

Registrar's
office

GRANDE PRAIRIE REGIONAL COLLEGE
DEPARTMENT OF ACADEMIC DEVELOPMENT
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 water, sound and light waves. 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 session component to Physics 0120.

ATTENDANCE POLICY: Regular attendance is expected. Attendance is absolutely required at all labs and tests. A doctors certificate will be required verifying an accident or an 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 exam	<u>40%</u>
	100%

COURSE CONTENT

	Pages
1. <u>Heat</u>	
i) Distinguish between heat and temperature	166-170
ii) Heat Capacity, Specific Heat, and Heat Exchange	182-186
iii) Heat of Fusion	189-190
iv) Heat of Vaporization	193
v) First Law of Thermodynamics	201
vi) Second Law of Thermodynamics	208-211

2.	<u>Gases</u>	
	i) Kinetic Molecular Theory	
	ii) Charles' Law	175-176
	iii) Boyles' Law	176-178
	iv) Combined Gas Law	178-179
3.	<u>Waves</u>	
	i) Simple Harmonic Motion	108-112
	ii) Waves of Water	222-224
	iii) Transverse Waves	225
	iv) Reflection of Water Waves	235-238
	v) Refraction of Water Waves	240-241
	vi) Diffraction of Water Waves	241-243
	vii) Interference & Principle of Superposition	243-249
4.	<u>Sound</u>	
	i) Longitudinal Waves	226-227
	ii) Intensity, Loudness & Relative Intensity	256-259
	iii) Reflection and Acoustics	
	iv) Refraction	
	v) Diffraction	
	vi) Interference - Two Point Source	246
	- Beats	275
	- Herschel Tube	
	vii) Mode of Vibration & Quality of Sound	266-271
	- Fundamental Frequency	266
	- Harmonics	268
	- Overtones	
	- String Laws	270-271
	viii) Resonance	
	- Open and Closed Air Columns	272-273

	Pages
ix) Doppler Effect	261-264
x) Huggens' Principle	284-285
xi) Supersonic Velocities & Sound Barrier	
4. <u>Light</u>	
i) Sources of Light	
ii) Properties of Light	280-281
iii) Theories of Light	281-285
iv) Speed of Light	304-306
v) Illumination, Luminous Flux, and Luminous Intensity	306-313
vi) Pinhole Camera	
vii) Reflection, Absorption Transmission & Spherical Abberation	315-329
viii) Refraction	332-340
- Snell's Law	
- Critical Angle	
- Total Internal Reflection	
- Rectangular Prism	
ix) Atmospheric Refraction	
x) Lenses	341-353
- Eye, Spherical and Chromatic Abberation	
xi) Lens Maker Equation	
xii) Interference	362-366
- Young's Double Slit Experiment	
- Coherent Light	
- Thin Films	
- Newton's Rings	
- Michelson Interferometer	
xiii) Diffraction & Deffraction Gratings	366-371
xiv) Polarization of Light	372
xv) Spectroscopy - Continuous Emission and Absorption Spectra	

Supplementary texts:

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