Grande Prairie Regional College
Department of Science and Technology

PC 1090 - Introduction to University Physics II
Winter 1997
U of A Equivalent - Physics 109

Course Outline

Instructor	Jaime P. Santiago J209, 539-2865
Lecture	MWF 10:00 - 10:50 a.m., Room J204 R 8:00 - 9:20 a.m., Room J204
Laboratory	R 3:00 - 5:50 p.m., J103
Calendar Description	This is a non-calculus course in physics for students without Physics 30, to be taken in sequence with PC 1080. Waves, sound, fluids, geometrical and physical optics, heat and thermodynamics. *Prerequisite:* PC 1080
Textbook	**Physics** by J. D. Cutnell and K. W. Johnson, 3rd Edition John Wiley & Sons, Inc.
Laboratory Manual	**Physics Laboratory Manual** by Department of Physics, University of Alberta McGraw-Hill Ryerson

Mark Distribution

Lab Reports	15%
Assignments	10%
Chapter Tests	15%
Midterm Exam	25%
Final Exam	35%

GRANDE PRAIRIE, ALBERTA CANADA T8V 4C4 * TELEPHONE (403) 539-2945 * FAX (403) 539-28[illegible]
Jaime P. Santiago (403) 539-2865 santiago@gprc.ab.ca

Chapter Tests

Chapter tests will consist of no more than 3 short problems. Please see attached calendar for writing dates. Chapter tests are worth 15% of the final mark.

Laboratory Work

Labs are performed every week except during midterm exam week when the lab period will be used to write the lecture midterm exam. There is no lab midterm exam. However, there will be a lab final exam. Lab work is worth 15% of the final mark.

A student must pass the lab component of the course in order to pass the course.

Lab work will be performed in groups of twos whenever possible. Group reports are due at the end of the lab period and must be written in black physics laboratory books (available at the bookstore).

A student who misses the lab for valid reasons must make up the lab at a different time. Please consult with the instructor and lab technician regarding make-up labs.

Midterm Exam

The midterm exam is worth 25% of the final mark. It shall be written during the lab period. Please refer to the course schedule for the date of the exam.

Final Exam

The final exam is 3 hours long. Date and time will be announced by the College registrar. Any conflicts should be reported to the registrar.

JANUARY 1997 — PC 1090 A3

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 New Year's Day	2	3	4
5 Chapter 11	6 Mass density Pressure Pressure vs. depth of fluid	7	8 Pressure gauges	9 Pascal's Principle	10 Archimedes Principle	11
12 Chapter 11	13 Equation of Continuity Fluids in Motion Streamlines	14	15 Bernoulli's Equation **Problem Set 1**	16 Viscous Flow **Expt 5: Terminal Velocity in a Fluid**	17 Poiseuille's Law	18
19 Chapter 12	20 Temperature Temperature Scales Thermometers	21	22 Linear and Volume Expansion **Problem Set 2**	23 Heat and Internal Energy Specific Heat Capacity **Expt 15: Constant Volume Gas Thermo.**	24 Phase Change Latent Heat Phase Equilibrium Humidity	25
26 Chapter 13	27 Convection Radiation Conduction	28	29 Thermal Conductivity **Problem Set 3**	30 **TEST 1: Chapter 11** **Expt 16: Mechanical Equivalent of Heat**	31 Applications of Heat Transfer	

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FEBRUARY 1997 — PC 1090 A3

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2 Chapter 14	3 Molecular Mass, Mole Avogadro's Number Ideal Gas Law	4	5 Boyle's Law Charles' Law **Problem Set 4**	6 Kinetic Theory **Expt. 11: Standing Waves on a String**	7 Internal Energy Diffusion	8
9 Chapter 15	10 Zeroth Law of Thermodynamics First Law of Thermodynamics	11	12 Thermal Processes **Problem Set 5**	13 **TEST 2: Chapters 12 and 13** **Expt. 12: Speed of Sound in Air**	14 Isothermal and Adiabatic Processes	15
16 Chapter 15	17 **Family Day**	18	19 Specific Heat of Ideal Gas Heat Engines	20 **MIDTERM EXAM** **NO LABS THIS WEEK**	21 Second Law of Thermodynamics Carnot Cycle	22
23	24 **WINTER BREAK**	25 **WINTER BREAK**	26 **WINTER BREAK**	27 **WINTER BREAK**	28 **WINTER BREAK**	

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MARCH 1997 — PC 1090 A3

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2 Chapter 15/16	3 Refrigerators, Heat Pumps, Air Conditioners	4	5 Entropy and the Second Law Order and Disorder **Problem Set 6**	6 Nature of waves Periodic and sinusoidal (harmonic) waves	7s Waves on a String	8
9 Chapter 16/17	10 Sound waves Frequency, amplitude Speed of sound	11	12 Sound Intensity and level (decibels) Sensitivity of ears **Problem Set 7**	13 Doppler effect Shock waves **Expt. 13: Waves on an Oscilloscope**	14 Superposition Interference	15
16 Chapter 17/25	17 Beats Diffraction	18	19 Standing waves Complex waves Musical instruments **Problem Set 8**	20 **TEST 3: Chapter 15** **Expt. 17: Geometric Optics**	21 Wave fronts and rays Reflection Plane mirrors	22
23 Chapter 25/26	24 Spherical mirrors Ray tracing The mirror equation	25	26 Index of refraction Snell's Law **Problem Set 9**	27 Total internal reflection Polarization, dispersion **Expt. 18: Interference of Light**	28 Good Friday	29
30 Chapter 26	31 Thin lenses Ray tracing Thin lens equation					

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APRIL 1997

PC 1090 A3

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Chapter 26		1	2 Optical Instruments Problem Set 10	3 TEST 4: Chapters 16, 17 and 25 LABTEST	4	5
6 Chapter 27	7 Young's experiment Thin films	8	9 Diffraction Problem Set 11	10 Diffraction gratings Resolving power Dispersion	11	12
13	14 FINAL EXAMS	15 FINAL EXAMS	16 FINAL EXAMS	17 FINAL EXAMS	18 FINAL EXAMS	19
20	21 FINAL EXAMS	22 FINAL EXAMS	23	24	25	26
27	28	29	30			

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