



SWARNANDHRA COLLEGE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by
NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956,
Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada
Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF CIVIL ENGINEERING

TEACHING PLAN

Course Code	Course Title	Semester	Branches	Contact Periods /Week	Academic Year	Date of commencement of Semester
16CE7T02	REMOTE SENSING AND GIS APPLICATIONS	VII	CIVIL	5	2021-22	4.10.2021

COURSE OUTCOMES

Students are able to

1	Differentiate about ground, air and satellite based sensor platforms. (K2)
2	Describe about the image interpretation and image classification. (K3)
3	Know about its key components of GIS and its applications. (K1)
4	Describe about different overlay operations, expressions and networks. (K4)
5	Know the applications of RS and GIS to land use, agriculture and geology. (K3)
6	Know the applications of GIS to flood zone mapping and watershed management (K3)

UNIT	Out Comes / Bloom's Level	Topics No.	Topics/Activity	Text Book / Reference	Contact Hour	Delivery Method	
1	Differentiate about ground, air and satellite based sensor platforms. (K2)	1.INTRODUCTION TO REMOTE SENSING					Chalk & Board, PPT
		1.1	Basic concepts of remote sensing.	T1	1		
		1.2	Electromagnetic radiation, electromagnetic spectrum.	T1	2		
		1.3	Interaction with atmosphere, energy	T1	1		
		1.4	Interaction with the earth surfaces Characteristics of remote sensing systems.	T1	1		
		1.5	Sensors and platforms: Introduction, types of sensors.	R1	1		
		1.6	Air borne remote sensing, space borne remote sensing.	T1	2		
		1.7	Image data characteristics. Digital image data formats-band interleaved by pixel	T1	2		
		1.8	Band interleaved by line.	R2	1		
		1.9	Band interleaved by sequential, IRS, LANDSAT, SPOT.	T1	2		
					Total	13	
2.IMAGE ANALYSIS							



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2	Describe about the image interpretation and image classification. (K3)	2.1	Image Analysis: Introduction.	T1	1	Chalk & Board, PPT, video	
		2.2	Elements of visual interpretations.	T1	1		
		2.3	Digital image processing, image enhancement.	T1	2		
		2.4	Image classification: Supervised Classification unsupervised classification.	T1	2		
		2.5	Unsupervised classification.	T1	2		
Content Beyond Syllabus			Introduction of image parallax in photogrammetry	T1	01		
					Total	09	
3. GEOGRAPHICAL INFORMATION SYSTEM							
3	Know about its key components of GIS and its applications. (K1)	3.1	Geographical Information System: Introduction, key components.	T1	1	Chalk & Board, PPT, video	
		3.2	Application areas of GIS	T1	2		
		3.3	Map projections.	T1	1		
		3.4	Data entry and preparation: Spatial data input.	T1,R1	2		
		3.5	Raster data models.	T1	2		
		3.6	Vector data models.	T1	2		
					Total	10	
4.SPATIAL DATA ANALYSIS							
4	Describe about different overlay operations, expressions and networks. (K4)	4.1	Spatial Data Analysis Introduction,	T1	1	Chalk & Board, PPT, video	
		4.2	overlay function-vector overlay operations,	T3	2		
		4.3	raster overlay operations	T1	1		
		4.4	Arithmetic operators	T1	1		
		4.5	comparison and logical operators	T1	1		
		4.6	Conditional expressions.	T1	1		
		4.7	Overlay using a decision table	T2	1		
		4.8	Network analysis-optimal path finding	T1	2		
		4.9	Network allocation, network tracing.	T1	2		
					Total	12	
5. RS AND GIS APPLICATIONS GENERAL							
5	Know the applications of RS and GIS to land use, agriculture and geology. (K3)	5.1	RS and GIS applications- General	T1	1	Chalk & Board, PPT, video	
		5.2	Land cover and land use.	T1	2		
		5.3	RS and GIS applications in agriculture.	T1	2		
		5.4	RS and GIS applications in Forestry, geology	T1	2		
		5.5	RS and GIS applications in geo	T1	2		



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			morphology, urban applications.	Total	09	
6.APPLICATIONS TO HYDROLOGY AND WATER RESOURCES						
6	Know the applications of GIS to flood zone mapping and watershed management (K3)	6.1	Applications to Hydrology and Water resources.	T1	2	Chalk & Board, PPT, video
		6.2	Flood zoning and mapping	T1	2	
		6.3	Ground water prospects	T1	1	
		6.4	Potential recharge zones	T	1	
		6.5	Watershed management.	T2	2	
Content Beyond Syllabus		Introduction to digitization, rubber sheeting and false color combinations		T1	2	
				Total	10	
CUMULATIVE PROPOSED PERIODS					63	

Text Books:

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Bhatta B, 'Remote Sensing and GIS', 2 nd Edition, Oxford university press, 2011.
2	Lillesand, T.M, R.W. Kiefer and J.W. Chipman 'Remote sensing and image interpretation', 7 th Edition, Wiley India Pvt.Ltd, New delhi, 2015.
3	George Joseph, Fundamentals of Remote sensing, Second edition, University press, 2005.

Reference Books:

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Narayan LRA, Remote sensing and its applications, 1 st Edition, University press, 2013.
2	Kumar S, Basics of Remote sensing, 1 st Edition, Lakshmi publications, 2005.

Web Details

1	https://nptel.ac.in/courses/105/108/105108077/
2	https://nptel.ac.in/courses/105/102/105102015/

		Name	Signature with Date
i.	Faculty	G.V.L.N.Murthy	
ii.	Course Coordinator	G.V.L.N.Murthy	
iii.	Module Coordinator	G.V.L.N.Murthy	
iv.	Programme Coordinator	G.V.L.N.Murthy	

Principal