# **ANNEXURE-F** FACULTY OF SCIENCES

**SYLLABUS** 

Of

**Physics for** 

# **Bachelor of Science (Home Science)**

# (Semester III & IV)

(Under Continuous Evaluation System)

(12+3 System of Education)

Session: 2024-25



# **The Heritage Institution**

# KANYA MAHA VIDYALAYA JALANDHAR (Autonomous)

## Scheme and Curriculum of Examination of Three Year Degree Programme Physics for Bachelor of Science (Home Science)

Semester-III									
	Course Title	Course Type	L-T-P	Marks				Evamination	
Course Code				Fotal	Ext.		CA	Time	
					L	Р		(in nours)	
BHSM-3393	Basic Physics	С	3-0-1	100	60	20	20	3+3	
Semester-IV									
BHSM-4396	Applied Physics	С	3-0-1	100	60	20	20	3+3	

## (Session 2024-25)

### Bachelor of Science (Semester System) (12+3 System of Education) (Session-2024-25) Bachelor of Science (Home Science) (SEMESTER–III) BASIC PHYSICS Course Code: BHSL-3393

#### Course Outcome- After completing this course the students will be able to

**CO1:** Understand the SI units, basic dimensions. Apply velocity in linear, relative motion. Analyze angular velocity, acceleration, centripetal forces. Differentiate centripetal, centrifugal accelerations. Integrate linear, angular motion for proficient problem-solving in physical contexts.

**CO2:** Gain understanding of force, motion, work, power, energy types, and friction's everyday applications. Apply knowledge of simple machines in practical scenarios like scissors, tongs, and gears.

**CO3**: Comprehend pressure concepts, including fluid and atmospheric pressure effects. Apply understanding to practical devices like lift pumps, gas stoves, and syringes. Analyze Archimedes' Principle, surface tension, and viscosity in daily contexts.

**CO4:** Understand heat expansion in solids, transmission methods (conduction, convection, radiation), and identify heat conductors and insulators through practical examples.

Bachelor of Science (Semester System) (12+3 System of Education)

#### (Session-2024-25)

#### Bachelor of Science (Home Science) (SEMESTER–III) BASIC PHYSICS Course Code : BHSM-3393

Time: 3 Hours Credits: 3-0-1 Ext Marks: 60 Pass Mark: 21

#### **Instructions for the Paper Setters:**

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section. Each question carries eight marks.

#### CONTENTS

#### UNIT-I

Measurements: S1 units and their advantages, Dimensions of basic physical quantities, simple idea of velocity, relative velocity, angular velocity, acceleration, angular acceleration, centripetal acceleration, centrifugal acceleration.

#### UNIT-II

Force and Motion. Work, Power and Energy. Types of Energies. Friction and its use in daily life. Simple Machines: Lever, Wheel, pulley, inclined plane, wedges, gears, and their applications like Scissors, tongs, egg beater cork opener.

#### **UNIT-III**

Concept of Pressure, Fluid pressure, atmospheric pressure and its consequences. Lift pump, gasstove, syringe flush tank, vacuum cleaner. Archimedes Principle. Concept of surface tension and viscosity and their role in daily life.

#### UNIT- IV

Heat: Expansion in solids, transmission of heat- conduction, convection, radiation, heat conductors and insulators (examples only).

#### **Books Recommended:**

1. Avery House Physics.

2. Fundamentals of Physics Halliday Resnick, Walker.

3. N.C.E.R.T. Books of Physics For XI and XII

Bachelor of Science (Semester System) (12+3 System of Education)

(Session-2024-25)

#### Bachelor of Science (Home Science) (SEMESTER-III) BASIC PHYSICS (Practical) Course Code: BHSM-3393 (P)

Time: 3 Hours Credits: 0-0-1 (2 Hours/ week)

Max Marks: 20

Pass Mark: 7

#### **Instructions to Practical Examiner**

Question paper is to be set on the spot jointly by the external and internal examiners. Two copies of the same to be submitted for the record to COE office, Kanya Maha Vidyalaya, Jalandhar

#### **General Guidelines for Practical Examination**

I. The distribution of marks is as follows: Marks: 20

i) One experiment 7 Marks

ii) Brief Theory **5 Marks** 

iii) Viva–Voce 4 Marks

iv) Record (Practical file) 4 Marks

II. There will be one session of 3 hours duration. The paper will have one session.

Paper will consist of 8 experiments out of which an examinee will mark 6 experiments andone of these is to be allotted by the external examiner.

III. Number of candidates in a group for practical examination should not exceed 12.

IV. In a single group no experiment is to be allotted to more than three examinees in any group.

#### List of Experiments

1. Concept of least count and precise measurement of different instruments.

2. Measurement of diameter of a metallic share, cylinder, volume of a cube of a small glass slab, determine its density.

3. Measurement of diameter of a knitting needle, sewing needle, thickness of cloth, thickness of a coin using screw gauge.

4. Measurement of height of concave/convex mirror using spherometer.

5. Newton law of cooling of liquids.

6. Measurement of coefficient of friction.

7. Demonstration of centrifugal force in cloth dryer.

### Bachelor of Science (Semester System) (12+3 System of Education) (Session-2024-25) Bachelor of Science (Home Science) (SEMESTER–IV) APPLIED PHYSICS Course Code: BHSM-4396

#### **COURSE OUTCOME**

#### After completing this course the students will be able to

CO1: to understand the basic concepts of optics

CO2: to understand basic light sources

CO3: to understand basic electricity based household devices

CO4: to understand the use of effects of electric current in house hold devices

## Bachelor of Science (Semester System) (12+3 System of Education) (Session-2024-25) Bachelor of Science (Home Science) (SEMESTER–IV) APPLIED PHYSICS Course Code: BHSM-4396

Time: 3 Hours	Max Marks: 100	Ext Marks: 60
Credits: 3-0-1	CA: 20	Pass Mark: 21

#### **Instructions for the Paper Setters:**

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section. **Each question carries 6 marks.** 

#### UNIT -I

Thermostat, Concepts of home lighting: reflection, refraction, total internal refraction, diffusion of light, dispersion of light, Illumination, illumination intensity levels in different parts of the house.

#### UNIT-II

Sources of light, incandescent lamps, CFLs. Radiation and radiation spectra; uses of various radiations. (X-Rays, ultrasounds, microwaves, radio waves etc.

#### UNIT-III

Current Electricity, Principle of electrical energy generation and its transmission, Energy. meter, Fuse, Types of Fuses, Essential components of wiring, safety precautions while using electricity

#### UNIT-IV

Heating effect of current and its use in household devices, magnetic effect of current and its use in electric motor, grinder etc.

#### **Books recommended:**

- 1. Avery House Physics.
- 2. Fundamentals of Physics Halliday Resnick, Walker.
- 3. N.C.E.R.T. Books of Physics For XI and XII

Bachelor of Science (Semester System) (12+3 System of Education) (Session-2024-25)

#### Bachelor of Science (Home Science) (SEMESTER-IV)

#### APPLIED PHYSICS Course Code : BHSM-4396 (P)

Time: 3 Hours Credits: 0-0-1(2 Hours/ week) Max Marks: 20

Pass Mark: 7

#### **Instructions to Practical Examiner**

Question paper is to be set on the spot jointly by the external and internal examiners. Two copies of the same to be submitted for the record to COE office, Kanya Maha Vidyalaya, Jalandhar

#### **General Guidelines for Practical Examination**

I. The distribution of marks is as follows: Marks: 20

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II. There will be one session of 3 hours duration. The paper will have one session.

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III. Number of candidates in a group for practical examination should not exceed 12.

IV. In a single group no experiment is to be allotted to more than three examinees in any group.

#### List of Experiments

- 1. Demonstration of light spectrum through prism.
- 2. Demonstration of repair/replacement of fuse in different household devices.

3. Demonstration of replacement of a capacitor in fan, starter in tube light, changes of a capacitor in fan.

4. To trace rays through a prism and prove that <i+<e=<A+<D.

5. To find refractive index.

6. Verification of Archimedes' Principle.

7. Demonstration of atmospheric pressure and read atmospheric pressure from a barometer

in your laboratory