Lecture Plan

Name of the college: Government College of Arts, Science and Commerce, Sanquelim- Goa

Name of Faculty: Diksha Karapurkar	**Subject: Geology**	
Paper code: GEO 141: Space and Drone Based Remote Sensing	**Program: F**.Y.B.Sc.	**Division: -**
Academic year: 2025 - 2026	**Semester:** I	**Total Practicals:** 14

Course Objectives: The objectives of this course are to:
1. Describe the remote sensing process. CL2
2. Explain the applications of remote sensing in various fields. CL2

Course Outcomes:
At the end of the course the student will be able to:
1. Demonstrate EMR interactions. CL2
2. Analyze the applications of satellites and sensors. CL4
3. Identify ground features using aerial photos and satellite images. CL3
4. Operate a drone according to proper procedures and safety measures. CL3

Month	Lecture From	Lecture To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
July	02/07/2025	05/07/2025	1	Introduction to Remote Sensing Concepts and Raster Data formats	To create an account of	PowerPoint Presentations; Satellite Data (Landsat 8;	

					different portals	Sentinel 2); QGIS, EarthData; USGS GloVis	
July	07/07/2025	12/07/2025	1	Downloading Satellite (Raster Data) Data from USGS GloVis and EarthData portals of USGS and NASA Respectively. Downloading Satellite data from NRSC Data Order and Dissemination Portal (Bhoonidhi)	To download satellite data		1. Carroll, M. (2019). *Drone photography basics: Your guide to the sky.* Skyhorse Publishing. 2. Gupta, R. P. (2013). *Remote sensing geology*. Springer. 3. Hall, C. (2018). *The drone photography handbook: Capture stunning aerial photos and videos with your drone.* Ilex Press. 4. Hall, M. (2018). *Aerial photography and videography using drones.* CRC Press. 5. LaRue, M. A. (2018). *Introduction to drone photography: Learn how to take stunning aerial photos and videos.* Skyhorse Publishing. 6. Lillesand, T. M., & Kiefer, R. W. (2018). R*emote sensing and image interpretation.* John Wiley & Sons. 7. Lillesand, T. M., Kiefer, R. W., & Chipman, J. W. (2020). *Remote sensing and image interpretation.* John Wiley & Sons. 8. Miller, M. M., & Miller, J. D. (2014). *Photogeology.* Springer Science & Business Media. 9. Moffitt, F. H., & Mikhail, E. M. (2010). *Photogrammetry.* Wiley. 10. Pande, P. C. (1987). *Principles and applications of photogeology*.
July	14/07/2025	19/07/2025	1	Installation of QGIS Software; Importing and viewing different bands of Landsat 8/9 dataset in QGIS	Installing QGIS		
July	21/07/2025	26/07/2025	1	Visualizing spectral signatures of different components of the objects on the ground (Soil, Vegetation, Built-up, Rocks, Water bodies, Agricultural Land) using Landsat Bands; Temporal, Spectral and Spatial Resolution of satellite data	Visualizing and describing different bands of Landsat 8/9		
July - August	28/07/2025	02/08/2025	1	Elements of identifying different planetary features on the planet (mentioned above); Size, Shape, Texture, Colour (Tone) Brightness, Location, Association	Describing various Land Use Land cover using the studies elements of identification		
August	04/08/2025	09/08/2025	1	Identification and description of satellite data in different band composites; The concept of Band Composites; False Colour Composites and Natural Colour Composites	Description of your villages LULC using Google Maps satellite view		
August	18/08/2025	23/08/2025	1	Exercise on Identification of Land Use land cover types using Satellite data band composites and Google imageries on Google Map (Satellite View)	Description of Land Use Land Cover of the Panaji using Landsat 8/9		

					band composites		IBH. 11. Reed, B. (2019). *Physical principles of remote sensing.* Cambridge University Press.
September	02/09/2025	06/09/2025	1	Intra Semester I Assessment			
September	08/09/2025	13/09/2025	1	Identifying changes in LULC using two temporal data sets; Landslides in Western Ghat regions; Change in spit morphology and river mouth dynamics using Google Earth Pro Software	Describing the changes and identifying changes in the landscape using Google Earth Pro software through its Historical imageries module		
September	15/09/2025	20/09/2025	1	Describing changes in spatial information using satellite imageries (Sal River and Western Ghats of Goa)	Describing changes in morphology of River sal mouth and the spit growing across it, Its temporal and spatial implications		
September	22/09/2025	27/09/2025	1	Case study of Forest Fire Vulnerability to Goa’s Forests (Report of Forest Department of Goa)	Preparing Workflow charts for the mentioned study using the reports		
September - October	29/09/2025	04/10/2025	1	Understanding methodology followed for establishing forest fire vulnerability, parameters involved and their influence; Methodology for their derivation			
October	06/10/2025	11/10/2025	1	Revision			

October	13/10/2025	17/10/2025	1	Intra Semester Assessment II		

-
-
-

* Assessment Rubrics

Component	Max Marks
ISA 1	5
ISA 2	5
ISA 3	5