Spring Semester, 1394/2016

IN THE NAME ONE WHO TAUGHT THE MIND TO THINK

School of Mechanical Engineering
Sharif University of Technology

COURSE TITLE: Introduction to ROBOTICS & Lab. (Senior Undergraduates)

DAYS & TIME: Sundays and Tuesdays: 7:30 to 08:45 AM

INSTRUCTUR: Ali Meghdari, Ph.D., Professor ; http://meghdari.sharif.edu
Email: meghdari@sharif.edu
OFFICE HOURS: Sundays: 4:00-5:30 PM., Tel: (021) 6616-5541, 5548

TEXT BOOK: Introduction to Robotics, By: J. J. Craig, Pearson Prentice Hall, 3rd Ed., 2005, and John Wiley & Sons, Translated to Farsi, By: A. Meghdari & F. Mirfakhraei, E. Shojaei, S. M. Akrami, SUT Press, 1388.
http://sina.sharif.edu/~cedra/ecourse.php

REFERENCES: Intelligent Robotics Systems, By: M. Shahinpoor, ERI Press, 1994.
Robot Manipulators, By: R.P. Paul, The MIT Press, 1982.

TOPICS:

1. Introduction to Robotics Technology & Applications
2. Review of Current Robotics Research
3. Robots Geometrical Configurations & Designs
4. Design of Robotic Grippers/End-Effectors
5. Spatial Descriptions & Transformations
6. Robot Manipulator Kinematics
7. Robot Manipulator Inverse-Kinematics

Mid-Term Examination: **(last week of Farvardin, 1395)**

8. Jacobians: Velocities & Static Forces
9. Robot Manipulator Dynamics: Newton-Euler's & Lagrangian Methods
10. Robot Trajectory Generation
11. Manipulator Mechanism Design
12. Robot Programming (Laboratory)

Final Examination: **(Finals Week)**

GRADING:

Homework:	(5 % of the Final Grade)*
Quiz:	(10 % of the Final Grade)*
Computer/Lab Projects:	(15 % of the Final Grade)
Mid-Term Exam:	(30 % of the Final Grade)
Final Exam:	(40 % of the Final Grade)

* Homework will be assigned and collected every other week, and short quizzes will be given every other week during the semester.