SWARNANDHRA COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous)

Narsapur, West Godavari District, A.P. 534280

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

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TEACHING PLAN

Course Code	Course Title	Semester	Branches	Contact Periods /Week	Academic Year	Date of commencement of Semester
20EC7002	REMOTE SENSING	VII	CSE,EEE,ME ROBOTICS	4	2025-2026	05-06-2025

COURSE OUTCOMES:

After completion of the course students are able to

CO1	Understand the subject of satellite communication and remote sensing with the core knowledge of space and satellite communication and international space laws. (K2)
CO2	Develop different remote sensing signaling techniques, capable of interpreting signature of satellite communication from bodies like soil, vegetation and ocean. (K3)
CO3	Analyze various components used in satellite communication and remote sensing applications. (K4)
CO4	Acquire and keep abreast of designing satellite remote sensing system and also analyze the sensor data for drawing inference and conclusions. (K4)

UNIT	Out Comes / Bloom's Level	Topics No.	Topics/Activity	Text Book / Reference	Contact Hour	Delivery Method
I	CO1: Understand the subject of satellite communication and remote sensing with the core knowledge of space and satellite communication and international space laws.		I.INTRODUCTION			Chalk & Talk, PPT, active learning and tutorial
		1.1	Historical background	T1	1	
		1.2	International space laws	T1	1	
		1.3	Advantages of space based observations	R2	1	
		1.3	Advantages of space based observations	T1	1	
		1.4	Global coverage	R2	1	
		1.4	Global coverage	R2	1	
		1.5	Multi scale observation	T1	1	
		1.6	Repeat observation	T1	1	
		1.7	Immediate transmission and digital format		1	
		1.7	Immediate transmission and digital format	T1	1	
		1.8	Source of information on remote sensing region	T1	1	

			Class Test -I		1	
Total					12	
		2.PRINCIPLES OF REMOTE SENSING				
II	CO2: Develop different remote sensing signaling techniques capable of interpreting signature of satellite communication from bodies like soil, vegetation and ocean.	2.1	Fundamentals of remote sensing signals	T1	1	
		2.2	The electromagnetic spectrum	R2	1	
		2.3	Terms and units of measurements	T1	1	
		2.4	EM radiation laws	T1	1	
		2.5	Spectral signature in the solar spectrum	R1	1	
		2.6	vegetation reflectance	T1	1	
		2.7	soil reflectance	T1	1	
		2.8	water in the solar spectrum		1	
		2.9	The thermal infrared domain	R2	1	
		2.10	characteristics of EM radiation in thermal infrared	T1	1	
		2.11	Thermal properties of vegetation Soils thermal domain	T1	1	
			Class Test-II		1	
Total					12	
		3.SENSORS AND REMOTE SENSING SATELLITES				
III	CO3: Analyze various components used in satellite communication and remote sensing applications.	3.1	Types of sensors	R1	1	Chalk & Talk, PPT, active learning and tutorial
		3.2	Spatial resolution and spectral resolution	T1	1	
		3.3	Temporal resolution and radiometric resolution	T1	1	
		3.4	Passive sensors	T1	1	
		3.5	Photographic cameras	R2	1	
		3.6	Active scanners	T1	1	
		3.7	Radar and Lidar		1	
		3.8	Satellite orbits	R2	1	
		3.9	Spot satellite	R1	1	
		3.10	High resolution satellites	T1	1	
		3.11	Polar and Geostationary satellites	T1	1	
			Class Test-III		1	
Total					12	
		4.BASIS FOR INTERPRETATION OF REMOTE SENSING				
IV	CO4: Acquire and keep abreast of designing satellite remote sensing system	4.1	Constraints in remote sensing	T1	1	Chalk & Talk, PPT, active learning and tutorial
		4.2	Types of interpretation	T1	1	
		4.3	Data acquisition	T1	1	
		4.3	Data acquisition	R3	1	
		4.4	Thematic classification	T1	1	
		4.4	Thematic classification	R2	1	
		4.5	Generation of Biophysical variables	R1	1	

	and also analyze the sensor data for drawing inference and conclusions.	4.6	Change detection	T1	1	
		4.7	Spatial patterns	R1	1	
		4.7	Spatial patterns	R2	1	
		4.8	Interpretation phase	T1	1	
			Class Test-IV		1	
Total					12	
		5.PHOTOGRAPHIC IMAGES				
V	CO4: Acquire and keep abreast of designing satellite remote sensing system and also analyze the sensor data for drawing inference and conclusions.	5.1	Feature Identification	R2	1	Chalk & Talk, PPT, active learning and tutorial
		5.2	Criteria for visual interpretation	T1	1	
		5.3	Brightness, color, Texture, Shadows	T1	1	
		5.3	Texture, Shadows	T1	1	
		5.4	Shape and size	T1	1	
		5.5	Stereoscopic view	R1	1	
		5.6	Visual analysis	T1	1	
		5.6	Visual analysis	R1	1	
		5.7	Geometric characteristics of images	T1	1	
		5.8	Color composites	T1	1	
			Class Test		1	
			Course beyond Syllabus		1	
Total					12	
CUMULATIVE PROPOSED PERIODS					60	

Text Books:

S.NO	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1.	Emilio Chuvieco, " Fundamentals of Satellite Remote Sensing" CRC Press, Edition, 2009

Reference Books:

S.NO	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1.	C.H.Chen, "Signal processing for Remote sensing, CRC press,Edition-2007.
2.	Satellite Communication by R N Mutagi Oxford university press, 2016.
3.	Enrico Del Re, and Marina Ruggieri, Satellite Communication and navigation systems, Springer

Web sources

https://worldview.earthdata.nasa.gov

		Name	Signature
i.	Course Coordinator	Mr. V Srinivas	V. Srin
ii.	Module Coordinator	Dr Sekhar Didde	
iii.	Programme Coordinator	Dr BS Rao	

Principal

PRINCIPAL
Swarnandhra College of
Engineering & Technology
SEETHARAMAPURAM
NARSAPUR - 534 280. W.G.D