Semester Lecture Plan

Name of the	Name of the college: Government College of Arts, Science & Commerce, Sanquelim-Goa									
Name of F	'aculty: Aga D.	А.		Subject: Physics (THEORY) and (PR.	ACTICALS)				
1										
Paper cod	e:PHY- 200 Pr	operties of Matt	er &	D (G						
Sound	Sound		Program/Course:	S.Y. B.Sc.	Division: A					
						Total Lasture	as 45 Leastures and			
Academic	vear: 2024 - 20	025		Semester III		Practicals	s: 45 Lectures and			
Treaterine	Jean 2024 2			Semester: III		Tucticuis				
Course Ol	ojectives: This	course aims to p	rovide the s	tudents with a foun	dation in basic kno	owledge of Prop	erties of Matter &			
Sound	0	•				0				
Course Le	earning Outcon	ne: The student a	after underg	going this course wi	ll be able to: 1. Des	scribe and explai	n the elastic			
behavior	of solids,Relati	on between stres	s ,strain, Y	oung's Modulus, B	ulk Modulus (K), 1	Modulus of rigid	ity and Poisson's			
ratio. 2) E	xplain parame	ters involved in	Fluid Flow .	3) ELUCIDATE Sir	nple Harmonic M	lotion and its ap	plications.4)Discuss			
different t	ypes of waves i	n terms of its ve	locity and e	nergy. 5) mustrate	about the velocity	of sound waves i	in fiulds and air.			
	Leo	tures	No. of	Topic, Subtopic	Learning					
Month	From:	To:	lectures	to be covered	outcome	ICT Tools	Reference books			
			allotted	Heelr's low	The student	White board	D.C. Mathur			
.IUNE &	28/06/2024	06/07/2024	03	Stress Strain	will be able to:	and marker	D. S. Mathur, Flements of			
JULY	20/00/2024	00/07/2024	05	diagram Elastic	1. Describe and		Properties of Matter.			
				behaviours of	explain		S. Chand and Sons			
				solids in general	Hook's law,					
				(Elastic after	Stress Strain					
				effect, Elastic	diagram,					
				hysteresis, Elastic	Elastic					

				fatigue),	behaviours of solids in general (Elastic after effect, Elastic hysteresis, Elastic fatigue),		
JULY	08/07/2024	13/07/2024	03	Working stress factor of safety, factors affecting elasticity (effect of hammering, rolling and annealing, effect of impurities, effect of change of temperature) Moduli of Elasticity.	The student will be able to: . Describe and explain working stress factor of safety, factors affecting elasticity (effect of hammering, rolling and annealing, effect of impurities, effect of change of temperature) Moduli of Elasticity.	White board and marker	D. S. Mathur, Elements of Properties of Matter, S. Chand and Sons
JULY	15/07/2024	20/07/2024	03	, Equivalence of shear to compression and extension at right angles, Deformation of cube (Bulk modulus),	The student will be able to: 1) Describe and explain , Equivalence of shear to compression and extension at right angles, Deformation of	White board and marker	D. S. Mathur, Elements of Properties of Matter, S. Chand and Sons

					cube (Bulk modulus),		
			02	PRACTICAL	Velocity of sound in air using Helmholtz resonator		
	22/07/2024	27/07/2024	03	modulus of rigidity, Young's modulus) Relation connecting elastic constants, Poisson's ratio and its relation with bulk modulus and modulus of rigidity	The student will be able to: 1. Describe and explain modulus of rigidity, Young's modulus) Relation connecting elastic constants, Poisson's ratio and its relation with bulk modulus and modulus of rigidity	White board	D. S. Mathur, Elements of Properties of Matter, S. Chand and Sons
JUL 1			02	PRACTICAL	Modulus of rigidity by torsional pendulum .		
JULY & August	29/07/2024	03/08/2024	03	limiting values of Poisson's ratio.	The student will be able to:	White board and marker	D. S. Mathur, Elements of

				Twisting couple on a cylinder, Beams, Bending of beams, flexural rigidity. Cantilever (rectangular bar), depression in a beam supported at ends and loaded in the middle.	1. Describe and explain limiting values of Poisson's ratio. Twisting couple on a cylinder, Beams, Bending of beams, flexural rigidity. Cantilever (rectangular bar), depression in a beam supported at ends and loaded in the middle.		Properties Matter, S. and Sons	of Chand
			02	PRACTICAL	REVISION			
					The student			
					Will be able to: Describe and			
					explain Fluid			
				Fluid Flow	Flow			Mathur
				Streamline flow,	Streamline		D. S. I Elements	viailiui,
				turbulent flow,	flow, turbulent		Properties	of
				Equation of	flow, Equation		Matter S	Chand
				continuity of	of continuity of		and Song	
				flow, energy of a	flow, energy of	White board	Rancal	Fluid
				liquid in flow,	a liquid in	and marker	Dalisal, Machanias	Tinia
				Bernoulli's	flow,		Firowall	Madia
				theorem,	Bernoulli's			ivieula,
		10/00/2021	<u> </u>	Bernoulli's	theorem,		(2005).	
August	05/08/2024	10/08/2024	03	equation	Bernoulli's			

					equation		
			02	PRACTICAL	Determination of Y using Flat		
			02		The student		
				applications of Bernoulli's	will be able to: Explin		
				theorem:	1 orricelli's		
				theorem and	Venturimeter		
				Venturimeter.	Viscosity.		
				Viscosity,	coefficient of		R K Bansal, Fluid
				coefficient of	viscosity,		Mechanics,
				viscosity, Critical	Critical	White board	Firewall Media,
AUGUST	12/08/2024	17/08/2024	03	velocity,	velocity,	and marker	(2005).
					Determination		
			02		of η using Flat		
			02	PRACTICAL	Spiral spring.		
					will be able to:		
					Explain		
					Reynold's		1 1 1
				Reynold's	number and its		I. Malvino
				number and its	significance,		and Leach, Digital
				significance,	Poiseuille's		Principles and
				Poiseuille's	equation for		Applications, TMH
				equation for flow	flow of a liquid		(1986).
				of a liquid	through a		2. R. P. Jain, Modern Digital
				horizontal tube	and its	White board	Flectronics TMH
AUGUST	19/08/2024	24/08/2024	03	and its corrections	corrections	and marker	(2003).
			02	PRACTICAL	REVISION		
<u> </u>				fluid flow, Stokes	The student		R K Bansal, Fluid
				law, Ostwald	will be able to:		Mechanics,
				viscometer,	Explain fluid	White board	Firewall Media,
AUGUST	26/08/2024	31/08/2024	03	viscosity of gases:	flow, Stokes	and marker	(2005).

				Mayer's formula	law, Ostwald viscometer, viscosity of gases: Mayer's formula.		
			02	PRACTICAL	Bending of beams-double cantilever: determination of Young's modulus.		
September	02/09/2024	05/09/2024	03	Sound: Simple Harmonic Motion Simple harmonic motion, differential equation for simple harmonic motion and its solution,	The student will be able to: Explain Sound: Simple Harmonic Motion Simple harmonic motion, differential equation for simple harmonic motion and its solution,	White board and marker	D. R. Khanna and R. S. Bedi, Text book of Sound Atma Ram, New Delhi, 1969
			02	PRACTICAL	Superposition of two mutually perpendicular simple harmonic oscillations - Lissajous figures using CRO		1.
September	13/09/2024	21/09/2024	03		The student	White board	D. R. Khanna and

				relation of velocity and acceleration to displacement, superposition of SHM in a straight line: Two SH vibrations of equal periods but different amplitudes, any number of SH vibrations of same period but different amplitudes	will be able to: Explain relation of velocity and acceleration to displacement, superposition of SHM in a straight line: Two SH vibrations of equal periods but different amplitudes, any number of SH vibrations of same period but different amplitudes,	and marker	R. S. Bedi, Text book of Sound Atma Ram, New Delhi, 1969
			02	PRACTICAL Lissaious figures	Revision The student		
				(concept only).	will be able to:		
				Beats,	Explain		
				applications of	Lissajous		
				beats, distinction	figures		
				between	(concept only).		
				stationary	Beats,		
				hants	applications of		
				Wave motion	distinction		
				Transverse and	hetween		
				longitudinal	stationary		D. S. Mathur.
				waves,	interference		Elements of
				mechanical	and beats.		Properties of
				analogy of	Wave motion	White board	Matter, S. Chand
September	22/09/2024	28/09/2024	03	longitudinal	Transverse	and marker	and Sons, (2013)

				waves	and longitudinal waves, mechanical analogy of longitudinal waves ,		
			02	PRACTICAL	Velocity of sound by forming stationary wave using CRO		
				progressive wave and its general equation, particle velocity and acceleration, relation between wave velocity and particle velocity, differential equation of wave motion, energy of a plane progressive wave. Velocity of sound waves Velocity of longitudinal waves in fluids, Newtons formula for velocity of sound waves in	The student will be able to: Explain progressive wave and its general equation, particle velocity and acceleration, relation between wave velocity and particle velocity and particle velocity, differential equation of wave motion, energy of a plane progressive wave Velocity	White board	D. S. Mathur, Elements of Properties of Matter S Chand
September & October	30/09/24	05/10/24	03	air.	of sound waves	and marker	and Sons, (2013)

					Velocity of longitudinal waves in fluids, Newtons formula for velocity of sound waves in air.		
			02		To determine the viscosity of fluids by		
			02	PRACTICAL	viscometer The student		
					will be able to:		
					Explain		
					Laplace's		
				Laplace's	correction,		
				correction, effect	effect of		
				of pressure,	pressure,		
				density and	density and		
				temperature,	temperature,		
				Velocity of	Velocity of		
				longitudinal wave	longitudinal		
				in a rod. Kundt's	wave in a rod.		
				tube experiment	Kundt's tube		D. S. Mathur,
				to find velocity of	experiment to		Elements of
				sound in a gas or	find velocity of	XX7 1-14 - 1	Properties of
Ostahan	07/10/2024	12/10/2024	02	a solid rod.	sound in a gas	white board	Matter, S. Chand
October	07/10/2024	12/10/2024	03		or a solid rod.	and marker	and Sons, (2015)
			02	PRACTICAL Source in motion	Revision		D.C. Mothur
				and listener and	mill be able to:		D. S. Wathur,
				medium at rest	Fynlain Source		Properties of
				I istener in	in motion and	White board	Matter S Chand
October	14/10/24	19/10/24	03	motion and	listener and	and marker	and Sons (2013)
JUDDU	I 1/ I U/ 4T	1/1U/4T	05	motion unu	instance and		and 50115, (2015).

				source and medium at rest, Source and listener both in motion and medium at rest.	medium at rest, Listener in motion and source and medium at rest, Source and listener both in motion and medium at rest.		
			02	PRACTICAL	Practical Exam		
October	21/10/24	22/10/24	03	Effect of wind on the pitch of sound Indirect approach of source and listener	The student will be able to: Explain Effect of wind on the pitch of sound Indirect approach of source and listener	White board and marker	D. S. Mathur, Elements of Properties of Matter, S. Chand and Sons, (2013)
			02	PRACTICAL	Practical Exam		
October	21/10/24	22/10/24		Revision		White board and marker	D. S. Mathur, Elements of Properties of Matter, S. Chand and Sons, (2013)

*Note: Data filled in the above form is sample data.