A POLYTECHNIC INSTITUTION

Course Outline

BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY
School: Manufacturing, Electronics & Industrial Processes
Program: Operations Management
Option:

MECH 1805
Technical Graphics for Operations Management

Start Date: January 4th, 2006 **Start Time:**

End Date: March 10th, 2006 **End Time:**

Course Credits: 2.0 **Term/Level:** 4

Total Hours: 30
Total Weeks: 10

Hours/Week: 3 **Lecture:** 1 **Lab:** 2 **Shop:** **Seminar:** **Other:**

Prerequisites: None

■ Course Description

This course introduces the concepts and tools used to communicate technical ideas relating to mechanical design, manufacturing processes, and facility layout. Topics include drawing interpretation, sketching, the design process, design tools, data sharing, and flowcharting. Electronic technical drawing tools are used as well as freehand sketching.

■ Course Goals

- Emphasize the role and importance of graphical communication.
- Highlight the task of documentation in the technical design process.
- Study both the orthographic and isometric form of technical sketches.
- Adhere to industry standards, conventions and standard practices regarding technical drawings.
- Survey various types of technical drawings including Mechanical, Architectural, Process, Schematics and Flow charts.
- Practice drawing interpretation using examples of actual technical drawings.
- Gain awareness and learn basic skills in various computer aided drawing tools.

■ Evaluation (Subject to change)

CAD Test:	15%
Assignments:	35%
Written Exam:	25%
Practical Exam:	25%
TOTAL	100%

- Attendance will be taken each lab session.
- Students must be present in the lab to receive credit for lab exercises.
- Completed assignments for marking will only be accepted during lab time and must be presented by their author.
- Grading of assignments submitted by students not present during labs is ***at the discretion of the instructor.*** Penalties may be assessed for poor attendance.

■ Course Learning Outcomes/Competencies

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

1. Describe the role of technical graphics in the engineering design process.
2. Interpret various types of technical drawings including Mechanical, Architectural, Process, Schematics and Flow Charts.
3. Apply the Standards and Conventions in common use for technical graphics.
4. Create simple technical drawings and diagrams using sketching skills and computer aided drawing tools.
5. Apply computer software to assist in interpreting and revising technical drawings

■ Verification

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

Bernd Berkmortel — Authoring Instructor

Jan 4, 2006. — Date

I verify that this course outline has been reviewed.

Program Head/Chief Instructor

JAN 6/06. — Date

I verify that this course outline complies with BCIT policy.

Dean/Associate Dean

January 9, 2006 — Date

■ Instructor

Ben Berkmortel

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Office Hrs.: As posted

Office Phone: 604-432-8638

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■ Learning Resources

- **Text**: None

- **Equipment:**
  Required:
  Wooden or Mechanical pencil (0.7 mm minimum) both HB and 2H lead
  Eraser
  Metric / Imperial Ruler (10 inch minimum length)

  Recommended: 45˚ set square.

■ BCIT Policy Information for Students

Assignments: Late assignments, lab reports or projects will be devalued 10% (off total possible mark) per day late. Assignments, lab reports or projects must be done on an individual basis, unless otherwise specified by the instructor. Late assignments will not be accepted after the solution is posted or distributed by 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.

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.

Week Number	Lecture Topic	Lab Material	Location
2	Course Outline Introduction, Role of technical graphics Types of technical drawings	• Sketching skills • Interpretation of technical drawings	Classroom
3	Orthographic Projection Selection of views. Drawing Layout	• 3 view sketches • *Ortho Drawing Assignment*	Classroom
4	Drawing tools & Computer aids Intro to Autocad (draw & modify commands, layers, blocks)	• Getting Started • Create CAD Drawing	In computer lab _____
5	CAD Principles Dimensioning, Revision of drawings Detail part drawings, Sheets, Title blocks	• ***AutoCad Test*** • Take home *Dimensioning Assignment*	***Jan 31st, 2006*** In computer lab
6	Pictorial drawings. Architectural and plant layout drawings	• *Isometric Assignment*	Classroom
7	Flow charts & process diagrams Intro MS Visio	• Visio Handouts • In-class exercise	In computer lab _____
8	Schematics, Symbol libraries Advanced Visio Techniques	• Prepare process flow diagram. • *Visio Assignment*	In computer lab _____
9	Technical design process Design for manufacture, rapid prototyping, Advanced computer aids (SolidWorks) Assembly and exploded drawings, 3D views	• Demo • Review for final exam	In computer lab _____
10	***Written Exam (1 hour)*** ***Final Practical Exam (2 hours) in lab***	Date: _____ Time: _____ 4A Date: _____ Time: _____ 4B Date: _____ Time: _____	Location:_____ Location:_____