

Teaching Plan

Paper: Core Paper 1 (Problem Solving Using Computer)

Course: B.Sc. Physical Science (Computer Science) Semester - I

Teacher: Dr. Deepali Jain

Week	Start Date	Topics to be Covered
Week 1	29-Aug-16	Computer Fundamentals: Introduction to Computers: Characteristics of Computers, Uses of computers, Types and generations of Computers. Basic Computer Organization : Units of a computer, CPU, ALU, memory hierarchy, registers, I/O devices.
Week 2	5-Sep-16	Planning the Computer Program: Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation. Techniques of Problem Solving: Flowcharting, decision table, algorithms, Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming.
Week 3	12-Sep-16	Overview of Programming: Structure of a Python Program, Elements of Python Introduction to Python: Python Interpreter, Using Python as calculator, Python shell, Indentation. Atoms, Identifiers and keywords, Literals, Strings, Operators: Arithmetic operator, Relational operator, Logical or Boolean operator, Assignment, Operator, Ternary operator, Bit wise operators.
Week 4	19-Sep-16	Creating Python Programs: Input and Output Statements, Control statements (Branching, Looping, Conditional Statement, Exit function, Difference between break, continue and pass.), Defining Functions, default arguments, Errors and Exceptions. Iteration and Recursion: Conditional execution, Alternative execution, Nested conditionals, The return statement, Recursion, Stack diagrams for recursive functions, Multiple assignment, The while statement, Tables, Two-dimensional tables
Week 5	26-Sep-16	Strings and Lists: String as a compound data type, Length, Traversal and the for loop, String slices, String comparison, A find function, Looping and counting, List values, Accessing elements, List length, List membership, Lists and for loops, List operations, List deletion. Cloning lists, Nested lists
Week 6	3-Oct-16	Object Oriented Programming: Introduction to Classes, Objects and Methods, Standard Libraries.
Week 7	10-Oct-16	MID-SEMESTER BREAK
Week 8	17-Oct-16	Data Structures: Arrays, list, set, stacks and queues.
Week 9	24-Oct-16	Revision work of the course content done so far
Week 10	31-Oct-16	Searching and Sorting: Linear and Binary Search, Bubble, Selection and Insertion sorting
Week 11	7-Nov-16	Review of last year's question papers and doubt sessions

Teaching Plan

Paper: Core Paper-3 (Operating Systems)

Course: B.Sc Physical Science (Computer Science) Semester - III

Teacher: Mrs. Neelu Sanghi

Week	Start Date	Topics to be Covered
Week 1	25-Jul-16	Introduction: System Software, basic OS functions
Week 2	1-Aug-16	Types of operating systems - Multiprogramming, Batch, Time Sharing, Single user and Multiuser, Process Control & Real Time Systems.
Week 3	8-Aug-16	Operating System Organization: Factors in operating system design, basic OS functions, implementation consideration
Week 4	15-Aug-16	Process modes, methods of requesting system services – system calls and system programs.
Week 5	22-Aug-16	Shell introduction and Shell Scripting
Week 6	29-Aug-16	Process Management : System view of the process and resources
Week 7	5-Sep-16	Process address space, Process abstraction, resource abstraction
Week 8	12-Sep-16	Process hierarchy, Thread model
Week 9	19-Sep-16	Scheduling: Scheduling Mechanisms, Strategy selection, non-pre-emptive and pre-emptive strategies
Week 10	26-Sep-16	Scheduling Continues
Week 11	3-Oct-16	Memory Management: Mapping address space to memory space
Week 12	10-Oct-16	MID-SEMESTER BREAK
Week 13	17-Oct-16	Memory Allocation strategies, Fixed partition, Variable partition
Week 14	24-Oct-16	Paging, Virtual Memory
Week 15	31-Oct-16	Virtual Memory
Week 16	7-Nov-16	Revision

Teaching Plan

Paper: CSPT 505 (Computer Network)

Course: B.Sc. Physical Science (Computer Science) Semester - V

Teacher: Dr. Deepali Jain

Week	Start Date	Topics to be Covered
Week 1	29-Aug-16	Basic concepts: Components of data communication, standards and organizations.
Week 2	5-Sep-16	Network Categories: Area Networks (LAN, WAN and MAN), Network Relationships (Client-Server, Peer-to-Peer), Network Topologies (Bus, Ring, Star, Mesh).
Week 3	12-Sep-16	Layered Communication Connectivity: Fundamentals of Layered Connectivity, OSI and TCP/IP Models, comparison of models, Network Addressing – Physical and Logical Addresses.
Week 4	19-Sep-16	Physical Layer: Cabling, Network Interface Card, Transmission Media Devices- Repeater, Hub, Bridge, Switch, Router, Gateway.
Week 5	26-Sep-16	Data Link Layer: Framing techniques; Error Control; Flow Control Protocols.
Week 6	3-Oct-16	Shared media protocols - CSMA/CD and CSMA/CA.
Week 7	10-Oct-16	MID-SEMESTER BREAK
Week 8	17-Oct-16	Network Layer : Virtual Circuits and Datagram approach, IP addressing methods – Subnetting; Routing Algorithms (adaptive and non-adaptive)
Week 9	24-Oct-16	Application Layer : Application layer protocols and services - DNS, HTTP, WWW
Week 10	31-Oct-16	Network Security : Common Terms, Firewalls, Virtual Private Networks
Week 11	7-Nov-16	Revision work of the course content done so far Review of last year's question papers and doubt sessions