

Revised: Fall 2016

# EGR 123 - Introduction to Engineering Design

## COURSE OUTLINE

### Prerequisites:

Prerequisites Here

### Course Description:

Introduces the fundamental knowledge and experience needed to understand the engineering design process through the basics of electrical, computer, and mechanical systems. Includes the completion of a project in which a specific electromechanical robot kit will be analyzed, assembled, and operated.

**Semester Credits: 2 Lecture Hours: 1 Lab/Recitation Hours: 2**

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## Course Outcomes

**At the completion of this course, the student should be able to:**

- Use reverse engineering to learn parametric 3D modeling software, design, test and build an autonomous robot
- Use 3D parametric CAD software to design and virtually prototype
- Make working drawings to build an autonomous robot
- Through small group activities, learn how to more effectively communicate and interact with other students, counselors, and faculty



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Required Materials:

Textbook:

Mastering SolidWorks, ISBN: 9780133885941  
Author: Zeid, 2<sup>nd</sup> Edition, Publisher: Peachpit Press

The following supplementary materials are available:

- 1.
- 2.
- 3.

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Topical Description: (Outline chapters and sections to be covered in the book – may include timeline)

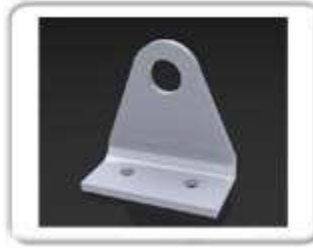
<b>Week</b>	<b>Topic</b>
1	Intro to 3D Parametric Modeling
2, 3	Sketching and Modeling
4	Assembly Modeling
5	Your Boe-Bot's Brain
6	Designing Parts
7, 8	Documenting Parts
9, 10	Assemble and Test Your Bot-Bot
11, 12	Analyzing a Design
13	Documenting Assemblies
14	Robot Contest
15	Review for exam
16	Exam

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Unit 1: Intro to SolidWorks



Unit 2: Building a Part



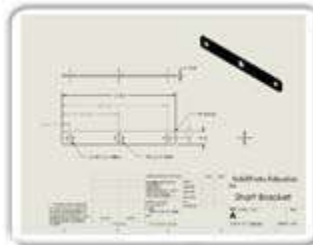
Unit 3: Assembly



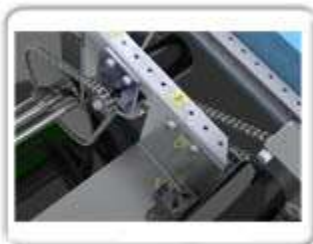
Unit 4: Chassis



Unit 5: Mechanism



Unit 6: Manufacturing & Parts



Unit 7: Electrical



Unit 8: Teamwork Tools



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Unit 9: Summary

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Notes to Instructors

(List information about optional topics, departmental exams, etc)

- 1.
- 2.
- 3.
- 4.

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