

**International Workshop on  
Advanced data structures and algorithms  
(4-15 June 2012)  
at Thapar University, Patiala  
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.

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Last date for registration: 29th Feb, 2012 (or the date when seats are filled)

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Premium Technical Co-sponsors: Infosys, Gujrat Technical University, Punjab Technical University

Technical Sponsorship by ACM SIGACT India IEEE India Council, IEEE Computer Society Delhi Section, In cooperation with IEEE AESS ( Aerospace Electronic System Society) and IEEE Student Chapter, Thapar University

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

## Guidelines

### Registration Fee

Candidates from Indian Academic Institutions	6,000/- (For ACM/IEEE Members 5,000/-)
Candidates from Industry from India	10,000/- (For ACM/IEEE Members 8,000/-)
Candidates from Academic Institutions Outside India	\$600 (For ACM/IEEE Members \$500)
Candidates from Industry Outside India	\$1,000 (For ACM/IEEE Members \$800)
Candidates from Thapar University, Patiala	3,000/-

1. Workshop registration fee is non-refundable. Selections will be on first come first serve basis. Payment should be in favor of "IEEE Student Chapter" Payable at Patiala. Transaction should be done from one of the banks who have their branch in Patiala. All IEEE/ACM and sponsoring organization members will get discount in registration fees. Only Foreign participants may go for online payments.

2. You will be selected after receiving registration fees.

3. There are limited seats.

### Boarding and Lodging

4. All candidates from India will be reimbursed AC-III tier train/Deluxe bus fare of both sides. Original tickets are compulsory to get the reimbursement. Candidates travelling in higher category/by Air will be given AC-III tier equivalent from the nearest station. However candidates travelling in lower category will be reimbursed as per the actual fare given on the ticket. Local travel like auto/rickshaw/taxi will not be reimbursed. Travel Assistance is not available for candidates from outside India. Few international candidates may be supported partially based on the sponsorships/funds available.

5. All candidates will be entitled to free three vegetarian meals and two time tea on all working days of the workshop.

6. All candidates will be provided free stay in the hostel accommodation. Separate hostels are available for boys and girls. Those who are looking for hotel or family accommodation should make their own arrangements.

### Eligibility

7. Those should apply who are interested in gaining new knowledge/doing research in this area/ teaching related subjects.

8. All the start-up material will also be covered so the course is also relevant for those who do not have any background in the subject.

9. Candidates of Govt/Private organizations should take appropriate approvals required for attending such courses.

### General Instructions

10. Those having laptops/notebook computers should bring it with them. However, candidates are solely responsible for all of their belongings.

11. Workshop will have intensive 80 hours schedule with additional problems/assignments to be done during the night. Certificates will be issued only on 100% attendance.

12. Candidates with any physical disability/medical problems should declare such things before registration and write to workshop organizers for any special arrangements.

13. If any candidate is expecting any specific topic/problem to be covered, same should be conveyed at the time of registration.

14. Information about Thapar University is available at [www.thapar.edu](http://www.thapar.edu) and information about location of the Thapar University is available at [How to reach](#) . Information about tourism in Punjab state is available at [www.punjabtourism.gov.in](http://www.punjabtourism.gov.in)

15. Email is the preferred and only medium for asking any queries.

