

# Assignment Booklet

**MSCRWEE Programme**  
M.Sc (Renewable Energy and Environment)

Second Semester	
MRW-003	Renewable Energy Systems
MRW-004	Energy Management
MEV-003	Environmental Law & Management



***SCHOOL OF ENGINEERING & TECHNOLOGY***  
***INDIRA GANDHI NATIONAL OPEN UNIVERSITY***  
Maidan Garhi, New Delhi – 110 068

**JANUARY 2023**

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 (second 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 2023**, you should submit your TMAs by **April 30, 2023**. Similarly, if you wish to appear in the **TEE, December 2023**, you should submit your TMAs by **September 30, 2023**.
- 7) Assignments will be submitted at **your respective Regional Centre**.

We wish you good luck!

### Assignment -1

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

**Course Code: MRW-003**

**Course Title: Renewable Energy Systems**

**Assignment Code: MRW-003/TMA/2023**

**Maximum Marks: 100**

**Last Date of Submission: April 30, 2023**

**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	What are fossil fuels? Describe the process of formation of fossil fuels and their effect on the environment.	10
Q.2	Describe the various types of solar radiation received by the earth.	10
Q.3	Enlist the advantages and disadvantages of renewable energy.	10
Q.4	Describe three basic types of solar cell and discuss about their efficiency.	10
Q.5	Name two different types of wind machine and describe any one of them in detail.	10
Q.6	Discuss, in detail the classification of hydro-electric power plants on the basis of the capacity for water flow regulation	10
Q.7	Describe, in detail the two types of classification of photovoltaic (PV) systems.	10
Q.8	Discuss in detail i) Vibration based Energy Harvesting ii) Piezoelectric Energy Harvesting	10
Q.9	What is tidal energy? Enlist and describe the various components of tidal energy generation system.	10
Q.10	Enumerate the various resources of biomass giving details of each.	10

**Assignment -2**

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

**Course Code: MRW-004**

**Course Title: Energy Management**

**Assignment Code: MRW-004/TMA/2023**

**Maximum Marks:100**

**Last Date of Submission: April 30, 2023**

**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	Differentiate between the following:	
	a) Microscopic and macroscopic approach	5
	b) Preliminary energy audit and detailed energy audit	5
	c) Isochoric and isothermal process	5
	d) core type and shell type transformer	5
Q.2	a) Explain the principle of Energy conservation in details.	5
	b) Discuss the various barriers to energy conservation.	5
Q.3	Describe the principle of various pressure measuring instruments used in energy audit process.	10
Q.4	a) Proof that energy is the property of the system.	5
	b) Write the statements of second law of thermodynamics and discuss their significance and utility.	5
Q.5	Describe the various types of powers in an electric circuit with the help of neat diagram.	10
Q.6	Explain the construction and working principle of DC Generator.	10
Q.7	Explain the various ways to conserve energy in any industry you have visited recently.	10
Q.8	Write short notes on the following :	
	a) non cyclic power plants	5
	b) combustion analyzer	5
	c) Switch gear	5
	d) Evaporative cooling	5

### Assignment -3

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

**Course Code: MEV-003**

**Course Title: Environment law and Management**

**Assignment Code: MEV-003/TMA/2023**

**Maximum Marks: 100**

**Last Date of Submission: April 30, 2023**

**Note:**

1. For any question worth 10 marks the word limit is 350 words, for a 20 mark question it is 500 words.
  2. Attempt any five questions. All questions carry equal marks.
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Q.1	Explain in detail about the significance of Rotterdam, Rio conference and Cartagena Protocol?	20
Q.2	Explain the principles of Environmental design and describe its benefits?	20
Q.3	Discuss about the constitutional provisions related to environment.	20
Q.4	Discuss about environmental management principles.	20
Q.5	Describe a brief history of movements for conservation of natural environment.	20
Q.6	Define biosafety. Explain various types of biological containment.	20
Q.7	a) Explain the environmental dimension of corporate social responsibility.	10
	b) Environmental audit, its protocol and importance.	10