Course Outcomes Guide (COG)

Directions: Please complete this form to document your progress toward improving student learning. For each item, indicate your progress and your anticipated next steps. Thank you!

Course Title: EGR 103 Introduction to Engineering Design **Date:** 9/1/2011

Course Team: Joshua Stover

Expected Learning Outcomes

1. Apply knowledge of mathematics, science and engineering,
2. Design and conduct experiments and analyze and interpret data.
3. Function in multi-disciplinary teams
4. Develop an understanding of group dynamics
5. Develop computer skills including the use of the internet and databases for research, spreadsheets, mathematics software, word processors, graphical presentation software and engineering drawing software.
6. Develop basic computer programming skills.
7. Identify, formulate, and solve engineering problems,
8. Develop an understanding of the role engineers play in our modern society, and engineering ethics.
9. Develop communicate skills including oral, written and visual (engineering drawing).

Assessment

1. Students apply knowledge of mathematics, science, and engineering by the completion of engineering homework problems and the completion of in class exams.

2. Engineering design project requires students to design a robot to complete a specified function, test the design, analyze test data, and modify the design based upon the data generated

3. Engineering design projects are team activities. Students will be evaluated by the instructor and their peers on their ability to work effectively in a team.

4. Same as number 3.

5. Students will learn and be evaluated on their ability to effectively: use PRO/E software to generate models, and the use of MATLAB to solve engineering problems.

6. Students will be evaluated on their computer programming ability during the design project. i They will be require to develop, write, and troubleshoot computer programs required to control robot functions.

7. See number 1.

8. Students are evaluated on their understanding of the role of engineers in society and engineering ethics by the writing of short research papers on the topics.

9. Students present the solution to their design project in a written and oral form.

Validation

Exams for each section will contain the same questions. The student results on each question in the morning section will be compared to student results on the same question in the afternoon section.

Exams will be analyzed to see if students, on average, demonstrate common area of weaknesses. The time spent teaching each subject will be evaluated based on this data analysis.

Results

Data collection will begin in the Fall 2011 term. Data analysis will be performed during the Spring 2012 term.

Follow-up

Follow up is pending. Begin data collection.

Budget Justification

Four additional sensors are needed for the robotics kits. This will increase the number of available kits to eight. Increasing the number of kits will allow for the following: accommodation of enrollment growth in the course and reducing the project group size.