

**GOVERNMENT COLLEGE (AUTONOMOUS),  
RAJAMAHENDRAVARAM  
DEPARTMENT OF GEOGRAPHY  
THIRD YEAR B.A. /B.Sc. SEMESTER – VI  
SYLLABUS**

**PAPER - 7 (Elective - 1): GEOGRAPHIC INFORMATION SYSTEM (GIS)**

**UNIT- 1: Fundamentals of Geographic Information Systems (GIS)**

GIS: Definition – Contributing Disciplines – Functions – Data Capture/Input, Data storage,

Data Retrieval, Data Analysis, Data Output

Components of Geographic Information Systems: Hardware Components, Software Components, Brain –ware Components, and Organizational set up

Data Input and Editing: Data Types : Spatial and Attribute data – raster and Vector Sources of GIS data

Methods of Data input ( Keyboard Entry, Digitizing, Scanning ) – GPS and its Application

**UNIT- 2: DBMS, GIS, Analysis**

Data Base Management System: Definitions and Functions

Data Analysis and Modeling:

Data Conversion ( Format, Structure, and Medium Conversion )

Spatial Measurements ( Counting, Measuring lengths and Areas )

Reclassification, Buffering ( point, Line, Area, Doughnut )

Overlay Analysis - Modeling Surface ( DTMs ) - Modeling Networks

Remote Sensing and GIS: Intergration – GIS Application ( Ubon / Agricultural / Landform Studies )

**Basic Texts:**

1. Compbell, James, B (1987) Introduction to Remote Sensing, The Guilford Press, New York.
2. Curran, P (1985) Principles of Remote Sensing, London .
3. Kang- tsng Chang (2003) Geographic Information Systems, Tata Mc Graw hill, New Delhi
4. Lillisand, T.M. and R.W Kifer (1997) Remote Sensing and Image Interpretation, John Wiley and Sons, New York.
5. Star J, and J. Estes, (1994), Geographic Information Systems: An Introduction, Prentice Hall, New Jersey.
6. Michael F. Goodchild and Karen K. Kemp (1990) Introduction to GIS, National Centre for Geographic Information and Analysis, University of California, Santa Barbara.

**Additional Texts:**

7. Anji Reddy, M (2006) A Text Book of Remote sensing and Geographical Information System, B.S Publications, Hyderabad.
8. Clark, Keith C. (1999) Getting Started with Geographic Information Systems, Prentice Hall, New Jersey.
9. Lo Albert, C.P., and Yeung, K.W (2003) Concepts and Techniques of Geographical Information Systems, Prentice Hall of India Pvt. Ltd., New Delhi.

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**PRACTICAL SYLLABUS**

**PAPER - 7 (Elective - 1): GEOGRAPHIC INFORMATION SYSTEM ( G I S )**

**UNIT 1: Geographic information system:**

1. Scale of Measurement: Nominal, Ordinal, Interval, Ratio
2. Data Mode: Special Data ( Location: Point, Line, Polygon; attributes; time ), Creating a Vector Data, Creating a Raster data, Raster data, Values, Special Relations ( point-point, point-line, point-area, line-line, line- area, area-area )
3. Data Input: Manual, Digitising, Scanning
4. Raster and Vector GIS Capabilities: Display, Query, Overlay, Buffering.

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1. Campbell, James, B (1987) Introduction to Remote Sensing, The Guilford Press, New York.
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2. Curran, P (1997) Principles of remote Sensing, Longman, London.
3. DeMers, Michel, N (1997) Fundamentals of Geographic Information Systems. John Wiley and Sons, New York.
4. Lillisand, T.M. and R.W Kiefer (1997) Remote Sensing and Image Interpretation, John Wiley and Sons, New York.