DEPARTMENT OF HYDROLOGY
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

Program Code: **XXX M.Tech. (Surface Water Hydrology)/PG Diploma in Surface Water Hydrology**
Department: **Department of Hydrology**
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**
Semester-I (Autumn)									
1.	HYC-501	Open Channel and Fluvial Hydraulics	PCC	3	2	0	2	3	0
2.	HYC-503	Stochastic Hydrology	PCC	3	2	1	0	3	0
3.	HYC-505	Remote Sensing and GIS Applications	PCC	3	2	0	2	3	0
4.	HYC-507	Deterministic Hydrology	PCC	3	2	1	0	3	0
5.	HYC-509	Surface Water Quality Modelling	PCC	3	2	0	2	3	0
6.		Social Science Course	SSC	2	-	-	-	-	-
		Total		**17**					
Semester-II (Spring)									
1.		Program Elective-I	PEC	3	-	-	-	-	-
2.		Program Elective-II	PEC	3	-	-	-	-	-
3.		Program Elective-III	PEC	3	-	-	-	-	-
4.		Program Elective-IV	PEC	3	-	-	-	-	-
5.		Program Elective-V	PEC	3	-	-	-	-	-
6.		Science, Technology, and Advanced Research-tools	STAR	3	-	-	-	-	-
7.	HYC-700	Seminar	SEM	2	-	-	-	-	-
		Total		**20**					

DEPARTMENT OF HYDROLOGY
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

Program Code: **XXX M.Tech. (Surface Water Hydrology)/PG Diploma in Surface Water Hydrology**
Department: **Department of Hydrology**
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**
Semester-I (Autumn)									
1.	HYC-691	Internship Social Activity	ISA	5	-	-	-	-	-
2.	HYC-701A	Thesis Stage-I	THESIS	10	-	-	-	-	-
		Total		**15**					
Semester-II (Spring)									
1.	HYC-701B	Thesis Stage-II	THESIS	14	-	-	-	-	-
		Total		**14**					

Summary				
Semester	**1**	**2**	**3**	**4**
Semester-wise Total Credits	17	20	15	14
Total Credits	**66**			

M.Tech. (Surface Water Hydrology)/PG Diploma in Surface Water Hydrology

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.	HYL-501	Water Resources Planning and Management	PEC	3	2	1	0	3	0
2.	HYL-502	Urban Hydrology	PEC	3	2	1	0	3	0
3.	HYL-503	Irrigation and Drainage Engineering	PEC	3	2	1	0	3	0
4.	HYL-504	Geophysical Investigations	PEC	3	2	0	2	3	0
5.	HYL-505	Surface Water Modelling and Simulation	PEC	3	2	0	2	3	0
6.	HYL-506	Soil and Groundwater Contamination Modelling	PEC	3	2	1	0	3	0
7.	HYL-507	Hydrometeorology and Climate Change	PEC	3	2	1	0	3	0
8.	HYL-508	Vadose Zone Hydrology	PEC	3	2	0	2	3	0
9.	HYL-509	Ecohydrology	PEC	3	2	1	0	3	0
10.	HYL-510	Membranes for Desalination and Purification	PEC	3	2	0	2	3	0
11.	HYL-511	Hydrological Data Collection and Processing	PEC	3	2	0	2	3	0
12.	HYL-512	Numerical Methods in Hydrology	PEC	3	2	1	0	3	0
13.	HYL-513	Environmental Planning and Assessment of Projects	PEC	3	2	1	0	3	0
14.	HYL-514	Soil and Water Remediation	PEC	3	2	0	2	3	0
15.	HYL-515	Hydrogeochemistry	PEC	3	2	0	2	3	0
16.	HYL-516	Soft Computing Techniques	PEC	3	2	0	2	3	0
17.	HYL-517	Multi-phase Flow through Porous Media	PEC	3	2	1	0	3	0
18.	HYL-518	Hydro-informatics	PEC	3	2	0	2	3	0
19.	HYL-519	Watershed Modelling and Simulation	PEC	3	2	0	2	3	0
20.	HYL-520	Isotope Hydrology	PEC	3	2	1	0	3	0

M.Tech. (Surface Water Hydrology)/PG Diploma in Surface Water Hydrology

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.	HYT-501	Data Analysis and Numerical Modelling	STAR	3	2	1	0	3	0

Social Science Course Basket

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
1.	HYS-501	Natural Resources, Society and Environment	SSC	2	2	0	0	2	0
2.	HYS-502	Rural Water Supply and Sanitation	SSC	2	2	0	0	2	0

DEPARTMENT OF HYDROLOGY
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

Program Code: **XXX M.Tech. (Ground Water Hydrology)/P.G. Diploma in Ground Water Hydrology**
Department: **Department of Hydrology**
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**
Semester-I (Autumn)									
1.	HYC-505	Remote Sensing and GIS Applications	PCC	3	2	0	2	3	0
2.	HYC-511	Groundwater Hydrology	PCC	3	2	0	2	3	0
3.	HYC-513	Environmental Quality	PCC	3	2	0	2	3	0
4.	HYC-515	Hydrologic Elements and Analysis	PCC	3	2	1	0	3	0
5.	HYC-517	Systems Analysis and Applications in Hydrology	PCC	3	2	0	2	3	0
6.		Social Science Course	SSC	2	-	-	-	-	-
		Total		**17**					
Semester-II (Spring)									
1.		Program Elective-I	PEC	3	-	-	-	-	-
2.		Program Elective-II	PEC	3	-	-	-	-	-
3.		Program Elective-III	PEC	3	-	-	-	-	-
4.		Program Elective-IV	PEC	3	-	-	-	-	-
5.		Program Elective-V	PEC	3	-	-	-	-	-
6.		Science, Technology, and Advanced Research-tools	STAR	3	-	-	-	-	-
7.	HYC-700	Seminar	SEM	2	-	-	-	-	-
		Total		**20**					

DEPARTMENT OF HYDROLOGY
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

Program Code: **XXX M.Tech. (Ground Water Hydrology)/P.G. Diploma in Ground Water Hydrology**
Department: **Department of Hydrology**
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**
Semester-I (Autumn)									
1.	HYC-691	Internship Social Activity	ISA	5	-	-	-	-	-
2.	HYC-701A	Thesis Stage-I	THESIS	10	-	-	-	-	-
		Total		**15**					
Semester-II (Spring)									
1.	HYC-701B	Thesis Stage-II	THESIS	14	-	-	-	-	-
		Total		**14**					

Summary				
Semester	**1**	**2**	**3**	**4**
Semester-wise Total Credits	17	20	15	14
Total Credits	**66**			

M.Tech. (Ground Water Hydrology)/P.G. Diploma in Ground Water Hydrology

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.	HYL-501	Water Resources Planning and Management	PEC	3	2	1	0	3	0
2.	HYL-502	Urban Hydrology	PEC	3	2	1	0	3	0
3.	HYL-503	Irrigation and Drainage Engineering	PEC	3	2	1	0	3	0
4.	HYL-504	Geophysical Investigations	PEC	3	2	0	2	3	0
5.	HYL-505	Surface Water Modelling and Simulation	PEC	3	2	0	2	3	0
6.	HYL-506	Soil and Groundwater Contamination Modelling	PEC	3	2	1	0	3	0
7.	HYL-507	Hydrometeorology and Climate Change	PEC	3	2	1	0	3	0
8.	HYL-508	Vadose Zone Hydrology	PEC	3	2	0	2	3	0
9.	HYL-509	Ecohydrology	PEC	3	2	1	0	3	0
10.	HYL-510	Membranes for Desalination and Purification	PEC	3	2	0	2	3	0
11.	HYL-511	Hydrological Data Collection and Processing	PEC	3	2	0	2	3	0
12.	HYL-512	Numerical Methods in Hydrology	PEC	3	2	1	0	3	0
13.	HYL-513	Environmental Planning and Assessment of Projects	PEC	3	2	1	0	3	0
14.	HYL-514	Soil and Water Remediation	PEC	3	2	0	2	3	0
15.	HYL-515	Hydrogeochemistry	PEC	3	2	0	2	3	0
16.	HYL-516	Soft Computing Techniques	PEC	3	2	0	2	3	0
17.	HYL-517	Multi-phase Flow through Porous Media	PEC	3	2	1	0	3	0
18.	HYL-518	Hydro-informatics	PEC	3	2	0	2	3	0
19.	HYL-519	Watershed Modelling and Simulation	PEC	3	2	0	2	3	0
20.	HYL-520	Isotope Hydrology	PEC	3	2	1	0	3	0

M.Tech. (Ground Water Hydrology)/P.G. Diploma in Ground Water Hydrology

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.	HYT-501	Data Analysis and Numerical Modelling	STAR	3	2	1	0	3	0

Social Science Course Basket

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
1.	HYS-501	Natural Resources, Society and Environment	SSC	2	2	0	0	2	0
2.	HYS-502	Rural Water Supply and Sanitation	SSC	2	2	0	0	2	0

DEPARTMENT OF HYDROLOGY
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

Program Code: **XXX M.Tech. (Watershed Management)/P.G. Diploma in Watershed Management**
Department: **Department of Hydrology**
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**
Semester-I (Autumn)									
1.	HYC-509	Surface Water Quality Modelling	PCC	3	2	0	2	3	0
2.	HYC-511	Groundwater Hydrology	PCC	3	2	0	2	3	0
3.	HYC-515	Hydrologic Elements and Analysis	PCC	3	2	1	0	3	0
4.	HYC-517	Systems Analysis and Applications in Hydrology	PCC	3	2	0	2	3	0
5.	HYC-521	Watershed Behaviour and Conservation Practices	PCC	3	2	1	0	3	0
6.		Social Science Course	SSC	2	-	-	-	-	-
		Total		**17**					
Semester-II (Spring)									
1.		Program Elective-I	PEC	3	-	-	-	-	-
2.		Program Elective-II	PEC	3	-	-	-	-	-
3.		Program Elective-III	PEC	3	-	-	-	-	-
4.		Program Elective-IV	PEC	3	-	-	-	-	-
5.		Program Elective-V	PEC	3	-	-	-	-	-
6.		Science, Technology, and Advanced Research-tools	STAR	3	-	-	-	-	-
7.	HYC-700	Seminar	SEM	2	-	-	-	-	-
		Total		**20**					

DEPARTMENT OF HYDROLOGY
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

Program Code: **XXX M.Tech. (Watershed Management)/P.G. Diploma in Watershed Management**
Department: **Department of Hydrology**
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**
Semester-I (Autumn)									
1.	HYC-691	Internship Social Activity	ISA	5	-	-	-	-	-
2.	HYC-701A	Thesis Stage-I	THESIS	10	-	-	-	-	-
		Total		**15**					
Semester-II (Spring)									
1.	HYC-701B	Thesis Stage-II	THESIS	14	-	-	-	-	-
		Total		**14**					

Summary				
Semester	**1**	**2**	**3**	**4**
Semester-wise Total Credits	17	20	15	14
Total Credits	**66**			

M.Tech. (Watershed Management)/P.G. Diploma in Watershed Management

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.	HYL-501	Water Resources Planning and Management	PEC	3	2	1	0	3	0
2.	HYL-502	Urban Hydrology	PEC	3	2	1	0	3	0
3.	HYL-503	Irrigation and Drainage Engineering	PEC	3	2	1	0	3	0
4.	HYL-504	Geophysical Investigations	PEC	3	2	0	2	3	0
5.	HYL-505	Surface Water Modelling and Simulation	PEC	3	2	0	2	3	0
6.	HYL-506	Soil and Groundwater Contamination Modelling	PEC	3	2	1	0	3	0
7.	HYL-507	Hydrometeorology and Climate Change	PEC	3	2	1	0	3	0
8.	HYL-508	Vadose Zone Hydrology	PEC	3	2	0	2	3	0
9.	HYL-509	Ecohydrology	PEC	3	2	1	0	3	0
10.	HYL-510	Membranes for Desalination and Purification	PEC	3	2	0	2	3	0
11.	HYL-511	Hydrological Data Collection and Processing	PEC	3	2	0	2	3	0
12.	HYL-512	Numerical Methods in Hydrology	PEC	3	2	1	0	3	0
13.	HYL-513	Environmental Planning and Assessment of Projects	PEC	3	2	1	0	3	0
14.	HYL-514	Soil and Water Remediation	PEC	3	2	0	2	3	0
15.	HYL-515	Hydrogeochemistry	PEC	3	2	0	2	3	0
16.	HYL-516	Soft Computing Techniques	PEC	3	2	0	2	3	0
17.	HYL-517	Multi-phase Flow through Porous Media	PEC	3	2	1	0	3	0
18.	HYL-518	Hydro-informatics	PEC	3	2	0	2	3	0
19.	HYL-519	Watershed Modelling and Simulation	PEC	3	2	0	2	3	0
20.	HYL-520	Isotope Hydrology	PEC	3	2	1	0	3	0

M.Tech. (Watershed Management)/P.G. Diploma in Watershed Management

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.	HYT-501	Data Analysis and Numerical Modelling	STAR	3	2	1	0	3	0

Social Science Course Basket

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
1.	HYS-501	Natural Resources, Society and Environment	SSC	2	2	0	0	2	0
2.	HYS-502	Rural Water Supply and Sanitation	SSC	2	2	0	0	2	0