

# In the Name of God

## Theoretical Computer Science

### Fall 2010

This course aims to introduce some aspect of theory of computer science related to the areas of researches which are active in department of computer science at Amirkabir University of Technology.

Instructor: Prof. S. Mehdi Hashemi **سید مهدی تشکری هاشمی**

Room 322, Department of Computer Science,  
Faculty of Math and Computer Science,  
Amirkabir University of Technology, Tehran, Iran

[Hashemi@aut.ac.ir](mailto:Hashemi@aut.ac.ir)

[www.tashakkori.ir](http://www.tashakkori.ir) , [www.aut.ac.ir/hashemi](http://www.aut.ac.ir/hashemi)

Lectures:

Sunday and Tuesday from 10:00 am 12:00 pm in Kharazmi 305

Office Hours:

Saturday and Monday 3:30 pm to 4:30 pm in Kharazmi 322

Teaching assistants: TBA

prerequisite: Discrete Mathematics, Computational Software, Computer Languages

## References (including but not limited)

1. Introduction to Algorithms, T. H. Cormen , C. E. Leiserson, and R. L. Rivest,
2. Graph Theory, J.A. Bondy and U.S.R. Murty , 2007
3. Network Flows, Theory, Algorithm and Application, R.K.Ahuja, T.L.Magnanti , and J.B.Orlin
4. Graph Teoritic Techniques for Web Content Mining, A.Schenker and ....
5. Journnals Related to the Topics

We will cover the following topics in this course.

1. Graph Algorithms and Application
2. Directed Graphs and Network Theory
3. Algorithm and introduction to Computational Complexity
4. Mathematical foundation of Computer Science
5. Approximation Algorithm
6. Graph Drawing
7. Steiner trees and application
8. Search Algorithm and Optimization Methods
9. Evolutionary Algorithms, Genetic Algorithm, Swarm Algorithm, ant Colony, and .....

## **Evaluation:**

As a graduate student I expect you all enthusiastic, hard working students who are seeking for knowledge and preparing for research activities. Therefore I shall evaluate you based on research activities, participating in class works, team work and presentations and assignment that you fulfill for class requirements (ABOUT 70%). There are also some quizzes (without announcement) and Term exams (ABOUT 30%).

**NOTE:** Attending classes are compulsory and each absent reduce your final grade by 1.2 mark even if your absent is permissive.