# Sh. L. N. Hindu College, Rohtak (Haryana)
# Course Plan

## Department of Physics

Program: B.Sc. Physical Science

Physics Minor (24PHY401MI01)

## SCHEME

| | | | |
|---|---|---|---|
| **Course Name** | Physics in Everyday Life | **Course Type** | **Theory** |
| **Course Code** | 24PHY401MI01 | **Class** | B.Sc. I Sem. |
| **Instruction Delivery** | **Per week Lectures: 06, Theory:02,Tutorial:0, Practical: 04**<br>**Total No. Classes Per Sem: 72(L), 24(T), - 48(P)**<br>**Assessment in Weightage: Sessional (30%), End Term Exams (70%)** | | |
| **Course Coordinator** | Dr Savita Devi | **Course Instructors** | Theory: Dr. Savita Devi<br>Practical: Dr. Savita Devi |

## COURSE OVERVIEW

**It explain the forces motion and energy of daily life. Physics is at work when you do things like driving a car kicking a football etc. it does involve gravitational law the laws of inertia and friction as well as Kinetic and potential energy.**

## PREREQUISITE

**Force, Energy, Pressure, Sound, Light**

## COURSE OBJECTIVE

The objective of this course is to introduce the fundamental forces, Newton's laws of motion and the wave nature and behaviour of sound .

## COURSE OUTCOMES (COs)

After the completion of the course, the student will be able to:

| CO No. | Course Outcomes |
|---|---|
| 1 | Understand Newton's laws of motion and the role they play in predicting motion and applied them to sole quantitative problems in mechanics |
| 2 | Understand and apply the wave nature and behaviour of sound and light to sole conceptual and quantitative problems |
| 3 | Explain and apply gas laws thermal energy mechanical waves and pressure and understanding of the concept of atoms |
| 4 | Understand and apply basic concepts of electricity and apply the knowledge of electricity to simple circuits |

## COURSE CONTENT

| Content |
|---|

Mechanics: Everyday activities related to force, weight, work, energy, power and centrifuge washing machine

Heat: Variation of boiling point with pressure, pressure cooker , cooling by expansion, refrigerator air conditioner, Bernoulli principle, Bunsen burner, Aeroplane

Sound and Optics: Sound waves, Doppler effect, Power of lens, long sight and short sight, microscope, telescope, binocular camera, video camera

Electrical and Electronic Appliances: working of the tubelight and fan, kilowatt hour, fuse and heating elements, microwave oven, electric heater, photoelectric effect

## LESSON PLAN (THEORY CLASSES)

| L. No | Topic to be Delivered | Tutorial Plan | Unit |
|---|---|---|---|
| 1 | Ieveryday activities related to force | Introduction definition explanation | 1 |
| 2 | Weight | | |
| 3 | Work and energy | | |
| 4 | Power and centrifugel | State ,derivation ,explanation | |
| 5 | Washing machine | | |
| 6 | Revision and questions | Explanation, problem solving method | 1 |
| 7 | Heat | Introduction explanation , derivation definition , | 2 |
| 8 | Variation of boiling point with pressure | | |
| 9 | Pressure cooker | | |
| 10 | Cooling by expansion | Definition , explanation | |
| 11 | Refrigerator | | |

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|---|---|---|---|
| 12 | Air conditioner | | |
| 13 | Bernoulli princip Bunsen burner | Definition derivation explanation | |
| 14 | Aeroplane | | |
| 15 | Revision and questions | explanation | 2 |
| 16 | Sound waves, Doppler effect | Definition, Derivation explanation | 3 |
| 17 | Power of lens, short and long sightedness | | |
| 18 | Microscope and telescope | Definition , derivation explanation | 4 |
| 19 | Binocular camera and video camera | | |
| 20 | Revision and questions | Explanation | |
| 21 | Working of the tubelight and fan | Explanation | |
| 22 | Kilowatt hour fuse and heating elements | Definition ,derivation explanation | |
| 23 | Microwave oven and electric heater, photoelectric effect | | |
| 24 | Revision and questions | explanation | |
| 25 | . | | |

## Text book

R. Murugeshan, Brijal & Dr. N. Subramanyan and P.S. Hemne

## Reference Books


- R. Murugeshan, electricity , S. Chand and Co. New Delhi 2010
- R. Murugeshan, Allied Physics I& II S.Chand & Co., New Delhi(2006)
- Brijal and Dr. N. Subramanian and P. S Hemne , Heat and Thermodynamics S. Chand and corporation, New Delhi (2004)


## Web/Links for e-content

- http://www.learnohub.com
- https://youtube.com/@technicalclasses_tc?si=u0Xlii9KhkoIpGBs

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## PRACTICE QUESTIONS (QUESTION BANK)

| S No | Problem |
|---|---|
| 1 | Define force . Write its units and dimensional formula. |
| 2 | Differentiate between mass and weight |
| 3 | Find the weight of a body of mass 10 kg. |
| 4 | State washing machine. On which principle is it based. |
| 5 | Write the principle of pressure cooker and refrigerator |
| 6 | State derive and explain Bernoulli principle |
| 7 | Write a short note on designing of aeroplane |
| 8 | State Doppler effect. What what is the change in the frequency when source of sound approaches and detach an observer? |
| 9 | Write a short note on eye defects. |
| 10 | Find the work done when a force of 10 Newton displaces a body through 2 m distance. |
| 11 | Define kilowatt hour. |
| 12 | State fuse. Name the element used in it. |
| 13 | What causes heating effect in the elements? |
| 14 | State microwave oven and explain its working. |

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| 15 | What is Joule's heatng effect? |
| 16 | Which filament is used in electric heater? |
| 17 | Define photoelectric effect. |
| 18 | Explain types of photoelectric emission. |

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|---|---|
| 19 | Describe hypermetropia by which lens it can be corrected? |
| 20 | Define magnification of a lens |
| 21 | Write the unit of power and electrical energy. |
| 22 | Define boiling point write the effect of pressure on it. |
| 23 | Write a short note on functioning of washing machine |
| 24 | Define the fundamental forces in nature |

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