



# Certificate Course on Foundations of Efficient Software Development

CSE Department, IIT Hyderabad

17-24 Dec 2011

## About the Course

This course aims to cover some of the fundamental topics in computer science, which are necessary for writing time and space efficient applications. Participants will develop a deeper understanding of important data structures, algorithms and performance issues in dealing with large persistent data, typically stored in relational databases.

Information or data form the foundation of any business enterprise. Thus a thorough understanding of how to manipulate, design and manage data is a critical activity for the success of any organization.

Organization of data plays a crucial role in efficient storage and retrieval. It is also important to know how to solve a problem in a computationally efficient way. This course introduces participants to a number of highly efficient data structures and algorithms for fundamental computational problems such as optimization and string matching. It teaches how to carry out analysis of data structures.

Apart from basic data structures taught in undergraduate curriculum, several advanced data structures such as range trees, geometric data structures and digital search trees will be taught. The course will involve hands-on implementation exercises. The course will also cover in depth algorithms in areas such as information retrieval, computer graphics and bioinformatics. Basic data structures and algorithms in VLSI CAD and social network analysis will also be covered.

Apart from main memory data structures, application developers also need to be equipped with the knowhow of managing large volumes of persistent data. An insight into the working of modern day database systems is crucial to enable this. The course will cover the foundations of managing large persistent data and help developers express complex data retrieval requests by being power users of SQL. The course will also deal with optimizing application interactions with database systems and common pitfalls in writing applications containing database calls. Participants will also be given an insight into query processing and optimization.

This is an 8 day highly intensive theory and lab course.

## Course Fees

INR 5000 for college teachers, INR10000 for candidates from public/government sector companies and INR 12000 for candidates from private sector companies.

The course fees are inclusive of one set of course material, accommodation in student hostel and boarding. Note that student hostel is very neat and clean but facilities in hostel are basic.

## Registration

Applicants have to fill the application form provided in the next page. Course fees has to be paid through Demand Draft for the requisite amount drawn in favour of **Registrar, IIT Hyderabad**. Filled application form along with the Demand Draft has to be sent by post to the course coordinator (postal address given below). The application form along with Demand Draft must reach the course coordinator on or before 10<sup>th</sup> December 2011.

### Course Co-ordinator

**Prof. Ch. Sobhan Babu**

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IITHyderabad  
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# Certificate Course on Foundations of Efficient Software Development

Name:

Sex:

Academic qualification:

Email address:

Mobile/Phone Number:

Address for correspondence:

Your organization name and address:

Your designation: