

PHYSICS
BBA001
Winter Semester
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MECHANICS

Kinematics of particle

1. Motion of particle
2. Instantaneous velocity
3. Instantaneous acceleration
4. Analysis of vector of acceleration
5. General motion
6. Uniform circular motion
7. Circular motion with uniform angular acceleration

Dynamic of particle

8. Newton's laws of motion
9. Solution of equation of motion
10. Linear harmonic oscillator
11. Motion in noninertial frame works
12. Work, Power
13. Potential energy
14. Kinetic energy
15. The law of conservation of mechanical energy
16. Impulse of force
17. Moment of force
18. Moment of momentum
19. Continuity between moment of force and moment of momentum

Dynamic of rigid body

20. Mass and momentum of a system of particles, external and internal forces
21. Moment of internal forces
22. Centre of mass
23. First impulse principle
24. Second impulse principle
25. Totally rigid body, force in rigid body
26. Couples forces
27. Equilibrium of rigid body
28. Motion of rigid body
29. Kinetic energy of rigid body
30. Moment of inertia
31. Work and power by circular motion of rigid body
32. Sliding friction

Hydromechanics

33. Pascal's principle
34. Hydrostatic pressure
35. Archimede's principle
36. Surface tension
37. Equation of continuity
38. Principle of fluid momentum
39. Bernoulli's equation

Oscillations

40. Free harmonic oscillations
41. Energy of harmonic oscillations
42. Damped oscillations
43. Forced oscillations

Literature

1. Chobola Z., Navarova H.: Physics, Brno, 2001
2. Ohanian H.: Physics, New York, 1985
3. Breithaupt J.: Physics, London, 1999
4. Duncan T.: Physics, London, 1994