



CS 101 Introduction to Computing

Semester – 2014 -15 / II Semester

Units – 2 – 0 – 2 – 3

Pre-requisite – None

Instructors – Sanjay Dhande, Arya Bhattacharyya,
Didier Cloutau

Tutors – Arya, Lilian, Vipin, Vivek, Kondiah

Lecture # 1, Section 1, 8 minutes

Course Organization

- Time Table: Lectures – Mondays, Tuesdays
- Time Table: Lab Sessions – Mondays, Tuesdays
- Lab Assignments – 15, Lab Sessions - 15
- One Term Paper
- Homework Assignments – 10, Lectures - 30
- Two Mid-semester Tests, End-semester Exam
- Attendance – Absolutely compulsory
- Honors Code applies in the course

History of Computing

- Historical Machines of Computing
- Analytical Engine
- Difference Engine
- Jacquard Loom, Knitting Machine
- Slide Rule, Logarithmic Tables
- Calculators
- Unit Record Machines
- ELIAC, UNIVAC computers



Tipping Points of CS

- Bits and Atoms – Discrete Nature
- Information – Music, Graphics, Alphabets, Numerals, Symbols
- Concept of Algorithm
- Machine execution of algorithm
- Data Structures
- Data packets – Transmission, Distribution and Assembly
- Central, Distributed, Mobile Computing



Strategies of Problem-solving

- Divide and Conquer Approach
- Iterative Methods
- Recursive Technique
- Hill Climbing Methods
- Parallel Technique
- Method of Induction
- Logical Reasoning Technique



Structure of a Computer

- Input Devices / Unit
- Output Devices / Unit
- Storage Devices / Unit
- Central Processing Unit
- Computer Architecture
- Computer Network



Concept of a Computer Program

- High Level Programming
- Source code
- Syntactical and Logical Errors
- Compilation and Execution
- Input / Output data
- Operating Systems
- Compilers
- Interpreters



Overview Languages of Programming

- Machine Languages
- Application Languages – F-77,,,
- Structured Languages
- Object-oriented Languages
- Interpretive Languages

- Processing of Programs



Concepts of Structured Programming

- Dijkstra's Principles
- Basic constructs
- Concept of Flow Chart
- Concept of Main Program and Sub-prgrams
- Functions
- Sub-routines or Sub-programs
- Menu Driven concepts of programs



Thank You!

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