ATME COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

COURSE MODULE OF THE SUBJECT TAUGHT FOR THE SESSION
AUG-NOV 2025-26(Odd Semester)

Course Syllabus with CO's

Faculty Name: **NAMITHA A.P**			Academic Year: 2025-26				
Department: CIVIL ENGINEERING							
Course Code	Course Title	Core/Elective	Prerequisite	Contact Hours			Total Hrs/ Sessions
				L	T	P	
BCV515D	**Remote Sensing and GIS**	**Elective**	NILL	**3**	–	–	**40**
Objectives	Course objectives: This course will enable students to 1. Understand concept of using photographic data to determine relative positions of points. 2. Study the methods of collection of land data using Terrestrial and Aerial camera. 3. Analyse the data gathered from various sensors and interpret for various applications. 4. Apply the principles of RS, GIS and GPS in various scopes of Civil Engineering.						

Topics to be Cover as per Syllabus

MODULE 1

Remote Sensing: Remote Sensing- Definition, types of remote sensing, components of remote sensing, electromagnetic spectrum, Black body, Atmospheric windows, energy interaction with earth surface features. Spectral reflectance curve. Platforms and sensors. Sensor resolutions. Types of satellitesIndian and other remote sensing satellites (IRS, IKONS and Landsat). Principle of visual interpretation - key elements.

MODULE 2

Photogrammetry: Introduction types of Photogrammetry, Advantages Photogrammetry, Introduction to digital Photogrammetry. Aerial Photogrammetry: Advantages over ground survey methods- geometry of vertical photographs, scales of vertical photograph. Ground coordinationrelief displacement, scale ground coordinates – flight planning

MODULE 3

Geographic Information System- Introduction, Functions and advantages, sources of data for GIS. Database – Types, advantages and disadvantages. Data Analysis.-overlay operations, network analysis, spatial analysis. Outputs and map generation. GPS- components and working principles..

MODULE-4:

Applications of GIS, Remote Sensing and GPS: Water Resources engineering and management (prioritization of river basins, water perspective zones and its mapping), Highway and transportation (highway alignment, Optimization of routes, accident analysis), Environmental Engineering 1 15.09.2022 (Geostatistical analysis of water quality, rainfall).

MODULE -5:

Applications of GIS, Remote Sensing and GPS: Urban Planning & Management, urban sprawl, Change detection studies, forests and urban area, agriculture, Disaster Management. Layouts: Dead end, Radial, Grid iron, Circular system.

- **List of Text Books**
- Narayan Panigrahi, "Geographical Information Science", and ISBN 10: 8173716285 / ISBN 13: 9788173716287, University Press2008.
- Basudeb Bhatta, "Remote sensing and GIS" , ISBN:9780198072393, Oxford University Press2011
- Kang – T surg Chang, "Introduction to Geographic Information System". Tata McGraw Hill Education Private Limited2015.Lilles and, Kiefer, Chipman,"RemoteSensingandImageInterpretation",Wiley2011.

List of Reference Books

- Chor Pang Lo and Albert K.W Yeung, "Concepts &Techniques of GIS",PHI,2006
- John R. Jensen, "Remote sensing of the environment", an earth resources perspective–2nd edition– by Pearson Education2007.
- Anji Reddy M., "Remote sensing and Geographical information system", B. S. Publications2008.
- Peter A. Burrough, Rachael A. McDonnell, and Christopher D. Lloyd, "Principals of Geo physical Information system", Oxford Publications2004.S Kumar, "Basics of remote sensing & GIS", Laxmi publications 2005.

List of URLs, Text Books, Notes, Multimedia Content, etc

Course Outcomes	After a successful completion of the course, the student will be able to: • Understand and remember the principle of Remote Sensing (RS) and Geographical Information Systems (GIS) data acquisition and its applications. • Apply RS and GIS technologies in various fields of engineering and social needs • Analyse and evaluate the information obtained by applying RS and GIS technologies. • Create a feasible solution in the different fields of application of RS and GIS

Internal Assessment Marks: 50

(3 Session Tests are conducted during the semester and marks allotted based on average of best performances).

Program Objectives (as per NBA)

- Engineering knowledge.
- Problem Analysis.
- Interpretation of data.

COURSE OUTCOMES MAPPING WITH PO and PSO

Subject Code:	**BCV515D**		**TITLE: Remote sensing & GIS**						**Faculty Name: NAMITHA AP**			
List of Course Outcomes	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO.1	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**	**-**	**3**
CO.2	**3**	**3**	**1**	**1**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**3**
CO.3	**1**	**1**	**3**	**1**	**3**	**-**	**-**	**1**	**1**	**-**	**-**	**2**
CO.4	**1**	**1**	**2**	**-**	**3**	**-**	**-**	**-**	**-**	**-**	**1**	**2**
TOTAL	**7**	**7**	**6**	**2**	**6**	**-**	**-**	**2**	**3**	**-**	**-**	**10**

Note: 3 = Strong Contribution 2 = Average Contribution 1 = Weak Contribution 0 = No Contribution

The Correlation of Course Outcomes (CO's) and Program Specific Outcomes (PSO's)

Subject Code:	BCV515D	TITLE: Remote sensing &GIS	Faculty Name:
List of Course Outcomes	Program Specific Outcomes		
	PSO1	PSO2	
CO-1	3	2	
CO-2	3	2	
CO-3	3	3	
CO-4	3	3	
Total	12	10	