PGCGI

Assignment Booklet

POST GRADUATE CERTIFICATE IN GEOINFORMATICS (PGCGI)

(For learners getting admission in year 2024 and onwards in the Revised PGCGI Programme worth 20 Credits)

ASSIGNMENTS
JANUARY & JULY 2025 CYCLES

Valid from January 1, 2025 to December 31, 2025

Tutor Marked Assignments (TMA) for
MGY-101
MGY-102 &
MGY-103

It is compulsory to submit the Assignments before filling in the Term-End Examination (TEE) Form

School of Sciences
Indira Gandhi National Open University
Maidan Garhi, New Delhi-110 068 (INDIA)

(2025)

Dear Learner,

Welcome to the Post Graduate Certificate Programme in Geoinformatics (PGCGI).

As per the laid down guidelines of the University, you need to complete the assignment for each course. Each assignment has 6 to 9 questions. All the questions are compulsory. It is important that you should write the answers to all the questions in your own words. You should remember that writing answers to assignment questions will improve your writing skills and prepare you for the term-end examination.

This booklet includes assignments for the following three courses:

MGY-101: Introduction to Geoinformatics

MGY-102: Remote Sensing and Image Interpretation

MGY-103: Global Navigation Satellite System and Geographic Information System

It is compulsory to submit the assignments within the stipulated time to be eligible for appearing the term-end examination. You will not be allowed to appear for the term-end examination for a course if you do not submit the assignment for that course within the due date. As per the University guidelines, if you appear in the term-end examination of a course without submitting its assignment, the result of the term-end examination is liable to be cancelled/ withheld.

The assignments constitute the continuous component of the evaluation process and have 30% weightage in the final grading.

Before you write the assignments, first go through the course material and then prepare the assignments carefully by following the instructions pertaining to assignments. Your responses should not be a verbatim reproduction of the textual materials provided for self-learning purposes but it should be in your own words.

If you have any doubt or problem pertaining to the course material and assignments, contact the concerned Programme in-charge or Academic Counsellor at your Study Centre. If you still have problems, do feel free to contact us at the School of Sciences, IGNOU, New Delhi.

Wishing you all the best to successfully complete the programme.

Programme Coordinator
PGCGI
School of Sciences
e-mail: pgcgi@ignou.ac.in

INSTRUCTIONS

1. On the first page of the assignment response sheet, write the course code, course title, assignment code, name of your study centre (SC) and date of submission.
2. Your enrollment number, name and full address should be mentioned on the top right corner of the first page.
3. Write the Course title, assignment number and the name of the study centre you are attached to, in the centre of the first page of your response sheet.
4. The top of the first page of your response sheet should be like the following:

NAME: ….....…….....…….....

ENROLLMENT NO.: .....…….....

CYCLE OF ADMISSION: …..….....…….....

PROGRAMME CODE: .....…….....

ASSIGNMENT CODE: …….....

COURSE CODE: …….....…….....

COURSE TITLE: …….....…….....

REGIONAL CENTRE CODE: ..... …….....

STUDY CENTRE: .....…….....

ADDRESS: …….....……...…….....…….....

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.....…….....

CONTACT NUMBER: .....…….....

DATE OF SUBMISSION: ……..…….....…….....

Strictly follow the above format. If you do not follow this format, your script will be returned to you and you will be asked for re-submission.

5. Read the instructions related to assignments given in the Programme Guide.
6. Please note that unless you submit the assignments contained in this booklet within the stipulated time, you would not be permitted to appear for the term-end examination.

Note the following points before you start writing the assignments:

- Use only A-4 size paper for writing your responses. Only hand written assignments will be accepted. **Typed or printed copies of assignments will not be accepted.**
- Tie the pages after numbering them carefully.
- Write the question number for each answer.
- All the questions are compulsory.
- Keep a copy of the assignment answer sheets with you before submission for future reference.
- Answer each assignment on separate sheet.
- It is mandatory to write all assignments neatly in **your own handwriting. Write Your Name, Course Code, Enrollment No. and Cycle of admission** on all the assignments in bold letters**.**
- **Express your response in your own words. You are advised to restrict your response based on the marks assigned to it. This will also help you to distribute your time in writing or completing your assignments on time.**
- **The assignment has to be submitted at your Study Centre.**

You have to submit their completed assignments at the **Study Centre** allotted to you before the due date as set by the University.

It is desirable to keep with you a photocopy of the assignment(s) submitted by you.

*You have to submit the assignments to the Study Centre by **31st March, 2025** (for January 2025 Cycle) if you wish to appear in the June 2025 TEE and by **30th September, 2025** (for July 2025 Cycle) if you wish to appear in the December 2025 TEE.

Due Date of Submission*: For January 2025 Cycle: March 31, 2025
For July 2025 Cycle: September 30, 2025

* Please note that last date of submission may be changed by the University. Please check IGNOU website for updated information regarding due date of assignment submission.

Tutor Marked Assignment

MGY-101: Introduction to Geoinformatics

Course Code: MGY-101
Assignment Code: MGY-101/PGCGI/TMA/2025
Max. Marks: 100

Note: Attempt all questions. The marks for each question are indicated against it. Write all answers in your own words; do not copy from the Self Learning Materials (SLMs). Write your answers in about 200 and 400 words for short notes and long answers, respectively.

Part A

1. Write short notes on the following:
   a) Open Source Geospatial Consortium (5)
   b) Evolution of geoinformatics as a multidisciplinary subject (5)
2. Give an account of recent trends in the fields of hyperspectral and microwave remote sensing. (10)
3. Describe the various components of geoinformatics. (10)

Part B

4. Give an account of geospatial data and its various types. (10)
5. Write short notes on the following:
   a) Sources of derived raster data products (5)
   b) Elements of a map (5)
   c) Criteria for selecting a suitable map projection (5)
6. Discuss representation of various physical features in a SOI topographical map and their interpretation. Support your answer with neat well labelled diagrams, wherever required. (10)

Part C

7. Write short notes on the following:
   a) Role of geoinformatics in monitoring, prevention and management of oil spills (5)
   b) Application of geoinformatics in social science studies (5)
   c) National agencies dealing with geospatial data (5)
8. How can geoinformatics be used for natural resources management? Discuss and support your answers with Indian examples. (10)
9. Describe the application potential of geoinformatics in agriculture related studies. (10)

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Tutor Marked Assignment

MGY-102: Remote Sensing and Image Interpretation

Course Code: MGY-102
Assignment Code: MGY-102/PGCGI/TMA/2025
Max. Marks: 100

Note: Attempt all questions. The marks for each question are indicated against it. Write all answers in your own words; do not copy from the Self Learning Materials (SLMs). Write your answers in about 200 and 400 words for short and long answers, respectively.

Part A

1. Describe spectral signatures of soils, minerals and rocks and the factors influencing it. Support your answer with neat well labelled diagrams, wherever required. (10)
2. Discuss various types of image resolutions giving suitable examples. (10)
3. Write short notes on the following:
   a) Electromagnetic spectrum (5)
   b) Stefan-Boltzmann and Wien's laws (5)
   c) Landsat series of satellites (5)
   d) Indian space programmes (5)
   e) BSQ data format (5)
   f) MODIS (5)

Part B

4. Discuss the elements of aerial photo interpretation and interpretation keys. (10)
5. Give an overview of image classification methods. (10)
6. Write short notes on the following:
   a) Minimum mappable unit (5)
   b) Digital image and its types (5)
   c) Field equipments required for ground truthing (5)
   d) Image enhancement (5)
   e) Post classification steps (5)
   f) Difference between true colour and false colour composites (5)

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Tutor Marked Assignment

MGY-103: Global Navigation Satellite System and Geographic Information System

Course Code: MGY-103
Assignment Code: MGY-103/PGCGI/TMA/2025
Max. Marks: 100

Note: Attempt all questions. The marks for each question are indicated against it. Write all answers in your own words; do not copy from the Self Learning Materials (SLMs). Write your answers in about 200 and 400 words for short and long answers, respectively.

Part A

1. Give an account of the components of GIS. Draw well-labelled diagrams, wherever required. (10)
2. Discuss in detail the application potential of GPS. Give examples where ever required. (10)
3. Distinguish between the following:
   a) Field-based and object-based models (5)
   b) Raster and vector data structures (5)
4. Write short notes on the following:
   c) Coordinate and Datum (5)
   d) Sources of Errors in GPS observation (5)
   e) Segments of GNSS (5)
   f) Organisational aspects of GIS (5)

Part B

5. Discuss direct translation and neural format in data conversion process with the help of neat well-labelled diagrams. (10)
6. What is data quality? Explain the steps followed in calculation and interpretation of RMSE. (10)
7. What are data linkages? Explain linking non spatial data with spatial data.
8. Write short notes on the following:
   a) Difference between raster data and vector data input (5)
   b) Difference between raster and vector data (5)
   a) Topological models (5)
   b) Sources and types of errors in geospatial data (5)

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