

DRFT-255-STATICS & STRENGTH OF MATERIAL 4 CREDITS

SYLLABUS

CATALOG DESCRIPTION

Practical approach to applying concepts of statics and strength of materials to solution of force systems.

Prerequisites: MATH-180 and MATH 160

Semester Offered: Spring

Common Student Learning Outcomes

Upon successful completion of San Juan College programs and degrees, the student will demonstrate competency in...

BROAD AND SPECIALIZED LEARNING

Students will actively and independently acquire, apply, and adapt skills and knowledge with an awareness of global contexts.

CRITICAL THINKING

Students will think analytically and creatively to explore ideas, make connections, draw conclusions and solve problems.

CULTURAL AND CIVIC ENGAGEMENT

Students will act purposefully, reflectively, and ethically in diverse and complex environments.

EFFECTIVE COMMUNICATION

Students will exchange ideas and information with clarity in multiple contexts.

INFORMATION LITERACY

Students will be able to recognize when information is needed and have the ability to locate, evaluate, and use it effectively.

INTEGRATING TECHNOLOGIES

Students will demonstrate fluency in the application and use of technologies in multiple contexts.

Student work from this class may be randomly selected and used anonymously for assessment of course, program, and/or institutional learning outcomes. For more information, please refer to the Dean of the appropriate School.

Course Learning Outcomes

Upon successful completion of the course, the student will be able to...

1. Understand techniques and formulas to apply in solving structures and parts for primary and secondary stresses.
2. Learn analysis methods and formulas for solving problems dealing with hydraulic pressure.
3. Understand truss and beam analysis.

4. Understand centroids, moments of inertia and bending stress in beams.

Specific Learning Objectives

Upon successful completion of the course, the student will be able to...

1. Solve for tensile, compressive and bearing force and stress in axial force systems. (B,C,E,I,CC)
2. Apply Pascal's principle to the solution of problems of pressure and stress. (B,C,E,I,CC)
3. Identify punching and guillotine shear and apply the appropriate formula to solution of problems. (B,C,E,I,CC)
4. Solve problems in thermal elongation and thermal stress. (B,C,E,I,CC)
5. Solve concurrent coplanar force systems. (B,C,E,I,CC)
6. Solve non-concurrent coplanar force systems. (B,C,E,I,CC)
7. Solve trusses by method of joints and method of sections. (B,C,E,I,CC)
8. Solve for bending moment, bending stress and horizontal shear stress in beams. (B,C,E,I,CC)
9. Generate load, shear and moment diagrams and use in the solution of problems. (B,C,E,I,CC)