

Assignment Booklet

MSCRWEE Programme M.Sc (Renewable Energy and Environment)

Third Semester (Compulsory)	
MRW-005	Solar Energy and Applications
MRW-006	Bioenergy Conversion and Utilization
MRW-007	Energy Economics and Planning

Third Semester (Electives)	
MRWE-001	Nano Technology in Energy & Environment
MRWE-002	Energy Storage
MEV-021	Introduction to Climate Change
MEVE-001	Environmental Impact Assessment for Environmental Health
MCS-224	Artificial Intelligence and Machine Learning
MCS-226	Data Science and Big Data
MCS-227	Cloud Computing and IoT
MCS-231	Mobile Computing



**SCHOOL OF ENGINEERING & TECHNOLOGY
INDIRA GANDHI NATIONAL OPEN UNIVERSITY**

Maidan Garhi, New Delhi – 110 068

JANUARY 2026

Dear Student,

Please read the information on assignments in the Programme Guide that we have sent you after your enrolment. A weightage of 30%, as you are aware, has been earmarked for continuous evaluation, **which would consist of one tutor-marked assignment** for this Programme. The assignment for MSCRWEE (Third semester) has been given in this booklet.

Instructions for Formatting Your Assignments

Before attempting the assignment, please read the following instructions carefully:

1) On top of the first page of your answer sheet, please write the details exactly in the following format:

ENROLLMENT NO :.....

NAME :.....

ADDRESS :.....

.....

.....

PROGRAMME CODE:

COURSE CODE:

COURSE TITLE:

STUDY CENTRE:

DATE:

PLEASE FOLLOW THE ABOVE FORMAT STRICTLY TO FACILITATE EVALUATION AND TO AVOID DELAY.

- 2) Use only foolscap size writing paper (but not of very thin variety) for writing your answers.
- 3) Leave 4 cm margin on the left, top and bottom of your answer sheet.
- 4) Your answers should be precise.
- 5) **These assignments submitted should be hand written in your own hand writing.**

We strongly suggest that you should retain a copy of your answer sheets.

- 6) **You cannot fill the Exam Form without** submission of the assignments. So solve it and **submit it at the earliest.** If you wish to appear in the TEE, **June 2026**, you should submit your TMAs by **April 30, 2026.** Similarly, if you wish to appear in the TEE, **December 2026**, you should submit your TMAs by **September 30, 2026.**
- 7) Assignments will be submitted at **your respective regional centre.**

We wish you good luck!

Assignment -2

(To be done **after** studying the course material)

Course Code: MRW-006

Course Title: Bioenergy Conversion and Utilization

Assignment Code: MRW-006/TMA/2026

Maximum Marks: 100

Last Date of Submission: April 30, 2026 (For June TEE), September 30, 2026 (For December TEE)

Note:

- 1. For any question worth 5 marks the word limit is 200 words, for a 10 mark question it is 350 words.**
 - 2. All questions are compulsory. All questions carry equal marks.**
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| Q.1 | Discuss how biomass differs from fossil fuels in terms of sustainability and carbon neutrality. | 10 |
| Q.2 | Design a small-scale biogas plant layout for a household using cattle dung and kitchen waste. | 10 |
| Q.3 | Prepare a comparative chart of biofuel properties (methanol, ethanol, butanol, and biogas). | 10 |
| Q.4 | Discuss the role of bio-refineries in promoting circular economy and waste minimization. | 10 |
| Q.5 | Create a schematic diagram representing solvent extraction or pyrolysis of biomass. | 10 |
| Q.6 | Discuss the role of gasification as a decentralized energy technology for rural electrification. | 10 |
| Q.7 | Conduct a literature review to identify three recent innovations in biochar production or utilization. | 10 |
| Q.8 | Discuss the influence of feedstock composition and pH control on biogas quality. | 10 |
| Q.9 | a) How do carbon credits and government incentives influence investment in biomass energy?
b) Identify one government scheme on biomass energy and summarize its objectives and achievements. | 10 |
| Q.10 | What are the major barriers to large-scale deployment of biomass-based energy systems in India? | 10 |