

Meng 172 – Statics and Dynamics Course

Outline

| | |
|----------------------|---------------------------------------|
| Course: | MENG 172 – Statics and Dynamics W2018 |
| Instructor: | Benj Birch |
| Office: | TEC 261 |
| Office Hours: | To be posted on office door |
| Email: | BirchB@camosun.bc.ca |

Calendar Description

Students will study topics in statics including forces, moments, distributed loads, equilibrium, statically determinate structures (including trusses, frames, machines, beams, and circular shafts), friction, virtual work, and energy formulations. In dynamics, students will learn about the components of velocity and acceleration, motion analysis, force/acceleration, work/energy principles applied to particles, systems of particles, and rigid bodies. Only open to students in the Mechanical Engineering Technology program.

Intended Learning Outcomes

Upon successful completion of this course a student will be able to:

- Use the principles of static equilibrium, free-body diagrams, and scalar and vector component methods to analyze the resultant and reaction forces and moments on various 2D and 3D structural forms, including frames, machines, trusses, beams and circular shafts.
- Analyze the forces acting both externally and internally on static objects and structures.
- Plot the displacement, velocity, and acceleration of points within many different mechanisms.
- Calculate the forces due to inertia.
- Illustrate analyses in a complete and clear manner.
- Explain the kinematics of particles and groups of particles (how particles move and accelerate relative to a stationary axis and how they move relative to other particles).
- Explain the kinetics of particles and groups of particles using: force/acceleration, and work/energy methods (how particles are influenced by external forces).

Required Textbook

Engineering Mechanics: Statics & Dynamics, 14th Ed., R.C. Hibbeler (Required)

Assignments & Labs

No late assignments or labs will be accepted for grading. This policy is adhered to without exception, other than for medical reasons, accompanied by a physician's note. Assignments will be graded on completion or with a subset of the questions marked for accuracy. The solutions will be posted shortly after the due date. Assignments are to be submitted by Tuesday at 4:00 of the indicated week unless otherwise posted.

Meng 172 – Statics and Dynamics Course

Outline

Evaluation & Grading System

| | |
|---------------------|------------|
| Assignments | 10% |
| Labs | 10% |
| Midterm Exam | 40% |
| Final Exam | 40% |

| | | | |
|----|--------|----|-------|
| A+ | 90-100 | B- | 70-72 |
| A | 85-89 | C+ | 65-69 |
| A- | 80-84 | C | 60-64 |
| B+ | 77-80 | D | 50-59 |
| B | 73-76 | F | <50 |

NOTE: You must pass both written exams to receive a passing grade in MENG 172

Support Services and Policies

Immediate, Urgent, or Emergency Support

If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ <http://camosun.ca/about/mental-health/emergency.html> or <http://camosun.ca/services/sexual-violence/get-support.html#urgent>

College Services

Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at <http://camosun.ca/>

College Policies

Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at <http://camosun.ca/about/policies/>. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.