

ACADEMIC SESSION 2018-19 : COURSE PLANNING

Course Program Name - XI ABHILASHA					Course Code - RDJEE	Course Duration - 900 Hrs
TARGET EXAM - JEE MAIN/ ADVANCED/ KVPY/ SCRA/ CBSE Board Exam						
Course Commencement : <u>04.06.2018</u>					Subject - Physics	
S.No	No. of week	Week Duration	No. of Classes	Topic(s) Name (No. of Lectures)	Sub-topic(s) Name (No. of Lectures)	
1	W1	04/6/2018 to 09/06/18	3	Mathematical Tools (3)	1.Function + Trigonometry 2.Slope + Curve 3. Differentiation + Rules of Diff.	
2	W2	11/06/18 to 16/06/18	3	Mathematical Tools (3)	1.Chain Rule 2. Maxima & Minima application of diff 3. Integral. Indefinite.	
3	W3	18/06/18 to 23/06/18	5	Mathematical Tools (3)	1.Define Integration, Area under Curve 2.Define vector, Vector Addition 3.Resolution of vector 4.Multiplication of Vector (Dot Product) 5.Cross Product	
4	W4	25/06/18 to 30/06/18	5	Rectilinear motion (4) Projectile Motion (1)	1. Definition, Dist. Displacement averse velocity and acceleration 2.Motion with uniform acceleration Graphs. 3. Motion under gravity with graph 4. Variable acceleration 5. Ground to Ground projectile motion with complete derivation.	
5	W5	02/07/18 to 07/07/18	5	Projectile Motion (3) Relative Motion (2)	1. Equation of trajectory, Projectile from tower 2. Projectile motion from inclined plane 3.Projectile Motion from a moving frame 4. Relative motion in 1-D 5. River Problem	
6	W6	09/07/18 to 14/07/18	5	Relative Motion(3) NLM(1) Buffer (1)	1. Wind, rain Problem 2. Velocity of approach, separation 3. Collision Maximum and minimum separation 4. Basic Force 5. Buffer	
7	W7	16/07/18 to 21/07/18	5	NLM(5)	1. NLM 1st,2nd, 3rd, Law (Action Reaction) 2. Tension, Normal 3. System F.B.D. 4. Problem of equilibrium & with acceleration 5. Constrained motion (string and wedge)	
8	W8	23/07/18 to 28/07/18	5	NLM (4) Buffer (1)	1. Weighing machine, spring 2. Spring balance, spring and string cut problem 3. Practice Problem 4. Newton's law for system, Pseudo force 5. Buffer	
9	W9	30/07/18 to 04/08/18	5	Friction (5)	1. Causes of friction, Kinetic friction 2. Problem of kinetic friction 3. Static friction, problem of static friction (1), Two Block problem (1), Calculation of work by constant force(1)	
10	W10	06/08/18 to 11/08/18	3	Work power & energy (3)	1. W.D. By variable force, area under graph 2. Spring force, Kinetic Energy 3. Work energy theorem	

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11	W11	13/08/18 to 18/08/18	3	Work power & energy (3)	1. Power 2. Conservative and non conservative force 3. Potential energy
12	W12	20/08/18 to 25/08/18	3	Work power & energy (3)	1. Relation between force and potential energy with equilibrium condition 2. Mechanical energy conservation 3. Problems
13	W13	27/08/18 to 01/09/18	3	Circular motion(3)	1. Kinematics of circular motion(2) 2. Relative Circular Motion
14	W14	03/09/18 to 08/09/18	3	Circular motion(3)	1. Circular motion in horizontal plane 2. Circular motion in vertical plane 3. Turning on roads
15	W15	10/09/18 to 15/09/18	3	Circular motion (2) Buffer (1)	1. Centrifugal force 2. Effect of earth's rotation 3. Buffer
16	W16	17/09/18 to 22/09/18	3	Center of mass (3)	1. Calculation of COM of system of N particles 2. COM of continuous distributed mass, Ring, Disc, Sphere 3. Cavity concept (Negative Mass concept)
17	W17	24/09/18 to 29/09/18	3	Center of mass (3)	1. Motion of COM, Linear momentum conservation 2. Spring-block problem 3. Impulse and Impulsive force
18	W18	01/10/18 to 06/10/18	3	Center of mass (3)	1. Collision in 1-D, 2-D 2. Practice problem 3. Variable mass system
19	W19	08/10/18 to 13/10/18	3	Center of mass (2) Buffer (1)	1. Rocket propulsion 2. Discussion 3. Buffer
20	W20	15/10/18 to 20/10/18	3	Rotational motion (3)	1. Definition and types of motion, Moment of Inertia 2. Theorems, Radius of gyration 3. Torque, point of application of force
21	W21	22/10/18 to 27/10/18	3	Rotational motion (3)	1. Rotation about fixed axis, Derivation of $\tau = I\alpha$ 2. Equilibrium 3. Angular momentum
22	W22	29/10/18 to 03/11/18	3	Rotational motion (3)	1. Angular momentum conservation 2. CTRM (2)
23	W23	05/11/18 to 10/11/18			Diwali
24	W24	12/11/18 to 17/11/18	3	Rotational motion (3)	1. Pure rolling 2. Rolling with slipping, Rolling on a moving object.
25	W25	19/11/18 to 24/11/18	3	Rotational motion (3)	1. Instantaneous axis of rotation (IAOR) 2. Toppling 3. Discussion

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26	W26	26/11/18 to 01/12/18	3	Fluid mechanic (3)	1.Static fluid, Pascal's Law, Barometer(2) 2.Buoyancy force
27	W27	03/12/18 to 08/12/18	3	Fluid mechanic (3)	1.Bernoulli's equation, continuity equation 2.Problems 3.Venturimeter, discussion
28	W28	10/12/18 to 15/12/18	3	Viscosity/elasticity (3)	1.Elasticity 2.Viscosity 3.Discussion
29	W29	17/12/18 to 22/12/18	3	Surface tension (3)	1.Definition, excess pressure 2.Capillary action, surface energy 3.Discussion
30	W30	24/12/18 to 29/12/18	4	Unit & dimension Error Significant number(2) Buffer(1)	1.U&D (1) 2.Error(1)
31	W31	31/12/18 to 05/01/19	4	SHM(4)	1.Linear SHM(1) 2.Graphs between various parameters (1) 3.Spring block system, Combination of spring(2)
32	W32	07/01/19 to 12/01/19	3	SHM(4)	1.Angular SHM, Simple pendulum (1), Compound pendulum (1) 2.Superposition principle 3.Discussion
33	W33	14/01/19 to		Wave on string (3)	1.Definition, equation of pulse, travelling wave 2.Speed in string wave
34	W34	21/01/19 to 26/01/19	3	Wave on string (3)	1.Super position, Reflection 2.Refraction, Interference 3.Standing wave
35	W35	28/01/19 to 02/02/19	3	Wave on string(2) Sound waves (1)	1.Vibration in string wave 2.Sonometer wire 3.Propagation of sound wave
36	W36	04/02/19 to 09/02/19	3	Sound waves(3)	1. Equation of pressure wave 2. Speed of sound, Intensity 4. Loudness, Pitch
37	W37	11/02/19 to 16/02/19	3	Sound waves(3)	1. Interference, Reflection and Refraction 2. Air columns (Organ pipes) 3. Beats, Doppler's effect
38	W38	18/2/2019 to 23/02/19	3	Sound waves(2) KTG + Thermo (1)	1.Beats in Doppler's effect 2.Discussion 3. Assumptions, derivation of pressure, Maxwell eqn, various speed
39	W39	25/02/19 to 02/03/19	3	KTG+ Thermo(3)	1.DOF, Internal Energy 2.System, Ideal gas, Various law, various process 3. Cal. Of w, Δu , Q for various process
40	W40	04/03/19 to 09/03/19	3	KTG+ Thermo(2) Calorimetry (1)	1. Graphs, Cyclic process, efficiency 2. Free expansion, specific heats

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41	W41	11/03/19 to 16/03/19	3	Calorimetry (1) Thermal expansion (2)	Principle of calorimetry Problems of calorimetry (1) Expansion. in 1-D, 2-D, 3-D Time period, App weight temp scales.