Grade 11 Physics SEP 1995

GRANDE PRAIRIE REGIONAL COLLEGE
ACADEMIC UPGRADING DEPARTMENT

PHYSICS 0120
COURSE OUTLINE

INSTRUCTOR: Nancy Fraser
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COURSE GOALS: This course is designed to give the student an understanding of some basic concepts and principles of physical science involving heat, gases, and waves (water, sound, and light). The student will develop problem-solving skills and gain an appreciation of the role of physics in modern society.

FORMAT: This course will be mainly lectures. There will also be a lab and a problem-solving component to PC 0120.

ATTENDANCE POLICY: Regular attendance is expected. Students that miss more than **SIX** hours of classes maybe barred from the final exam. A doctor's certificate will be required verifying an accident or illness before makeup labs or tests will be considered.

EVALUATION: Your final mark will be based on:

4 assignments	20%
4 labs	20%
1 midterm	15%
1 test	5%
1 final	40%
TOTAL	100%

COURSE CONTENTS:

		PAGES
1. Heat: i)	Distinguish between heat and temperature.	333
ii)	Heat capacity, specific heat and heat exchange.	364-8
iii)	Heat of fusion.	369
iv)	Heat of vaporization.	369
v)	First law of thermodynamics.	400
vi)	Second law of thermodynamics.	400

2. Gases

i)	Kinetic Molecular Theory	349
ii)	Charles' Law	339
iii)	Boyles' Law	338
iv)	Combined Gas Law	338

3. Waves

i)	Hookes' Law	422
ii)	Simple Harmonic Motion	
iii)	Pendulum	429-35
iv)	Waves of Water	437
v)	Transverse Waves	438
vi)	Reflection of Water Waves	441
vii)	Refraction of Water Waves	442
viii)	Diffraction of Water Waves	442
ix)	Interference and Principle of Superposition	440, 442-3

4. Sound

i)	Longitudinal Waves	438
ii)	Mach Number	473
iii)	Intensity, Loudness and Relative Humidity	454-64
iv)	Reflection and Acoustics	465
v)	Refraction	465
vi)	Diffraction	465
vii)	Interference - Two Point Source	466
	- Beats	467-8
	- Herschel Tube	
viii)	Mode of Vibration and Quality of Sound	474-5
	- Fundamental Frequency	
	- Harmonics	444
	- Overtones	
	- String Laws	
ix)	Resonance	442
	- Open and Closed Air Columns	442
x)	Doppler Effect	468
xi)	Huggens' Principle	654
xii)	Supersonic Velocities and Sound Barrier	472

5. Light

i)	Sources of Light	
ii)	Properties of Light	
iii)	Theories of Light	
iv)	Speed of Light	
v)	Illumination, Luminous Flux and Luminous Intensity	
vi)	Pinhole Camera	
vii)	Reflection, Absorption Transmission & Spherical Abberation	652-3
viii)	Mirrors	673-85
ix)	Refraction	654-64
	- Snell's Law	
	- Critical Angle	
	- Total Internal Reflection	
	- Rectangular Prism	
	- Apparent Depth	
x)	Atmospheric Refraction	
xi)	Lenses	685-95
	- Eye, Spherical and Chromatic Abberation	
xii)	Lens Maker Equation	695
xiii)	Interference - Young's Double Slit Experiment	703-6
	- Coherent Light	
	- Thin Films	707-11
	- Newton's Rings	711-2
	- Michelson Interferometer	
xiv)	Diffraction and Deffraction Gratings	715-8
xv)	Polarization of Light	723
xvi)	Spectroscopy - Continuous Emission & Absorption Spectra	

Supplementary Texts:

1. Elements of Physics.
2. Physics: Principles and Problems.