

FOR ENGINEERING DEGREE LEVEL ELECTIVE SUBJECT

For Branches Civil, Agriculture Engineering

1. **Subject Code:** _____ **Course Title: Hydropower Engineering**

2. **Contact Hours: L: T: P:**

3. **Examination Duration (Hrs.): Theory : Practical :**

4. **Relative Weightage : CWS PRS MTE ETE**
PRE

5. **Credit:** _____

6. **Semester:** _____

Autumn

Spring

Both

7. **Pre-requisite:** NIL

8. **Subject Area:**

9. **Details of Course:**

10. **Details of Course:**

Sl. No.	Particulars	Contact Hours
1.	Energy Resources and types of generation	1
2.	Hydrological analysis: stream gauging, stage discharge curves, peak flow estimation, mass curves and Flow duration curves	5
3.	Estimation of power potential	3
4.	Peak load and base load stations	2
5.	Firm and secondary power	3
6.	Pondage and storage	2
7.	Choice of power plants and their classification	2
8.	Components of hydropower plants: intakes, desilting tank, tunnel, penstock, forebay tank, surge tank, power channels etc., powerhouse	8
9.	Special problem of himalyan regions – silt and land slight	4
10.	Types of turbines and their characteristics and provision for testing	6
11.	Preliminary dimensioning of powerhouse	2
12.	Power plant equipment, instrumentation and controls	4
13.	Economic considerations: pricing of electricity, regulatory aspects, investment planning	4
14.	Policies and laws	

Suggested Readings:

References

- P.S. Nigam, Handbook of Hydroelectric Engineering

- Wang, Modern Power System Planning
- CBIP, Hydropower Resources in India.....
- Gulliver and Arndt, Hydropower Handbook...
- Guthrie Brown

