

Table-1 Academic Curriculum for Master of Technology /P.G. Diploma in WRD

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
Semester-I (Autumn)									
1.		Program Core Course-I	PCC	4	3	1	0	3	0
2.		Program Core Course-II	PCC	4	3	0	2	3	0
3.		Program Core Course-III	PCC	4	3	0	2	3	0
4.		Program Core Course-IV	PCC	4	3	0	2	3	0
5.		Social Science Course	SSC	2	0	0	0	0	0
		Total		18					
Semester-II (Spring)									
1.		Program Elective-I	PEC	4	0	0	0	0	0
2.		Program Elective-II	PEC	4	0	0	0	0	0
3.		Program Elective-III	PEC	4	0	0	0	0	0
4.		Program Elective-IV	PEC	4	0	0	0	0	0
5.		Science, Technology, and Advanced Research-tools	STAR	3	0	0	0	0	0
6.	WRC-700	Seminar	SEM	2	0	0	0	0	0
		Total		21					
Semester- III (Autumn)									
1.	WRC-691	Internship Social Activity	ISA	4	0	0	0	0	0
2.	WRC-701A	Thesis Stage-I	THESIS	10	0	0	0	0	0
		Total		14					
Semester- IV (Spring)									
1.	WRC-701B	Thesis Stage-II	THESIS	14	0	0	0	0	0
		Total		14					

Program Core Courses for M.Tech. (for CE/EE/ME backgrounds)

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.N	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
For Civil Background									
1.	WRC-501	Design of Water Resources Structures	PCC	4	3	0	2	3	0
2.	WRC-503	Water Resources Planning and Management	PCC	4	3	1	0	3	0
3.	WRC-505	Applied Hydrology	PCC	4	3	0	2	3	0
4.	WRC-507	System Design Techniques	PCC	4	3	0	2	3	0

For Electrical Background									
1.	WRC-511	Hydro Generating Equipment	PCC	4	3	0	2	3	0
2.	WRC-513	Hydropower System Planning	PCC	4	3	1	0	3	0
3.	WRC-515	Project Planning and Management	PCC	4	3	0	2	3	0
4.	WRC-517	Hybrid Renewable Energy System	PCC	4	3	0	2	3	0
For Mechanical Background									
1.	WRC-513	Hydropower System Planning	PCC	4	3	1	0	3	0
2.	WRC-521	Design of Hydro Mechanical Equipment	PCC	4	3	0	2	3	0
3.	WRC-515	Project Planning and Management	PCC	4	3	0	2	3	0
4.	WRC-517	Hybrid Renewable Energy System	PCC	4	3	0	2	3	0

Program Elective Courses for M.Tech. /P.G.Diploma (Water Resources Development)

Teaching Scheme					Contact Hours/Week			Exam Duration	
Sl. No	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
1.	WRL-501	Geotechnical Engineering	PEC	4	3	1	0	3	0
2.	WRL-502	Hydropower and Appurtenant Works	PEC	4	3	1	0	3	0
3.	WRL-503	Earth and Rockfill Dams	PEC	4	3	1	0	3	0
4.	WRL-504	Masonry and Concrete Dams	PEC	4	3	1	0	3	0
5.	WRL-505	Irrigation Structures	PEC	4	3	1	0	3	0
6.	WRL-507	River Engineering	PEC	4	3	0	2	3	0
7.	WRL-508	Finite Element Methods	PEC	4	3	1	0	3	0
8.	WRL-509	Water Resources System Reliability	PEC	4	3	1	0	3	0
9.	WRL-510	Environmental Impact Assessment of Water Resource Projects	PEC	4	3	1	0	3	0
10.	WRL-511	Groundwater Hydrology	PEC	4	3	1	0	3	0
11.	WRL-512	Climate Change and Water Resources	PEC	4	3	1	0	3	0
12.	WRL-513	Substation and Transmission Line Design	PEC	4	3	1	0	3	0
13.	WRL-514	Installation Maintenance and Testing of Hydro Generating Equipment	PEC	4	3	1	0	3	0
14.	WRL-515	Maintenance Management in Power Plants	PEC	4	3	1	0	3	0
15.	WRL-516	Power System Management	PEC	4	3	1	0	3	0
16.	WRL-517	Electrical Design of Hydro Power Station	PEC	4	3	1	0	3	0
17.	WRL-518	Power System Operation and Control	PEC	4	3	1	0	3	0
18.	WRL-519	Control and Instrumentation of Hydro Power Plant	PEC	4	3	1	0	3	0
19.	WRL-520	Power System Analysis	PEC	4	3	1	0	3	0
20.	WRL-521	Power Systems Reliability	PEC	4	3	1	0	3	0
21.	WRL-522	Insulating Systems	PEC	4	3	1	0	3	0
22.	WRL-523	Planning and Design of Small Hydro Power Schemes	PEC	4	3	1	0	3	0

23.	WRL-524	Power Electronics Controlled Hydro-Electric Systems	PEC	4	3	1	0	3	0
24.	WRL-525	Modelling and Simulation of Hydro-Electric Energy Systems	PEC	4	1	1	4	2	2
25.	WRL-526	Synchronous and Asynchronous Generators Laboratory	PEC	4	1	0	6	0	3
26.	WRL-527	Power Electronics Laboratory	PEC	4	1	0	6	0	3
27.	WRL-528	Control and Instrumentation Laboratory	PEC	4	1	0	0	0	3
28.	WRL-529	Design of Construction Job Facilities	PEC	4	3	1	0	3	0
29.	WRL-530	Construction Plant Machinery	PEC	4	3	1	0	3	0
30.	WRL-531	Air Conditioning and Ventilation	PEC	4	3	1	0	3	0
31.	WRL-532	Construction Techniques	PEC	4	3	1	0	3	0
32.	WRL-534	Soil and Agronomy	PEC	4	3	1	0	3	0
33.	WRL-535	Renewable Energy System Technology	PEC	4	3	1	0	3	0
34.	WRL-536	Water Quality Monitoring and Modeling	PEC	4	3	1	0	3	0
35.	WRL-537	Groundwater Development and Management	PEC	4	3	1	0	3	0
36.	WRL-538	Watershed Development and Management	PEC	4	3	1	0	3	0
37.	WRL-539	Remote Sensing and GIS Applications in Water Systems	PEC	4	3	0	2	3	0
38.	WRL-540	Sustainable Water Resources	PEC	4	3	1	0	3	0
39.	WRL-542	Ecohydrological Modeling and Sustainability	PEC	4	3	0	2	3	0

Table-2 Academic Curriculum for Master of Technology /P.G. Diploma in IWM

Teaching Scheme: Semester-I (Autumn)					Contact Hours/Week			ExamDuration	
S.No	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
1.	WRC-503	Water Resources Planning and Management	PCC	4	3	1	0	3	0
2.	WRC-533	Design of Irrigation Structures and Drainage Works	PCC	4	3	0	2	3	0
3.	WRC-535	On Farm Development	PCC	4	3	0	2	3	0
4.	WRC-537	Principles and Practices of Irrigation	PCC	4	3	0	2	3	0
5.		Social Science Course	PCC	2	0	0	0	0	0
Total				18					
Semester-II (Spring)									
1.		Program Elective-I	PEC	4	0	0	0	0	0
2.		Program Elective-II	PEC	4	0	0	0	0	0
3.		Program Elective-III	PEC	4	0	0	0	0	0
4.		Program Elective-IV	PEC	4	0	0	0	0	0

5.		Science, Technology, and Advanced Research-tools	STAR	3	0	0	0	0	0
6.	WRC-700	Seminar	SEM	2	0	0	0	0	0
		Total		21					
Semester- III and IV									
1.	WRC-691	Internship Social Activity	ISA	4	0	0	0	0	0
2.	WRC-701A	Thesis Stage-I	THESIS	10	0	0	0	0	0
		Total		14					
Note: Students can take 1 or 2 audit courses as advised by the supervisor if required.									
1.	WRC-701B	Thesis Stage-II	THESIS	14	0	0	0	0	0
		Total		14					

Program Elective Courses for M.Tech. /P.G. Diploma (Irrigation Water Management)

Teaching Scheme					Contact Hours/Week			Exam Duration	
S. No	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
1.	WRL-503	Earth and Rockfill Dams	PEC	4	3	1	0	3	0
2.	WRL-510	Environmental Impact Assessment of Water Resource Projects	PEC	4	3	1	0	3	0
3.	WRL-512	Climate Change and Water Resources	PEC	4	3	1	0	3	0
4.	WRL-534	Soil and Agronomy	PEC	4	3	1	0	3	0
5.	WRL-535	Renewable Energy System Technology	PEC	4	3	1	0	3	0
6.	WRL-536	Water Quality Monitoring and Modeling	PEC	4	3	1	0	3	0
7.	WRL-537	Groundwater Development and Management	PEC	4	3	1	0	3	0
8.	WRL-538	Watershed Development and Management	PEC	4	3	1	0	3	0
9.	WRL-540	Sustainable Water Resources	PEC	4	3	1	0	3	0
10.	WRL-542	Ecohydrological Modeling and Sustainability	PEC	4	3	0	2	3	0
11.	WRL-544	Operation Maintenance and Management of Irrigation Systems	PEC	4	3	1	0	3	0
12.	WRL-545	Water and Land Laws	PEC	4	3	1	0	3	0
13.	WRL-546	Rural Sociology and Irrigation Economics	PEC	4	3	1	0	3	0
14.	WRL-547	Evaluation of Irrigation Project	PEC	4	3	1	0	3	0
15.	WRL-548	Theory of Seepage	PEC	4	3	1	0	3	0
16.	WRL-549	Cropping System Modeling	PEC	4	3	1	0	3	0
17.	WRL-550	Environmental Impact of Irrigated Agriculture	PEC	4	3	1	0	3	0
18.	WRL-551	Smart Irrigation Systems	PEC	4	3	1	0	3	0

Table-3 Academic Curriculum for Master of Technology /P.G. Diploma in DWS

Teaching Scheme: Semester-I (Autumn)					Contact Hours/Week			Exam Duration	
S. No	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
1.	WRC-503	Water Resource Planning and Management	PCC	4	3	1	0	3	0
2.	WRC-543	Drinking Water and Sanitation Sustainability	PCC	4	3	0	2	3	0
3.	WRC-545	Water Sanitation, Hygiene, and Infrastructural Management	PCC	4	3	0	2	3	0
4.	WRC-506	Rural and Urban Water Supply	PCC	4	3	0	2	3	0
5.		Social Science Course	SSC	2	0	0	0	0	0
Total				18					
Semester-II (Spring)									
1.		Program Elective-I	PEC	4	0	0	0	0	0
2.		Program Elective-II	PEC	4	0	0	0	0	0
3.		Program Elective-III	PEC	4	0	0	0	0	0
4.		Program Elective-IV	PEC	4	0	0	0	0	0
5.		Science, Technology, and Advanced Research-tools	STAR	3	0	0	0	0	0
6.	WRC-700	Seminar	SEM	2	0	0	0	0	0
Total				21					
Semester-III and IV									
1.	WRC-691	Internship Social Activity	ISA	4	0	0	0	0	0
2.	WRC-701A	Thesis Stage-I	THESIS	10	0	0	0	0	0
Total				14					
Note: Students can take 1 or 2 audit courses as advised by the supervisor if required.									
1.	WRC-701B	Thesis Stage-II	THESIS	14					
Total				14					

Program Elective Courses for M.Tech./P.G. Diploma (Drinking Water and Sanitation)

Teaching Scheme					Contact Hours/Week			Exam Duration	
S. No	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
1.	WRL-535	Renewable Energy System Technology	PEC	4	3	1	0	3	0
2.	WRL-536	Water Quality Monitoring and Modeling	PEC	4	3	1	0	3	0
3.	WRL-537	Groundwater Development and Management	PEC	4	3	1	0	3	0
4.	WRL-538	Watershed Development and Management	PEC	4	3	1	0	3	0
5.	WRL-542	Ecohydrological Modeling and Sustainability	PEC	4	3	0	2	3	0

6.	WRL-552	Drinking Water for Low-Income Societies	PEC	4	3	1	0	3	0
7.	WRL-553	Wastewater and Fecal Sludge Management	PEC	4	3	1	0	3	0
8.	WRL-554	Resilience, Shocks, and Emergencies	PEC	4	3	1	0	3	0
9.	WRL-555	Management and Operation of Water Utilities	PEC	4	3	1	0	3	0
10.	WRL-556	Water and Wastewater Engineering	PEC	4	3	1	0	3	0
11.	WRL-558	Flow Hydraulics and Urban Drainage	PEC	4	3	1	0	3	0
12.	WRL-560	Circular Water Economy	PEC	4	3	1	0	3	0
13.	WRL-561	Sustainable Water Resources	PEC	4	3	1	0	3	0
14.	WRL-507	River Engineering	PEC	4	3	1	0	3	0

Science, Technology and Advanced Research-Tool Basket & Social Science Course Basket for M.Tech./P.G. Diploma in WRD, IWM & DWS

Teaching Scheme					Contact Hours/Week			Exam Duration	
Sl. No	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
1.	WRT-501	Artificial Intelligence (AI) & Machine Learning (ML) for Water Resources	STAR	3	2	0	2	3	0

Social Sciences Course Basket

Sl. No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
1.	WRS-501	Water and Society	SSC	2	2	0	0	3	0