

FOR ENGINEERING DEGREE LEVEL CORE SUBJECT

Annexure-II

For the branches in Civil, Electrical, Mechanical, Industrial, Agriculture, Environmental, Production, Electric

1. **Subject Code:** _____ **Course Title: Water Resources Development**

2. **Contact Hours: L:3 T: 1 P: 0**

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

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:** To give broad knowledge on what water resources development involves.

10. **Details of Course:**

Sl. No.	Particulars	Contact Hours
1.	Occurrence of water on earth and its movement – the Hydrologic Cycle, Surface and Ground water	
2.	Importance of water resource management: <ul style="list-style-type: none">• Surface Water• Diversion and Storage Schemes• Single and Multipurpose Projects	
3.	Diversion Schemes <ul style="list-style-type: none">• Diversion Headworks-components and their functions• Distribution of water-canal systems• Basics of canal alignment and design• Types of canal works-falls, regulators, cross drainage works etc.	
4.	Storage Schemes <ul style="list-style-type: none">• Reservoir Planning<ul style="list-style-type: none">○ Preliminary Surveys○ Mass curve○ Flood Routing○ Economic Considerations○ Sedimentation○ Environmental impact• Dams<ul style="list-style-type: none">○ Type of Dams and their suitability for different conditions○ Basic design criteria and causes of failure• Spillways<ul style="list-style-type: none">○ Types and their characteristics○ Terminal structures – energy dissipation	
5.	Hydropower and related structures (water conductor system and	

	powerhouse building)	
6.	Special problems of hilly streams	
7.	Ground Water <ul style="list-style-type: none"> • Occurrence and exploration • Classification of aquifers parameters • Pumping tests • Preliminary Well Hydraulics and discharge computations 	
8.	Decision Support Systems in water resources – preliminary concepts	

Suggested Readings: