SEP 1995

GRANDE PRAIRIE REGIONAL COLLEGE
DEPARTMENT OF SCIENCE & TECHNOLOGY

PHYSICS 1090
INTRODUCTION TO UNIVERSITY PHYSICS
COURSE OUTLINE 1995-96

TOPICS COVERED: Waves and Sound; Interference of Waves; Fluids: Statics Dynamic; Temperature and Heat; Ideal Gas law and Kinetic Theory; Thermodynamics; Geometrical Optics; Physical Optics

TEXT BOOK: Physics by Cutnell & Johnson, 3rd Ed.

LAB MANUAL: Physics Lab Manual for 108/109 U. of A. Publication

MARK DISTRIBUTION:

Lab Reports	15%
Assignments	15%
Class Tests (TWO)	10%
MID-Term Exam	20%
Final Exam	40%

EXAMS:

First Test	October 5th, 1995	- During Seminar
Second Test	November 23rd, 1995	- During Seminar
MID-Term Exam	October 19th, 1995	- During Lab Hours
FINAL Exam		- TBA

Week of	Detailed Course Distribution
Sept. 4	Introduction and general review
Sept. 11	CHAPTER 11; FLUIDS Mass, density, pressure, gauge pressure, pressure and depth, atmospheric pressure, barometer, Pascal's principle, Archimedes principle, fluids in motion, stream lines, equation of continuity.
Sept. 18	Bernoulli's equation, Viscous flow, Poiseuille's equation. CHAPTER 12; TEMPERATURE AND HEAT Temperature Scale, Kelvin Scale, Thermometers, linear and volume expansion.
Sept. 25	Heat and internal energy, specific heat capacity, Latent heat. CHAPTER 13; TRANSFER OF HEAT Conduction, convection and radiation.
Oct. 2	CHAPTER 14; THE IDEAL GAS LAW AND KINETIC THEORY Ideal gas law, Gas behavior, Kinetic theory molecular interpretation of temperature, distribution of mol. speed.
Oct. 5	**FIRST TEST** (DURING SEMINAR) CHAPTER 15; THERMODYNAMICS Zeroth and first law of thermodynamics
Oct. 9	Thermal processes involving pressure, volume and temperature changes especially ideal gases. Second law of thermodynamics, heat engine.
Oct. 16	Carnot's Principle and Carnot engine, refrigeration entropy and second law of thermodynamics, order and disorder.
Oct. 19	**MID-TERM EXAM** (DURING LAB HOUR)
Oct. 23	CHAPTER 25; REFLECTION OF LIGHT Reflection of light by plane and spherical mirror, formation of images in mirrors, mirror equation, magnification
Oct. 30	CHAPTER 26; LENSES AND OPTICAL INSTRUMENTS Refraction of light, Snell's Law, Total internal reflection diffraction of light.

Nov. 6 Diffraction of light, formation of images by thin lenses, lens equation, magnification, combination of lenses, angular magnification, lens aberrations, telescope and microscope.

Nov. 13 CHAPTER 27: PHYSICAL OPTICS
Principle of linear superposition, Huygens's Principle, Young's double-split experiment, thin film interference, Michelson interferometer, diffraction by single slit and double slit.

Nov. 20 CHAPTER 16: WAVES AND SOUND
Types of waves, speed of waves, mathematics of waves, nature and speed of waves, sound intensity, Doppler effect.

Nov. 23 **SECOND TEST** (DURING SEMINAR)

Nov. 27 CHAPTER 17: INTERFERENCE OF WAVES
Principle of superposition, constructive and destructive interference of sound waves, diffraction, beat frequency, standing waves, complex sound waves, Fourier Synthesis.

Dec. 4 REVIEW

Dec. 11 **FINAL EXAMS**