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 wouldconsist 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 ANDTO 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: MRWE-002
Course Title: Energy Storage
Assignment Code: MRWE-002/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.**

Q.1	Discuss the importance of energy storage in integrating renewable energy sources into the power grid.	10
Q.2	Discuss the impact of material choice and design geometry on the efficiency and lifespan of flywheel systems.	10
Q.3	Prepare a flow diagram illustrating energy conversion in a chemical storage system (electrolysis to fuel use).	10
Q.4	Design a simple table comparing lithium-ion, lead-acid, and flow batteries in terms of efficiency, cost, and safety.	10
Q.5	Discuss how hydrogen energy storage can address the intermittency challenges of solar and wind power.	05
Q.6	Research a real-world case study of a hydrogen fuel cell vehicle or stationary application and evaluate its benefits and limitations.	10
Q.7	Explain how superconducting magnetic energy storage (SMES) and supercapacitors contribute to grid stabilization and fast response applications.	10
Q.8	Draw a schematic comparing sensible and latent heat storage systems, including key materials used.	10
Q.9	How do different types of fuel cells (PEMFC, SOFC, MCFC) differ in terms of efficiency and application domains?	10
Q.10	Write short notes on the following: a) Pumped hydro storage b) Aquifers	05