

## SEMESTER IV

### Non-Major Elective II

### SCIENTIFIC FACTS

**Instructional Hrs. :30**

**Sub. Code: 14PHUN402**

**Max. Marks: ESE-100**

**Credits: 2**

To create interest in science and provide explanation for the phenomena, that we witness in day – to - day life. To facilitate the spread of scientific spirit. To develop an insatiable curiosity in science.

#### **Topics:**

**Physics**

#### **TEXT BOOKS**

1. “*The Hindu Speaks on Scientific Facts*” Volume I., Kasturi & Sons Ltd., Chennai, 6<sup>th</sup> Print  
2004.
2. “*The Hindu Speaks on Scientific Facts*” Volume II, Kasturi & Sons Ltd., Chennai, 2008  
Print,  
2008.

## SEMESTER III

### Part IV: Skill Based Subject I (offered under Cafeteria System)

#### ENERGY MANAGEMENT

Instructional Hrs. : 45

Sub. Code: 15PHUS301

Max. Marks: CIA - 25; ESE - 75

Credits: 3

**Objective:** The main goal is to achieve and maintain optimum energy procurement and utilisation for managing the energy consumption of household appliances. Also to create awareness to minimise energy costs without affecting production and quality.

#### Unit I

9 Hrs.

##### Conventional Energy Sources

Introduction - An initial idea of energy in science - *Types of conventional energy* - thermal energy - hydro thermal energy - Nuclear energy (Qualitative Analysis only).

#### Unit II

9 Hrs.

##### Need for Non-Conventional Energy Sources

Constraints in the conventional energy sources - Global energy trends - Global warming and the green house effect - Non-Conventional energy Sources - *Energy consumption as a measure of prosperity* - World energy futures.

#### Unit III

9 Hrs.

##### General introduction to Non-Conventional Sources

Introduction - Solar Energy - Wind Energy - Energy from Biomass and Bio Gas - Ocean thermal energy conversion - Tidal energy - *Geothermal energy*.

#### Unit IV

9 Hrs.

##### Solar energy applications

Solar Cooker - Solar water heater - *Solar distillation* - Solar space heater - Solar cell

#### Unit V

9 Hrs.

##### Energy Audit and Energy Security

Energy Conservation - Energy audit: Definition, Objectives - Calculation of energy audit

Energy Security: Meaning - Definition - Importance - Energy security threats -*short term security*- long term security.

*Italics indicates Self Study Topics*

### **TEXT BOOKS**

1. **John Andrews & Nick Jelley.**, “ *Energy Science Principles, Technologies and Impacts*”

Oxford University Press , Newyork 2010

2 **Rai.G.D.**, “*Non - Conventional Energy Sources*” Khanna Publishers, Delhi, 1996.

3. **Satyesh C.Chakraborty.**, “ *Energy opportunities & social responsibility*” Jaico publishing

House, Mumbai, First Edition 2009.

4. **Unit V**- Study Material: Provided by the Department of Physics.

### **REFERENCE BOOK**

1. **Janet Ramage.**, “ *Energy, A Guide book*” Oxford

## SEMESTER IV

### Part IV Non Major Elective – II Offered Under Cafeteria System

#### ENVIRONMENTAL POLLUTION: PHYSICAL ASPECTS

**Instructional Hrs. : 30**

**Sub.Code: 15PHUN402**

**Max.Marks : 100**

**Credits : 2**

**Objective :** To create awareness about the hazards of pollution and hence to learn the ways to prevent and control it to live in harmony with nature.

**UNIT – I** **6 Hrs**

Introduction : Pollution – Effects of pollution – Different types of pollution – Prevention.

**UNIT – II** **6 Hrs**

**Air pollution – Thermal pollution**

**UNIT – III** **6 Hrs**

**Water pollution – Ocean pollution**

**UNIT – IV** **6 Hrs**

**Soil and land pollution – Radioactive pollution**

**UNIT – V** **6 Hrs**

**Noise pollution – Light pollution – Other pollution**

#### **Study Material:**

Prepared by the Department of Physics.