures. Concept of WAN subnet. Overview of existing networks. Need for a Protocol Architecture. OSI Reference Model Architecture, TCP/IP Model and their Comparison.

Text. Book: William Stallings, " Data and Computer Communications", Pearson Education.

Reference Books:

1. William Stallings, " Data and Computer Communications" , Pearson Education.
2. Andrew Tanenbaum, " Computer Networks", Pearson Education 4/e.
3. Ulyesses Black, " Principles of Data Communications", PHI.
4. Morley , Gelber, "The Emerging Digital Future" , Addison-Wesley.