Shivaji University, Kolhapur

B. A. / B. A. B. Ed. - I

SEC PO2: Basics of Remote Sensing- II (Geography) as per NEP 2020

Name of the Programme	**:**	B .A. / B. A. B. Ed. (GEOGRAPHY)
Class	**:**	B.A.-I / B. A. B. Ed.-I
Semester	**:**	II
Name of Vertical Group	**:**	SEC (V-4)
Course Code	**:**	BAU0325SEL222B02
Course Title	**:**	**Basics of Remote Sensing- II**
Total Credit	**:**	02 Credits (Theory)
Workload	**:**	02 credit * 15 Hours= 30 hours
Duration	**:**	Semester
Medium of instruction	**:**	Marathi / English
Eligibility of Admission	**:**	As per eligibility criteria prescribed by the University
Examination of Pattern	**:**	40:10

Preamble:

Welcome to Basics of Remote Sensing- Part II, where we delve deeper into the world of remote sensing platforms, sensors, and image interpretation techniques. This course offers a comprehensive exploration of satellite and aircraft-based platforms, along with a detailed examination of sensor types and their applications. Through theoretical learning and practical exercises, students will gain proficiency in image interpretation and analysis, equipping them with essential skills for real-world applications in various fields.

General Objectives of the Course:

- To develop an understanding of remote sensing platforms, encompassing satellites and aircraft, and various satellite sensors, including optical, thermal, and microwave sensors.
- To explore different resolutions in remote sensing, such as spatial, spectral, radiometric, and temporal resolutions, and understand their significance in data acquisition and analysis.
- To gain proficiency in image interpretation techniques, digital image processing basics, and the usage of remote sensing software, enabling effective analysis, interpretation, and visualization of remote sensing data for real-world applications.

- To examine the applications of remote sensing sensors in various fields, including agriculture, environmental monitoring, urban planning, and disaster management, to comprehend the practical utility of remote sensing technology.

Course Outcomes:

Upon completion of the course, students will:

- Understand different remote sensing platforms and sensors, including optical, thermal, and microwave sensors, enabling them to utilize this knowledge for various applications.
- Analyze remote sensing data using spatial, spectral, radiometric, and temporal resolutions to extract valuable information relevant to different fields.
- Apply image interpretation techniques and basic digital image processing principles to enhance remote sensing imagery effectively for diverse purposes.
- Utilize remote sensing software proficiently for image analysis, interpretation, and visualization tasks, enabling them to process and manipulate remote sensing data for real-world applications in agriculture, environmental monitoring, urban planning, and disaster management.

Nature of Question Paper:

The student's examination and evaluation methods are as per the guidelines of the Shivaji University.

- Internal evaluation should be based on Home Assignment/Unit Test/Case Study

Modules

Basics of Remote Sensing - II			
Modules	**Name of the Module**	**Modules**	**Modules**
I	**Remote Sensing Platforms and Sensors** 1.1 Remote Sensing Platforms: Satellites, Aircraft 1.2 Satellite sensors: optical, thermal, microwave 1.3 Resolutions: Spatial, Spectral, Radiometric, Temporal 1.4 Applications of Sensors in Various Fields	15	1
II	**Image Interpretation and Analysis Techniques** 2.1 Image interpretation techniques 2.2 Digital Image Processing Basics 2.3 Introduction to Remote Sensing Software 2.4 Applications of Remote Sensing	15	1

Suggested Readings

1. Anji Reddy, M. (2008). Textbook of Remote Sensing and Geographic Information System. B.S. Publication, Hyderabad.
2. Bhatta, B. (2008). Remote Sensing and GIS. Oxford University Press.
3. Burrough, P. A., & McDonnell, R. A. (2000). Principles of Geographical Information System-Spatial Information System and Geo-statistics. Oxford University Press.
4. Campbell, J. B. (2007). Introduction to Remote Sensing. Guilford Press.
5. Chauniyal, D. D. (2010). Sudur Samvedan evam Bhogolik Suchana Pranali. Sharda Pustak Bhawan, Allahabad.
6. Hord, R. M. (1989). Digital Image Processing of Remotely Sensed Data. Academic.
7. Heywoods, I., Cornelius, S., & Carver, S. (2006). An Introduction to Geographical Information System. Prentice Hall.
8. Jensen, J. R. (2004). Introductory Digital Image Processing: A Remote Sensing Perspective. Prentice Hall.
9. Joseph, G. (2005). Fundamentals of Remote Sensing. United Press India.
10. Jha, M. M., & Singh, R. B. (2008). Land Use: Reflection on Spatial Informatics Agriculture and Development. Concept.
11. Kumar, D., Singh, R. B., & Kaur, R. (2019). Spatial Information Technology for Sustainable Development Goals. Springer.
12. Li, Z., Chen, J., & Batsavias, E. (2008). Advances in Photogrammetry, Remote Sensing and Spatial Information Sciences. CRC Press, Taylor and Francis.
13. Lillesand, T. M., Kiefer, R. W., & Chipman, J. W. (2004). Remote Sensing and Image Interpretation (Wiley Student Edition). Wiley.
14. Mukherjee, S. (2004). Textbook of Environmental Remote Sensing. Macmillan, Delhi.
15. Rees, W. G. (2001). Physical Principles of Remote Sensing. Cambridge University Press.
16. Richards, J. A., & JiaXiuping. (2005). Remote Sensing Digital Image Analysis: An Introduction. Springer.
17. Sarkar, A. (2015). Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi.
18. Singh, R. B., & Murai, S. (1998). Space-informatics for Sustainable Development. Oxford and IBH Pub.
19. Wolf, P. R., & Dewitt, B. A. (2000). Elements of Photogrammetry: With Applications in GIS. McGraw-Hill.