SARDAR PATEL UNIVERSITY
Programme – PGDCA
(Under Choice Based Credit Scheme)
Semester – I
Syllabus with effect from : 2017-18
PGDCA

PS01CDCA21: PC SOFTWARE

Three hours + 1 tutorial per week
Internal Marks :30
External Marks :70
Total Marks 100
University Examination duration 3 hrs.
All units carry equal weightage

Unit No.   **Topics**

1.   **PC Software Fundamentals.**
Introduction to Personal Computers.
Introduction to Word Processing, and word processors.
    Creation, Editing, Formatting & Printing of Documents.
    Spelling checker, Find & Replace
    Mail – merge: Letters & Labels
Creating a presentation
    Formatting Slides
    Slide transition, adding special effects in slides
    Inserting pictures, sound, Movie etc. in slides.

2.   **Spreadsheet - I.**
Introduction to Spreadsheet and Spreadsheet packages
Building Spreadsheets using formulas, conditional calculations,
built in functions.
Database Utilities : sorting, filtering, extracting
Graph-plotting facilities,
Macro
Using externally created data files in the Spreadsheet
packages.(Import data from DBMS and word processor.)

3.   **Database Management System - I**
Introduction to Database and Database Management systems
Creation and modification of database
Searching and sorting
Built-in functions
Designing and developing programs
Control structures & Repetitive structures

4.   **Database Management System – II**
               Designing custom screens
               Creation and printing of reports
               Introduction of multiple database files and its management
               Procedure files
               Application Development

MAIN REFERENCE BOOKS:

1. Manuals of PC software.

2. Taxali R K : PC Software made simple for Windows, Tata McGraw-Hill Publishing Co. Ltd., 2000.

PS01CDCA22: C AND DATA STRUCTURE

Three hours + 1 tutorial per week
Internal Marks :30
External Marks :70
Total Marks 100
University Examination duration 3 hrs.
All units carry equal weightage

Unit No. Topics
1. **Introduction**
    – Introduction to Computers, Characteristics of Computers, Application Areas, Block Diagram of PC
    – Stored Program Concepts, Editors, Translators, Different Languages of Computer etc.

2. **Logic Development**
    – **Problem Analysis, Flow charts, Algorithms**
    – Variables, Constants, Expression and its manipulation
    – Data Types and Operators, I/O Statements and Assignment statement
    – Control strategies, If, Switch and Break

3. ***Structured Programming and Advanced Computing***
    – Loop statements, Arrays, Strings,
    – Pointers (Introduction)
    – Subroutine (Introduction)
    – Programming Examples
    – Command line arguments (Introduction)

4   **Data Structures**
    - Introduction to Data Structure, Usage, Applications and Advantages of it.
    - Primitive and Non-primitive data types and Operations possible on them
    - Linear and Non-linear structures
    - Array, Stack, Queue
    - Linked List, Trees and Graphs (Only concepts)

MAIN REFERENCE BOOKS :

1. Mullish H. & Cooper H. : The Sprit of 'C' - An Introduction to Modern Programming, JAICO Publishing House, Bombay, 1987.

2. Kernighan Brian W. & Ritchi Dennis M. : The C Programming Language, Prentice-Hall of India Pvt. Ltd. , New Delhi,1988.

3. Tremblay J. & Sorenson P. G. : An Introduction to Data Structures with Applications, 2nd Edition, McGraw-Hill International Edition, 1987.

4. Singh Bhagat & Naps Thomas : Introduction to Data Structures, Tata McGraw-Hill Publishing Co. Ltd.,1985.

BOOKS FOR ADDITIONAL READING :

1. Kernighan Brian W. & Ritchi Dennis M. : The C Programming Language, Prentice-Hall of India Pvt. Ltd. , New Delhi,1988.

2. Stan kelly- Bootle : Mastering TURBO C, BPB Publications, New Delhi, 1988.

PS01CDCA23: LOGICAL ORGANIZATION OF COMPUTER

Three hours + 1 tutorial per week
Internal Marks :30
External Marks :70
Total Marks 100
University Examination duration 3 hrs.
All units carry equal weightage

Unit No.   Topics

1. **Introduction to Computer Organization**
    - Block Diagram of a simple computer and its different functional units.
    - Representation of Information
    - Number Systems and arithmetic - Introduction of Number System, Conversion, Addition of(B,H,O,D)
    - Integer & Floating Point representation
    - Character codes (ASCII & EBCDIC), Error detection and correction codes.
2. **Processors, Memory and Input/ Output.**
    - Instruction Execution
    - CPU organization
    - Parallel Instruction Execution
    - Memory : Main memory, Secondary memory, Types & Organization
    - Input/ Output: Common types of I/O devices, Controllers

3. **Instructions and Flow of Control, Gates and Boolean Algebra**
    - Instruction formats
    - Addressing, Instruction types
    - Traps & Interrupt
    - Gates , Boolean Algebra, Truth Tables
    - Circuit Equivalence, De Morgan's Theorems

4. **Basic Digital Logic Circuits, Memory Elements & Counters**
    - Arithmetic Circuits - Multiplexer , Encoder, Decoder
    - Half Adder , Full Adder , Binary Adder , 2's compliment adder/subtractor
    - Flip flops(RS , D)
    - Registers, Counters

MAIN REFERENCE BOOKS :

1.   V.Rajaraman : Fundamentals of Computers, Prentice Hall Of India Pvt. Ltd.

2.   Tanenbauma.S. Structured Computer Organization, Prentice Hall Of India Pvt. Ltd.

3.   Malvino A.P.: Digital Computer Electronics, Tata Mcgraw Hill Publication Co. Ltd.

PS01CDCA24: NETWORK FUNDAMENTALS

Three hours + 1 tutorial per week
Internal Marks :30
External Marks :70
Total Marks 100
University Examination duration 3 hrs.
All units carry equal weightage

Unit No.   Topics

1.   Introduction And Data Communication Fundamentals
  − Computer Networks – definition and advantages
  − Transmission Technology in Broadcast Networks and Point-to-Point Networks
  − Introduction to Local Area Networks, Metropolitan Area Networks, Wide Area Networks
  − Transmission Media – Guided and Unguided
  − The Theoretical basis for data communication

2.   Protocol Hierarchies, Reference Models and Transmission Techniques
  − Protocol Hierarchies , Design Issues for the Layers
  − The OSI Reference Model
  − The TCP/IP Reference Model
  − Multiplexing
  − Circuit Switching, Message Switching, and Packet Switching Techniques

3.   Local Network Technology
  − Local Area Network Topologies and Characteristics
  − Carrier Sense Multiple Access Protocols
  − The IEEE Standard 802.3 and Ethernet
  − The IEEE Standard 802.4 : Token Bus

4.   The Internet
  − Electronic Mail – Architecture and Services
  − Domain Name System(DNS), The DNS Name Space, Name Servers
  − Introduction to World Wide Web
  − Introduction to Satellite Networks , Geosynchronous Satellites , Medium-orbit satellites, Low-Orbit Satellites

MAIN REFERENCE BOOKS :

1.   Tanenbaum A. S. : Computer Networks, Prentice-Hall of India Ltd., New Delhi, 1997.
2.   Stallings W: Data and Computer Communications, 3rd Ed., Macmillan Pub. Co., 1991.

BOOK FOR ADDITIONAL READING :

1.   Ahuja V: Design and Analysis of Computer Communication Networks, McGraw-Hill Book Company, 1987.

PS01CDCA25: SYSTEM ANALYSIS AND DESIGN

Three hours + 1 tutorial per week
Internal Marks :30
External Marks :70
Total Marks 100
University Examination duration 3 hrs.

All units carry equal weightage

Unit No.   Topics
1. **Introduction**
   - General Architecture of Systems with basic components,
   - Open and Close Systems,
   - TPS, MIS, DSS and ES Types of Systems,
   - Examples of Real-life Systems,
   - System Analyst: Role & Needs,
   - Various users of Systems.

2. **Systems Development Life Cycle and Requirements Determinations**
   - Phases of the Classical Systems Development Life Cycle (SDLC) Method: Preliminary Investigation, Determination of Requirements, Design of System, Development of System, System Testing, Implementation, etc.
   - Requirement Anticipation, Requirements Investigation with Fact Finding Techniques, Decision Trees, Decision Table, and Structured English.

3. **Structured Systems Development Strategy**
   - Function Decomposition Diagrams(FDD),
   - Symbols of Data Flow diagrams,
   - Data Flow Diagrams   (DFD),
   - Data Dictionary,
   - Application Prototype Development strategy.

4. **Computer-Aided Systems Tools and Software Quality**
   - Tools, Computerized Tools, Front End and Back End Tools, Integrated tools
   - Computer Aided Systems Engineering (CASE) Tools, Advantages and Weakness of CASE,
   - Software Quality parameters, Approaches to Reliability, Quality Assurance and Various Types of Testing and certifications.

MAIN REFERENCE BOOKS:
1. James A Senn : Analysis and Design of Information Systems McGraw Hill Intl. Stdt. Edn,1985.
2. S. Parthasarthy & B. W. Khalkar : Systems Analysis and Design
3. Hussain K. M., Hussain Donna : Information Systems (Analysis, Design & Implementation), Tata McGraw-Hill Publishing Company Limited, 1995.

BOOK FOR ADDITIONAL READING :
1. Vinod Kumar Garg, S. Srinivasan : Workbook on System Analysis & Design, Prentice-Hall of India Private Limited.