

Lecture Plan		
Name of the college: Government college of Arts, Science and Commerce, Sanquelim Goa		
Name of Faculty: Dr. Arati Panshekar	Subject: Geography	
Paper code: GOG 301 Principles of Remote Sensing	Program: BA	Division: A
Academic year: 2026 - 2027	Semester: V	Total Lectures: 45
Course Objectives: This course is designed to provide a comprehensive introduction to the fundamental principles and applications of remote sensing. The course will cover the basic concepts, technologies, and techniques used in remote sensing, with a focus on understanding the principles behind the collection and analysis of spatial data. The The Practical component of the course serves as an introduction to geospatial data analysis, focusing on fundamental concepts and practical skills. Participants will gain proficiency in utilizing key tools and techniques for interpreting and analyzing geospatial data.		
Expected Course Outcome: At the end of the successful completion of this course, students will be able to: 1. Comprehend the fundamental principles underlying remote sensing technology. 2. Relate the concepts of data acquisition to the characteristics of different remote sensing platforms and sensors. 3. Develop skills in visually interpreting features and patterns in remote sensing imagery as well as in the application of remote sensing data in making in-formed decisions in agriculture, environmental management, urban planning, and disaster response. 4. Demonstrate a working knowledge of Remote Sensing tools and functionality for basic geospatial analysis and develop critical thinking skills for analysing geospatial data		
Student Learning Outcome: Upon successful completion of this course, students will be able to: 1. Explain the fundamental principles, concepts, platforms, sensors, and data acquisition techniques used in remote sensing. 2. Differentiate various types of remote sensing, sensors, image resolutions, and remote sensing data formats. 3. Interpret remote sensing data by understanding image characteristics, georeferencing, and spatial information for geographical analysis. 4. Apply remote sensing concepts to agriculture, environmental monitoring, coastal zone management, urban planning, land use/land cover mapping, and disaster management.		

Month	Lecture From	Lecture To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
June	22/06/2026	27/06/2026	3	Introduction to Remote Sensing: Definition, Concept, Scope, and Principles	• Mapping • Flowchart Preparation • Mind Mapping • Group Discussion • Group Debate • Case Study Analysis • Thematic Map Interpretation • Quiz • Field Observation • Field Report Writing • Collaborative Learning Activity • Google Earth Exploration • Google Maps Exercise	• Debate • Classroom Teaching • Google Maps • Power point presentation • Quiz • Discussion	1. Campbell, James B., and Randolph H. Wynne. <i>Introduction to Remote Sensing</i>. Guilford Press, 2011. 2. Jensen, John R. <i>Introductory Digital Image Processing: A Remote Sensing Perspective</i>. Pearson, 2016. 3. Jensen, John R. <i>Remote Sensing of the Environment: An Earth Resource Perspective</i>. Pearson, 2016. 4. Lillesand, Thomas M., and Ralph W. Kiefer. <i>Remote Sensing and Image Interpretation</i>. Wiley, 2015. 5. Maune, David F. <i>Digital Elevation Model Technologies and Applications: The DEM User's Manual</i>. ASPRS Publications, 2007. 6. Ramachandra, T. V., Uttam Kumar, and K. S. Rajasekara Murthy. <i>Remote Sensing Applications in Environmental Research</i>. Capital Publishing Company, 2007. 7. Richards, John A. <i>Remote Sensing Digital Image Analysis: An Introduction</i>. Springer, 2006. 8. Richards, John A. <i>Remote Sensing with Imaging Radar</i>. Springer, 2010. 9. Ridd, Merrill K., and John D. Wood. <i>The Science of Remote Sensing: A Primer</i>. Routledge, 2008. 10. Thenkabail, Prasad S., John G. Lyon, and Alfredo Huete. <i>Hyperspectral Remote Sensing of Vegetation</i>. CRC Press, 2012.
June	29/06/2026	04/07/2026	3	History and Evolution of Remote Sensing			
July	06/07/2026	11/07/2026	3	Types of Remote Sensing: Active and Passive Remote Sensing			
July	13/07/2026	18/07/2026	3	Types of Remote Sensing: Aerial and Satellite Remote Sensing			
July	20/07/2026	25/07/2026	3	Electromagnetic Spectrum: Electromagnetic Radiation, Wavelengths, Energy Interactions, and Atmospheric Windows			
July	27/07/2026	01/08/2026	3	Remote Sensing Platforms: Satellites, Aircraft, Drones (UAVs), and Ground-Based Sensors			
August	03/08/2026	08/08/2026	3	Types of Remote			

				Sensing Sensors: Optical, Thermal, Radar, and LiDAR
August	10/08/2026	15/08/2026	3	Characteristics and Specifications of Common Remote Sensing Sensors
August	17/08/2026	22/08/2026	3	Image Resolution: Spatial, Spectral, Radiometric, and Temporal Resolution
August	24/08/2026	29/08/2026	3	Pixel Size, Georeferencing, Coordinate Systems, and Spatial Resolution
September	31/08/2026	05/09/2026	3	Remote Sensing Data Models and Formats: Raster and Vector Data
September	07/09/2026	12/09/2026	3	Remote Sensing Data Acquisition Methods: Pushbroom and Whiskbroom Scanners
September	21/09/2026	26/09/2026	3	Applications of Remote Sensing in Agriculture and Crop Monitoring
September	28/09/2026	03/10/2026	3	Applications of Remote Sensing in Environmental

				Monitoring, Assessment, and Coastal Zone Management		
October	05/10/2026	10/09/2026	3	Applications of Remote Sensing in Urban Planning and Land Use/Land Cover Mapping		
October	12/10/2026	14/10/2026	3	Applications of Remote Sensing in Disaster Management, Response, and Recent Advances in Remote Sensing		

*** Assessment Rubrics**

Component	Max Marks
ISA 1	7.5
ISA 2	7.5
Practical	25
Semester End Exam	60