5120

M.A. / M.Sc. (Final) Geography
Practical - II : GIS & Digital Cartography

Unit - I

a) Introduction to GIS and Cartography -
  - i. Concept of GIS
  - ii. History of Cartography and GIS.

b) The Structure of Geospatial Data.
  - i. GIS file types and organization, Metadata.
  - ii. The Geodatabase.

Lab Work

c) Using and Making Maps
  - i. Open and save a Map Document.
  - ii. Work with Map Layers.
  - iii. Measure Distances.
  - iv. Work with Feature Attributes.
  - v. Select Feature.
  - vi. Label Feature.

Unit - II

  - i. Measuring the Surface of the Earth
  - ii. Geodesy
  - iii. Coordinate Systems
  - iv. Shape and Scale - The Map Compromise
  - v. Projections
  - vi. Scale

b) Map Design
  - i. Create Choropleth Maps
  - ii. Create Point Maps
  - iii. Create a point map based on a definition query

Unit - III

c) Cartographic Principles in GIS Map Design
  - i. Map Lay-out
  - ii. Labels

b) Vector Data Points, Lines and Polygons
  - i. Vector analysis and symbols
  - ii. Cartographic Generalization

Lab Work

c) GIS Outputs
  - i. Create Map Layouts
  - ii. Add a report to layout
  - iii. Add a Grapy to layout

Unit - IV

a) Raster Data
  - i. Satellite Imagery

b) Colour and Modelling Terrain
  - i. Aspects of Colours
  - ii. DEM and Hillshading

Lab Work

c) Digitizing
  - i. Digitize polygon Features
  - ii. Digitize point Features
  - iii. Digitize line Features

Unit - V

a) The Display of Spatial Data - Thematic Maps
  - i. Choropleth and Graduated Symbols Maps
  - ii. Dot Density Maps

b) Geoprocessing
  - i. Clip Features
  - ii. Merge Features
  - ii. Union Layers

Distribution of Marks   **Total Marks 100**

A Part – GIS & Digital Cartography (40 marks)

Practical paper of three hours duration will be held along with main theory paper examination.

Section – A   Objective type 5 marks. Asked 10 questions, attempt all questions.

Section – B   Short Answers – 20 marks, Asked 10 questions, one question from each unit and attempt five questions.

Section-C   Descriptive type-15 marks ,Asked 5 questions, one question from each unit and attempt two questions

Practical – Assessed by External Examiner

Part B- GIS & Digital Cartography – 60 marks

I.   A -Test paper Lab exercise – 35 marks (25+10),
II.   Practical exercise shall be of three hours duration and of 25 marks and candidates will be required to attempt any 2 exercises out of 4. One based on computer.
                    B -Record work – 15 marks

                    C -   Viva-voce – 10 marks

Suggested Readings:

1. Atkinson, Peter M. Nicholas J. Tate (Ed.), 1999: Advances in Remote Sensing and GIS Analysis, John Wiley & Sons, Inc., New York.
2. Burrough, Peter A. and McDonnell, Rachael A., 2000: Principles of Geographical Information Systems, Spatial Information Systems and Geostatistics, Oxford University Press, Noida, Delhi, India.
3. Berry, Joseph K., 1996: Beyond Mapping: Concepts, Algorithms, and Issues in GIS, John Wiley & Sons, Inc., New York.
4. Chang, Kang-tsung, 2006: Introduction to Geography Information Systems, Tata McGraw-Hill Edition, New Delhi, Third Edition.
5. Clarke, Keith C., 1999: Getting Started with Geographic Information Systems, Prentice Hall Series in Geographic Information Science, Prentice Hall, New Jersey, Second Edition.
6. Chrisman, Nicholas, 2001: Exploring Geographic Information Systems, John Wiley & Sons, Inc., New York, 2nd Edition.
7. Cromley, Robert G., 1992: Digital Cartography, Prentice Hall, New Jersey.
8. DeMers, Michael N., 2004: Fundamentals of Geographic Information Systems, John Wiley & Sons, Inc., New York, Third Editiona.
9. David, Grahame, Shane, Brian McGrath (Ed.), 2005: Sensing the 21st Century City: The Net City Close-up and Remote, John Wiley & Sons, Inc., New York.
10. Heywood, Ian, Cornelius, Sarah, Carver, Steve and Raju, Srinivasa, 2006: An Introduction to Geographical Information Systems, Pearson Education, Inc., Delhi, Low Price Edition, Second Edition.
11. Harmon, John E. and Steven J. Anderson, 2003: The Design and Implementation of Geographic Information Systems, John Wiley & Sons, Inc., New York.
12. Longley, Paul A., Goodchild Michael F., Maguire, David J. and Rhind David W., 2001: Geographic Information Systems and Science, John Wiley & Sons, Ltd., England.
13. Mather, Paul M., 2004: Computer Processing of Remotely-Sensed Images: An Introduction, John Wiley & Sons, Inc., New York, 3rd Edition.
14. Mesev, Victor, 2008: Integration of GIS and Remote Sensing, John Wiley & Sons, Inc., New York.
15. Mather, Paul M., 1991: Computer Applications in Geography, John Wiley & Sons, Inc., New York.
16. Stillwell, John and Graham Clarke (Ed.), 2003: Applied GIS and Spatial Analysis, John Wiley & Sons, Inc., New York