Physics 151
Computer-Aided Engineering Graphics 4

This course will cover technical sketching, orthographic projection, visualization in three dimensions and conventions of engineering drawing. Microcomputer-based graphics (CADD) will be introduced. The principles of descriptive geometry will be applied to the solution of space problems. This course is designed for students intending to transfer to Engineering.

RATIONAL:

COURSE PREREQUISITES: MATH 110 or Mathematics 12

COURSE COREQUISITES: COMP 150, (PHYS 111 recommended)

HOURS PER TERM

<table>
<thead>
<tr>
<th>Course</th>
<th>Lecture</th>
<th>60 hrs</th>
<th>Laboratory</th>
<th>45 hrs</th>
<th>Seminar</th>
<th>hrs</th>
<th>Field Experience</th>
<th>hrs</th>
<th>TOTAL</th>
<th>105 HRS</th>
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MAXIMUM ENROLMENT: 24

Is transfer credit requested? ☐ Yes ☐ No

Authorization Signatures:

Course Designer(s): N. Taylor, BSc, BA
Chairperson: Ernest Kroeker, PhD

Science Curriculum Committee

Department Head: T. Cooper, PhD
Dean: J.D. Tunstall, PhD

PAC: Approval in Principle (Date) PAC: Final Approval: December 1994 (Date)
SYNONYMOUS COURSES:

(a) replaces ____________

(course #)

(b) cannot take ____________ for further credit.

(course #)

SUPPLIES/MATERIALS:

Set of drawing equipment.

TEXTBOOKS, REFERENCES, MATERIALS  (List reading resources elsewhere)


OBJECTIVES:

Engineering drawings are essential means of communication between designers and manufacturers of a structure or a product.  Neatness, clarity of expression, and accuracy are of paramount importance.  A body of standard techniques and styles has been developed to ensure this ease of communication.  Upon successful completion of this course, the student will have attained a satisfactory level of competence in these basic techniques, using standard drawing methods and using Computer-Aided Drafting (CADD).

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

1. Produce orthographic projections from perspective and isometric sketches and real objects.
2. Produce isometric sketches from orthographic projections
3. Produce a section
4. Correctly dimension and tolerance drawings
5. Perform vector analysis using scale drawings
6. Solve problems in three dimensional engineering geometry
7. Perform elementary CADD drawings using AutoCAD
8. Achieve a high standard of neatness, clarity and accuracy in all work

METHODS:

This course will follow a normal science lecture/lab format, with the weekly four-hour lab/tutorial taking place at the CFSME facility, CFB Chilliwack.
Physics 151
NAME & NUMBER OF COURSE

STUDENT EVALUATION PROCEDURE:

Weekly assignments (may include term project)  20%
Term tests                        35%
AutoCAD test                      5%
Comprehensive final exam         40%

COURSE CONTENT

1. Orthographic sketching
2. Isometric sketching
3. Instrument orthographic drawing
4. Orthographic conventions
5. Sections
6. Auxiliary views
7. Dimensioning
8. Tolerances
9. Introduction to AutoCAD
10. Engineering descriptive geometry
11. Graphical vector analysis
12. Materials and manufacturing