SYLLABUS OF

SOLAR ENERGY

AS PART OF SKILL DEVELOPMENT COURSES
UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-2021

PROGRAMME: FOUR-YEAR UG HONOURS PROGRAMME
A.P. STATE COUNCIL OF HIGHER EDUCATION
B.A, B.Com & B.Sc. PROGRAMMES

Revised CBCS w.e.f. 2020-21
SKILL DEVELOPMENT COURSES

Science Stream

Syllabus of
SOLAR ENERGY

Total 30 hrs (02h/wk), 02 Credits & Max Marks: 50

Learning Outcomes:
After successful completion of the course, students will be able to:
1. Acquire knowledge on solar radiation principles with respect to solar energy estimation.
2. Get familiarized with various collecting techniques of solar energy and its storage.
3. Learn the solar photovoltaic technology principles and different types of solar cells for energy conversion and different photovoltaic applications.
4. Understand the working principles of several solar appliances like Solar cookers, Solar hot water systems, Solar dryers, Solar Distillation, Solar greenhouses.

SYLLABUS:
UNIT-I – Solar Radiation: (6 hrs)
Sun as a source of energy, Solar radiation, Solar radiation at the Earth’s surface, Measurement of Solar radiation-Pyroheliometer, Pyranometer, Sunshine recorder, Prediction of available solar radiation, Solar energy-Importance, Storage of solar energy, Solar pond

UNIT-II – Solar Thermal Systems: (10 hrs)

Conversion of Solar energy into Electricity - Photovoltaic Effect, Solar photovoltaic cell and its working principle, Different types of Solar cells, Series and parallel connections, Photovoltaic applications: Battery chargers, domestic lighting, street lighting and water pumping

Co-curricular Activities (Hands on Exercises): (04 hrs)
[Any four of the following may be taken up]
1. Plot sun chart and locate the sun at your location for a given time of the day.
2. Analyze shadow effect on incident solar radiation and find out contributors.
5. Construct a solar lantern using Solar PV panel (15W)
6. Assemble solar cooker
7. Designing and constructing photovoltaic system for a domestic house requiring 5kVA power
8. Assignments/Model Exam.
**Reference Books:**

Recommended MODEL QUESTION PAPER FORMAT

Max. Marks: 50  
Time: 1½ hrs (90 Minutes)

SECTION- A  
(4x5M=20 Marks)

Answer any four questions. Each answer carries 5 marks  
(At least 1 question should be given from each Unit)

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 

SECTION B  
(3x10M = 30 Marks)

Answer any three questions. Each answer carries 10 marks  
(At least 1 question should be given from each Unit)

1. 
2. 
3. 
4. 
5. 

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