

**DEPARTMENT OF WATER RESOURCES DEVELOPMENT AND MANAGEMENT  
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE**

Program Code : **XXX M.Tech. (Irrigation Water Management)/P.G. Diploma in Irrigation Water Management**  
 Department : **Department of Water Resources Development and Management**  
 Year : **I**  
 Model : **2**

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
<b>Semester-I (Autumn)</b>									
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	SSC	2	-	-	-	-	-
		<b>Total</b>		<b>18</b>					
<b>Semester-II (Spring)</b>									
1.		Program Elective-I	PEC	4	-	-	-	-	-
2.		Program Elective-II	PEC	4	-	-	-	-	-
3.		Program Elective-III	PEC	4	-	-	-	-	-
4.		Program Elective-IV	PEC	4	-	-	-	-	-
5.		Science, Technology, and Advanced Research-tools	STAR	3	-	-	-	-	-
6.	WRC-700	Seminar	SEM	2	-	-	-	-	-
		<b>Total</b>		<b>21</b>					
<i>Note: P.G. Diploma course in IWM shall be of One Year duration comprising of semesters I and II only, with a minimum credit of 39</i>									

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 Year : **II**  
 Model : **2**

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
<b>Semester-I (Autumn)</b>									
1.	WRC-691	Internship Social Activity	ISA	4	-	-	-	-	-
2.	WRC-701A	Thesis Stage-I	THESIS	10	-	-	-	-	-
		<b>Total</b>		<b>14</b>					
<b>Semester-II (Spring)</b>									
1.	WRC-701B	Thesis Stage-II	THESIS	14	-	-	-	-	-
		<b>Total</b>		<b>14</b>					

<b>Summary</b>				
Semester	1	2	3	4
<b>Semester-wise Total Credits</b>	18	21	14	14
<b>Total Credits</b>	<b>67</b>			

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**Program Elective Courses**

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

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**Science, Technology, and Advanced Research-tools Basket**

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.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**

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.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