

**International Workshop on
Advanced data structures and algorithms
(4-15 June 2012)
at Thapar University, Patiala
(two week refresher course)
in Collaboration with Infosys**

Objective of this workshop/Summer School is to promote the discovery and dissemination of high quality teaching and research in theoretical computer science and computational algorithms. The need of sophisticated algorithms is increasing in all areas of applications due to increasing size and complexity of the problems. Workshop is intended for professionals, teachers, research scholars and software engineers.

How you will spend the summer of 2012?

- Are you fascinated by algorithms?
- Do you like to solve challenging and puzzling computational problems?
- Are you curious about what algorithmists do?

If your answer is yes, then join us at Thapar University Campus, Patiala with other motivated, talented and young teachers and researchers from across the world.

[Contents of Workshop](#)

[Guidelines for applying and attending the workshop](#)

[Registration Form](#)

[Details for sponsoring the workshop](#)

Announcement Date: February 1,2012

Closure Date: March 31,2012

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Premium Sponsors : Infosys, [Gujrat Technical University](#) , [Punjab Technical University](#)

Technical Sponsorship by IEEE India Council, IEEE Computer Society Chapter Delhi Section, In cooperation with IEEE AESS (Aerospace Electronic System Society)

Organized by : Thapar University, Patiala and IEEE Student Branch, Thapar University and ACM SIGACT North India

Contents:

1. Introduction to algorithms, code tuning, complexity analysis
2. Linear data structures, sorting and searching techniques, amortized and expected complexity Analysis
3. Trees, Binary Search Trees, AVL trees, B-tress, Red-Black trees, Skip lists, Tries and Splay Trees
4. Binomial,Fibonacci heaps, succinct, persistent data structures, disjoint sets, Hashing, augmenting data structures
5. Divide and conquer, Greedy algorithms, Dynamic Programming, Backtracking, Branch and bound technique
6. Graph Algorithms, Shortest Path algorithms, Maximum Flow algorithms and String matching algorithms
7. Parallel algorithms, Randomized algorithms, Cache oblivious algorithms, Data mining algorithms

8. Online algorithms, Geometric algorithms and Networking algorithms
9. FFT and cryptographic algorithms, Multi facility location problems
10. Game theory, Complexity classes, P NP etc, Approximation algorithms