



DEPARTMENT OF SCIENCE

COURSE OUTLINE – WINTER 2012

PC 1310 A3 – MECHANICS – 4.3(3-1-3/2) UT

INSTRUCTOR: Tanvir Sadiq, PhD, P.Eng. **PHONE:** 780.539.2865
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OFFICE HOURS: TBA or By Appointment

PREREQUISITE(S)/COREQUISITE: MA 1000, EG 1300, PC 1300/MA 1010, PC 1300
(NOTE: RESTRICTED TO ENGINEERING STUDENTS ONLY)

REQUIRED TEXT/RESOURCE MATERIALS:

Engineering Mechanics, Statics and Dynamics, 12th Ed., R. C. Hibbeler, Prentice Hall,
University Physics, 12th Edition, Hugh D. Young and Roger A. Freedman,
Pearson/Addison-Wesley

Physics 130/ En Ph 131 Laboratory Manual, Dept. of Physics, University of Alberta

CALENDAR DESCRIPTION: Kinematics and dynamics of particles; gravitation; work and energy; linear momentum; angular momentum; systems of particles; introduction to dynamics of rigid bodies are covered in the course.

CREDIT/CONTACT HOURS: PC1310 is a 4.3 credit University Transfer course. There will be three lectures and a seminar of approximately one-hour duration every week. Each lab will be approximately three-hour long.

DELIVERY MODE(S):

LECTURES:	MWF	09:30 – 10:20	J228
SEMINAR:	R	13:00 – 13:50	J228
LAB:	F	14:30 – 17:20	101/J103

TRANSFERABILITY:

University of Alberta, University of Calgary, University of Lethbridge, Athabasca University, Augustana Faculty - University of Alberta, Concordia University College, Canadian University College, King's University College. Other (transfers in combination with other courses or to other institutions)

** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability

GRADING CRITERIA:

GRANDE PRAIRIE REGIONAL COLLEGE			
GRADING CONVERSION CHART – THIS IS A GENERAL GUIDELINE ONLY			
Alpha Grade	4-point Equivalent	Percentage Guidelines	Designation
A ⁺	4.0	90 – 100	EXCELLENT
A	4.0	85 – 89	
A ⁻	3.7	80 – 84	FIRST CLASS STANDING
B ⁺	3.3	77 – 79	
B	3.0	73 – 76	GOOD
B ⁻	2.7	70 – 72	
C ⁺	2.3	67 – 69	SATISFACTORY
C	2.0	63 – 66	
C ⁻	1.7	60 – 62	
D ⁺	1.3	55 – 59	MINIMAL PASS
D	1.0	50 – 54	
F	0.0	0 – 49	FAIL
WF	0.0	0	FAIL, withdrawal after the deadline

EVALUATIONS:

Class Participation	2%
Problem Sets	5%
Seminars	10%
Laboratory Work	20% (Must pass the lab to pass the course.)
Midterm Exam	25% (17 Feb 2011, possibly an evening exam)
Final Exam (Comprehensive)	38% (TBA)

STUDENT RESPONSIBILITIES: Students are responsible for all lecture, seminar and lab material, and readings. Students are expected to practice the material by doing problems at the end of every section covered.

COURSE SCHEDULE:**Lecture Topics**

Topic	Sections in Hibbeler	Equivalent sections in Young & Freedman
Introductory Material	1.1 – 1.5	1.3 – 1.5
Kinematics of Rectilinear Motion	12.1 – 12.3	2.1 – 2.6
Kinematics of Planar Motion	12.4 – 12.7, 12.9, 12.10	3.1 – 3.5
Dynamics of a Particle	13.1, 13.2, 13.4, 13.5	4.1 – 4.6
Systems of Particles	13.3, 9.1, 9.3	5.1 – 5.5
Work and Energy	14.1 – 14.6	6.1 – 6.4, 7.1 – 7.3
Linear Momentum and Impulse	15.1 – 15.4	8.1 – 8.5
Introduction to Dynamics of a Rigid Body	16.1 – 16.3, Parts of Ch 17	9.1 – 9.6, 10.1 – 10.4
Angular Impulse and Momentum	15.5 – 15.7	10.5 – 10.6

Laboratory Work

Experiment No.	Title
6	Acceleration Due to Gravity
7	Non-Uniform Motion
8	Atwood's Pulley
9	Collision: Ramp
10	Moment of Inertia (Lab instructions to be provided by the instructor)

Note: *Lab reports are due at the end of the lab period, unless announced otherwise. Late reports will not be accepted and will receive zero marks. There will be no exception to this rule. Graded reports will not be returned before all the lab sections have submitted their reports.*

Prerequisite, Seminars, Assignments and/or Reports

Prerequisite: A good background in Calculus (including Integral and Vector Calculus) is required for this course. Students are also expected to have a fairly good knowledge of trigonometry.

Seminars[#]: These are approximately one hour sessions held weekly in which students will be required to solve several problems. The problems will be handed in at the end of the seminar period for marking. **Late submissions will not be accepted and will receive zero mark.** Limited help in solving these problems will be available from the seminar instructor. The first seminar begins the week starting January 8, 2012. Last seminar will not be graded; however, solution will be posted.

Assignments[#]: There will be several assignments throughout the semester, each consisting of a number of problems. Due dates will be announced in the class. There will be approximately one assignment weekly. **Unstapled or Late assignments will NOT be accepted and will receive zero mark.** All assignments MUST be written neatly and submitted on 8.5 x 11 in. (Letter size) Engineering paper. All answers should be boxed. Leave space between problems. Format to solve a problem will be explained in

the class and we will strictly adhere to the given format. Last assignment will not be graded; however, solution will be posted.

Laboratory: There are five lab sessions which introduce the student to the experimental process and report writing. Students must achieve a score of at least 50% in the lab component of the course in order to obtain an overall passing grade in PC1310. Students who achieve a grade of at least 65% in the lab, but fail the remaining parts of the course may not have to repeat the lab at the sole discretion of the instructor.

Midterm Exam: The midterm will be 1½ - 2 hours long (exact duration TBD), and is a closed-book, closed-notes exam with the formulae sheet provided by the instructor. **There will be NO make-up midterm exam.** Students who miss the midterm exam due to a valid reason, such as illness, will have the weight transferred to the final exam. A supporting document such as doctor's note and a phone message or email will be required in such case.

Final Exam: The final exam will be comprehensive and 3 hours long. The final exam is a closed-book, closed-notes exam with the formulae sheet provided by the instructor. Date and location will be announced by the College. If the final is missed due to illness it will be deferred (see calendar for information). A doctor's note and a phone message or email will be required in such cases.

See "PC 1310 Assignment Requirements" provided separately for more information.

STATEMENT ON PLAGIARISM AND CHEATING:

Refer to the Student Conduct section of the College Admission Guide at <http://www.gprc.ab.ca/programs/calendar/> or the College Policy on Student Misconduct: Plagiarism and Cheating at www.gprc.ab.ca/about/administration/policies/**

**Note: all Academic and Administrative policies are available on the same page.