CS 556 - Robotics, Spring 2014

Instructor: Professor Marko Vuskovic (mvuskovic@mail.sdsu.edu)

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Classes: M/W 19:00 – 20:15, GMCS-327

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Web Site: http://medusa.sdsu.edu/Robotics/index.htm

Course Description:

Course outline:
1. General facts about robotics and its applications
2. Manipulators, sensors and actuators
3. Robot kinematics (general concepts)
4. Forward kinematics of planar robots
5. Inverse kinematics of planar robots
6. Robot control (general concepts)
7. Linear model of robot actuators
8. Design of linear controllers (PD, PID)
9. Trajectory planning and generation
10. Motion controllers
11. Velocities and forces (robot Jacobian)
12. Controlling robots in Cartesian space.

Grading:
Four individual programming assignments (40%)
Two midterm tests, open-book (60%)

Prerequisite:
Reasonable familiarity with MATLAB and C/C++

Textual material:
1. M. Vuskovic: "Lecture Notes,” (required, available on class web site)