

Subject Teacher : Rafsan Bin Ata (Instructor)
 Subject Name : Physics- 2
 Subject Code : 65922
 Technology : TEX, GDPM, TCT, AIDT, ET
 Semester : 3rd
 BTEB Text Book Name : Physics-2 (Publisher: Haque Publication, RS Publication)
 Reference Book Name : HSC Physics- 2 (- by Dr. Shahjahan Tapan)

Marks	Grade Point	Letter Grade	Marks	Grade Point	Letter Grade
80>	4.00	A+	55-59	2.75	B-
75-79	3.75	A	50-54	2.50	C+
70-74	3.50	A-	45-49	2.25	C
65-69	3.25	B+	40-44	2.00	D
60-64	3.00	B	0-39	0.00	F

Mark Distribution (for 200 Marks)			
Theory Marks		Practical Marks	
Midterm	15	PC	25
Class test	10	PF	25
Quiz test	05	-	-
Final	120	-	-
Total	150	Total	50

Class Timing Distribution	
Particulars	Time
Greeting with students	05 Minutes
Previous Class Review	05 Minutes
Present Class Topic Discussion and Lecture Delivery	30 Minutes
Present Class Topics Review	05 Minutes

Subject Aims:

To provide a foundation in scientific principals and processes for the understanding and application of technology. It will help our students to make a common base for further studies in technology and science. It also help to develop the basic knowledge of modern physics.

Subject Outcome:

Thermometry; Calorimetry, Expansion of materials (effect of heat); Heat transfer; Nature of heat and its mechanical equivalent; Engine.
 Principles of light and Photometry; Reflection of light; Refraction of light; Lens.
 Concept of Electron and photon; Structure of atom, Theory of Relativity.

Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
01	Thermometry and heat capacity	1.1 Define of heat and Temperature. 1.2 Mention the units of Measurement of heat and Temperature. 1.3 Distinguish between heat and Temperature. .	1. To know about heat and temperature. 2. To know about difference between heat and temperature.	Projector, Internet. www.youtube.com/watch?v=6BHBj_gBok0
02	Thermometry and heat capacity	2.1 State The Construction and Graduation of a Mercury Thermometer. 2.2 Compare among various scale of Temperature measurement.	1. To know how to use mercury thermometer.	Projector, Internet, Mercury Thermometer.
03	Thermometry and heat capacity	3.1 Determination of Specific Heat of Solid by the Method of Mixture.	1. To know to measurement of specific heat.	Calorimeter, Mercury Thermometer, Solid, Ice www.youtube.com/watch?v=wYBxuEQgrfc

		3.2 Determination of Latent Heat of Fusion of Ice.	2. To know measurement of latent heat.	
04	Effect of heat on dimension of materials	5.1 Mention the Units of Co-efficient of Linear, Superficial and Cubical Expansion of Solids. 5.2 Define the Co-efficient of Linear, Superficial and Cubical Expansion of Solids.	1. To know about various expansion of Solids.	Solid, Source of heat.
05	Effect of heat on dimension of materials	5.1 Relation between Co-efficient of Linear, Superficial and Cubical Expansion of Solids. 5.2 Relation between the real and apparent expansion of liquid.	1. Know about real and apparent expansion of liquid.	Metal pot, Source of heat, liquid. www.youtube.com/watch?v=y8Myxh6Cd5A .
06	Quiz Test:01	Chapter:1	Can explain about Thermometry and heat capacity	Theory base & practical base
07	Class Test:01	Chapter:1-2	Can explain about Thermometry and heat capacity and measurement of latent heat.	Theory base & practical base
08	Heat transfer	6.1 Explain the methods of heat transfer by Conduction, Convection and Radiation with examples. 6.2 Show that, the quantity of heat flowing through a material can be found from $Q = \frac{KA(\theta_h - \theta_c)t}{d}$;	1. Know about how to heat transfer. 2. Can measurement the quantity of heat flowing through a material.	Metal pot, Source of heat, liquid.
09	Nature of heat and thermodynamics	7.1 Describe Calorie Theory and Kinetic Theory of Heat. 7.2 Explain the first law of thermodynamics.	1. Know about the first law of thermodynamics.	Projector, Internet. www.youtube.com/watch?v=IbPEaaKiCww
10	Nature of heat and thermodynamics	8.1 Explain Specific heat of a gas, Molar specific heat or Molar heat capacity	1. Can explain Specific heat of a gas.	Projector, Internet. www.youtube.com/watch?v=ewM_cnThLyg

		8.2 Relation between pressure and volume of a gas in adiabatic change.	2. Know about relation between pressure and volume of a gas in adiabatic change.	
11	Problem solving class	Chapter:3-5	Students can solve their problem.	
12	Quiz Test:02 Class Test:02	Chapter:3-5	Explain the methods of heat transfer by Conduction, Convection and Radiation with examples and Specific heat of a gas, Molar specific heat or Molar heat capacity	Theory base & practical base
13	Photometry	11.1 Define Photometry, luminous intensity, luminous flux, brightness of illuminating power 11.2 Mention relation between luminous intensity & illuminating power.	1. Can explain relation between luminous intensity & illuminating power.	Projector, Internet. www.youtube.com/watch?v=4PngYiGpQiA
14	Photometry	12.1 Explain inverse square law of light. 12.2 Describe the practical use of light waves in engineering.	1. Can use of light waves in engineering practically.	Projector, Internet. www.youtube.com/watch?v=V52a qjFQoD8
15	Reflection of light	13.1 Define mirror, image and magnification of image. 13.2 State the laws of reflection of light and its verification.	1. Know about the laws of reflection of light and its verification.	Concave and convex mirror www.youtube.com/watch?v=ETF2-Zz3J18
16	Reflection of light	14.1 Relation between focus length and radius curvature	1. Can explain the general equation of	Projector, Internet.

		of concave and convex mirror. 14.2 Express the general equation of concave and convex mirror.	concave and convex mirror.	https://www.youtube.com/watch?v=yh8yUsXIFe8
17	Problem solving class	Chapter 6	Students can solve their problem.	
18	Refraction of light	15.1 Define refraction of light and gives examples. 15.2 State the law of refraction and its verification. 15.3 Express the deduction of the relation between refractive index, minimum deviation and angle of the prism.	1. Know about the laws of refraction of light and its verification.	Prism www.youtube.com/watch?v=CstD0ihdOV0
19	Refraction of light	16.1 Define lens and mention the kinds of lens. 16.2 Express the general equation of lens.	1. Can explain the general equation of lens.	Projector, Internet. www.youtube.com/watch?v=7GV1UZSTNJg
20	Problem solving class	Chapter:6	Students can solve their problem.	
21	Electron, Photon and Radio-activity	17.1 Cathode ray: Definition and its properties 17.2 X-ray: Definition, properties & uses.	1. Know about Cathode ray, X-ray.	Projector, Internet.
22	Electron, Photon and Radio-activity	18.1 Discuss photo electric effect. 18.2 Derive Einstein's photo electric equation.	1. Know about photo electric effect. 2. Can explain Einstein's photo electric equation.	Projector, Internet. www.youtube.com/watch?v=xN6p37pqGtg
23	Electron, Photon and Radio-activity	19.1 Describe radio-active decay law.	1. Know about half-life and mean-life of radio-active atoms.	Projector, Internet.

		19.2 Define half-life and mean-life of radio-active atoms. 19.3 Define nuclear fission and fusion.	2. Know about nuclear fission and fusion.	
24	Problem solving class	Chapter:6-7	Students can solve their problem.	
25	Quiz Test:03 Class Test:03	Chapter:6-7	Can explain about radio-active decay law, the general equation of concave and convex mirror.	Theory base & practical base
26	Theory of relativity	20.1 Define space, time & mass. 20.2 Explain special theory of relativity and its fundamental postulates.	1. Know about special theory of relativity and its fundamental postulates.	Projector, Internet. www.youtube.com/watch?v=FCnGoUX-dcw
27	Theory of relativity	21.1 The relativity of time- time dilation. 21.2 Describe Einstein's Mass-Energy relation.	1. Know about the relativity of time-time dilation. 2. Can explain Einstein's Mass-Energy relation.	Projector, Internet. www.youtube.com/watch?v=Lz2m4FuM9bk
28	Problem solving class	Chapter:9-10	Students can solve their problem.	
29	Quiz Test:04 Class Test:04	Chapter:9-10	Can explain about special theory of relativity and its fundamental postulates.	Theory base & practical base
30	Review class	Chapter:4-6 (Regarding students problem)	Students can solve their problem.	Projector, Internet.
31	Presentation	Short presentation by individual student.	Be confident on practical life.	Laptop, projector
32	Review class	Chapter:7-10 (Regarding students problem)	Students can solve their problem.	