

**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"><li>• Surface Water</li><li>• Diversion and Storage Schemes</li><li>• Single and Multipurpose Projects</li></ul>	
3.	Diversion Schemes <ul style="list-style-type: none"><li>• Diversion Headworks-components and their functions</li><li>• Distribution of water-canal systems</li><li>• Basics of canal alignment and design</li><li>• Types of canal works-falls, regulators, cross drainage works etc.</li></ul>	
4.	Storage Schemes <ul style="list-style-type: none"><li>• Reservoir Planning<ul style="list-style-type: none"><li>○ Preliminary Surveys</li><li>○ Mass curve</li><li>○ Flood Routing</li><li>○ Economic Considerations</li><li>○ Sedimentation</li><li>○ Environmental impact</li></ul></li><li>• Dams<ul style="list-style-type: none"><li>○ Type of Dams and their suitability for different conditions</li><li>○ Basic design criteria and causes of failure</li></ul></li><li>• Spillways<ul style="list-style-type: none"><li>○ Types and their characteristics</li><li>○ Terminal structures – energy dissipation</li></ul></li></ul>	
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"> <li>• Occurrence and exploration</li> <li>• Classification of aquifers parameters</li> <li>• Pumping tests</li> <li>• Preliminary Well Hydraulics and discharge computations</li> </ul>	
8.	Decision Support Systems in water resources – preliminary concepts	

**Suggested Readings:**