

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma in Fire Technology

Semester: III

Subject Name: Fire (Applied) physics

Sr. No.	Course Content
1	<p>1.1 Introduction :</p> <ul style="list-style-type: none"> 1.1.1 Fundamental qualities & Units 1.1.2 Systems of units 1.1.3 Concept of dimension 1.1.4 Classification of physical quantities 1.1.5 Dimensional formula 1.1.6 Limitation of dimensional analysis. <p>1.2 Vectors :</p> <ul style="list-style-type: none"> 1.2.1 Kinds of vectors 1.2.2 linear combination of vectors 1.2.3 position vector <p>1.3 Properties of fluids :</p> <ul style="list-style-type: none"> 1.3.1 Viscosity 1.3.2 Newton's law of viscosity 1.3.3 Variation of viscosity with temperature 1.3.4 Types of fluids 1.3.5 Compressibility.
2	<p>2.1 Gravitation -Gravity and Satellites :</p> <ul style="list-style-type: none"> 2.1.1 Newton's law of gravitation 2.1.2 Gravitational field 2.1.3 Gravitational potential 2.1.4 Determination of mass & mean. <p>2.2 Elasticity :</p> <ul style="list-style-type: none"> 2.2.1 Stress and strain 2.2.2 Young's modulus 2.2.3 Determination of Young's modulus 2.2.4 Torsion pendulum 2.2.5 Uses of torsion pendulum.
3	<p>3.1 Surface tension and Viscosity :</p> <ul style="list-style-type: none"> 3.1.1 Capillary rise method 3.1.2 Bubble pressure method 3.1.3 Jager's method, 3.1.4 Effect of temperature on surface tension 3.1.5 Stream line & turbulent flow 3.1.6 Reynolds's number 3.1.7 Poiseulle's equation for the flow of liquid through a tube or pipe 3.1.8 Stroke's law & terminal velocity

	3.2 Buoyancy & Floatation : 3.2.1 Conditions of equilibrium of floating & Submerged bodies
4	4.1 Electrostatics : 4.1.1 Static electricity 4.1.2 Absolute & relative permittivity of a medium 4.1.3 Laws of electricity 4.1.4 Electric field, electrostatic induction 4.1.5 Electric flux & faraday tubes 4.1.6 Field strength (e) 4.1.7 Electric displacement (d) 4.1.8 Gauss's law 4.1.9 Potential & electric intensity inside a conducting sphere 4.1.10 Break down voltage & dielectric strength 4.1.11 Safety factor of a dielectric 4.1.12 Boundary conditions.
5	Capacitance : 5.1 Capacitor 5.2 Capacitance 5.3 Spherical capacitor 5.4 Parallel plate capacitor 5.5 Special cases of parallel -plate capacitor 5.6 Multiple & variable capacitor 5.7 Potential gradient in a cylindrical capacitor 5.8 Capacitance to parallel wires & Series

Practical :

1. Moment of inertia of flywheel.
2. Temperature coefficient of resistance of metallic wire.
3. Newton's experiment.
4. Refractive index of liquid with the help of a convex lens.
5. Frequency of A.C. by sonometer.
6. To determine the capacitance of a capacitor
7. Study of Resonator
8. Decay of potential for capacitor
9. Co-axial viscometer
10. Absolute value of capacity by ballistic galvanometer.

REFERENCES BOOKS:

1. Engineering Physics -- R.K.Gour
2. Physics Part-1 & 2 - Robert Resnick David Halliday
3. Applied physics -Prakash P Manikpure, S.B Deshpandey, S B Dagwar