

Fine Techniques 2

Course Objectives:

The objective(s) of this course is to,

- Learn analysis of problems
- Learn developing various solutions for a given problem
- Learn selecting suitable algorithms and data structures
- Learn developing non-trivial large programs
- Learn testing programs for correctness and efficiency

Course Outcomes:

At the end of the course, the student will be able to:

- analyze a given problem
- propose various solutions
- evaluate the proposed solutions for time and space requirements
- implement the solution
- test and profile the programs

Course Content:

1. General Purpose Trees – Represent any tree as a binary tree; Traversal; searching
Project: Decision Tree; PERT and CPM
2. Version Control – Creating hierarchies; Controlling version
Project: Develop a simple file system based on version control
3. Regular expression Engine: Developing pattern matching tool
Project: Mimic GREP
4. Pattern Matching: processing LOG files; context based searching
Project: Logfile processing
5. Testing and Debugging: Designing test cases; Analyzing programs for logical errors
Lab: getting used writing test cases; debugging programs (unittest and gdb)

Pre-requisite Courses:

UE18CS151 – Problem Solving with C.

UE18CS202- Data Structures

UE18CS251- Design and Analysis of Algorithms

Reference Book(s):

1. Beautiful code, Edited by Andy Oram and Greg Wilson, Oreilly, June 2017
2. Mastering Regular Expressions 3rd Edition by Jeffrey Friedl, Oreilly
3. Programming Pearls, Second Edition, Jon Bentley, Pearson Education
4. More Programming Pearl, Jon Bentley, Pearson Education