



MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY, BHOPAL

**Energy Centre
Scheme and Syllabus**

M.Tech. in Renewable Energy (RE) Full Time (wef July 2025)

Course Code	Subjects	Schemes of studies periods per week			Total Credits
		L	T	P	
EN RE 1101	Renewable Energy Systems	3	-	-	3
EN RE 1102	Energy Audit and Conservation	3	-	-	3
EN RE 1103	Energy Storage Technologies	3	-	-	3
EN RE 1151-1159	Department Elective -1	3	-	-	3
EN RE 1161-1169	Department Elective -2	3	-	-	3
EN RE 1104	Renewable Energy Lab-I	-	-	2	1
EN RE 1105	Energy Audit Lab	-	-	2	1
EN RE 1106	Seminar-I	-	-	2	1
EN RE 1107	Minor Project-1(Self Learning)				2
HS 1101	Communication Skills	-	-	2	-
Total Hours:23 Total Credits:20		Total Semester Credits			20

Second Semester:

Course Code	Subject	Schemes of studies periods per week			Total Credits
		L	T	P	
EN RE 1201	Wind Energy Systems	3	-	-	3
EN RE 1202	Solar Energy Systems	3	-	-	3
EN RE 1251-1259	Department Elective -3	3	-	-	3
EN RE 1261-1269	Department Elective -4	3	-	-	3
	Open Elective	3	-	-	3
EN RE 1203	Renewable Energy Lab-II	-	-	2	1
EN RE 1204	Energy Modelling and Simulation Lab	-	-	2	1
EN RE 1205	Seminar-II	-	-	2	1
EN RE 1206	Minor Project-2 (Self Learning)			2	2
Total Hours: 23 Total Credits:40		Total Semester Credits			20



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Third Semester

Course Code	Subject	Schemes of studies periods per week			Total Credits
		L	T	P	
EN RE 2101	Dissertation Phase-I	-	-	40	20
Total Hours: 40 Total Credits:60		Total Semester Credits			20

Fourth Semester

Course Code	Subject	Schemes of studies periods per week			Total Credits
		L	T	P	
EN RE 2201	Dissertation Phase-II	-	-	40	20
Total Hours: 40 Total Credits:80		Total Semester Credits			20



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Department Electives

Department Electives – 1		Open Elective	
EN RE 1151	Economics and Planning of Energy		Introduction to Urban Planning
EN RE 1152	Power Plant Engineering		Bioprocess Engineering
EN EM 1153	Energy Efficiency in Electrical Utilities		Biophysics Tools and Techniques
EN EM 1154	Alternative Fuels		Analytical Techniques
EN RE 1155	Operation Research and Optimization		Green Technology & Processes
			Solid Waste Management
Department Electives –2			Basic Concept of GIS
EN RE 1161	Hydrogen and fuel cells		Road Safety
EN RE 1162	Small Hydro Power		Machine Learning
EN RE 1163	Power Controllers for Energy Systems		Advanced Data Structures and Algorithms
EN RE 1164	Biomass and Waste Management		Nanotechnology and Nanoscience
EN EM 2151	Climate Change and Carbon Sequestration		Electric Machines & Applications
			Control and Instrumentation
Department Electives – 3			Introduction to Fuzzy Logic
EN EM 1251	Energy Efficiency in Thermal Utilities		Neural Networks and its Applications
EN RE 1252	Energy from waste		Intellectual Property Rights for Engineers
EN RE 1253	Green Buildings		Applied Psychology: Human Centered Design and Engineering
EN RE 1254	Ocean and Geothermal Energy		Advanced Operations Research
EN EM 1255	Research Methodology		Computing Technologies
			Value Engineering
Department Electives – 4			Design Thinking
EN RE 1261	Smart and Micro Grid		Mechatronics and NDT in Engineering
EN RE 1262	Integrated Energy Systems		Advanced Instrumentation Methods for Material Analysis
EN RE 1263	Electric Vehicles		Smart Materials and their Application
EN RE 1264	Energy policies		Engineering Startup Management
EN RE 1265	Pollution Control Technologies		