**SUKKUR INSTITUTE OF BUSINESS ADMINISTRATION
SUKKUR**

Department of Mathematics

Applied Physics II

Programs & Class: B.S-II	**Semester:** III
Credit Hours: 04 (03+01)	**Instructor:** Kashif Ali
Office location: KC Physics Lab	
Co-requisite Courses: No	**e-mail: kashif.kalhoro@iba-suk.edu.pk**

EVALUATION

1.	Project	**0%**
2.	Sessional	**20%**
3.	First Term	**30%**
4.	Second Term	**0%**
5.	Final Examination	**50%**

RECOMMENDED BOOKS:

S.No	Book Name	Author/s Name	Publisher Name & Edition
1.	Fundamentals of Physics	David Halliday, Robert Resnick, and Jearl Walker	Ninth Edition, 2005, John Wiley & Sons, ISBN: 0471465097.
2.	Thermal Physics	M. Sprackling	McMillan 1991

DIGITAL & WEB RESOURCES:

www.youtube.com

www.physicsforum.com

COURSE OBJECTIVES:

1. Students will develop communication skills, including writing across the physics curriculum and scientific presentation skills.
2. An ability to present concepts and describe scientific phenomena.
3. An ability to design simple engineering related experiments, analyze and interpret data.

LEARNING OUTCOMES

1. Students should have a set of fundamental skills that can be applied to a variety of situations, including a) writing skills; b) presentation skills; c) laboratory skills; and d) problem-solving skills.
2. An ability to apply principles of Physics in Mathematics
3. An ability to compute basic quantities in electromagnetism and thermodynamics.

IMPORTANT POLICIES (subject to the course instructor)

The student is expected to attend all of the scheduled classes if for some reason the student cannot make a class the Instructor should be contacted in advance. The student is expected to turn in all work on time.

SESSION / WEEK WISE DETAILS:

Session No.	Week	Topics	Assignments/ Quizzes / Digital Library work	Suggested Readings
01-09	03	• **Electrostatics** • Electric Charge. • Electric charge and its characteristics. • Point charge. • Test Charge. • Difference b/w Point charge and Test charge.		Text book (1)
10-22	05	• Coulomb's law. • Coulomb's law in vector form. • Characteristics of coulomb's force. • Show that Coulomb's force is a mutual force? • Significance vector form of coulomb's law. • Problems **Electric field** • Electric field. • Electric field intensity. • Problems. • Electric field lines.	Quiz	Text book (1)

		• Characteristics of electric field lines. • Electric field lines due to a positive point charge. • Electric field lines due to a negative point charge. • Electric field strength. • Magnetic field and Magnetic force. • Magnetics poles and Magnetic domain. • Magnetic force on moving charge particles. • Magnetic force on current-carrying conductor. • Magnetic flux and magnetic density.		
23-29	**02**	**Current electricity** • Electric current. • Difference b/w A.C and D.C. • Types of electric current: • Conventional current. • Actual Current. • Problem. • Resistor. • Resistance and Resistivity. • Ohm's law. • Non-Ohmic Device. • Problems.	Quiz	Text book (1)
30-35	02	**Current electricity** • Resistivity and its dependence upon temperature. • Combination of resistors: • Series Combination of resistors. • Parallel Combination of resistors. • Problems	Quiz	Text book (1)

		Electric intensity: • Electric intensity due to a point charge. • Electric flux. • Flux Density.		
36-38	**01**	**Heat and temperature:** • Heat • system and its types • Boundary, system, Surroundings. • Differentiate b/w heat and temperature. • Conversion scales of temperature. • Problems.		Text book (2)
38-48	**03**	**Expansion:** • Thermal Expansion and its types. • Linear Expansion. • Area Expansion. • Volume Expansion. • Problems. **Laws of thermodynamics:** • First law of thermodynamics and its application. • Second law of thermodynamics and its application. • Efficiency. • Problems. • Insulator. • Conductor. • Semiconductor. • Doping process. • N-type Substance. • P-type Substance. • Rectification. • Diode.	Quiz	Text book (2)

		• Revision.		