

**COURSE STRUCTURE,
EVALUATION SCHEME AND
SYLLABUS**

for

M. Tech. PROGRAMME (Part-time)

in

Hydro and Renewable Energy

(w.e.f. session 2023-24)

Scheme of Examination of M. Tech. 3 Year Part Time Programme									
SEMESTER - I									
Sr. No.	Course Type/Code	Course Name	Teaching Scheme			Credits	Internal Marks	External Marks	Total Marks
			L	T	P				
1	HRET – 301	Numerical Techniques & Computation Methods	3	1	0	4	50	100	150
2	HRET – 302	Design of Water Resources Structure	3	1	0	4	50	100	150
3	HRET – 3XX	Professional Elective - I	3	0	0	3	50	100	150
4	HREP – 301	Numerical Techniques & Computation Methods Lab	0	0	3	1	25	25	50
5	AHT-302	Research Methodology and IPR	2	0	0	2	50	50	100
		Total	11	2	3	14	275	375	600
7	HRET – 3XX	*Open Elective (Optional)	3	0	0	3	50	100	150

Scheme of Examination of M. Tech. 3 Year Part Time Programme									
SEMESTER - II									
Sr. No.	Course Type/Code	Course Name	Teaching Scheme			Credits	Internal Marks	External Marks	Total Marks
			L	T	P				
1	HRET – 303	Advanced Hydrology	3	1	0	4	50	100	150
2	HRET – 3XX	Professional Elective - II	3	0	0	3	50	100	150
3	HREP – 302	Advanced Hydraulics Lab	0	0	3	1	25	25	50
4	AHT-303	Technical Writing and Presentation Skill	2	0	0	NC	50	0	NC
		Total	6	1	3	8	125	225	350
5	HRET – 3XX	*Open Elective (Optional)	3	0	0	3	50	100	150

Scheme of Examination of M. Tech. 3 Year Part Time Programme									
SEMESTER - III									
Sr. No.	Course Type/Code	Course Name	Teaching Scheme			Credits	Internal Marks	External Marks	Total Marks
			L	T	P				
1	HRET – 304	Solar Energy and Applications	3	1	0	4	50	100	150
2	HRET – 3XX	Professional Elective – III	3	1	0	4	50	100	150
3	HRET – 3XX	Open Elective	3	0	0	3	50	100	150
4	HREP – 303	Modeling and Simulation Lab	0	0	3	1	25	25	50
		Total	9	2	3	12	175	325	500
5	HRET – 3XX	*Open Elective (Optional)	3	0	0	3	50	100	150

SEMESTER - IV									
Sr. No.	Course Type/Code	Course Name	Teaching Scheme			Credits	Internal Marks	External Marks	Total Marks
			L	T	P				
1	HRET - 305	Renewable Energy Technologies	3	1	0	4	50	100	150
2	HRET – 3XX	Professional Elective - IV	3	0	0	3	50	100	150
3	HREP – 304	Renewable Energy Lab	0	0	3	1	25	25	50
		Total	6	1	3	8	125	225	350
4	HRET – 3XX	*Open Elective (Optional)	3	0	0	3	50	100	150

Professional Elective – I		Professional Elective – II	
Course title	Course code	Course title	Course code
Hydro power planning and management	HRET – 306	Energy economics and renewable energy policy	HRET – 310
Climate change and water bodies	HRET – 307	Energy storage systems	HRET – 311
Groundwater hydrology	HRET – 308	Process modeling and simulation in energy systems	HRET – 312
Urban water resource management	HRET - 309	Remote sensing and GIS for renewable energy planning	HRET - 313
Professional Elective – III		Professional Elective – IV	
Course title	Course code	Course title	Course code
Hydro-Mechanical Equipment	HRET – 314	Energy conservation and management	HRET – 318

Groundwater hydrology and management	HRET – 315	Energy Audit and Instrumentation	HRET – 319
Instrumentation for small hydro power station	HRET – 316	Hydrogen energy and fuel cell	HRET – 320
Water power and dam engineering	HRET - 317	Wind energy application technology	HRET - 321

Scheme of Examination of M. Tech. 3 Year Part Time Programme

SEMESTER - V

Sr. No.	Course Type/Code	Course Name	Teaching Scheme			Credits	Internal Marks			External Marks	Total Marks
			L	T	P		CT	TA	Total		
1	HREP – 305	Seminar	0	0	6	3			150		150
2	HREP – 306	Project	0	0	12	6			150	150	300
3	HREP – 307	Dissertation	0	0	12	6			300		300
		Total	3	0	22	15			550	250	750

SEMESTER - VI

Sr. No.	Course Type/Code	Course Name	Teaching Scheme			Credits			Internal Marks	External Marks	Total Marks
			L	T	P						
1	HREP – 308	Dissertation	0	0	30	15			300	450	750
		Total	0	0	30	15			300	450	750

Abbreviations: L-No. of Lecture hours per week, T-No. of Tutorial hours per week, P-No. of Practical hours per week, CT-Class Test Marks, TA-Marks of teacher's assessment including student's class performance and attendance

1 Hr Lecture	1 Hr Tutorial	2 or 3 Hr Practical
1 Credit	1 Credit	1 Credit