

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 2024

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 2024**, you should submit your TMAs by **April 30, 2024**. Similarly, if you wish to appear in the **TEE, December 2024**, you should submit your TMAs by **September 30, 2024**.
- 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/2024

Maximum Marks: 100

Last Date of Submission: April 30, 2024 (For June TEE), September 30, 2024 (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	Classify the various energy resources and explain each of them.	10
Q.2	What is coal extraction? Classify coal extraction and explain the classifications.	10
Q.3	Describe the steps involved in the process of petroleum refining.	10
Q.4	Compare the nuclear fusion and fission process in detail.	10
Q.5	Describe briefly the different forms of renewable energy.	10
Q.6	Discuss in detail the environmental impact of fossil fuels.	10
Q.7	Describe the collector-cum-storage solar water heater in detail.	10
Q.8	Discuss in detail a wind-solar hybrid system.	10
Q.9	What are the various types of digester? Explain, in detail.	10
Q.10	Explain the principle of geothermal energy working, usage and technological aspects.	10

Assignment -2

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

Course Code: MRW-004

Course Title: Energy Management

Assignment Code: MRW-004/TMA/2024

Maximum Marks: 100

Last Date of Submission: April 30, 2024 (For June TEE), September 30, 2024 (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	a) Explain the significance of energy in GDP of a nation.	5
	b) Discuss the role of an energy manager.	5
Q.2	a) Describe the utility of combustion analyzer in energy audit.	5
	b) Explain the process of detailed energy audit with the help of a suitable example.	5
Q.3	a) State the first law of thermodynamics. Discuss its applications and limitations in detail with the help of suitable examples.	5
	b) In a non-flow process carried out on 10.8 kg of a substance, there was a specific internal energy decrease of 50 kJ/kg and a work transfer from the substance of 85 kJ/kg. Determine the heat transfer and state whether it is gain or loss.	5
Q.4	a) Discuss the characteristics of exergy.	5
	b) Assume that the environment is a heat sink at 25°C. Calculate the change in the total entropy of the environment with the addition of 20MJ of heat.	5
Q.5	Describe organic Rankine cycle. Discuss its advantages and limitations also.	10
Q.6	Explain the principle of cogeneration. Discuss the important technical parameters for the cogeneration?	10
Q.7	Describe the working principle of a Transformer.	10
Q.8	Explain in detail the construction of single phase motor.	10
Q.9	a) What is switch gear? Explain the function of a fuse.	5
	b) Describe the operation of a distributed generation.	5
Q.10	Write short notes on any two of the following:	10
	a) Regeneration	
	b) Earthing	
	c) Power factor improvement	
	d) Energy conservation in steel industry	

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/2024

Maximum Marks: 100

Last Date of Submission: April 30, 2024 (For June TEE), September 30, 2024 (For December TEE)

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