



A POLYTECHNIC INSTITUTION

School of Manufacturing, Electronics and Industrial Processes

Program: Mechanical Engineering Technology

Option: Plastics

Mech 2204
Technical Graphics for Plastics

Start Date: January 4th 2006 **End Date:** May 26th, 2006**Total Hours:** 60 **Total Weeks:** 20**Hours/Week:** 3 **Lecture:** 1 **Lab:** 2**Prerequisites****Course No.** **Course Name**

MECH 1104 Computer Aided Design

Term/Level: 1 **Course Credits:** 4.0**Shop:** - **Seminar:** - **Other:** -**Mech 2204 is a Prerequisite for:****Course No.** **Course Name**

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■ Course Description

Knowledge of top-down assembly modeling and of Canadian drawing conventions and drafting practices is applied to develop technical documentation and communication skills. Three dimensional, parametric, computer-aided design (CAD) models are created using SolidWorks software.

■ Evaluation

Assignments and Projects	35%
Mid-Term	30%
Final Exam	35%
TOTAL	100%

■ Course Learning Outcomes/Competencies

Upon successful completion, the student will be able to:

- Describe the inter-relationship of engineering designs, models and drawings.
- Apply geometric tolerance and surface finish notations to plastic parts and assemblies.
- Apply tolerance and fit notations in both Metric and American units.
- Capture design intent and master design editing with parametric solid modeling software.
- Create detailed parts and assemblies in SolidWorks.
 - Use sketch mode to generate parts.
 - Create features found in typical plastics manufacturing, including shells, ribs, and drafts.
 - Build parts within the Assembly Model environment.
- Generate 2D drawings from 3D Part and Assembly models to international drafting & dimensioning Standards.
- Interpret working drawings specific to the plastics industry.

■ Instructor

Ben Berkmortel Office Location: SW9-205
Office Hours: As posted

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E-mail: bberkmortel@my.bcit.ca

■ Verification

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

Bern A Berkunortel
Authoring Instructor

Jan 4, 2006.
Date

I verify that this course outline has been reviewed.

E. K. [Signature]
Program Head/Chief Instructor

Jan 4/06
Date

I verify that this course outline complies with BCIT policy.

[Signature]
Dean/Associate Dean

2006/01/04
Date

■ Learning Resources

Required:

Text: None

Equipment: USB Flash Memory stick, 100 MB Zip disk or a blank CD

Recommended References:

SolidWorks for Designers Release 2005, Sham Tickoo, CadCim Technologies, 2005

Interpreting Engineering Drawings, C. H. Jensen, 4th Edition, Nelson Thomas Learning, 2002

■ 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 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.

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 Number	Outcome/Material Covered
Week 2	Review of part modelling and design intent. Revolved features, shell feature combinations.
Week 3	Sweep Command, springs and threads. Helix and Composite Curve
Week 4	Loft Command
Week 5	Design Tables in Parts
Week 6	Design Tables in Parts, cont'd Top Down Assemblies
Week 7	Drawings I – drawing templates, sheet formats. Inserting views, Adding dimensions Adding annotations, hole callouts, machining symbols.
Week 8	Drawings II –, section, detail, broken views and dimensioning, aligned section, crop view. Assembly drawings (BOMs, exploded views, annotations).
Week 9	Review for exam
Week 10	Mid Term Exam, File Management – “save as” options etc.
Spring Break – Monday March 13 th – Friday March 17 th	

NOTES:

Additional topics include standard drawing practices regarding:

- Machining finishes
- Geometric Datums
- Geometric Tolerances
- Other topics TBD.

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Schedule continued

Week Number	Outcome/Material Covered
Week 11	Split Part Command Joined and multi-body parts
Week 12	Modeling cast/plastic parts Draft Analysis Tool
Week 13	Making Cores and Cavities – Part1
Week 14	Making Cores and Cavities – Part2
Week 15	Easter Monday April 17th – NO CLASSES
Week 16	Drawings IV - Drawing sheet formats <i>Detached</i> drawings
Week 17	Sheet Constructions Designing using SW Sheet Metal features to generate sheet plastic components with simple bends
Week 18	Sheet Constructions Rolled Parts, Designing from Flat to Bent
Week 19	2D to 3D Conversion tools, Review for final
Week 20	Final Exam

NOTES:

Additional topics include standard drawing practices regarding:

- Machining finishes
- Geometric Datums
- Geometric Tolerances
- Other topics TBD.