

Course Title: EGT 101: Foundations of Engineering

Course Leader: Adam C. Bridendolph

Expected Learning Outcomes for Course:

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

- Read and understand technical information/textbooks.
- Apply mathematical concepts across broad ranges or classes of problems.
- Identify the correct approach to solve particular math problems.
- Categorize different types of problems that are solved by the same techniques.
- Categorize different techniques that may be used to solve the same problem.
- Utilize current technology to reinforce mathematical concepts.
- Demonstrate proficiency at the use of a graphing calculator.
- Utilize an Excel spreadsheet for data analysis and decision-making.

Assessment:

(How do students demonstrate achievement of these outcomes?)

Microsoft Excel and graphing calculator assignments, engineering workbook project, midterm, final exam

Validation:

(What methods are used to validate your assessment?)

Evaluate feedback from internship employers. Also, can students effectively use Microsoft Excel and the graphing calculator to solve engineering problems in higher-level mechanical engineering technology courses such as Mechanics and Strength of Materials. Students demonstrated what they learned in the Engineering workbook project.

Results:

(What does the data show?)

Students struggle with reading problems and using functions in Excel. This was seen in Strength of Materials. Most students already know how to use the Graphing Calculator. This is shown in their testing. Some students did not have strong background in using computers, and that made them take longer time to understand and do assignments.

Follow-up:

(How have you used the data to improve student learning?)

Additional emphasis will be placed on programming in Excel. Additional classwork and homework assignments will be given on this subject to ensure students grasp the material better. Programming in Matlab will be in place of graphing calculator.

Budget Justification:

(What resources are necessary to improve student learning?)

Maintain up to date version of Microsoft Excel, and Matlab software.