

ENGR 173 Mechatronics: Intermediate Robotics, Cuyamaca College

Fall Semester 2010, Section 4597

Saturdays, 9 am – 12:55 pm, Room F301

This course follows ENGR 171, in which we examined basic concepts of robot behavior, sensing, and propulsion. In this course we will examine a variety of topics on a more advanced level, including what it takes to make a robot walk, the use of DC and stepper motors, and the development of simple but self sufficient robots (the BEAM robotic concept).

Instructor

Dr. Duncan McGehee

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Office Hours: MW 5 - 6 pm, Th 12 – 1 pm, Sat 1 – 3 (in F301), or by appointment

Units and Prerequisites

1.5 units. No prerequisites.

Required Equipment

Required:

1. *Advanced Robotics With The Toddler* V1.3, B. Wong and K. Gracey, ISBN 1-928982-14X, Parallax, Inc., 2004. Available by free download from Parallax.com.
2. *Robotics with the Boe-Bot*, A. Lindsay, ISBN 1-928982-3-4, Parallax, Inc., 2004. Available by free download from Parallax.com.

Recommended:

1. *Robot Builder's Bonanza*, 3rd Ed., G. McComb and M. Predko, ISBN 0-07-146893-5, McGraw-Hill, 2006.
2. *Junkbots, Bugbots, & Bots on Wheels – Building Simple Robots with BEAM Technology*, D. Hrynkiw, M. Tilden, ISBN 0-07-222601-3, McGraw-Hill, 2002.
3. *Building Robot Drive Trains*, D. Clark and M. Owings, ISBN 0-07-140850-9, McGraw-Hill, 2003.

Other Required Supplies

USB flash drive. Any size will suffice.

4 AA batteries

Grading

A: 90 - 100

B: 80 - 89.9999

C: 70 - 79.9999

D: 60 - 69.9999

F: < 60

Lab activities and projects

75 points

Policies

- 1) This is a lab class, and you are encouraged to help each other on the textbook activities. With the creative projects, although you may discuss your ideas with friends, each project should be unique and original.

Important Dates

3 September: Final day to add classes, or to drop without a 'W'.

24 September: Last day to switch to pass/no pass (In my opinion the best way to take the class).

12 November: Final day to drop classes.

Tentative Lecture Schedule

Week	Dates	Topic	Reading
1	23 Oct	Walking robot	Wong & Gracey, Ch 1 , Ch 2
2	30 Oct	Walking robot	W & G, Chs 3 and 4
3	6 Nov	Walking robot – Extra Credit	W & G, Chs 5 & 6
4	13 Nov	DC motor control	
5	20 Nov	Stepper motor control	
6	27 Nov	Thanksgiving Holiday	
7	4 Dec	Beam Robotics	
8	11 Dec	Beam Robotics	

This course adheres to policies outlined in the Cuyamaca College Catalog. For further information, please see the section of the catalog entitled *Academic Policies*.

subject to minor changes