A POLYTECHNIC INSTITUTION

Course Outline

School of Manufacturing, Electronics, & Industrial Processes
Program: Mechanical Engineering Technology
Options: Manufacturing, Systems, Plastics

MECH 3440
MECHANICAL EQUIPMENT

Start Date:	January 2006					**End Date:**	March 2006		
Total Hours:	40	**Total Weeks:**	10			**Term/Level:**	4	**Course Credits:**	2.5
Hours/Week:	4	**Lecture:**	2	**Lab:**	2	**Shop:**		**Seminar:**	**Other:**

Prerequisites

Course No.	**Course Name**	**Course No.**	**Course Name**
MECH 1141	Engineering Mechanics 1	None	

- **Course Description**

This course will develop an understanding and appreciation of performance characteristics, limitations and operating principles of power transmission equipment in industrial applications. The student will be able to select and specify appropriate commercially available components from manufacturers' catalogs for such items as belt and chain drives, couplings, gear reducers, bearings and clutches and to specify required lubrication for such components.

- **Evaluation**

Quizzes	30%
Mid-Term Exam	30%
Final Exam	40%
TOTAL	100%

- **Course Learning Outcomes/Competencies**

Upon successful completion, the student will be able to:

1. Analyze and calculate force, work, torque and power requirements.
2. Describe and select chain drives.
3. Describe and select belt drives.
4. Describe and select gear reducers.
5. Describe and select various coupling types (rigid, flexible, traction).
6. Describe various brakes, clutches and ancilliary devices.
7. Describe and select various lubricants and lubricating systems
8. Describe and select plain and anti-friction bearings.
9. Describe various mechanical seals.

v Verification

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

Authoring Instructor — December 22nd, 2005 — Date

I verify that this course outline has been reviewed.

Program Head/Chief Instructor — Jan 4 / 2006 — Date

I verify that this course outline complies with BCIT policy.

Dean/Associate Dean — 2005/12/22 — Date

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

- **Instructor(s)**

Kader Chellabi	Office Location: SW9 202	Office Phone: 604-434-5734 ext. 5209
	Office Hrs.:	E-mail Address: Kader_Chellabi@bcit.ca

- **Learning Resources**

Required:

- Manufacturer's catalogs will be provided **on loan** for this course.
- Calculator
- Large 3 ring binder

Additional Reference:

- Millwright Manual, Province of British Columbia, Ministry of Labour
- Machinery's Handbook

- **Information for Students**

Assignments: Late assignments, lab reports or projects will **not** be accepted for marking. Assignments must be done on an individual basis unless otherwise specified by the instructor.

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**.

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.

Attendance: The attendance policy is as outlined in the current BCIT Calendar.

Illness: A doctor's note is required for any illness causing you to miss assignments, quizzes, tests, projects, or exam. At the discretion of the instructor, you may complete the work missed or have the work prorated.

Attempts: Students must successfully complete a course within a maximum of three attempts at the course. Students with two attempts in a single course will be allowed to repeat the course only upon special written permission from the Associate Dean. Students who have not successfully completed a course within three attempts will not be eligible to graduate from the appropriate 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
1	Introduction; review of physics and statics	
2	Drive configurations, belt drive, belt/sheave configuration, belt types	Notes provided
3	Chain drives, chain types, sprockets, configuration	Notes provided
4	Speed reducers, gear types, configuration, ratios	Notes provided
5	Couplings, rigid, flexible, etc.	
6	Midterm exam and review	Notes provided
7	Clutches, types of operation, mechanical, pneumatic, hydraulic and electric	Notes provided
8	Lubricants and lubricating systems	Notes provided
9	Bearings	Notes provided
10	Review and Final Exam.	