



**DEPARTMENT OF HYDRO AND RENEWABLE ENERGY INDIAN  
INSTITUTE OF TECHNOLOGY ROORKEE**

Program Code: **12 M.Tech. (Renewable and Hydro Energy)**  
 Department: **HRE Department of Hydro and Renewable Energy**  
 Year: **II**

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
<b>Semester-I (Autumn)</b>														
1.	HRE-701A	Thesis Stage-I (to be continued next semester)	DIS	12	-	-	-	-	-	-	-	-	100	-
		<b>Total</b>		<b>12</b>										
<b>Note: Students can take 1 or 2 audit courses as advised by the supervisor, if required.</b>														
<b>Semester-II (Spring)</b>														
1.	HRE-701B	Thesis Stage-II (continued from III semester)	DIS	18	-	-	-	-	-	-	-	-	100	-
		<b>Total</b>		<b>18</b>										

<b>Summary</b>				
Semester	1	2	3	4
<b>Semester-wise Total Credits</b>	20	18	12	18
<b>Total Credits</b>	<b>68</b>			

**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	-