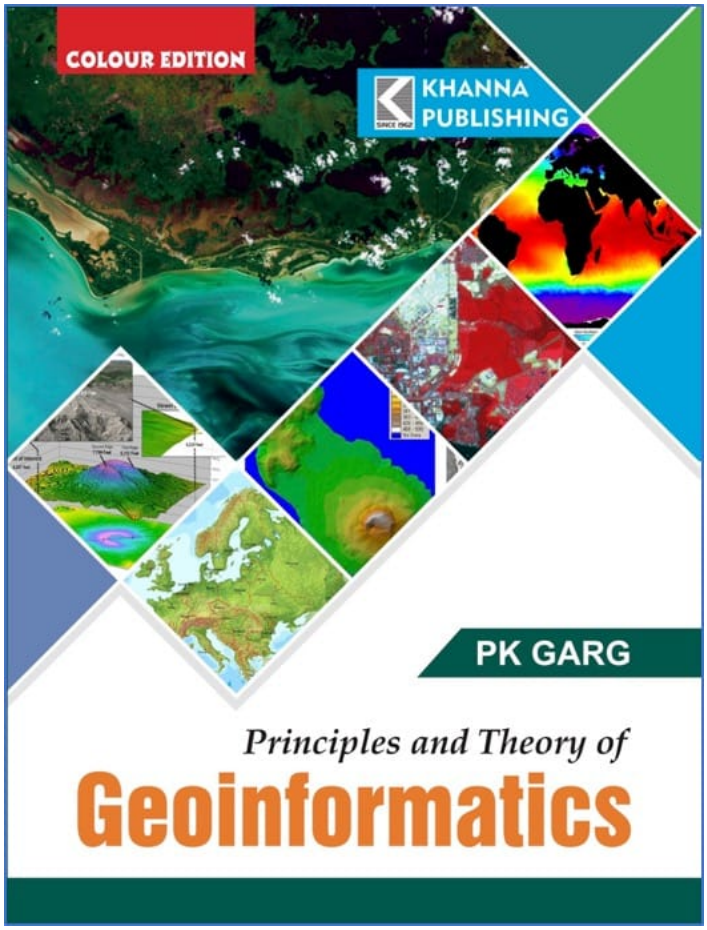

Principles and Theory of Geoinformatics

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Geoinformatics combines photogrammetry and remote sensing, image processing as well as other digital spatial data collection methods like GPS, field measurements, digitizing and scanning of maps, spatial data analysis algorithms and geographical data management, and visualization. It is one of the important tools that can help us to map and monitor the changes in the environment and on Earth, Geoinformatics, being multi-disciplinary in nature, is a fast growing area to solve real world problems by bringing together technologies and tools required for acquisition, exploration, visualization, analysis and integration of various spatial data. The main key feature of this book is that it concisely covers all the major topics of geoinformatics; Photogrammetry, Remote Sensing, GPS and GIS, so that UG & PG students and researchers can understand the theory of land data collection & mapping, and subsequently the analysis from these maps. The structure and character of spatial and non-spatial datasets are also described. The book covers basic geoinformatics tools and techniques which encompass a wide range of equipment, images and software, such as laser based devices, LiDAR, UAV/Drone, Aerial and terrestrial photographs, optical, Thermal, microwave and hyperspectral images, GPS, and GIS. The utility and application areas of these data collection techniques are presented in a simple language. This book will be extremely useful to students to understand the principles and theory of Geoinformatics that are crucial for several applications on the Earth surface.

Table of Contents

CHAPTER 1: GEOINFORMATICS. **CHAPTER 2:** PHOTOGRAMMETRY. **CHAPTER 3:** REMOTE SENSING. **CHAPTER 4:** GLOBAL POSITIONING SYSTEMS. **CHAPTER 5:** GEOGRAPHIC INFORMATION SYSTEMS.

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