

WATER RESOURCES DEVELOPMENT AND MANAGEMENT

M.Tech. (Water Resources Development)

[illegible]

PROGRAMME CORE SUBJECTS (WRD)

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weight (%)				
S. No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
For Civil Background														
1.	WRN-502	Design of Water Resources Structures	PCC	4	3	1	0	3	-	25	-	25	50	-
2.	WRN-503	Water Resources Planning and Management	PCC	4	3	1	0	3	-	25	-	25	50	-
3.	WRN-504	Applied Hydrology	PCC	4	3	1	0	3	-	25	-	25	50	-
For Electrical Background														
4.	WRN-531	Hydro Generating Equipment	PCC	4	3	1	0	3	-	25	-	25	50	
5.	WRN-532	Hydropower System Planning	PCC	4	3	1	0	3	-	25	-	25	50	
6.	WRN-533	Power System Protection Application	PCC	4	3	1	0	3	-	25	-	25	50	
For Mechanical Background														
7.	WRN-532	Hydropower System Planning	PCC	4	3	1	0	3	-	25	-	25	50	
8.	WRN-551	Design of Hydro Mechanical Equipment	PCC	4	3	1	0	3	-	25	-	25	50	
9.	WRN-552	Project Planning and Management	PCC	4	3	1	0	3	-	20-35	-	20-30	40-50	

PROGRAMME ELECTIVES COURSE (WRD)

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weight (%)				
S. No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
1.	WRN-511	Geotechnical Engineering	PEC	4	3	1	0	3	-	25	-	25	50	-
2.	WRN-512	Hydropower and Appurtenant Works	PEC	4	3	1	0	3	-	25	-	25	50	-
3.	WRN-513	Earth and Rockfill Dams	PEC	4	3	1	0	3	-	25	-	25	50	-
4.	WRN-514	Masonry and Concrete Dams	PEC	4	3	1	0	3	-	25	-	25	50	-
5.	WRN-515	Irrigation Structures	PEC	4	3	1	0	3	-	25	-	25	50	-
6.	WRN-516	Rural and Urban Water Supply	PEC	4	3	1	0	3	-	25	-	25	50	-
7.	WRN-517	River Engineering	PEC	4	3	1	0	3	-	25	-	25	50	-
8.	WRN-518	Finite Element Methods	PEC	4	3	1	0	3	-	25	-	25	50	-
9.	WRN-519	Water Resources System Reliability	PEC	4	3	1	0	3	-	25	-	25	50	-

10.	WRN-520	Environmental Impact Assessment of Water Resource Projects	PEC	4	3	1	0	3	-	25	-	25	50	-
11.	WRN-521	Groundwater Hydrology	PEC	4	3	1	0	3	-	25	-	25	50	-
12.	WRN-522	Climate Change and Water Resources	PEC	4	3	1	0	3	-	25	-	25	50	-
13.	WRN-534	Substation and Transmission line Design	PEC	4	3	1	0	3	-	25	-	25	50	-
14.	WRN-535	Installation Maintenance and Testing of Hydro Generating Equipment	PEC	4	3	1	0	3	-	25	-	25	50	-
15.	WRN-536	Maintenance Management in Power Plants	PEC	4	3	1	0	3	-	25	-	25	50	-
16.	WRN-537	Power System Management	PEC	4	3	1	0	3	-	25	-	25	50	-
17.	WRN-538	Electrical Design of Hydro Power Station	PEC	4	3	1	0	3	-	25	-	25	50	-
18.	WRN-539	Power System Operation and Control	PEC	4	3	1	0	3	-	25	-	25	50	-
19.	WRN-540	Control and Instrumentation of Hydro Power Plant	PEC	4	3	1	0	3	-	25	-	25	50	-
20.	WRN-541	Power System Analysis	PEC	4	3	1	0	3	-	25	-	25	50	-
21.	WRN-542	Power System Reliability	PEC	4	3	1	0	3	-	25	-	25	50	-
22.	WRN-543	Insulating Systems	PEC	4	3	1	0	3	-	25	-	25	50	-
23.	WRN-544	Planning and Design of Small Hydro Power Schemes	PEC	4	3	1	0	3	-	25	-	25	50	-
24.	WRN-545	Power Electronics Controlled Hydro-Electric Systems	PEC	4	3	1	0	3	-	25	-	25	50	-
25.	WRN-546	Modelling and Simulation of Hydro-Electric Energy Systems	PEC	4	1	1	4	2	2	20	20	20	40	-
26.	WRN-547	Synchronous and Asynchronous Generators Laboratory	PEC	4	1	0	6	-	3	-	50	-	-	50
27.	WRN-548	Power Electronics Laboratory	PEC	4	1	0	6	-	3	-	50	-	-	50
28.	WRN-549	Control and Instrumentation Laboratory	PEC	4	1	0	6	-	3	-	50	-	-	50
29.	WRN-553	Design of Construction Job Facilities	PEC	4	3	1	0	3	-	25	-	25	50	-
30.	WRN-554	Construction Plant Machinery	PEC	4	3	1	0	3	-	25	-	25	50	-
31.	WRN-555	Air Conditioning and Ventilation	PEC	4	3	1	0	3	-	25	-	25	50	-
32.	WRN-556	Construction Techniques	PEC	4	3	1	0	3	-	25	-	25	50	-
33.	WRN-571	Design of Irrigation Structures and Drainage Works	PEC	4	3	1	0	3	-	25	-	25	50	-
34.	WRN-572	Soil and Agronomy	PCC	4	3	1	0	3	-	25	-	25	50	-
35.	WRN-580	Renewable Energy System Technology	PEC	4	3	1	0	3	-	25	-	25	50	-
36.	WRN-581	Water Quality Monitoring and Modeling	PEC	4	3	1	0	3	-	25	-	25	50	-
37.	WRN-583	Remote Sensing and GIS Applications in Agriculture	PEC	4	3	1	0	3	-	25	-	25	50	-
38.	WRN-586	Groundwater Development and Management	PEC	4	3	1	0	3	-	25	-	25	50	-
39.	WRN-587	Watershed Development and Management	PEC	4	3	1	0	3	-	25	-	25	50	-
40.	WRN-597	Machine Learning Models in Water Resources Planning and Management	PEC	4	3	1	0	3	-	20 - 35	-	20 - 30	40 - 50	-

41.	WRN-598	Smart Irrigation Systems	PEC	4	3	1	0	3	-	20 - 35	-	20 - 30	40 - 50	-
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