



A POLYTECHNIC INSTITUTION

School of Manufacturing, Electronics and Industrial Processes
Program: Mechanical Design, Manufacturing Technologies,
Robotics and Automation, and Plastics
Option:

**MECH 3451
Fluid Power 2**

Start Date:	January, 2006	End Date:	March, 2006
Total Hours:	40	Total Weeks:	10
Hours/Week:	4	Lecture:	2
		Lab:	2
Term/Level:		Course Credits:	2.5
Shop:		Seminar:	Other:
Prerequisites		MECH 3451 is a Prerequisite for:	
Course No.	Course Name	Course No.	Course Name
MECH 2350	Fluid Power 1	MECH 3452	Fluid Power 3

■ Course Description (required)

Introduces electrical control of fluid power systems. Describes and analyses complex hydraulic and pneumatic components and their applications. Covers sizing calculations for system components, and discusses maintenance and troubleshooting of components and systems.

■ Detailed Course Description (optional)

Introduces students to hydraulic controls and their applications in industry.

■ Evaluation

Midterm Exam	30%	Comments: Please see the section entitled "Information for Students" on page 3 of this outline for evaluation notes.
Assignments/Labs	30%	
Final Exam	40%	
TOTAL	100%	

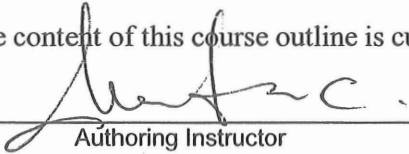
■ Course Learning Outcomes/Competencies

Upon successful completion, the student will be able to:

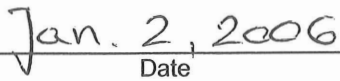
1. design pressure, flow and directional control circuits.
2. select an appropriate pump for meeting circuit requirements.
3. select fluid conditioning devices.
4. calculate energy losses in fluid power systems.
5. select fluid power output devices (linear cylinders and rams, rotary actuators, fluid motors).
6. describe the characteristics of hydraulic fluids.
7. specify interconnecting piping using industry standard components.
8. discuss hydraulic and pneumatic seals.
9. discuss contamination and filtration in hydraulic circuits.
10. describe typical electrical components used in fluid power control.

■ **Verification**

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

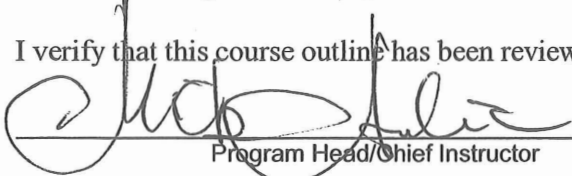


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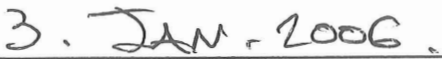


Date

I verify that this course outline has been reviewed.



Program Head/Chief Instructor



Date

I verify that this course outline complies with BCIT policy.



Dean/Associate Dean



Date

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

■ **Instructor(s)**

Cristian Mesteru	Office Location: SW9-202	Office Phone: local 5218
	Office Hrs.: By Appointment	E-mail Address: Cristian_Mesteru@bcit.ca

■ **Learning Resources**

Required:

1. Vicker's *Industrial Hydraulics Manual*, latest edition.
2. Industrial Hydraulics online course at <http://www.bcit.ca/distance/webcthelp>
3. Handouts of supplemental course materials.

Recommended:

- *Basic Fluid Power* by Dudley Pease and John Pippenger.
- *Fluid Power with Applications* by Anthony Esposito, Prentice Hall, 1997.
- *Using Industrial Hydraulics* by T.C. Frankenfield.
- *Hydraulics and Pneumatics Magazine* (BCIT library).

■ **Information for Students**

(Information below can be adapted and supplemented as necessary.)

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 as outlined in the current BCIT Calendar 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: 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.

■ **Information for Students (cont'd.)**

- You must attend at least 90% of the labs in order to write the final exam.
- Homework assignments are an important part of this course and must be prepared and submitted on an individual basis.
- Lab reports, homework assignments, and design projects will be required to be handed in on time for marking.
- Late penalties will apply, or work may not be accepted if late in handing in.
- Instructor's drop box for work assignments is located under the stairs in the lobby of building SW9.
- Attendance of lectures and labs and completion of assignments is requisite for attaining a grade in this course.

■ **Assignment Details**