KU1MDCPHY101 : Physics Around Us

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
I	MDC	100	KU1MDCPHY101	3	45

Learning Approach (Hours/ Week)		Marks Distribution			Duration of ESE (Hours)
Lecture+ Tutorial	Practical	CE	ESE	Total	
3	0	25	50	75	1.5

Course Description:

Physics around us is a descriptive course that deals with the applications of physics to commonly experienced phenomena and machines. This course would enable the students to identify, analyse, and solve problems encountered in everyday situations using principles of physics,

Course Prerequisite: NIL

Course Outcomes

CO No.	Expected Outcome	Learning Domains
1	Understand and apply the principles of physics to several day-to-day phenomena.	*U,A*
2	Understand heat transfer and the working of common kitchen appliances	*U*
3	Apply the principles of physics to the sport of soccer.	*A*
4	Analyse various interesting natural phenomena based on principles of physics	*An*

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	3	1	2	3	2	1
CO2	3	3	1	2	3	1	0
CO3	2	2	0	2	3	1	0
CO4	3	3	2	3	3	2	0

Correlation level 0-None, 1-Slight, 2-Medium, 3-High

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	**Physics in daily life**		**10**
	1	You go to the doctor	5
	2	You go to the airport	3
	3	You take a flight	2
	Chapters 3 - 5 of Book 1		
2	**Physics in Kitchen**		**9**
	1	Advantages and disadvantages of using LPG and electricity as energy sources in the kitchen – physics of induction cooktop -physics of microwave oven	3
	2	Smoke detectors ,Purpose and use of different metals as kitchen utensils	2
	3	Working of refrigerator	2

	4	Energy wastage in the kitchen and solutions	2
	Chapters 5, 6 of Book 2		
3	**Physics in sports-The science of Soccer**		**8**
	1	The kick , Forces on the foot – power – the curled kick	2
	2	The throw-in, goalkeeper's throw, heading, punching, catching, receiving, trapping the football	2
	3	Airflow around the ball – the boundary layer	2
	4	The Bernoulli effect – speed and range, effect of a wind	2
	Chapters 2, 3, 4 of Book 3		
4	**The Wonders of Physics**		**9**
	1	Outside and inside the rainbow-secrets of the rainbow, why sailors wear sunglasses, beyond the rainbow	3
	2	The harmonies of strings and winds, sound waves in space? -the wonders of resonance, the music of the winds, dangerous resonance	3
	3	The wonders of electricity-static electricity, invisible induction, electric fields and sparks, divine sparks	3
		Chapters 5, 6, and 7 of Book 4	
5	**Teacher Specific Module**		**9**
	Directions:		
	Activities or simulations designed by the teacher to demonstrate the applications of principles of physics in day-to-day phenomena		

Essential Readings:

1. The Physics of everyday things , James Kakalios, Crown Publishers , Newyork, 2017
2. Physics in the Kitchen, George Vekinis, Springer Nature Switzerland, 2023.
3. The Science of Soccer, John Wesson, Institute of Physics Publishing, 2002
4. For the love of Physics, Walter Lewin, Free Press, 2012

Suggested Readings:

1. https://www.physics.hku.hk/~phys1055/lectures/chap05.html

Assessment Rubrics:

Evaluation Type		Marks
ESE		**50**
CCA		**25**
a)	*Test Paper	10
c)	**Assignment/ Book- Article Review	5
d)	Seminar/ Viva -Voce	10
Total		**75**

*Best out of two test papers

** or any other activities like quiz, open book exam, group activity