

**DWARAKA DOSS GOVERDHAN DOSS
VAISHNAV COLLEGE
(Linguistic Minority Institution)
[AUTONOMOUS]
Accredited at ‘A’ Grade by NAAC**

**Non-Major Elective SYLLABUS
From PHYSICS Department**
(Effective from 2015-2016 batch)
For B.Com. Students - 2019-20 batch
For B.Sc.Physics Students till 2018-19 batch



**“Gokulbagh” 833, Periyar E.V.R. Salai,
Arumbakkam, Chennai – 600106**

Syllabus for Non-Major Elective
Also for students without Physics background in school

Only qualitative treatment- No derivations

SEMESTER – I & II

No. of credits: 2

No. of hours allotted: 2/week

1. PHYSICS IN EVERYDAY LIFE – I
(Effective from 2015-2016 batch)

Unit-1: Force- Newton's laws of motion- circular motion – centripetal force – centrifugal force.

Principle Behind

Centrifuge – washing machine.

Reason Behind

- 1) We weigh less in moon.
- 2) Long jump athletes run a little before they jump.
- 3) Iron nails, safety pins which have sharp edge poke easily, polished knife cut easily.
- 4) While jumping around in a bike with high speed, if the rider loses his control, why is he thrown outside?
- 5) Speed increases when we slide.

Unit-2: Energy – different forms of energy – Law of conservation of energy.

Principle Behind

Electric bulb-tube light-CFL bulbs.

Reason Behind

- 1) Electric bulb adds to global warming.
- 2) Electric bulbs are replaced by CFL.
- 3) TV flickers when cell phone nearby rings?
- 4) Why tube light do not give shadow unlike an electric bulb?
- 5) Why are LED arrays used for illuminating in these days instead of fluorescent tubes?

Unit-3: Boiling point – variation of boiling point with pressure – latent heat.

Principle Behind

Pressure cooker – microwave oven – milk boiler – fridge.

Reason Behind

- 1) Metal vessels must not be used in microwave oven.
- 2) Salt is used to melt ice on roads during winter.
- 3) Cooking in a pressure cooker saves fuels and time.
- 4) While glucose is dissolved in water, water becomes cold.
- 5) When detergents dissolve in water it gives out heat.

Unit-4: Light – reflection.

Principle Behind

Traffic sticker – laws of reflection – total internal reflection – refraction – constructive interference – destructive interference - diamonds glow.

Reason Behind

- 1) Why do stars twinkle?
- 2) Why do we get rainbow?
- 3) Deep swimming pools look shallow.
- 4) Peacock feathers, soap bubbles give beautiful colours.
- 5) We use black umbrellas to protect ourselves from sunlight.

Unit-5: Expansion due to heat – evaporation.

Principle Behind

Mud pot - cool drink straw- why do we sweat.

Why it is so?

1. Wet clothes that are spread out dry faster
2. Hot milk kept in big bowl cool faster
3. Why are we not able to open our closed wooden door easily during rainy season
4. Why do rails have links in between
5. Why does glass bottle with hot water breaks when we suddenly pour cold water on it.

Books for Study

1. The Learner's series – Everyday science – Published by Infinity Books, New Delhi
2. Ean? Etharku? Eppadi? Vol I & II by Sujatha, Vikatan publishers Chennai (2007).
3. The Hindu speaks on Science, Vol I & II by Kasturi Ranga Publishers, Chennai (2006)
4. Q-Series, How and Why-Popular Science books, NISCAIR, New Delhi.
5. Theriyuma? P.Ayngaranesan, Arumbu Publishers, Chennai (2007)

2. PHYSICS IN EVERYDAY LIFE – II

(Effective from 2015-2016 batch)

Unit-1: Bernoulli's theorem.

Principle Behind

Gas stove burner- room- spray- fan- atomizer- syringe.

Reason Behind

1. We should not stand at the edge of the platform, when the express train cross the station
2. LPG gas has peculiar odour
3. Blades in a fan are slightly curved
4. When wind blows strongly why roofs fly away not pushed down.
5. You get water in showers forcefully.

Unit-2: surface tension – capillary rise – osmosis.

Principle Behind

Wick in oil lamp – rain coat.

Reason Behind

1. Soap removes dirt and detergents clean clothes.
2. Some insects are able to walk on water
3. Water from soil goes to plants
4. Pickle become saltier and smaller
5. Gulabjamun become sweeter and swell.

Unit-3: Friction – lubrication – Newton's law of gravitation.

Principle Behind

Speed breaker – walking stick and crutches.

Reason Behind

1. We get high tide during new moon and full moon day
2. A snake cannot crawl on smooth surface and lizard cannot move on tiles
3. Why do not we get eclipse during every new moon and full moon
4. Planets revolve round the sun.
5. We use oil along with fuel in vehicles.

Unit-4: Myopia – hyper metropia – power of lens.

Principle Behind

Contact lens - reading lens- spectacles correct short sightness- spectacles correct long sightness.

Reason Behind

1. Cotton kept under lens burnt in sunlight
2. Sky is blue
3. Sky appears reddish during sun rise and sunset

4. Dust particle in path of sunray passing through a small hole in a dark room becomes more visible.
5. Space above atmosphere is colourless.

Unit-5: Sound waves – reverberation – echo – noise - earth quake – richter scale.

Principle Behind

Reason Behind

- 1) Sound is heard first in TV, before picture, while lightning is seen before thunder.
- 2) We get less noise outside, when people talk inside glass room and also we don't hear noise from outer space.
- 3) Bursting of balloon or electric bulb produce noise.
- 4) Building reverberates (or) glass panes crack sometimes when an aeroplane passes.
- 5) Gravels are put in between the rails in railway tracks.

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5. Theriyuma? P.Ayngaranesan, Arumbu Publishers, Chennai (2007)

No. of Credits earned from Department of Physics by B.Com. students

Semester	Paper	Marks	Credits
I	Non major Elective	100	2
II	Non Major Elective	100	2
Total	2	200	4