

**SVRK GOVERNMENT DEGREE COLLEGE :: NIDADAVOLE**  
**TABLE – A – CURRICULAR PLAN – LECTURERE WISE**

**NAME OF THE LECTURER:** E. NAGESWARA RAO

**CLASS:** I B.Sc.

**YEAR:** 2022-2023

**SEMESTER:** I

**DEPARTMENT:** Physics

**PAPER:** I (Mechanics, waves and oscillations)

SERIAL NUMBER	MONTH & WEEK	HOURS AVAILABLE	SYLLABUS TOPIC	ADDITIONAL INPUT /VALUE /ADDITION	CURRICULAR ACTIVITY				CO-CURRICULAR ACTIVITY				RE MARKS
					ACTIVITY	HOURS ALLOTTED	WHETHER CONDUCTED	IF NOT, ALTERNATIVE DATE	ACTIVITY	HOURS ALLOTTED	WHETHER CONDUCTED	IF NOT, ALTERNATIVE DATE	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	October 3 <sup>rd</sup> Week & 4 <sup>TH</sup> Week	8	Important concepts and laws related to UG syllabus	Importance of physics and its applications of physics in daily life	Bridge course Teaching	5			Entry level test	1			
2	November 1 <sup>st</sup> week	4 2	<b>Mechanics of Particles</b> Review of Newton's Laws of Motion, Motion of variable mass system, Motion of a rocket, Multistage rocket, Concept of impact parameter, scattering cross-section,	Applications of Newton laws	Teaching Practical	4 2							
	November 2 <sup>nd</sup> week	4 2	Rutherford Scattering-Derivation. <b>Mechanics of Rigid bodies</b> Rigid body, rotational kinematic relations, Equation of motion for a rotating body		Teaching Practical	3 2			Assignment	1			
	November 3 <sup>rd</sup> week	4 2	Angular momentum and Moment of inertia tensor, Euler equations, Precession of a spinning top, Gyroscope, Precession of the equinoxes		Teaching	4 2							

	November 4 <sup>th</sup> week	4 2	<b>Motion in a Central Force Field</b> Central forces, definition and examples, characteristics of central forces, conservative nature of central forces, Equation of motion under a central force,	Importance of central force and applications of the different applications of satellites	Teaching Practical	3 2			Quiz	1			
3	December 1 <sup>st</sup> week	4 2	Kepler's laws of planetary motion-Proofs, Motion of satellites, Basic idea of Global Positioning System (GPS), weightlessness, Physiological effects of astronauts		Teaching Practical	4 2							
	December 2 <sup>nd</sup> week	4 2	<b>Relativistic Mechanics (12hrs)</b> Introduction to relativity, Frames of reference, Galilean transformations, absolute frames, Michelson-Morley experiment, negative result, Postulates of Special theory of relativity, Lorentz transformation,	Difference between the general theory of relativity and special theory of relativity and applications of different laws	Teaching Practical	4 2							
	December 3 <sup>rd</sup> week	4 2	time dilation, length contraction, variation of mass with velocity, Einstein's mass-energy relation.		Mid exam-1 Teaching	2 2			Assign ment  Mid exam-1	1 1			
	December 4 <sup>th</sup> week	4 2	<b>Undamped, Damped and Forced oscillations:</b> Simple harmonic oscillator and solution of the differential equation, Damped harmonic oscillator Their differential equations and solutions,	Different types of oscillations and their differences and applications	Teaching Practical	4 2							
4	January 1 <sup>st</sup> week	4 2	Forced harmonic oscillator – Their differential equations and solutions, Resonance, Logarithmic decrement, Relaxation time and Quality factor.		Teaching Practical	3 2			Assign ment	1			
	January 2 <sup>nd</sup> week	4 2	<b>Coupled oscillations:</b> Coupled oscillators - introduction, Two coupled oscillators, Normal coordinates		Teaching Practical	3 2			QUIZ	1			

	January 3 <sup>rd</sup> week	2 2	<b>Vibrating Strings:</b> Transverse wave propagation along a stretched string, General solution of wave equation and its significance	Application of the vibrations in strings	Teaching Practical	2 2							
	January 4 <sup>th</sup> week	4 2	Modes of vibration of stretched string clamped at ends, Overtones and Harmonics.		Teaching	3 2			Student seminar	1			
5	February 1 <sup>st</sup> week	4 2	<b>Ultrasonics:</b> Ultrasonics, General Properties of ultrasonic waves, Production of ultrasonics by piezoelectric and magnetostriction methods	Real life applications of Ultrasonics	Mid exam-2 Teaching Practical	2 2			Mid exam-2	2			
	February 2 <sup>nd</sup> week	4 2	Detection of ultrasonics, Applications of ultrasonic waves, SONAR		Teaching Practical	3 2			Assign ment	1			
	February 3 <sup>rd</sup> week	4 2	Revision		Teaching Practical	2 2			Assign ment	2			

SIGNATURE OF THE LECTURER

SIGNATURE OF THE DEPARTMENT INCHARGE

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