EGM 4523C – INTERMEDIATE STRENGTH OF MATERIALS
Common Course Syllabus

Catalog Data: 3 CREDITS. An extension of the theories and applications of the principles of mechanics of materials taught in EGN 3331, including determining the deflection of beams by different methods, solving statically indeterminate problems, studying the phenomenon of stress concentration in practical situations and applying static failure theories in design.

Prerequisite: EGN 3331 – Strength of Materials

Goals: This course will extend the theories and applications in Strength of Materials in the following topics: the deflection of beams; statistically indeterminate problems; static failure theories; energy methods; buckling instability of column structures.

Topics:
1. Multiaxial stress and strain analyses
2. Deflection of beams
3. Statically indeterminate beams
4. Fundamental concept of Energy Methods
5. Static failure theories
6. Buckling and stability of intermediate and long columns

Course Outcomes: (numbers in parentheses indicate correlation of the outcome with the appropriate ABET program outcomes 1-7)
1. The student will be able to integrate the deflection formula. (1)
2. The student will be able to solve statically indeterminate beam problems. (1)
3. The student will be able to understand strain energy and apply it to problem solving. (1)
4. The student will be able to predict failure of materials under combined stress. (1)
5. The student will be able to determine the buckling strength of intermediate and long columns. (1)
6. The student will be able to effectively communicate in writing a report on project. (3)

Design Content:
This course has no design content.

Updated 10/24