

19CE4602C- REMOTE SENSING AND GEOGRAPHIC INFORMATION SYSTEMS

Course Category:	Program Elective	Credits:	3
Course Type:	Theory	Lecture-Tutorial-Practical:	3-0-0
Prerequisites:	19CE3306- Surveying	Continuous Evaluation:	30
		Semester End Evaluation:	70
		Total Marks:	100

Course Outcomes

Upon successful completion of the course, the student will be able to:

CO1	Understanding of aerial photographs, stereoscopy and Remote sensing sensors and platforms, their properties and calibration.	K4
CO2	Knowledge of Technical issues relating to the acquisition, storage, management, analysis and display of the GIS spatial data.	K4
CO3	Understanding of image processing sequence and its importance in Remote Sensing & Spatial Analysis.	K4
CO4	Understanding of GIS Map Projections and Buffering Techniques and Raster data models and vector data models.	K4
CO5	Apply GIS land cover and land use management, agriculture, forestry, & disaster management.	K3

Contribution of Course Outcomes towards achievement of Program Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2		2		3		2		3			3	2	2
CO2	2		2		3		2		3			3	2	2
CO3	2		2		3		2		3			3	2	2
CO4	2		2		3		2		3			3	2	2
CO5	2		2		3		2		3			3	2	2

1- Low

2-Medium

3-High

Course Content

UNIT-1	<p>BASIC CONCEPTS AND FOUNDATION OF REMOTE SENSING – Elements involved in Remote Sensing, Electromagnetic spectrum, remote sensing energy interactions with atmosphere, Resolution, Satellite visual interpretation techniques, basic elements, converging evidence, interpretation for terrain evaluation.</p> <p>PHOTOGRAMMETRY and Types of Aerial photographs, stereoscopy, Map Vs Mosaic, ground control, Stereoscopic Parallax, Orthophotograph.</p>	CO1
UNIT-2	<p>BASIC CONCEPT OF GIS: Introduction, Information systems, Spatial and Non- Spatial information, Advantages of GIS, Basic Components of GIS, GIS Categories, Fundamental Operations of GIS, Projections of Maps, Classification of Maps.</p>	CO2
UNIT-3	<p>DIGITAL IMAGE PROCESSING: Basic Character of Digital Image; Pre-processing, Geometric Correction Methods, Atmospheric correction methods, Image Registration, Image Enhancement Techniques, Spatial Filtering Techniques, Image Classifications, Supervised Classifications, Unsupervised Classifications.</p>	CO3
UNIT-4	<p>GIS DATA REPRESENTATION: Types of Data Representation, Data Collection and input overview, data input and output. Keyboard entry and coordinate geometry procedure, manual digitizing and Scanning, Raster GIS, Vector GIS – File Management, Spatial Data, Non-Spatial Data – Layer Based GIS, Feature based GIS mapping, GIS Data File Management. Buffering Techniques.</p>	CO4
UNIT-5	<p>REMOTE SENSING SYSTEM APPLICATIONS: Advantages and disadvantages of remote sensing, land use and land cover mapping, base maps, remote sensing platforms, Flood and Drought impact</p>	CO5

assessment and monitoring, geological and soil mapping, agriculture applications, forestry applications and water resources applications.

Learning Resources

Text Books	1. Remote Sensing and Geographical Information systems, (2nd edition) by Anji Reddy M.B.S. Publications, JNTU Kakinada, 2008. 2. Remote Sensing and GIS, (2nd edition) By Basudeb Bhatta Oxford Higher Education
Reference Books	1. Remote Sensing and Image Interpretation, (6th edition) by Thomas Lillesand. M and Ralph Kiefer W., 2007 2. Remote Sensing of the Environment: An Earth Resource Perspective by John R. Jensen, 2009.
e-Resources & other digital material	1. http://nptel.ac.in/courses.php 2. http://jntuk-coeerd.in/