Govt. Polytechnic Hamirpur (H.P.)
Lesson Planning (Theory)

Branch : MECHANICAL ENGG.
Subject : APPLIED PHYSICS-I
Teacher: MANOJ KUMAR

Session : AUGUST 2025 - DEC 2025

Sr. No.	No. of Lectures		Chapter/ Unit Description	Detail of Contents	Reference Resources	Remarks
1	11	2nd,3rd, 4th and 5th week of August	Physical world, Units and Measurements	Physical quantities: fundamental and derived Units and systems of units (FPS, CGS and SI units) Dimensions and dimensional formulae of physical quantities Principle of homogeneity of dimensions, Dimensional equations and their applications (conversion from one system of units to other) (checking of dimensional equations and derivation of simple equations), Limitations of dimensional analysis. Errors in measurements (systematic and random), absolute error, relative error, error estimation and significant figures. Revision of whole Chapter	R1, R2, R3 and R4	
2	11	1st ,2nd and 3rd week of Sepetember	Force and Motion	Scalar and Vector quantities – examples, representation of vector, types of vectors. Addition and Subtraction of Vectors, Triangle and Parallelogram law (Statement only) Scalar and Vector Product, Resolution of a Vector and its application to inclined plane (Rectangular components) and lawn roller. linear momentum, its applications such as recoil of gun &rockets, Impulse and its applications. Circular motion, definition of angular displacement, angular velocity, angular acceleration, frequency, time period. Relation between linear and angular velocity, linear acceleration and angular acceleration (related numerical), Centripetal and Centrifugal forces with live examples, Expression and applications such as banking of roads and bending of cyclist and **Class test-I.** Revision of whole Chapter	R1, R2, R3 and R4	
3	11	4th,5th week of sept. and 1st ,2nd week of October	Work, Power and Energy	Work: Concept and units, examples of zero work, positive work and negative work Friction: concept, types, laws of limiting friction, coefficient of friction methods for reducing friction and its engineering applications Work done in moving an object on horizontal and inclined plane for rough and plane surfaces and related applications. Energy and its units, kinetic energy, gravitational potential energy with examples and derivations Mechanical energy, conservation of mechanical energy for freely falling bodies, transformation of energy (examples). Power and its units, power and work relationship, calculation of power (numerical problems). Revision of whole Chapter Translational and rotational motions with examples.	R1, R2, R3 and R4	

4	7	3rd ,4th week of october	Rotational Motion	Definition of torque and angular momentum and their examples. Conservation of angular momentum (quantitative) and its applications. Moment of inertia and its physical significance, radius of gyration for rigid body, Theorems of parallel and perpendicular axes (statements only). Moment of inertia of rod, disc, ring and sphere (hollow and solid): (Formulae only). Revision of whole Chapter	R1, R2, R3 and R4	
5	7	5th week of october and 1st,2nd week of november	Properties of Matter	Elasticity: Definition of stress and strain, different types of modulii of elasticity, Hooke's law, significance of stress-strain curve. Pressure: definition, units, atmospheric pressure, gauge pressure, absolute pressure. Fortin's Barometer and its applications. Surface tension: concept, units, cohesive and adhesive forces, angle of contact, Ascent Formula (No derivation), applications of surface tension, effect of temperature and impurity on surface tension. Revision of whole Chapter	R1, R2, R3 and R4	
6	10	3rd ,4th,5th week of November	Heat and Thermometry	Concept of heat and temperature. Modes of heat transfer (conduction, convection and radiation with examples). scales of temperature and their relationship. Types of Thermometer (Mercury thermometer, bimetallic thermometer, Platinum resistance thermometer, Pyrometer) and their uses. Expansion of solids, liquids and gases. coefficient of linear, surface and cubical expansions and relation amongst them. Co-efficient of thermal conductivity. Revision of whole Chapter	R1, R2, R3 and R4	

REFERENCE RESOURCES

- Applied -Physics-I by R.A. Banwat {R1}
- Khanna Publications {Hindi Medium}(A.P.-I) {R2}
- Modern ABC of Physics-I {R3}
- Katson Publications (A.P.-I) {R4}
- Wikipedia, edX, ed-tech, flipgurd, Ted etc.
- Applied -Physics-I by True-Edu Publications {R1}

Signature of Teacher with Date 1/8/25

Signature of H.O.D. with Date

Govt. Polytechnic Hamirpur (H.P.)
Practical Planning & Coverage

Branch : Mechanical Engg. (G-I)
Subject : Applied Physics I- lab
Teacher: MANOJ KUMAR

Semester : First
Session : August 2025- November 2025
Labortary: Applied Physics I- Lab

Pract. No.	Description of Practical	Reference for Procedure/ Write up	Likely Dates	Actual Dates	Signature
1	To measure length, radius of a given cylinder, a test tube and a beaker using a Vernier caliper and find volume of each object.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	14-8-25 & 21-8-25		
2	To determine diameter of a wire, a solid ball and thickness of cardboard using a screw gauge.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	28-8-25 & 4-9-25		
3	To determine radius of curvature of a convex and a concave mirror/surface using a spherometer.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	11-9-25 & 18-9-25		
4	To verify triangle and parallelogram law of forces.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	25-9-25 & 09-10-25		
5	To find the co-efficient of friction between wood and glass using a horizontal board.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	16-10-25		
6	To determine force constant of a spring using Hook's Law.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	23-10-25		
7	To verify law of conservation of mechanical energy (PE to KE).	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	30-10-25		
8	To find the moment of inertia of a flywheel.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	6-10-25 & 13-10-25		
9	To find the coefficient of linear expansion of the material of a rod.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	20-10-25		
10	To determine atmospheric pressure at a place using Fortin's barometer	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	—		
11	To measure room temperature and temperature of a hot bath using mercury thermometer and convert it into different scales.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	—		

Signature of Teacher

Signature of H.O.D.

Govt. Polytechnic Hamirpur (H.P.)
Practical Planning & Coverage

Branch : Mechanical Engg. (G-II) Semester : First
Subject : Applied Physics I- lab Session : August 2025- November 2025
Teacher: MANOJ KUMAR Labortary: Applied Physics I- Lab

Pract. No.	Description of Practical	Reference for Procedure/ Write up	Likely Dates	Actual Dates	Signature
1	To measure length, radius of a given cylinder, a test tube and a beaker using a Vernier caliper and find volume of each object.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	28-8-25 & 30-8-25		
2	To determine diameter of a wire, a solid ball and thickness of cardboard using a screw gauge.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	6-9-25		
3	To determine radius of curvature of a convex and a concave mirror/surface using a spherometer.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	20-9-25 & 27-9-25		
4	To verify triangle and parallelogram law of forces.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	4-10-25		
5	To find the co-efficient of friction between wood and glass using a horizontal board.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	25-10-25		
6	To determine force constant of a spring using Hook's Law.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	01-11-25		
7	To verify law of conservation of mechanical energy (PE to KE).	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	15-11-25		
8	To find the moment of inertia of a flywheel.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	22-11-25		
9	To find the coefficient of linear expansion of the material of a rod.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	—		
10	To determine atmospheric pressure at a place using Fortin's barometer	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	—		
11	To measure room temperature and temperature of a hot bath using mercury thermometer and convert it into different scales.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	—		

Signature of Teacher

Signature of H.O.D.

Govt. Polytechnic Hamirpur (H.P.)
Lesson Planning (Theory)

Branch : ELECTRICAL ENGG.
Subject : APPLIED PHYSICS-I
Teacher: MANOJ KUMAR

Session : AUGUST 2025 - DEC 2025

Sr. No.	No. of Lectures		Chapter/ Unit Description	Detail of Contents	Reference Resources	Remarks
1	12	2nd,3rd, 4th and 5th week of August	Physical world, Units and Measurements	Physical quantities: fundamental and derived Units and systems of units (FPS, CGS and SI units) Dimensions and dimensional formulae of physical quantities Principle of homogeneity of dimensions, Dimensional equations and their applications (conversion from one system of units to other) (checking of dimensional equations and derivation of simple equations), Limitations of dimensional analysis. Errors in measurements (systematic and random), absolute error, relative error, error estimation and significant figures. Revision of whole Chapter	R1, R2, R3 and R4	
2	12	1st ,2nd and 3rd week of Sepetember	Force and Motion	Scalar and Vector quantities – examples, representation of vector, types of vectors. Addition and Subtraction of Vectors, Triangle and Parallelogram law (Statement only) Scalar and Vector Product, Resolution of a Vector and its application to inclined plane (Rectangular components) and lawn roller. linear momentum, its applications such as recoil of gun &rockets, Impulse and its applications. Circular motion, definition of angular displacement, angular velocity, angular acceleration, frequency, time period. Relation between linear and angular velocity, linear acceleration and angular acceleration (related numerical), Centripetal and Centrifugal forces with live examples, Expression and applications such as banking of roads and bending of cyclist and **Class test-I.** Revision of whole Chapter	R1, R2, R3 and R4	
3	11	4th,5th week of sept. and 1st ,2nd week of October	Work, Power and Energy	Work: Concept and units, examples of zero work, positive work and negative work Friction: concept, types, laws of limiting friction, coefficient of friction methods for reducing friction and its engineering applications Work done in moving an object on horizontal and inclined plane for rough and plane surfaces and related applications. Energy and its units, kinetic energy, gravitational potential energy with examples and derivations Mechanical energy, conservation of mechanical energy for freely falling bodies, transformation of energy (examples). Power and its units, power and work relationship, calculation of power (numerical problems). Revision of whole Chapter Translational and rotational motions with examples.	R1, R2, R3 and R4	

4	8	3rd ,4th week of october	Rotational Motion	Definition of torque and angular momentum and their examples. Conservation of angular momentum (quantitative) and its applications. Moment of inertia and its physical significance, radius of gyration for rigid body, Theorems of parallel and perpendicular axes (statements only), Moment of inertia of rod, disc, ring and sphere (hollow and solid): (Formulae only). Revision of whole Chapter	R1, R2, R3 and R4
5	7	5th week of october and 1st,2nd week of november	Properties of Matter	Elasticity: Definition of stress and strain, different types of modulli of elasticity, Hooke's law, significance of stress-strain curve. Pressure: definition, units, atmospheric pressure, gauge pressure, absolute pressure. Fortin's Barometer and its applications. Surface tension: concept, units, cohesive and adhesive forces, angle of contact, Ascent Formula (No derivation), applications of surface tension, effect of temperature and impurity on surface tension. Revision of whole Chapter	R1, R2, R3 and R4
6	11	3rd ,4th,5th week of November	Heat and Thermometry	Concept of heat and temperature. Modes of heat transfer (conduction, convection and radiation with examples), scales of temperature and their relationship, Types of Thermometer (Mercury thermometer, bimetallic thermometer, Platinum resistance thermometer, Pyrometer) and their uses. Expansion of solids, liquids and gases. coefficient of linear, surface and cubical expansions and relation amongst them. Co-efficient of thermal conductivity. Revision of whole Chapter	R1, R2, R3 and R4

REFERENCE RESOURCES

- Applied -Physics-I by R.A. Banwat {R1}
- Khanna Publications {Hindi Medium}(A.P.-I) {R2}
- Modern ABC of Physics-I {R3}
- Katson Publications (A.P.-I) {R4}
- Wikipedia, edX, ed-tech, flipgurd, Ted etc.
- Applied -Physics-I by True-Edu Publications {R1}

Signature of Teacher with Date 1/8/23

Signature of H.O.D. with Date

Govt. Polytechnic Hamirpur (H.P.)
Practical Planning & Coverage

Branch : Electrical Engg. (G-1) Semester : First
Subject : Applied Physics I- lab Session : August 2025- November 2025
Teacher: MANOJ KUMAR Labortary: Applied Physics I- Lab

Pract. No.	Description of Practical	Reference for Procedure/ Write up	Likely Dates	Actual Dates	Signature
1	To measure length, radius of a given cylinder, a test tube and a beaker using a Vernier caliper and find volume of each object.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	12-8-25 to 19-8-25		
2	To determine diameter of a wire, a solid ball and thickness of cardboard using a screw gauge.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	26-8-25 to 02-9-25		
3	To determine radius of curvature of a convex and a concave mirror/surface using a spherometer.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	9-9-25 to 16-9-25		
4	To verify triangle and parallelogram law of forces.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	23-9-25 & 30-9-25		
5	To find the co-efficient of friction between wood and glass using a horizontal board.	Applied Physics-II lab manual-2022 scheme/ Applied Physics-By RA BANWAT	7-10-25 to 14-10-25		
6	To determine force constant of a spring using Hook's Law.	Applied Physics-II lab manual-2022 scheme/ Applied Physics-By RA BANWAT	28-10-25		
7	To verify law of conservation of mechanical energy (PE to KE).	Applied Physics-II lab manual-2022 scheme/ Applied Physics-By RA BANWAT	04-11-25		
8	To find the moment of inertia of a flywheel.	Applied Physics-II lab manual-2022 scheme/ Applied Physics-By RA BANWAT	11-11-25		
9	To find the coefficient of linear expansion of the material of a rod.	Applied Physics-II lab manual-2022 scheme/ Applied Physics-By RA BANWAT	18-11-25		
10	To determine atmospheric pressure at a place using Fortin's barometer	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	—		
11	To measure room temperature and temperature of a hot bath using mercury thermometer and convert it into different scales.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	—		

Signature of Teacher

Signature of H.O.D.

Govt. Polytechnic Hamirpur (H.P.)
Practical Planning & Coverage

Branch : Electrical Engg. (9-11)
Subject : Applied Physics I- lab
Teacher: MANOJ KUMAR

Semester : First
Session : August 2025- November 2025
Labortary: Applied Physics I- Lab

Pract. No.	Description of Practical	Reference for Procedure/ Write up	Likely Dates	Actual Dates	Signature
1	To measure length, radius of a given cylinder, a test tube and a beaker using a Vernier caliper and find volume of each object.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	23-8-25 & 30-8-25		
2	To determine diameter of a wire, a solid ball and thickness of cardboard using a screw gauge.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	6-9-25		
3	To determine radius of curvature of a convex and a concave mirror/surface using a spherometer.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	20-9-25 & 27-9-25		
4	To verify triangle and parallelogram law of forces.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	4-10-25		
5	To find the co-efficient of friction between wood and glass using a horizontal board.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	25-10-25		
6	To determine force constant of a spring using Hook's Law.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	01-11-25		
7	To verify law of conservation of mechanical energy (PE to KE).	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	15-11-25		
8	To find the moment of inertia of a flywheel.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	22-11-25		
9	To find the coefficient of linear expansion of the material of a rod.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	—		
10	To determine atmospheric pressure at a place using Fortin's barometer	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	—		
11	To measure room temperature and temperature of a hot bath using mercury thermometer and convert it into different scales.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	—		

Signature of Teacher

Signature of H.O.D.

Govt. Polytechnic Hamirpur (H.P.)
Lesson Planning (Theory)

Branch : CSE
Subject : Applied Physics-I
Teacher: Amit Pathak

Session : Aug. – Nov. 2025

Sr. No.	No. of Lectures		Chapter/ Unit Description	Detail of Contents	Reference Resources	Remarks
1	12	2nd,3rd, 4th and 5th week of August	Physical world, Units and Measurements	Physical quantities: fundamental and derived	R1, R2, R3 and R4	
				Units and systems of units (FPS, CGS and SI units)		
				Dimensions and dimensional formulae of physical quantities		
				Principle of homogeneity of dimensions, Dimensional equations and their applications (conversion from one system of units to other)		
				(checking of dimensional equations and derivation of simple equations), Limitations of dimensional analysis.		
				Errors in measurements (systematic and random), absolute error, relative error, error estimation and significant figures.		
				Revision of whole Chapter		
2	12	1st ,2nd and 3rd week of Sepetember	Force and Motion	Scalar and Vector quantities – examples, representation of vector, types of vectors.	R1, R2, R3 and R4	
				Addition and Subtraction of Vectors, Triangle and Parallelogram law (Statement only)		
				Scalar and Vector Product, Resolution of a Vector and its application to inclined plane (Rectangular components) and lawn roller.		
				linear momentum, its applications such as recoil of gun &rockets, Impulse and its applications.		
				Circular motion, definition of angular displacement, angular velocity, angular acceleration, frequency, time period.		
				Relation between linear and angular velocity, linear acceleration and angular acceleration (related numerical),		
				Centripetal and Centrifugal forces with live examples, Expression and applications such as banking of roads and bending of cyclist and **Class test-I.**		
				Revision of whole Chapter		
3	10	4th,5th week of sept. and 1st ,2nd week of October	Work, Power and Energy	Work: Concept and units, examples of zero work, positive work and negative work	R1, R2, R3 and R4	
				Friction: concept, types, laws of limiting friction, coefficient of friction		
				methods for reducing friction and its engineering applications		
				Work done in moving an object on horizontal and inclined plane for rough and plane surfaces and related applications.		
				Energy and its units, kinetic energy, gravitational potential energy with examples and derivations		
				Mechanical energy, conservation of mechanical energy for freely falling bodies, transformation of energy (examples).		
				Power and its units, power and work relationship, calculation of power (numerical problems).		
				Revision of whole Chapter		
				Translational and rotational motions with examples.		

4	8	3rd ,4th week of october	Rotational Motion	Definition of torque and angular momentum and their examples. Conservation of angular momentum (quantitative) and its applications. Moment of inertia and its physical significance, radius of gyration for rigid body, Theorems of parallel and perpendicular axes (statements only), Moment of inertia of rod, disc, ring and sphere (hollow and solid): (Formulae only). Revision of whole Chapter	R1, R2, R3 and R4
5	7	5th week of october and 1st,2nd week of november	Properties of Matter	Elasticity: Definition of stress and strain, different types of modulii of elasticity, Hooke's law, significance of stress-strain curve. Pressure: definition, units, atmospheric pressure, gauge pressure, absolute pressure. Fortin's Barometer and its applications. Surface tension: concept, units, cohesive and adhesive forces, angle of contact, Ascent Formula (No derivation), applications of surface tension, effect of temperature and impurity on surface tension. Revision of whole Chapter	R1, R2, R3 and R4
6	10	3rd ,4th,5th week of November	Heat and Thermometry	Concept of heat and temperature. Modes of heat transfer (conduction, convection and radiation with examples), scales of temperature and their relationship, Types of Thermometer (Mercury thermometer, bimetallic thermometer, Platinum resistance thermometer, Pyrometer) and their uses. Expansion of solids, liquids and gases. coefficient of linear, surface and cubical expansions and relation amongst them. Co-efficient of thermal conductivity. Revision of whole Chapter	R1, R2, R3 and R4

REFERENCE RESOURCES

- Applied -Physics-I by R.A. Banwat {R1}
- Khanna Publications {Hindi Medium}(A.P.-I) {R2}
- Modern ABC of Physics-I {R3}
- Katson Publications (A.P.-I) {R4}
- Wikipedia, edX, ed-tech, flipgurd, Ted etc.
- Applied -Physics-I by True-Edu Publications {R1}

Signature of Teacher with Date 01/08/25

Signature of H.O.D. with Date

Govt. Polytechnic Hamirpur (H.P.)
Practical Planning & Coverage

Branch : CSE (G-I)
Subject : Applied Physics I- lab
Teacher: Amit Pathak

Semester : First
Session : August 2025- November 2025
Labortary: Applied Physics I- Lab

Pract. No.	Description of Practical	Reference for Procedure/ Write up	Likely Dates	Actual Dates	Signature
1	To measure length, radius of a given cylinder, a test tube and a beaker using a Vernier caliper and find volume of each object.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	13-08-25, 20-08-25		
2	To determine diameter of a wire, a solid ball and thickness of cardboard using a screw gauge.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	27-08-25, 03-09-25		
3	To determine radius of curvature of a convex and a concave mirror/surface using a spherometer.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	10-09-25		
4	To verify triangle and parallelogram law of forces.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	17-09-25		
5	To find the co-efficient of friction between wood and glass using a horizontal board.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	24-09-25		
6	To determine force constant of a spring using Hook's Law.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	01-10-25, 08-10-25		
7	To verify law of conservation of mechanical energy (PE to KE).	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	15-10-25, 22-10-25		
8	To find the moment of inertia of a flywheel.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	29-10-25		
9	To find the coefficient of linear expansion of the material of a rod.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	—		
10	To determine atmospheric pressure at a place using Fortin's barometer	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	—		
11	To measure room temperature and temperature of a hot bath using mercury thermometer and convert it into different scales.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	12-11-25		

Signature of Teacher 01/08/25

Signature of H.O.D.

Govt. Polytechnic Hamirpur (H.P.)
Practical Planning & Coverage

Branch : CSE (G-2)
Subject : Applied Physics I- lab
Teacher: Amit Parmar

Semester : First
Session : August 2025- November 2025
Labortary: Applied Physics I- Lab

Pract. No.	Description of Practical	Reference for Procedure/ Write up	Likely Dates	Actual Dates	Signature
1	To measure length, radius of a given cylinder, a test tube and a beaker using a Vernier caliper and find volume of each object.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	11-08-25, 18-08-25		
2	To determine diameter of a wire, a solid ball and thickness of cardboard using a screw gauge.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	25-08-25, 01-09-25		
3	To determine radius of curvature of a convex and a concave mirror/surface using a spherometer.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	08-09-25		
4	To verify triangle and parallelogram law of forces.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	15-09-25		
5	To find the co-efficient of friction between wood and glass using a horizontal board.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	22-09-25		
6	To determine force constant of a spring using Hook's Law.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	29-09-25, 06-10-25		
7	To verify law of conservation of mechanical energy (PE to KE).	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	13-10-25, 27-10-25		
8	To find the moment of inertia of a flywheel.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	03-11-25		
9	To find the coefficient of linear expansion of the material of a rod.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	—		
10	To determine atmospheric pressure at a place using Fortin's barometer	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	—		
11	To measure room temperature and temperature of a hot bath using mercury thermometer and convert it into different scales.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	10-11-25		

Signature of Teacher 01/08/25

Signature of H.O.D.

Govt. Polytechnic Hamirpur (H.P.)
Lesson Planning (Theory)

Branch : CSE & IOT
Subject : Applied Physics-I
Teacher: Amit Pathak

Session : Aug. 2025 – Nov. 2025

Sr. No.	No. of Lectures		Chapter/ Unit Description	Detail of Contents	Reference Resources	Remarks
1	11	2nd,3rd, 4th and 5th week of August	Physical world, Units and Measurements	Physical quantities: fundamental and derived	R1, R2, R3 and R4	
				Units and systems of units (FPS, CGS and SI units)		
				Dimensions and dimensional formulae of physical quantities		
				Principle of homogeneity of dimensions, Dimensional equations and their applications (conversion from one system of units to other)		
				(checking of dimensional equations and derivation of simple equations), Limitations of dimensional analysis.		
				Errors in measurements (systematic and random), absolute error, relative error, error estimation and significant figures.		
				Revision of whole Chapter		
2	11	1st ,2nd and 3rd week of Sepetember	Force and Motion	Scalar and Vector quantities – examples, representation of vector, types of vectors.	R1, R2, R3 and R4	
				Addition and Subtraction of Vectors, Triangle and Parallelogram law (Statement only)		
				Scalar and Vector Product, Resolution of a Vector and its application to inclined plane (Rectangular components) and lawn roller.		
				linear momentum, its applications such as recoil of gun &rockets, Impulse and its applications.		
				Circular motion, definition of angular displacement, angular velocity, angular acceleration, frequency, time period.		
				Relation between linear and angular velocity, linear acceleration and angular acceleration (related numerical),		
				Centripetal and Centrifugal forces with live examples, Expression and applications such as banking of roads and bending of cyclist and **Class test-I.**		
				Revision of whole Chapter		
3	10	4th,5th week of sept. and 1st ,2nd week of October	Work, Power and Energy	Work: Concept and units, examples of zero work, positive work and negative work	R1, R2, R3 and R4	
				Friction: concept, types, laws of limiting friction, coefficient of friction		
				methods for reducing friction and its engineering applications		
				Work done in moving an object on horizontal and inclined plane for rough and plane surfaces and related applications.		
				Energy and its units, kinetic energy, gravitational potential energy with examples and derivations		
				Mechanical energy, conservation of mechanical energy for freely falling bodies, transformation of energy (examples).		
				Power and its units, power and work relationship, calculation of power (numerical problems).		
				Revision of whole Chapter		
				Translational and rotational motions with examples.		

4	7	3rd ,4th week of october	Rotational Motion	Definition of torque and angular momentum and their examples. Conservation of angular momentum (quantitative) and its applications. Moment of inertia and its physical significance, radius of gyration for rigid body, Theorems of parallel and perpendicular axes (statements only), Moment of inertia of rod, disc, ring and sphere (hollow and solid): (Formulae only). Revision of whole Chapter	R1, R2, R3 and R4
5	7	5th week of october and 1st,2nd week of november	Properties of Matter	Elasticity: Definition of stress and strain, different types of modulii of elasticity, Hooke's law, significance of stress-strain curve. Pressure: definition, units, atmospheric pressure, gauge pressure, absolute pressure. Fortin's Barometer and its applications. Surface tension: concept, units, cohesive and adhesive forces, angle of contact, Ascent Formula (No derivation), applications of surface tension, effect of temperature and impurity on surface tension. Revision of whole Chapter	R1, R2, R3 and R4
6	10	3rd ,4th,5th week of November	Heat and Thermometry	Concept of heat and temperature. Modes of heat transfer (conduction, convection and radiation with examples), scales of temperature and their relationship, Types of Thermometer (Mercury thermometer, bimetallic thermometer, Platinum resistance thermometer, Pyrometer) and their uses. Expansion of solids, liquids and gases. coefficient of linear, surface and cubical expansions and relation amongst them. Co-efficient of thermal conductivity. Revision of whole Chapter	R1, R2, R3 and R4

REFERENCE RESOURCES

- Applied -Physics-I by R.A. Banwat {R1}
- Khanna Publications {Hindi Medium}(A.P.-I) {R2}
- Modern ABC of Physics-I {R3}
- Katson Publications (A.P.-I) {R4}
- Wikipedia, edX, ed-tech, flipgurd, Ted etc.
- Applied -Physics-I by True-Edu Publications {R1}

Signature of Teacher with Date 01/08/23

Signature of H.O.D. with Date

Govt. Polytechnic Hamirpur (H.P.)
Lesson Planning (Theory)

Branch : CIVIL ENGG.
Subject : Applied Physics-I
Teacher: Amit Pathak

Session : Aug.- Nov.2025

Sr. No.	No. of Lectures		Chapter/ Unit Description	Detail of Contents	Reference Resources	Remarks
1	12	2nd,3rd, 4th and 5th week of August	Physical world, Units and Measurements	Physical quantities: fundamental and derived	R1, R2, R3 and R4	
				Units and systems of units (FPS, CGS and SI units)		
				Dimensions and dimensional formulae of physical quantities		
				Principle of homogeneity of dimensions, Dimensional equations and their applications (conversion from one system of units to other)		
				(checking of dimensional equations and derivation of simple equations), Limitations of dimensional analysis.		
				Errors in measurements (systematic and random), absolute error, relative error, error estimation and significant figures.		
				Revision of whole Chapter		
2	12	1st ,2nd and 3rd week of Sepetember	Force and Motion	Scalar and Vector quantities – examples, representation of vector, types of vectors.	R1, R2, R3 and R4	
				Addition and Subtraction of Vectors, Triangle and Parallelogram law (Statement only)		
				Scalar and Vector Product, Resolution of a Vector and its application to inclined plane (Rectangular components) and lawn roller.		
				linear momentum, its applications such as recoil of gun &rockets, Impulse and its applications.		
				Circular motion, definition of angular displacement, angular velocity, angular acceleration, frequency, time period.		
				Relation between linear and angular velocity, linear acceleration and angular acceleration (related numerical),		
				Centripetal and Centrifugal forces with live examples, Expression and applications such as banking of roads and bending of cyclist and **Class test-I.**		
				Revision of whole Chapter		
3	11	4th,5th week of sept. and 1st ,2nd week of October	Work, Power and Energy	Work: Concept and units, examples of zero work, positive work and negative work	R1, R2, R3 and R4	
				Friction: concept, types, laws of limiting friction, coefficient of friction		
				methods for reducing friction and its engineering applications		
				Work done in moving an object on horizontal and inclined plane for rough and plane surfaces and related applications.		
				Energy and its units, kinetic energy, gravitational potential energy with examples and derivations		
				Mechanical energy, conservation of mechanical energy for freely falling bodies, transformation of energy (examples).		
				Power and its units, power and work relationship, calculation of power (numerical problems).		
				Revision of whole Chapter		
				Translational and rotational motions with examples.		

4	7	3rd ,4th week of october	Rotational Motion	Definition of torque and angular momentum and their examples. Conservation of angular momentum (quantitative) and its applications. Moment of inertia and its physical significance, radius of gyration for rigid body, Theorems of parallel and perpendicular axes (statements only), Moment of inertia of rod, disc, ring and sphere (hollow and solid): (Formulae only). Revision of whole Chapter	R1, R2, R3 and R4	
5	7	5th week of october and 1st,2nd week of november	Properties of Matter	Elasticity: Definition of stress and strain, different types of modulii of elasticity, Hooke's law, significance of stress-strain curve. Pressure: definition, units, atmospheric pressure, gauge pressure, absolute pressure. Fortin's Barometer and its applications. Surface tension: concept, units, cohesive and adhesive forces, angle of contact, Ascent Formula (No derivation), applications of surface tension, effect of temperature and impurity on surface tension. Revision of whole Chapter	R1, R2, R3 and R4	
6	10	3rd ,4th,5th week of November	Heat and Thermometry	Concept of heat and temperature. Modes of heat transfer (conduction, convection and radiation with examples), scales of temperature and their relationship, Types of Thermometer (Mercury thermometer, bimetallic thermometer, Platinum resistance thermometer, Pyrometer) and their uses. Expansion of solids, liquids and gases. coefficient of linear, surface and cubical expansions and relation amongst them. Co-efficient of thermal conductivity. Revision of whole Chapter	R1, R2, R3 and R4	

REFERENCE RESOURCES

- Applied -Physics-I by R.A. Barwat {R1}
- Khanna Publications {Hindi Medium}(A.P.-I) {R2}
- Modern ABC of Physics-I {R3}
- Katson Publications (A.P.-I) {R4}
- Wikipedia, edX, ed-tech, flipgurd, Ted etc.
- Applied -Physics-I by True-Edu Publications {R1}

Signature of Teacher with Date 01/08/24

Signature of H.O.D. with Date

Govt. Polytechnic Hamirpur (H.P.)
Practical Planning & Coverage

Branch : CE (G-2)
Subject : Applied Physics I- lab
Teacher: Amit Parmar

Semester : First
Session : August 2025- November 2025
Labortary: Applied Physics I- Lab

Pract. No.	Description of Practical	Reference for Procedure/ Write up	Likely Dates	Actual Dates	Signature
1	To measure length, radius of a given cylinder, a test tube and a beaker using a Vernier caliper and find volume of each object.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	12-08-25, 19-08-25		
2	To determine diameter of a wire, a solid ball and thickness of cardboard using a screw gauge.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	26-08-25, 02-09-25		
3	To determine radius of curvature of a convex and a concave mirror/surface using a spherometer.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	09-09-25		
4	To verify triangle and parallelogram law of forces.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	16-09-25		
5	To find the co-efficient of friction between wood and glass using a horizontal board.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	23-09-25		
6	To determine force constant of a spring using Hook's Law.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	30-09-25, 14-10-25		
7	To verify law of conservation of mechanical energy (PE to KE).	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	21-10-25, 28-10-25		
8	To find the moment of inertia of a flywheel.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	04-11-25		
9	To find the coefficient of linear expansion of the material of a rod.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	—		
10	To determine atmospheric pressure at a place using Fortin's barometer	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	—		
11	To measure room temperature and temperature of a hot bath using mercury thermometer and convert it into different scales.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	11-11-25		

Signature of Teacher 01/08/25

Signature of H.O.D.

Govt. Polytechnic Hamirpur (H.P.)
Practical Planning & Coverage

Branch : Civil Engg (E-I)
Subject : Applied Physics I- lab
Teacher: MANOJ KUMAR

Semester : First
Session : August 2025- November 2025
Labortary: Applied Physics I- Lab

Pract. No.	Description of Practical	Reference for Procedure/ Write up	Likely Dates	Actual Dates	Signature
1	To measure length, radius of a given cylinder, a test tube and a beaker using a Vernier caliper and find volume of each object.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	14-8-25 & 21-8-25		
2	To determine diameter of a wire, a solid ball and thickness of cardboard using a screw gauge.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	28-8-25 & 4-9-25		
3	To determine radius of curvature of a convex and a concave mirror/surface using a spherometer.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	4-9-25 & 18-9-25		
4	To verify triangle and parallelogram law of forces.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	25-9-25 9-10-25		
5	To find the co-efficient of friction between wood and glass using a horizontal board.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	16-10-25		
6	To determine force constant of a spring using Hook's Law.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	23-10-25		
7	To verify law of conservation of mechanical energy (PE to KE).	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	30-10-25		
8	To find the moment of inertia of a flywheel.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	6-10-25 & 13-10-25		
9	To find the coefficient of linear expansion of the material of a rod.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	20-10-25		
10	To determine atmospheric pressure at a place using Fortin's barometer	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	—		
11	To measure room temperature and temperature of a hot bath using mercury thermometer and convert it into different scales.	Applied Physics-I lab manual-2022 scheme/ Applied Physics-By RA BANWAT	—		

Signature of Teacher

Signature of H.O.D.