Douglas College

Course Information

A: Division: INSTRUCTIONAL

DATE: May 27, 1997

B: Department: SCIENCE & TECHNOLOGY

New Course: ____

Revision of Course Information form: ... Y

DATED: September 20, 199...

C: PHYS 170 — Subject & Course No.

D: MECHANICS for APPLIED SCIENCE — Descriptive Title

E: 3 — Semester Credit

Summary of Revisions (Enter date & section)

1997-05-29

F: Calendar Description

This course is intended for students proceeding to studies in Applied Science/Engineering. Topics include statics of particles, rigid bodies, forces and equilibrium, friction, particle kinematics and dynamics, systems of particles.

G: Type of Instruction: Hours Per Week/Per Semester

Lecture	3	Hrs.
Laboratory		Hrs.
Seminar		Hrs.
Clinical Experience		Hrs.
Field Experience		Hrs.
Practicum		Hrs.
Shop		Hrs.
Studio		Hrs.
Student Directed Learning		Hrs.
Other (Problem Session)	1	Hrs.
TOTAL	4	HOURS

H: Course Prerequisites:

Physics 12 (C or higher) or PHYS 107

I: Course Corequisites: MAT 120 must precede or be taken concurrently

J: Course for which this course is a pre-requisite

K: Maximum Class Size: 36

L: College Credit Transfer X

College Credit Non-Transfer

M: Transfer Credit:

Requested

Granted X

Specify Course Equivalents or Unassigned Credit as Appropriate

U.B.C. PHYS 170

S.F.U. MATH 262

U.Vic. PHYS 122

OTHER:

COURSE DESIGNER(S)

DEAN

VICE PRESIDENT (INSTRUCTION)

REGISTRAR

N: Textbooks and materials to be purchased by students
(Use Bibliographic Form):

e 6th Edition, Hibbeler, R.C., Engineering Mechanics:Statics and Dynamics
MacMillan, 1992

Form with Entries Under the Following Headings: Complete

Q. Method of Instruction: O. Course Objectives: P. Course Content:

R. Course Evaluation

O. **Course Objectives:**

The student will be able to:

1) analyze two and three dimensional concurrent force systems acting upon particles in equilibrium
2) analyze the equilibrium of rigid bodies in two and three dimensions and determine equivalent systems of forces

2.1 External and Internal Forces

of Transmissibility, Equivalent Forces

roduct of Two Vectors

2.3 Vector Pr

roducts Expressed in Terms of Rectangular Components

2.4 Vector Pr

2.5 Moment of a Force about a Point

2.6 Varignon's Theorem

ent of Force

2.7 Rectangular Components of the Mom

Scalar Product of Two Vectors

2.8

Mixed Triple Product of Three Vectors

2.9

Moment of Force about a Given Axis

2.10

2.11 Moment of a Couple

2.12 Equivalent Couples

2.13 Addition of Couples

Vectors

2.14 Couples Represented by

orce into a Force at a particular point and a Couple

2.15 Resolution of a Given F

atic system of Forces: One Force and One Couple

2.16 Reduction

valent Systems of Forces

2.17 Equiv

ollent Systems of Vectors

2.18 Equiv

2.19 Further Reduction of a system of Forces

3. Equilibrium of Rigid Bodies

3.1 Rigid Body in Equilibrium

3.2 Free-Body Diagram

3.3 Reactions at Supports and Connections for a Two-dimensional Structure

3.4 Equilibrium of a Rigid Body in Two Dimensions

3.5 Equilibrium of

rce Body

3.7 Equilibrium of a Three-Fo

3.8

6. Newton's Second Law

6.1 Newton's Second Law of Motion

6.2 Linear Momentum of a Particle. Rate of change of Linear Momentum

Units (SI Units)

6.3 International System of U

Equations of Motion

6.4

Dynamic Equilibrium

6.5

Angular Momentum of a Particle. Rate of change of Angular Momentum