



School of Planning and Architecture: Vijayawada

(An institution of National Importance under the Ministry of Human Resource Development, Govt. of India)

Survey No.4/4, ITI Road, Vijayawada-520008, Andhra Pradesh, India

Department of Architecture

Course: MLAR	Subject Code; MLAR126 Name- Geoinformatics for Landscape Architecture	Class: 1 st Yr MLAR II Sem A.Y. 2024-25
Instructors:	Subject Instructors- Dr. Prashanti Rao	Internal Assessment: 50
		External Jury Exam: 50
Contact Periods/Week: 03 periods. (50 min each)		Total Marks: 100
Time Table:	Wednesday	Credits: 3
Attendance: Min 75%	Min. Passing Marks: 50% each in Internal & External Assessment, 50% in Aggregate	
<p>Objective: To understand the basics of geoinformatics, data acquisition, processes, and interpretation. Students shall learn GIS-based analysis which links to the very heart of landscape architecture naturally and intuitively. GIS in landscape architecture helps to put forward some characteristic principles of study and practice that can be made operational via GIS while cultivating spatial intelligence in landscape design by exploiting its powerful integrating, analytical, and graphical capacities.</p>		
<u>LECTURE PLAN</u>		
S.NO	DATE	TOPIC OF CLASS LECTURE & DISCUSSION
1	Week-1 (8 th Jan)	Remote Sensing Scenario in Indian Context. Concept and Foundation of Remote Sensing, Definitions, Processes, and Characteristics of Remote Sensing Systems, Advantages and limitations, Concept of Electromagnetic Radiation (EMR), Sources of Energy –Active and Passive Remote sensing,
2	Week-2 (15 th Jan)	Remote Sensor Platforms and Satellite Orbits, Types and Characteristics of Sensor, Multispectral and Hyperspectral sensors, Radar, Lidar; Specification of some popular satellites – IRS, Landsat, and SPOT series; High-resolution satellites – IKONOS, Carto sat, Quick bird, Orb View, Geo Eye, Worldview, Other latest earth resource satellites,
3	Week-3 (22 nd Jan)	Application of Remote Sensing in Resource Management. Bio-Resources: Agriculture, forest resources, and wildlife habitat assessment. forest density and type, issues in forest management.
4	Week-4 (25 th Jan)	Water Resources: Remote sensing application in the evaluation of surface and sub-surface water resources, water mining and pollution, and water resource management issues. Geoinformatics Models in Resource Management: Forest Fire Modelling, Wild Life Habitat Assessment modeling, Soil Erosion modeling, Land Resources Development Prioritization modeling.

5	Week-5 (29 th Jan)	Introduction to Air Photo Interpretation, Photogrammetric for Map Making: Introduction /Definition, Geometric Elements of a Vertical Photograph Elements of Photographic System Types of Aerial Photographs: Vertical Photographs, Oblique Photographs, Satellite	Lecture and Discussion
6		Study Tour From 1st to 10th of Feb 2025	
7	Week-6 (12 th Feb)	Introduction to Geographical Information Systems. Definition, Composition of Geographical Information System, Computer Hardware Module, GIS Software Module, Data Input, Data Storage, Data Output, Database Structures, Conversion between Raster and Vector	Lecture and Discussion
8	Week-7 (15 th Feb)	<ol style="list-style-type: none"> 1. Georeferencing of Vector and Raster Data 2. Introduction to the Shape Files and Hands-on exercise to convert Raster and Vector Images into Shape Files. 3. Introduction to the Attribute Table, its application, and conversion of Excel into the CSV 	Visiting Faculty Lectures and Hands-on Practice in the GIS lab
9	Week-8 (19 th Feb)	Presentation	Internal Assessment-1
10	Week-9 (22 nd Feb)	<p>Spatial Analysis: Types of Spatial Analysis, Measurement in GIS, Query – Query by Attributes, Spatial Queries through Symbology, Attribute-Based Operation,</p> <ol style="list-style-type: none"> 1. Preparation of Chloropleth Maps 2. Conversion into Format by assigning all the Legend, scale, North, etc. 	Visiting Faculty Lectures and Hands-on Practice in the GIS lab


11	Week-10 (5 th March)	Practice Session	Discussion-GIS -lab
12	Week-11 (12 th March)	Mid-Sem – Jury and Written Exam	Internal Assessment-2
13	Week-12 (15 th March)	Preparation for Rural, Urban, and Regional Studies Base Map and Land Use Land Cover- Supervised and Unsupervised, 3-D GIS Digital Elevation Model & Digital Terrain Model, NDVI, NDBI, NDWI, Watershed delineation Map, Flood Risk Mapping, Drought Mapping,	Visiting Faculty Lectures and Hands-on Practice in the GIS lab
14	Week-13 (19 th March)	Practice	Discussion-GIS -lab
15	Week-14 (26 st March)	Practice	Discussion-GIS -lab
16	Week-15 (2 nd April)	GIS-based Temporal Analysis of Urban, rural, and regional landscapes, GIS-based spatial association analysis of the distribution and allocation of the cultural and natural landscape,	Lecture
		GIS-based Temporal Analysis of Urban, rural, and	Practical-GIS Lab

17	Week-16 (9 th April)	regional landscapes, GIS-based spatial association analysis of the distribution and allocation of the cultural and natural landscape	
18	Week-17 (12 th April)	GPS monitoring of pedestrian movement, Use of Open Street mapping, and Various Open Sources. Drones are used for aerial mapping and surveying.	Visiting Faculty Lectures and Hands-on Practice in the GIS lab
19	Week-18 (16 th April)	Practice	Practical-GIS Lab
20	Week-19 (23 rd April)	End Of The Classes Internal Assessment -3	Presentation of portfolio
S. No.	Stages of Evaluation		Weightage
1	First stage: Assessment –1		15
2	Second stage: Mid-semester Examination		20
3	Third stage: Assessment –3		15
	Total		50

Reference Books:

References:

1. Batty, D.M.a.M. (ed.) (2005) GIS, Spatial Analysis and Modelling, ESRI Press.
2. Brewer, C.A. (n.d) Designing Better Maps: A Guide for GIS Users, ESRI Press.
3. C, H.T. (n.d) Land Form Designs, P D A Publication.
4. C. Hanna, K. (1999) GIS for Landscape Architects, ESRI press.
5. G.S. Srivastava (2014) An Introduction to Geoinformatics, McGraw Hill Education.
6. Garcia, J. (2017) Introduction to Geographic Information System, Larsen and Keller Education.
7. H, P.P. (1995) Concrete Floors Finishes, Butterworth-Heinemann.
8. K.R, B. (1990) Integrating GIS into Urban Regional Planning, Alternative approaches for developing countries regional development Dialogue, Japan: UNCRD.
9. Michael, L. (1988) Tree Detailing, London: Butterworth Architecture.
10. Michael, L. (1993) Landscape Detailing Vol.1 Enclosure, 3rd edition, Architectural Press.
11. Mitchell, A. (2005) Geographic patterns and Relationships, ESRI Press.
12. Stevens, D. (2000) Ultimate Water Garden Book, 01st edition, Conran.

	<p>Head of Department:</p> <p>sd/- (Dr. D Srinivas)</p>
<p>Course Instructors: sd/- (Dr. Prashanti Rao)</p>	