Course Outline

A POLYTECHNIC INSTITUTION
School of Manufacturing, Electronics and Industrial Processes
Program: Mechanical Engineering Technology
Option: Design, Systems

MECH 3325
Fluid Mechanics

Start Date:	September 2006				**End Date:**	December 2006			
Total Hours:	60	**Total Weeks:**	15		**Term/Level:**	3	**Course Credits:**	4	
Hours/Week:	4	**Lecture:**	2	**Lab:** 2	**Shop:**		**Seminar:**		**Other:**

Prerequisites

Course No.	Course Name
MECH 1120	Energy Systems

MECH 3325 is a Prerequisite for:

Course No.	Course Name
MECH 7225	Fluid Mechanics 2

Course Description

This course introduces topics in fluid mechanics. Topics covered include: fluid properties; energy losses; Reynold's number; Moody diagram; simple Pipe networks, pumps, lift and drag and fluid statics. Laboratory sessions reinforce lecture material.

Evaluation

Assignments	15%
Midterm Exam	35%
Final Exam	50%
TOTAL	100%

Comments:
Exams are Open Text book. One 8½" by 11" formula sheet is allowed. Extra notes are not allowed.

Course Learning Outcomes/Competencies

Upon successful completion, the student will be able to:

- Compute mass and volume flow rates and mean velocities.
- Use dimensionless quantities such as Reynolds and Mach number.
- Apply mass and energy conservation laws to stationary control volumes.
- Analyze pipes and determine pressure losses, flow rates or pipe sizes.
- Analyze simple pipe networks.
- Evaluate pump performance by using performance curves.
- Calculate drag of immersed objects based on drag coefficients.

Verification

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

Authoring Instructor — Date: Aug 31, 2006

I verify that this course outline has been reviewed.

for Ken Wong
Program Head/Chief Instructor — Date: AUG 31/06

I verify that this course outline complies with BCIT policy.

Dean/Associate Dean — Date: 2006/08/31

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

Instructor(s)

Koorosh Nikfetrat **Office Location:** SW9-202 **Office Phone:** (604) 451-6829
Office Hrs.: As posted **E-mail Address:** koorosh_nikfetrat@bcit.ca

Learning Resources

Required:

Text book: Applied Fluid Mechanics, 6th edition, Mott, Prentice Hall

Recommended:

Text book: Fundamentals of Thermal Fluid Sciences, 2nd edition, Cengel and Turner, McGraw Hill
Text book: Fluid Mechanics, 5th edition, Frank M. White, McGraw Hill

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.

v Assignment Details

Schedule

This schedule is tentative and subject to change

Week of/ Number	Outcome/Material Covered
1	Fundamental concepts
2	Forces on submerged surfaces
3	Parameters in fluid mechanics, Boundary layers
4	Control volume analysis, Mass and energy conservation
5	Fundamentals of pipe flow, Dacry-Weisbach equation
6	Moody diagram, Three types of pipe problems
7	Minor losses
8	Review for midterm exam, Midterm exam
9	Pipeline networks
10	Pipeline networks, Pumps
11	Pumps, Pump selection
12	Lift and Drag
13	Fans and Blowers
14	Review for final exam
15	Final exam