

**DSCDM- 2026**

**ASSIGNMENT BOOKLET**

**DIPLOMA IN SMART CITY DEVELOPMENT  
AND MANAGEMENT (DSCDM)**

**Last date for submission:**

**30<sup>th</sup> September 2026**



**School of Engineering and Technology  
Indira Gandhi National Open University  
Maidan Garhi, New Delhi-110068**

Dear Student,

We advise you to go through your course material carefully and read all the section pertaining to assignments. A weightage of 30 per cent, as you are aware, has been earmarked for continuous evaluation which would consist of **one tutor-marked assignment** for each of MIO-001, MIO-002, MIO-003, MIO-004 and MIO-005 of these courses. You have to score a minimum of 40 marks out of 100 marks in each of the assignments. Submit your assignment response at **Programme Coordinator (DSCDM), Block-C, School of Engineering & Technology, Indira Gandhi National Open University, Maidan Garhi, New Delhi - 110068**

### Instructions for Formatting Your Assignments

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

- 1) On top of the first page of your Tutor Marked Assignment ( TMA) answer sheet, please write the details exactly in the following format:

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**ENROLMENT NO:** .....

**NAME:** .....

**ADDRESS:** .....

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**COURSE CODE:** .....

**COURSE TITLE:** .....

**ASSIGNMENT CODE:** .....

**STUDY CENTRE:** SOET, IGNOU Campus                      **DATE:** .....

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

- 2) Use only full-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) While solving problems, clearly indicate the question number along with the part being solved. Be precise. Recheck your work before submitting it.

Answer sheets received after the due date shall not be accepted.

**We strongly feel that you should retain a copy of your assignment response to avoid any unforeseen situation and append, if possible, a photocopy of this booklet with your response.**

We wish you good luck.

**Assignment - 5**  
(To be done **after** studying the course material)

**Course Code: MIO-005**

**Course Title: Smart Cities: Safe Water, Sanitation and Sustainability**  
**Assignment Code: MIO-005/TMA/2026**  
**Maximum Marks: 100**

**Note:**

- 1. In any question, whenever we ask you to suggest an activity, we expect you to give one other than those covered in the units**
  - 2. For any question worth 5 marks the word limit is 200 words, for a 10-mark question it is 350 words.**
  - 3. All questions are compulsory. All questions carry equal marks.**
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|-----|----|---|---|
| Q.1 | a) | What are the sources of clean water? Discuss the major issues in smart water supply   | 5 |
|     | b) | What is the fourfold path to be followed to meet the demand for potable water supply?   | 5 |
| Q.2 | a) | What are the principles to be followed in order to meet the water demand?   | 5 |
|     | b) | What are the steps to be taken to counter the threat conditions of water supply.  | 5 |
| Q.3 | a) | What is water monitoring? What are the uses of water quality monitoring?  | 5 |
|     | b) | What is SCADA System? What are its uses in water management?  | 5 |
| Q.4 | a) | What are the objectives of treating water? Discuss the various types of processes used in advanced water treatment?                                   | 5 |
|     | b) | What is settling velocity? What are the various types of settling in sedimentation tank?  | 5 |
| Q.5 | a) | What is the purpose of planning and designing a sewage collection scheme?   | 5 |
|     | b) | Describe broad characteristics of the untreated sewage giving examples.   | 5 |
| Q.6 | a) | Explain the steps involved in the planning and design of sewerage system.   | 5 |
|     | b) | List out various design considerations related to the setting up of a sewerage system.  | 5 |
| Q.7 | a) | Explain the need of solid waste management. State the problems occurred due to improper solid waste management?                                       | 5 |
|     | b) | What are the different sources of the municipal solid waste generation? Explain the factors affecting the rate of municipal solid waste generation.   | 5 |
| Q.8 | a) | What are the different types of solid waste collection systems? What are the necessary steps to be taken while establishing a waste storage facility? | 5 |
|     | b) | What are the different chemical technologies in waste management? Explain the advanced treatment methods used in the treatment of solid waste.        | 5 |
| Q.9 | a) | What are the stages for the selection of landfill site and write the steps involved in each stage?  | 5 |

- b) What are the emerging value-added products? Discuss the different types of waste utilized in emerging value-added products. 5
- Q.10 a) What are the different waste materials, which could be used as construction materials? 5
- b) Describe bio-ethanol production process. What are the benefits of using bio-ethanol as a fuel? 5