Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India
(Autonomous Institute Affiliated to University of Mumbai)

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
BSL14	Applied Science I Lab	**L**	**T**	**P**	**L**	**T**	**P**	**Total**
		-	**-**	**2**	**-**	**-**	**1**	**1**
		Examination Scheme						
		ISE	**MSE**					**Total**
			Practical		**Oral**			
		50	**-**		**-**			**50**

Applied Physics Lab

Course Outcomes	Learners will be able to	
	C01	Develop experimental skills for the use of laboratory instruments and tools
	C02	Develop an ability of understanding of concepts and principles of physics
	C03	Develop practical abilities (observation, recording data and analyzing results)
	C04	Comprehend importance of precision, accuracy of the experimental data

Experiment No.	Experiment Details	Marks*
1	To study I-V characteristics of a zener diode	**5**
2	To determine energy band gap of a semiconductor	**5**
3	To determine Hall coefficient, the type, density and the mobility of majority charge carriers in extrinsic semiconductors using Hall effect	**5**
4	To determine the retentivity and coercivity of a ferromagnetic material from its hysteresis curve	**5**
5	To determine dielectric constant of a given material	**5**
6	To measure velocity of ultrasonic waves in liquid medium using ultrasonic interferometer	**5**
7	To determine Planck's constant using photo cell	**5**
	Total Marks	**25**

*Any 5 experiments

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Applied Chemistry Lab

Course Outcomes	Learners will be able to	
	CO1	Estimate the different types of hardness in water
	CO2	Remove hardness in water using suitable softening technique
	CO3	Identify suitable method of disposal of wastewater based on its Chemical Oxygen Demand (COD)
	CO4	Evaluate the molecular weight of polymer.
	CO5	Evaluate key properties of lubricants such as temperature dependence of viscosity, acid value and flash point.
	CO6	Illustrate the use of instruments like conductometer in acid base titrations

Exp. No.	Experiment Details	Ref.	Marks
1	Determination of total, temporary and permanent hardness of water sample	1, 2	**5**
2	Removal of hardness using ion exchange column	1, 2	**5**
3	Determination of Chemical oxygen demand (COD) in a waste water sample	2	**5**
4	Molecular weight determination of polymers by Oswald's Viscometer	2	**5**
5	To determine flash point of a lubricating oil	2	**5**
6	Determination of Viscosity of oil by Redwood Viscometer	1, 2	**5**
7	Determination of acid value of lubricant oil	2	**5**
8	Determination of amount of strong acid present in a solution by conductometric titration	2	**5**
		Total Marks	25*

* Any five from the above list of experiments will be performed

References:

[1] P. C. Jain & M. Jain, *EngineeringChemistry*, XV thed reprint, New Delhi, India, Dhunpat Rai Publishing Co. (P) Ltd., 2010.

[2] S. S. Dara, *A Text Book on Experiments and Calculations in Engineering Chemistry*", IXthed, New Delhi, India, S. Chand & Company Ltd., 2003.