

EE 441: Advanced computer programming & Data Structures

L T P
3 - 2 - 3
ESE: 100
Sessional 50
Laboratory: 50

1. **Review of 1st semester IC course:** Control structure, decision control structure, case control structure.
2. **File operations:** Opening a file, File opening modes, Closing a file, Reading data from a file, writing data to a file, EOF.
3. **Functions:** What is function, passing values between functions, call by value, call by reference,
4. **Arrays and pointers:** Array definition, array initialization, bound checking, passing an array element to a function, passing an entire array to a function, 2-dimensional array, 3-dimensional array, pointer definition, array of pointers.
5. **Strings:** Definitions, Standard library string functions strlen(), strcpy(), strcat(), strcmp(), 2- dimensional array of characters.
6. **Structures:** Use of structure, Declaration of a structure, accessing structure elements, Storing of structure elements. Array of structures.
7. **Data structures:** Stacks, queues, lists, linked lists, searching, sorting, crops

Note: The C and C++ languages shall be used to describe the algorithms and data structure. Some basic features of project oriented languages shall be covered in the course.

Books/References:

1. M.A.Weiss-Data Structures & Algorithms Analysis in C++ , (Addition Wesley).
2. L. Tannenbaum- Data Structures Using C , (PHI).
3. Lipshutz- Theory and problems of Data Structure, (McGraw Hill).
4. Yashavant Kanetkar -- Let Us C: (BPB)
5. Reema Theraja -- Programming in C; (Oxford University Press).