HARD CORE COURSE: GYH-453: Basics of Remote Sensing

Course Learning Outcomes

CO1: Understand the history and evolution of Remote Sensing.
CO2: Identify and uses of various sources of satellite imageries from web platforms.
CO3: Illustrate the features of remote sensing data.
CO4: Carry out image processing using different software.
CO5: Analyse spatial data from imageries.
CO6: Analyse the temporal changes from imageries and prepare various thematic maps.

Unit	Course Content	Teaching Hours
1	**Remote Sensing**: Definition, electromagnetic radiation (EMR) and electromagnetic spectrum, interaction of EMR with the atmosphere and with the surface feature. Atmospheric window, spectral signature of common land covers (minerals, rocks, water, vegetation and urban area) concept and types of resolutions. History of remote sensing.	14
2	**Fundamentals of Aerial Photography:** Classification of aerial photographs on the basis of height and tilt, components of the camera, film. Elements of Aerial photo interpretation: Formats of Imageries- Digital and Analog data	13
3	**Sensor & Platforms: Sensors:** active and passive sensors. Platforms: types, characteristics, payload Indian of launch vehicles, orbit positioning issues, errors induced due to platform disturbances. Microwave remote sensing, thermal remote sensing, interferometry SAR, SLAR, Digital image processing. Future of remote sensing, Organizations into remote sensing,	14
4	**Application of Remote Sensing:** Disaster mitigation and management, geology, soil mapping, ocean resource mapping, EIA, wetland management, forest resource management	13

Essential Readings:

1. Bossler J.D (2002): Manual of Geospatial Science and Technology, Taylor and Francis, London.
2. Girard M.C and Girard C.M (2003): Processing of Remote Sensing Data, Oxford & IBH, New- Delhi.
3. John R. Jensen (2000): Remote Sensing of the environment: An earth resource perspective, Pearson publication.
4. Lilles and T M., and Kiefer R W., (2000): Remote Sensing and Image interpretation, New York,
5. John.Wiley and Sons. Pradip Kumar Guha (2013): Remote Sensing for the beginner, Third Edition, East-West Press, New Delhi.
6. Suresh S and Mani K., (2017): Application of Remote Sensing in understanding the relationship Between NDVI and LST, IJRET, Vol. 6, Issue: 02.