A POLYTECHNIC INSTITUTION

Course Outline

School of Manufacturing, Electronics & Industrial Processes
Program: Mechanical Engineering Technology
Option:

MECH 1141
Mechanics 1

Start Date:	September 5, 2006					**End Date:**	December 15, 2006		
Total Hours:	60	**Total Weeks:**	15			**Term/Level:**	1/1	**Course Credits:**	4
Hours/Week:	4	**Lecture:**	2	**Lab:**	2	**Shop:**		**Seminar:**	**Other:**

Prerequisites

Course No.	Course Name
None	None

MECH 1141 is a Prerequisite for:

Course No.	Course Name
MECH 2240	Strength of Materials
MECH 2241	Engineering Mechanics 2
MECH 2350	Fluid Power 1
MECH 3440	Mechanical Equipment

■ Course Description

This course introduces the basics for the design and analysis of many types of structures and mechanical devices encountered in engineering. Topics include trigonometry and vector analysis, forces and moments, free body diagrams (FBD) and equilibrium, applied to the analysis of frames, trusses, machines, cable-pulley systems and systems with friction.

■ Evaluation

Assignments and Quizes	10%
Mid-term test 1	20%
Mid-term test 2	20%
Final Exam	50%
TOTAL	100%

Comments:

- Grading is based on two assignments, five quizes, two mid-term tests and one final exam.
- Relative weighting is subject to adjustment to suit specific purposes. Notices will be given should any change occur.
- To pass the course a mark of 50% must be achieved.
- Quizzes are conducted during lecture time and will not be announced beforehand.
- Cheating and plagiarism penalties will be as per BCIT Student Regulation Policy 5002.
- Only the calculator model specified under "Learning Resources" will be allowed during tests and exams.

■ Course Learning Outcomes/Competencies

Upon successful completion, the student will be able to:

- Solve Problems in engineering mechanics using Imperial and Metric Units.
- Describe standard engineering practices as applied to engineering mechanics.
- Add vectors by graphical, vector component, and trigonometric methods.
- Construct free body diagrams.
- Calculate reaction forces and moments on rigid bodies.
- Calculate forces on cable pulley systems.
- Calculate internal forces in trusses.
- Calculate internal forces in frames
- Determine frictional forces.
- Calculate area centroids.

■ Verification

I verify that the content of this course outline is current.

Authoring Instructor — Date: AUGUST 31, 2006

I verify that this course outline has been reviewed.

Program Head/Chief Instructor — Date: AUGUST 31, 2006

I verify that this course outline complies with BCIT policy.

Dean/Associate Dean — Date: 2006/09/01

Note: Should changes be required to the content of this course outline, students will be given reasonable notice.

■ Instructor(s)

Johan Fourie	Office Location:	SW9 - 202	Office Phone:	604.453.4013
	Office Hrs.:	Tues. 12:30-3:30 Thur. 11:30-02:30	E-mail Address:	jfourie@bcit.ca
Brian Ennis	Office Location:	SW9 - 202	Office Phone:	604.451.6830
	Office Hrs.:	By appointment	E-mail Address:	bennis@bcit.ca

■ Learning Resources

Required:
Applied Mechanics for Engineering Technology, 7th edition, Keith M. Walker

Class handouts

Scientific Calculator
Model: Sharp EL520

■ Information for Students

Note: Please refer to BCIT policy number 5002, Student Regulations Policy, for additional information. Policies are available at http://www.bcit.ca/about/administration/policies.shtml.

Ethics: BCIT assumes that all students attending the institute will follow a high standard of ethics. Incidents of cheating or plagiarism may, therefore, result in a grade of zero for the assignment, quiz, test, exam or project for all parties involved and/or expulsion from the course.

Assignments: Assignments, lab reports or projects must be done on an individual basis unless otherwise specified by the instructor. Late assignments, lab reports or projects will be devalued 10% per day late to a maximum of 3 days late.

Makeup Tests, Exams or Quizzes: There will be **no** makeup tests, exams or quizzes. If you miss a test, exam or quiz, you will receive zero marks. Exceptions may be made for **documented** medical reasons or extenuating circumstances. In such a case, it is the responsibility of the student to inform the instructor **immediately**.

Attendance: The attendance policy as outlined in BCIT Policy 5002 will be enforced. Attendance will be taken at the beginning of each session. Students not present at that time will be recorded as absent.

Illness: If you miss an evaluation such as an assignment, quiz, exam, or project, or you miss 3 or more consecutive days of class, you must provide the department with a BCIT Student Medical Certificate (available at http://www.bcit.ca/admission/downloads.shtml). You may be asked to complete the work that you missed or the course evaluation may be adjusted to reflect the missed component(s).

Attempts: Students must successfully complete a course within a maximum of three attempts. Students with two attempts in a single course must get written permission from the Associate Dean to attempt the course for the third time. Students who have not successfully completed a course within three attempts will not be eligible to graduate from the program.

Advancement: Students who fail three or more courses in a term cannot advance to the next term and may be asked to discontinue from the program.

Course Outline Changes: The material or schedule specified in this course outline may be changed by the instructor. If changes are required, they will be announced in class.

Schedule

Week of/ Number	Outcome/Material Covered	Reference/ Reading	Assignment	Due Date
1	Sep 07: Review of Basics	Sec. 1.1 - 1.11		
2	Sep 12: Forces and Vectors	Sec. 2.1 – 2.7		
	Sep 14: Moments	Sec. 3.1		
3	Sep 19: Couples	Sec. 3.2		
	Sep 21: State Equilibrium and Free Body Diagram Conventions	Sec. 4.1 – 4.3		
4	Sep 26: Free Body Diagrams	Sec. 4.3		
	Sep 28: Two Force Members	Sec. 4.4		
5	Sep 03: Pulleys and Cable Systems	Sec. 4.5	#1	Oct 05
	Oct 05: Review for Mid-term Test			
6	Oct 10: Mid-term Test 1			
	Oct. 12: Coplanar Concurrent Force Systems	Sec. 4.6		
7	Oct 17: Coplanar Parallel Force Systems	Sec 4.7		
	Oct 19: Non-concurrent Force Systems	Sec. 4.8		
8	Oct 24: Method of Joints	Sec. 5.1		
	Oct 26: Method of Sections	Sec. 5.2		
9	Oct 31: Method of Members	Sec. 5.3		
	Nov 02: Method of Members (cont)	Sec. 5.3		
10	Nov 07: Friction	Sec. 7.1 – 7.4	#2	Nov 10
	Nov 09: Review for Mid-term Test			
11	Nov 14: Mid-term Test 2			
	Nov 16: Belt Friction	Sec. 7.5		
12	Nov 21: Centroids of Simple Areas	Sec. 8.1 - 8.2		
	Nov 23: Centroids of Composite Areas and Lines	Sec. 8.3 – 8.4		

Week of/ Number	Outcome/Material Covered	Reference/ Reading	Assignment	Due Date
13	Nov 28: Evaluation and Review Session			
	Nov 30: Evaluation and Review Session			
14	Dec 05: Evaluation and Review Session			
	Dec 07: Evaluation and Review Session			
15	Final Exam			