



M.Tech. – Renewable Energy

(UGC-Innovative Programme)

Rural Energy Centre
Gandhigram Rural Institute – Deemed University

(Fully Funded by MHRD, Govt. of India)
Gandhigram - 624 302, Tamilnadu



GRI

Gandhigram Rural Institute (GRI) is fully funded by Ministry of Human Resource Development, Government of India practicing the three-dimensional approach in higher education.

Objective of the Programme

The course aims to create technical manpower to solve the energy crisis in general and achieving Rural Energy Security in particular. This programme aspires in giving opportunity to meet the human resource requirement of the industry / R&D institutes and also to carryout the research and development of Cost Effective Renewable Energy Gadgets like solar cooker, solar still, wind water pumping system, biomass gasifiers and biogas plants etc.,

Eligibility Criteria : B.E. / B.Tech. in all disciplines

Admission based on

1. GATE Score
2. Entrance Examination conducted by GRI for Non GATE Category

Fee Structure

I st Semester	₹ 15,465.00
II nd Semester	₹ 7,500.00
III rd Semester	₹ 10,695.00
IV th Semester	₹ 7,500.00

Student Placements



M.Tech. Student's Accomplishment

Student Exchange Programme



Name	Host University	Country	Scholarship	Amount per Month
Mr.N.Gopinath (I st Batch)	Uppsala University	Sweden	Erasmus Mundus	€1,000.00
Ms.U.Mahitha (II nd Batch)	Miskolc University	Hungary	Hungarian Fellowship	40,460 HUF



Paper Published by Students in

International Journal	: 16
International Conferences	: 35
National Conferences	: 24
Chapter in Edited Book	: 01

Awards by Students

Best Paper Award in the **International Conference at Sardar Saran Singh - National Institute of Bio- Energy, Kapurthala, Punjab** - € 200 by Springer .

Best Paper Award in the **International Conference at Indian Institute of Science, Bengaluru**

Best Paper Award in National Conference, Best Event Manager Award & Prize Won in various Competitions

Programme Design and Curriculum Outline

Theory Courses

Introduction to Energy Studies
Solar Energy
Thermal Engineering
Energy Auditing and Management
Waste to Energy Conversion Technologies
Wind Energy, Small Hydro and
New Renewable Energy Technologies
Energy Economics
Research Methodology & Statistical Methods
Environmental Impact Assessment
Power Systems for Renewable Energy Sources

Electives

Rural Electrification Technologies and Economics
Renewable Energy & Sustainable Development
Smart Grid
Energy Modeling and Project Management
New Energy Technologies

Summer Internship

Student should undergo an inplant training in a process / product industry / NGO in energy related area focusing on rural energy planning or should undergo an energy auditing in any rural industries for a period of 30 calendar days.

Minor Project

In 3rd Semesters a group of 2 or 3 Students should form a group and develop a cost effective renewable energy gadget / Biomass Assessment Study / Village Level Energy Planning / Evaluation of Renewable Energy Plants

Dissertation

In 4th Semester Individual Student should take up project related to renewable energy and work or to take up industry / institute related project with prior permission

Practical Courses

Solar Energy Lab
Waste to Energy Conversion Tech. Lab
Wind Energy Lab

Programme Highlights

AICTE approved

Course Unique ID 1-2190967193

Fellowship

1. GATE (₹.12,400 per month)
2. NON GATE - UGC Merit Scholarship for SC/ST (₹.7,800 per month)

Scholarship from

Ministry of Minority Affairs
for Minority Students

Govt. of Tamilnadu

BC / MBC Scholarship
Post Metric Scholarship for SC/ST



Wind Monitoring Station (50 m)

Laboratory

Solar Energy Laboratory



Pyranometer



Evacuated Tube Solar Water Heater



Solar Water Heater



Solar Flat Plate Collectors



Solar Collector Test Rig



Solar Photo Voltaic Test Rig



Parabolic Test Rig



Passive Building Model

Wind Energy Laboratory



100 W Wind turbine



Wind Turbine Test Rig

Alternate Energy Laboratory



Fuel Cell Test Rig

Bio Energy Laboratory



BOD Incubator



COD Digester



COD Analyzer



Wooden Log Stove



Biomass Gasifier



Producer Gas Analyzer



Vapour Absorption Refrigeration Test Rig



Bio Gas Analyzer

Energy Auditing Instrumentation Laboratory



Low & High Temp. Calibration Baths



Thermocouple welder



Thermal Imaging Sensor



IR Thermometer



Data Loggers



Flue Gas Analyzer



Power Analyzer



Pressure Meter

Simulation Lab- CFD Software



Field Exposure



Transformer Mfg.



Wind Farm



Biomass Process

Various Industrial Energy Audit



Coir



Pumping



Textile



Motor

Social Responsibilities of M.Tech. Students



Rural Energy Planning



Awareness Rally



Troubleshooting of Remote Tribal Habitat Solar Light



Village School Programmes

For any Clarification, Contact

Dr. V.Kirubakaran

Course Coordinator

Rural Energy Centre

Gandhigram Rural Institute - Deemed University

Gandhigram - 624 302

Phone : +91 94438 59066

Web : www.ruraluniv.ac.in

M.Tech. - Renewable Energy

Course Duration:

2 Years– 4 Semesters

Eligibility Criteria:

- ✓ B.E. / B.Tech. / AMIE or
- ✓ PG in Science (Mathematics as compulsory paper in PG course)
with minimum of 55% marks or CGPA of 5.5 on a 10 point scale in the qualifying examination(50% marks or CGPA of 5.0 on a 10 point scale for SC/ST candidates) from UGC / AICTE recognized Institute / University.

The selection will be as per Gandhigram Rural Institute Norms.

Category A

Based on GATE Score.

Category B

Based on the Written Examination Conducted by Rural Energy Centre, Gandhigram Rural Institute – Deemed University if GATE qualified candidates is not available.

The evaluation is as follows:

The marks obtained by the qualifying examination from I semester to Pre Final Semester (for the benefit of Result Awaiting Students)	-	50% Weightage
Entrance Examination	-	50% Weightage

Maximum number of Seats:20

Curriculum Outline:

Course Code	Course Title	No. of Credits	L	T	P	Maximum Marks		
						CFA	ESE	Total
Semester I								
15REEP0101	Introduction to Energy Studies	4	4	0	0	40	60	100
15REEP0102	Solar Energy Conversion Technologies	4	3	1	0	40	60	100
15REEP0103	Thermal Engineering	4	3	1	0	40	60	100
15REEP0104	Energy Auditing and Management	4	4	0	0	40	60	100
15REEP0105	Advanced Numerical Methods	4	3	1	0	40	60	100
15REEP0106	Renewable Energy Laboratory – I	3	0	0	6	60	40	100
	Gandhi in Every Day Life (Compulsory Non Credit Course)		2	0	0	20	30	50
	Total	23	19	3	6	260	340	600
Semester II								
15REEP0207	Waste to Energy Conversion Technologies	4	3	1	0	40	60	100
15REEP0208	Wind Energy, Small Hydro and New Renewable Energy Technologies	4	3	1	0	40	60	100
15REEP0209	Power Systems for Renewable Energy Sources	4	3	1	0	40	60	100
15REEP0210	Energy Economics and Policies	4	4	0	0	40	60	100
15APRM0201	Research Methodology	4	4	0	0	40	60	100
15REEP0211	Renewable Energy Laboratory – II	3	0	0	6	60	40	100
15CSKP0201	Communication & Soft Skills (Compulsory Non Credit Course)		2	0	0	20	30	50
15REEP0212	Summer Internship	2				50	0	50
	Total	25	19	3	6	310	340	650

Course Code	Course Title	No. of Credits	L	T	P	Maximum Marks		
						CFA	ESE	Total
Semester III								
15REEP03**	Major Elective I	4	4	0	0	40	60	100
15REEP03**	Major Elective II	4	4	0	0	40	60	100
15REEP0313	Rural Energy Planning (Field Visit)	3	0	0	6	60	40	100
15REEP0314	Technical Seminar	1	2	0	0	50	0	50
15REEP0315	Mini Project	4	0	0	8	60	40	100
	Non Major Elective	4	4	0	0	40	60	100
15VPPP0301	Village Placement Programme	2				50	0	50
	Total	22	14	0	14	340	260	600
Semester IV								
15REEP0416	Dissertation	12				150	50	200
	Total	82						

Electives (Major):

- E1. Rural Electrification :Technologies and Economics
- E2. Renewable Energy & Sustainable Development
- E3. Smart Grid
- E4. Energy Modeling and Project Management
- E5. Optimum Utilization of Heat and Power
- E6. Energy Auditing Instrumentation
- E7. Green Buildings
- E8. Environmental Impact Assessment
- E9. Technology Management

Entrance Examination for NON GATE Category

- ❖ Examination is of 90 minutes with multiple choice questions from the following subjects
 - Renewable Energy Sources
 - Basic Electrical Engineering
 - Thermodynamics / Thermal Engineering
- ❖ Use of Calculator / Cell Phone is prohibited
- ❖ No TA/DA will be paid for attending the Entrance Examination