

BACHELORS WITH DISASTER MANAGEMENT AS MAJOR (CT – III)
6th SEMESTER

DMG622J3 DISASTER MANAGEMENT _ FUNDAMENTALS OF GIS AND GPS

CREDITS: THEORY: 4; PRACTICAL: 2

LEARNING OBJECTIVES/COURSE OUTCOME:

This course aims to develop and enhance the theoretical understanding of learners about the geospatial technologies such as Geographic Information System (GIS) and Global Positioning System (GPS). The course covers topics on the basic structure, functioning, and applications of GIS and GPS. With clear theoretical knowledge and hands-on skills at end of semester, the students of this course must be able to visualize, interpret, map, and disseminate geographic data.

THEORY (4 CREDITS)

UNIT – I

- Introduction to Geographic Information System (GIS)
- Components of GIS
- Raster and Vector Data
- Spatial and non-spatial data

UNIT – II

- GIS Softwares: ArcMap, QGIS
- Geo-referencing and Projections
- Geospatial database
- Cartographic generalization

UNIT – III

- Introduction to Global Positioning System (GPS)
- Segments of GPS
- GPS error sources
- Types of GPS receivers

UNIT – IV

- Global and Regional Satellite Navigations Systems
- NavIC (Indian Regional Navigation Satellite System)
- GPS applications: Resource Management, Urban Planning, and Transportation

PRACTICAL

- Mapping point, line and polygon features using GIS
- Map designing
- Mapping point, line and polygon features using GPS
- Map designing

SUGGESTED READINGS

- Christopher J. Hegarty (eds), Elliott D. Kaplan- Understanding GPS: Principles and Applications, 2nd Ed.- Artech House Boston. London.
- Fundamentals of Global Positioning System Receivers: A Software Approach James Bao-Yen Tsui Copyright © 2000 John Wiley & Sons, Inc.
- Remote Sensing, Principles and interpretation; Floyd F. Sabins Jr. 1987. W.H. Freeman & Co.
- GIS Cartography: A Guide to Effective Map Design; N. Peterson, 2009. Gretchen New York, 2nd Edition
- GIS Solutions in Natural Resource Management, Stanley A. Morain, 1999, Onward Press, USA