



B.E. DEGREE EXAMINATIONS: APRIL / MAY 2023

(Regulation 2018)

Fourth Semester

CIVIL ENGINEERING

U18CEI4203: Remote Sensing and Geographic Information Systems

COURSE OUTCOMES

- CO1:** Analyze the principles and components of photogrammetry and remote sensing.
- CO2:** Process of data acquisition of satellite images and their characteristics.
- CO3:** Analyze an image visually and digitally with digital image processing techniques.
- CO4:** Explain the concepts and fundamentals of GIS.
- CO5:** Apply the knowledge of remote sensing and GIS in different civil engineering field.

Time: Three Hours

Maximum Marks: 100

**Answer all the Questions:-
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)**

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|---|-----------------------|
| 1. Define remote sensing. | CO1 [K ₁] |
| 2. Differentiate wavelength and frequency. | CO1 [K ₂] |
| 3. List the types of platform. | CO2 [K ₂] |
| 4. Difference between active and passive sensors. | CO2 [K ₂] |
| 5. Where digital image processing is used? | CO3 [K ₁] |
| 6. What is DBMS? | CO3 [K ₁] |
| 7. Define map projection. | CO4 [K ₁] |
| 8. Name any two CAD and GIS software. | CO4 [K ₁] |
| 9. List any four raster file formats. | CO5 [K ₁] |
| 10. State land information system. | CO5 [K ₁] |

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

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|-----|----|---|---|-----|-------------------|
| 11. | a) | Discuss the factors affecting the spectral reflectance of Vegetation, Soil and Water. | 8 | CO1 | [K ₂] |
| | b) | Elaborate the interaction of electromagnetic energy with earth surface features with neat sketch. | 8 | CO1 | [K ₂] |
| 12. | a) | Describe the features of any four airborne remote sensing platforms. | 8 | CO2 | [K ₂] |
| | b) | Discuss the factors influencing the selection of spatial resolution and spectral resolution of sensors. | 8 | CO2 | [K ₂] |
| 13. | a) | What is Digital Image Processing? Explain the various steps involved in it. | 8 | CO3 | [K ₂] |
| | b) | Enumerate on supervised and unsupervised classification of remote sensed data. | 8 | CO3 | [K ₂] |
| 14. | a) | Elucidate the features and limitations of any two types of map projections. | 8 | CO4 | [K ₂] |
| | b) | Explain the Relational Data base Management System with example. | 8 | CO4 | [K ₂] |
| 15. | a) | Elaborate the different methods used for speeding up data access and compression in GIS analysis. | 8 | CO5 | [K ₂] |
| | b) | Explain the utilization of Remote sensing and GIS techniques for Least cost highway alignment modeling. | 8 | CO5 | [K ₂] |
| 16. | a) | Discuss the basic components of Remote sensing system. | 8 | CO1 | [K ₂] |
| | b) | Differentiate Stefan- Boltzman and Wein's Displacement Law. | 8 | CO1 | [K ₂] |
