

20CE4701C – REMOTE SENSING AND GEOGRAPHICAL INFORMATION SYSTEM

Offering Branches	CE	Credits:	3
Course Category:	Program Elective	Lecture-Tutorial-Practical:	3-0-0
Course Type:	Theory	Continuous Evaluation:	30
Prerequisites:	20CE3306 – Surveying	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.	K2
CO2	Apply the knowledge of technical issues relating to the storage, management, analysis and display of the GIS Spatial data.	K3
CO3	Interpretation of image processing sequence and its importance in Remote Sensing & Spatial Analysis.	K2
CO4	Appraise on GIS Map Projections, buffering techniques, raster data models and vector data models.	K4
CO5	Developing GIS in urban planning, traffic management and urban change mapping.	K6

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		2		2		2			2	2	2
CO2	2		2		2		2		2			2	2	2
CO3	3		3		3		2		2			2	3	2
CO4	2		2		2		3		3			3	2	3
CO5	2		2		2		3		3			3	2	3
Avg.	2		2		2		2		2			2	2	2

1- Low

2-Medium

3-High

Course Content

UNIT-1	Basic Concepts and Foundation of Remote sensing – Elements involved in Remote Sensing, Electromagnetic Spectrum, Resolution, Satellite visual interpretation techniques, Basic elements, Converging evidence, Interpretation for Terrain evaluation. Remote Sensing Applications, Advantages and Disadvantages of Remote Sensing. Photogrammetry and Types of Aerial photographs, Stereoscopy, Map Vs Mosaic, ground control, Stereoscopic Parallax, Orthophoto	CO1
UNIT-2	Basic Concept of GIS: Introduction to GIS, GIS Categories, Spatial Data and Non- Spatial Data, Basic Components of GIS, Fundamental Operations of GIS, Projections of Maps, Classification of Maps, Advantages of GIS.	CO2
UNIT-3	DIGITAL IMAGE PROCESSING: Basic Character of Digital Image; Pre-processing, Geometric Correction Methods, Atmospheric correction method, Image Registration, Image Enhancement. Image Classifications, Supervised Classifications, Unsupervised Classifications.	CO3
UNIT-4	GIS DATA REPRESENTATION: Types of Data Representation, Data Collection and input overview, data input and output. Keyboard entry, Digitizing and Scanning, Raster GIS, Vector GIS – File Management, Layer Based GIS, Feature based GIS mapping, GIS Data File Management. Buffering Techniques.	CO4
UNIT-5	GIS APPLICATIONS FOR URBAN PLANNING: Introduction, urban planning theory, Land use/ land cover Mapping, Base maps for Urban Areas, Urban Infrastructure & Utility Mapping, Remote Sensing Platforms and Sensors Application in Urban Studies. Aerial Photography and Satellite Data in Urban Studies, Traffic Management, Urban Change Detection and Mapping.	CO5

Learning Resources

Text Books	<ol style="list-style-type: none"> 1. Remote Sensing and Geographical Information systems, (4th edition) by M.Anji Reddy B.S. Publications, JNTU Kakinada, 2018. 2. Remote Sensing and GIS, (2nd edition) By Basudeb Bhatta Oxford Higher Education.
Reference Books	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. http://nptel.ac.in/courses.php 2. http://jntuk-coeerd.in/