DEPARTMENT OF HYDRO AND RENEWABLE ENERGY
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

ProgramCode: **12** **M.Tech. (Renewable and Hydro Energy)**
Department: **HRE** **Department of Hydro and Renewable Energy**
Year: **I**

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weight(%)				
S.No.	SubjectCode	CourseTitle	Subject Area	Credits	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
Semester-I (Autumn)														
1.	HRE-510	Hydropower Planning and Management	PCC	4	3	1	0	3	0	20-35	-	20-30	40-50	-
2.	HRE-513	Renewable Energy Resources Development Technology	PCC	4	3	1	2/2	3	0	15-30	20	15-25	30-40	-
3.		Program Elective-I	PEC	4	-	-	-	-	-	-	-	-	-	-
4.		Program Elective-II	PEC	4	-	-	-	-	-	-	-	-	-	-
5.		Program Elective-III	PEC	4	-	-	-	-	-	-	-	-	-	-
		Total		**20**										
Semester-II (Spring)														
1.	HRE-583	Grid Integration of Renewable Energy	PCC	4	3	1	2/2	3	0	15-30	20	15-25	30-40	-
2.	HRE-584	Finance, Policy and Regulations for Renewable Energy	PCC	4	3	1	0	3	0	20-35	-	20-30	40-50	-
3.	HRE-700	Seminar	SEM	2	-	-	-	-	-	-	-	-	100	-
4.		Program Elective-IV	PEC	4	-	-	-	-	-	-	-	-	-	-
5.		Program Elective-V	PEC	4	-	-	-	-	-	-	-	-	-	-
		Total		**18**										

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Year: **II**

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weight(%)				
S.No.	**SubjectCode**	**CourseTitle**	**Subject Area**	**Credits**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Semester-I (Autumn)														
1.	HRE-701A	Thesis Stage-I (to be continued next semester)	DIS	12	-	-	-	-	-	-	-	-	100	-
		Total		**12**										
Note: Students can take 1 or 2 audit courses as advised by the supervisor, if required.														
Semester-II (Spring)														
1.	HRE-701B	Thesis Stage-II (continued from III semester)	DIS	18	-	-	-	-	-	-	-	-	100	-
		Total		**18**										

Summary				
Semester	**1**	**2**	**3**	**4**
Semester-wise Total Credits	20	18	12	18
Total Credits	**68**			

Program Elective Courses M.Tech. (Renewable and Hydro Energy)

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.	HRE-514	Hydro Electric Equipment	PEC	4	3	1	2/2	3	-	15-30	20	15-25	30-40	-
2.	HRE-515	Design of Hydropower Structures	PEC	4	3	1	0	3	-	20-35	-	20-30	40-50	-
3.	HRE-516	Hydro Mechanical Equipment	PEC	4	3	1	2/2	3	-	15-30	20	15-25	30-40	-
4.	HRE-517A	Modelling, Simulation & Computer Applications	PEC	4	3	1	2/2	3	-	15-30	20	15-25	30-40	-
5.	HRE-518	Environmental Planning and Management	PEC	4	3	1	0	3	-	20-35	-	20-30	40-50	-
6.	HRE-522	Wind Energy Application Technology	PEC	4	3	1	0	3	-	20-35	-	20-30	40-50	-
7.	HRE-526	Instrumentation for Hydro Power Plants	PEC	4	3	1	2/2	3	-	15-30	20	15-25	30-40	-
8.	HRE-528	Rural Electrical Energy System Planning and Design	PEC	4	3	1	0	3	-	20-35	-	20-30	40-50	-
9.	HRE-532	Remote Sensing and GIS for Renewable Energy Planning	PEC	4	3	0	2	3	-	10-25	25	15-25	30-40	-
10.	HRE-534	Construction Planning and Management	PEC	4	3	1	0	3	-	20-35	-	20-30	40-50	-
11.	HRE-536	Biomass Production and Utilisation	PEC	4	3	1	0	3	-	20-35	-	20-30	40-50	-
12.	HRE-540	Solar Photo-Voltaic Design and Application	PEC	4	3	1	0	3	-	20-35	-	20-30	40-50	-
13.	HRE-542	Energy Conservation and Management	PEC	4	3	1	0	3	-	20-35	-	20-30	40-50	-
14.	HRE-580	Climate Change and Water Resources	PEC	4	3	1	0	3	-	20-35	-	20-30	40-50	-
15.	HRE-581	Energy-Water-Food Nexus	PEC	4	3	1	0	3	-	20-35	-	20-30	40-50	-
16.	HRE-582	Electric Vehicular Technology	PEC	4	3	1	0	3	-	20-35	-	20-30	40-50	-
17.	HRE-585	Energy Storage Systems	PEC	4	3	1	0	3	-	20-35	-	20-30	40-50	-
18.	HRE-586	Hydrogen Economy	PEC	4	3	1	0	3	-	20-35	-	20-30	40-50	-
19.	HRE-587	Advanced Modelling for Renewable Energy Power Systems	PEC	4	3	0	2/2	3	2	15-30	20	15-25	30-40	-