ITSTITUTE OF TECHNICAL EDUCATION RESEARCH
SIKSHA 'O' ANUSANDHAN DEMEED TO BE UNIVERSITY
DEPARTMENT OF PHYSICS
LESSON-PLAN

SUBJECT: UPM **CODE: PHY 1001**

Date	#	Topic	Section	Test Your Understanding	In-class Problems (Example)	Assignment (Exercise)
	1	**Vectors**: Vector Addition, Component of Vectors, Unit Vectors, Vector product	1.7, 1.8, 1.9, 1.10	TYU-1.7 TYU-1.10	1.9, 1.11, 1.12	1.40, 1.44,1.53
	2	**Motion along a straight line**: Displacement, Average and Instantaneous Velocity, Average and Instantaneous Acceleration (v-t, x-t graphs explanation)	2.1, 2.2,2.3	TYU-2.1 TYU-2.3	2.4	2.10, 2.18, 2.38
	3	**Motion along a straight line**: Motion with Constant Acceleration, Freely falling bodies, Velocity and Position by integration	2.4, 2.5, 2.6	TYU-2.5 TYU-2.6	2.7, 2.9	
	4	**Motion in Two or Three Dimensions**: Position and Velocity Vectors, Acceleration Vector (Parallel & Perpendicular component of acceleration)	3.1, 3.2	TYU-3.1 TYU-3.2	3.1	3.4, 3.9, 3.31, 3.36
	5	**Motion in Two or Three Dimensions**: Projectile Motion	3.3	TYU-3.3	3.7	
	6	**Motion in Two or Three Dimensions**: Motion in a Circle, Relative Velocity	3.4	TYU-3.4	3.12	
	7	**Motion in Two or Three Dimensions**: Relative Velocity	3.5	TYU-3.5	3.14	
	8	**Newton's Laws of Motion**: Force and Interactions, Newton's First Law, Newton's Second Law	4.1, 4.2, 4.3	TYU-4.2 TYU-4.3	-----	4.12,4.24, 4.30
	9	**Newton's Laws of Motion**: Mass and Weight, Newton's third Law, Free Body Diagram	4.4, 4.5, 4.6	TYU-4.4	4.5,4.7	
	10	**Applying Newton's Laws**: Using Newton's First law: Particles in Equilibrium, Using Newton's Second law (Apparent weight & Weightlessness)	5.1, 5.2	TYU-5.1	5.1, 5.8	5.10, 5.25, 5.28
	11	**Applying Newton's Laws**: Frictional Forces, Dynamics of Circular Motion	5.3	TYU-5.3	5.13, 5.16	
	12	**Applying Newton's Laws**: Dynamics of Circular Motion	5.4	TYU-5.4	5.21	
	13	**Applying Newton's Laws**	----	----	5.22 & 5.23	
	14	**Work and Kinetic Energy**: Work, Kinetic Energy and Work Energy Theorem	6.1, 6.2	TYU-6.1 TYU-6.2	6.2 & 6.3	6.2, 6.20, 6.47
	15	**Work and Kinetic Energy**: Work and Energy with varying forces, Power	6.3, 6.4	----	6.10	
	16	**Potential Energy and Energy Conservation**: Gravitational Potential Energy, Conservation of Mechanical Energy (gravitational forces only), Elastic Potential Energy (Elastic Forces only)	7.1,7.2	TYU-7.2	7.7	7.14, 7.27, 7.44
	17	**Potential Energy and Energy Conservation**: Conservative and Non conservative forces, Force and Potential Energy, Energy Diagrams	7.3, 7.4, 7.5	TYU-7.3	7.14	

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	18	**Problem solving and Discussion (Mid Sem Exam)**	-----	-------	------	------
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	20	**Momentum, Impulse and Collisions**: Momentum and Impulse, Conservation of Momentum	8.1, 8.2	TYU-8.2	8.4	8.5, 8.18, 8.33, 8.47
	21	**Momentum, Impulse and Collisions**: Momentum Conservation and Collision, elastic collision	8.3, 8.4	TYU-8.3	8.9	
	22	**Rotation of Rigid Bodies**: Angular Velocity and Acceleration, Rotation with constant angular acceleration	9.1, 9.2	TYU-9.2	9.3	9.11, 9.40, 9.59
	23	**Rotation of Rigid Bodies**: Relating linear and angular kinematics, Energy in rotational motion	9.3, 9.4	TYU-9.4	9.8	
	24	**Rotation of Rigid Bodies**: Parallel axis theorem, Moment of Inertia calculations	9.5, 9.6	TYU-9.6	9.10	
	25	**Dynamics of Rotational Motion**: Torque, Torque and angular acceleration for a rigid body	10.1, 10.2	TYU-10.1	10.1	10.9, 10.18, 10.39
	26	**Dynamics of Rotational Motion**: Rigid body rotation about a moving axis, Work and Power in Rotational Motion	10.3, 10.4	TYU-10.4	10.5	
	27	**Dynamics of Rotational Motion**: Angular momentum, Conservation of angular momentum	10.5, 10.6	TYU-10.5	10.10	
	28	**Equilibrium and Elasticity**: Conditions for Equilibrium, Stress, Strain and Elastic Moduli, Elasticity and Plasticity (Stress-Strain curve)	11.1, 11.2, 11.4, 11.5	TYU-11.4	11.5	11.6 ,11.25, 11.37
	29	**Fluid Mechanics**: Fluid flow, Bernoulli's equation	12.4, 12.5	TYU-12.5	12.9	12.41, 12.43,12.44
	30	**Gravitation**: Newton's law of Gravitation, Weight, Gravitational Potential Energy	13.1, 13.2, 13.3	TYU-13.1 TYU-13.3	-----	13.11, 13.16, 13.29
	31	**Gravitation**: Motion of Satellites, Kepler's laws and Motion of Planets	13.4, 13.5	TYU-13.4 TYU-13.5	13.8	
	32	**Periodic Motion**: Simple harmonic Motion, Energy in Simple Harmonic Motion	4.2, 14.3	TYU-14.3	14.4	14. 6, 14.8, 14.11
	33	**Mechanical Waves**: Standing waves on a string, Normal modes of a string	15.7, 15.8	TYU-15.7	15.7	15.37,15.40
	34	**Problem solving and Discussion (End Sem Exam)**	**----**	**----**	**----**	**----**
	35	**Problem solving and Discussion (End Sem Exam)**	**----**	**----**	**----**	**----**
	36	**Problem solving and Discussion (End Sem Exam)**	**----**	**----**	**----**	**----**

***Text Book:**

University Physics, 13th Edition, Young and Freedman, Pearson. No Other Text book will be used or entertained