

CIVIL ENGINEERING DEPARTMENT

Vishwakarma Govt. Engineering College Chandkheda, Ahmedabad 382424

Lesson Plan (Theory): 2025_26

ODD Semester Term Date : 14-July-25 onward

Semester: V	Remote Sensing and GIS	Sub Code: 3150617
Prof G D Jagad	Lecture/week = 2	Lecture/sem = 28

Teaching Scheme			Credits	Examination Marks						Total Marks
L	T	P	C	Theory Marks			Practical Marks			
				ESE (E)	PA (M)		ESE (V)		PA (I)	
					PA	ALA	ESE	OEP		
2	0	2	3	70	20	10	30	0	20	150

Sr. No.	Chapter & Topics covered	Lecture No.	Faculty
1	FUNDAMENTAL OF REMOTE SENSING:		
	Definition –Components of Remote Sensing –Active and Passive Remote Sensing – Electro Magnetic Spectrum – Interaction of EMR With the Earth's Surface –Interactions with the Atmosphere	1	GDJ
	Energy Sources and Radiation., Active and Passive Remote Sensing., Energy Interaction in the Atmosphere.	2	
	Energy Interaction with the Earth Surface Features.	3	
	Data Acquisition and Recording.	4	
	Remote Sensing Data Products.	5	
2	IMAGE INTERPRETATION AND DIGITAL IMAGE PROCESSING -		GDJ
	Introduction to Digital Image and Imaging Sensors, Data Formats of Digital Image, Display of Digital Image	6	
	Image Processing Systems – Strategies – Keys – Equipments, Digital Image Processing	7	
	Rectification and Restoration – Enhancement of Image	8	
	Image Transformation, Classification, Image Analysis.	9	
3	GEOGRAPHIC INFORMATION SYSTEM -		GDJ
	Introduction to GIS, Definitions of GIS, GIS related terminology, Components of GIS	10	
	GIS Data	11	
	Georeferenced data	12	
	GIS- Data input	13	
	GIS- Data output, Data quality,	14	
	Data Management	15	

Sr. No.	Chapter & Topics covered	Lecture No.	Faculty
4	SPATIAL DATA ANALYSIS		GDJ
	Characteristics of Map Coordinate systems	16	
	Introduction to Map projections- Geo-referencing Frameworks and Reference Coordinate Systems.	17	
	GIS analysis functions – Retrieval – Reclassification	18	
	Buffering and Neighborhood	19	
	Overlaying – Data Output	20	
	Fundamentals of GIS Analysis functions	21	
5	SOFTWARE		GDJ
	GIS Software, Image interpretation Software, Salient features of software	22	
	Capabilities of software	23	
	Limitations of software, Data management in different GIS software	24	
	Spatial Data Models, Attribute Data Management	25	
6	APPLICATIONS		GDJ
	Application of Remote Sensing / GIS	26	
	Application of Remote Sensing / GIS– Case studies	27	
	GIS and Remote Sensing – Usefulness in Civil Engineering.	28	

Mid Semester Examination Syllabus

1. Chapter : I
2. Chapter : II
3. Chapter: III

Faculty Coordinator

HOD