



Indian Institute of Information Technology, Allahabad
Department of Information Technology

Course Syllabus

1. **Name of the Course: Advanced Programming Practices**
2. **Subject Code: PC-IT-APP502**
3. **LTP structure of the course: 2-0-2**
4. **Objective of the course:** To revise basic programming skills and coding data structures for PG (IT) students.
5. **Outcome of the course:** The students will revise their skills in basic programming and data structures. They shall have the ability to solve problems using basic data structures in C and will be poised to implement more complicated algorithms that they shall encounter in later semesters.
6. **Course Plan:**

Unit	Topics for Coverage
Unit 1	Quick overview on C language, Pointers and arrays, Linked lists, Dynamic tables
Unit 2	Disjoint sets using trees, Hashing by chaining, Perfect hashing, Heaps using trees Search algorithms for graphs (DFS & BFS)
Unit 3	Balanced trees, B-tree, Kruskal's algorithm, Eulerian path, Hamiltonian cycle
Unit 4	Shell scripts in Linux environment, Programming in bash and whiptail, Automatic testing using shell scripts

7. References:

1. Pro Bash Programming by *Chris F.A. Johnson*, Apress.
2. C Programming Language (Ed 2) by *Brian W. Kernighan* and *Dennis M. Ritchie*, Prentice Hall
3. Data Structures Using C and C++ by *Yedidyah Langsam*, *Moshe J. Augenstein* and *Aaron M. Tenenbaum*, Pearson
4. Introduction to Algorithms (Ed 3) by *TH Cormen*, *CE Leiserson*, *RL Rivest* and *C Stein*, MIT Press