

தமிழ்நாடு மத்தியப்
பல்கலைக்கழகம்



**CENTRAL
UNIVERSITY OF
TAMIL NADU**

तमिलनाडु केन्द्रीय
विश्वविद्यालय

ESTABLISHED BY AN ACT OF PARLIAMENT IN 2009

OPEN ELECTIVES

(Academic Year 2023-2024 Onwards)

**Department of Geography
School of Earth Sciences
Central University of Tamil Nadu
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LIST OF OPEN ELECTIVE COURSES OFFERED
(TO OTHER DEPARTMENTS)

| Sl. No | COURSES | | | ASSESSMENT | |
|----------------------|---------|---------------------------|---------|------------|-----|
| | Code | Title | Credits | CIA | ESE |
| EVEN SEMESTER | | | | | |
| 1 | GE00E01 | Basics of Geoinformatics | 3 | 40 | 60 |
| 2 | GE00E02 | Fundamentals of Geography | 3 | 40 | 60 |
| 3 | GE00E03 | Rural Development | 3 | 40 | 60 |



Credits: 3

Course Code: GEOOE01

BASICS OF GEOINFORMATICS

Learning Outcomes:

Upon completion of the course, the students will be able to

- 1. Gain knowledge of the basics of Geoinformatics and appreciate the amalgamation of science*
- 2. Understand the fundamental concepts of remote sensing, geographic information systems and Global navigational satellite system*
- 3. Understand spatial processes and explore the spatial relationships between each component*
- 4. Identify the potential of RS, GIS, and GPS in solving various spatial problems*
- 5. Students will be able to apply these technologies in managing and monitoring natural and material resources.*

Unit - I

Remote Sensing: Electro Magnetic Radiation & Spectrum, Types of Remote Sensing based on types of platforms - Ground-Based, Airborne and Spaceborne; Based on types of sensors: Active and Passive; Satellite orbits, Resolution and its types: Spatial, Spectral, Radiometric and Temporal

Unit - II

GIS: Definition; Components and Elements of GIS, Representation of geographic data; Nature of geographic data: Spatial and Attribute Data, Concept of vector and raster-based models; Geodatabase, Spatial analysis,

Unit - III

GNSS: Fundamentals of GNSS, Basic principles of GNSS, Components of the global positioning system, Factors affecting GNSS accuracy, GNSS surveying methods, and accuracy, GNSS survey instruments.

UNIT - IV

Introduction to Geoinformatics- Concepts, Components, Latest Developments in Remote Sensing, GIS GNSS, and AI Hands-on Training to handle RS data in GIS software, GPS instruments.

UNIT - V

Applications of Geoinformatics in Various sectors, Applications in day-to-day activities, Group projects on applications of Geoinformatics in Agriculture, Forestry, Urban, Water, Health, and other natural resource management.



REFERENCES:

1. Jensen, J.R., (2004): Remote Sensing of the Environment: An Earth Resource Perspective, Pearson Education.
2. Joseph, G. (2004): Fundamentals of Remote Sensing, Universities Press, Hyderabad, India
3. Lillesand, T. M., Kiefer, R. W. and Chipman, J. W. (2008): Remote Sensing and Image Interpretation, John Wiley & Sons, New Delhi
4. Burrough, P.A., and McDonnell, R.A., (1998): Principles of Geographic Information Systems, Oxford University Press, Oxford.
5. Longley, P.A., Goodchild, M.F., Maguire, D.J. and Rhind, D.W., (2001): Geographic Information Systems and Science, Wiley, Chichester.
6. Environmental Systems Research Institute (ESRI) –GIS concepts
7. Spatial Technologies for Natural Hazard Management. Proceedings of ISRS National Symposium, Nov. 21-22, 2000, IIT, Kharagpur.
8. User Manual of DGPS, Total Station
9. Web resources, Published reports

Mapping of Program Outcomes with Course Outcomes:

| | PO1 | PO2 | PO3 | PO4 | PO5 |
|------------|------------|------------|------------|------------|------------|
| CO1 | | x | x | x | x |
| CO2 | x | x | x | x | |
| CO3 | | x | x | x | x |
| CO4 | | x | x | x | x |
| CO5 | | x | x | x | x |



Credits: 3

Course Code: GEOOE02

FUNDAMENTALS OF GEOGRAPHY

Learning Outcomes:

By the end of this course, students will be able to

- 1. understand the basic concepts in geography and provide essential background for competitive exams and further geographical studies*
- 2. explain what is happening to Earth systems in real time and analyze how variations in topography and climate affect human population and settlements*
- 3. understand the characteristics of major geographical regions and comprehend the geography of India*

UNIT - I

Introduction to Geography: Themes of geography - Geographer's tools – Spatial approach - Geological time scale

UNIT - II

Physical Geography: Interior of the earth - Bodies of water and landforms - Dynamic earth: internal forces - external forces - Seasons and weather - Climate - World climate regions - Soils and vegetation

UNIT- III

Human Geography: Elements of Culture - Population Geography - Political Geography - Urban Geography - Economic Geography - Depletion of Resources

UNIT - IV

Regional Geography: Major Natural Regions: characteristics, economic base and human adaptation

UNIT - V

Geography of India: physical setting, drainage, climate, soils, natural vegetation, minerals and energy resources, agriculture, industries, and population distribution



REFERENCES:

1. Arreola, D.D., Deal, M.C., Petersen, J.F. and Sanders, R., (2007): World Geography, McDougal Littell.
2. Waugh D. (2005): Geography: An Integrated Approach, Nelson Thornes, Cheltenham.
3. Douglas, L. J. Haarmann, V., Johnson, M. L., and Clawson, D.L. (2010): World Regional Geography, 10th edition, Pearson Education Inc, New Jersey.
4. Christopherson, R. W. and Birkeland, G. H., (2012): Geosystems: An Introduction to Physical Geography (8th edition), Pearson Education, New Jersey.
5. Knox, P. & Marston, S. (2013): Human Geography: Places and Regions in Global Context, 6th Edition, Pearson Education, New Delhi
6. Goh Cheng Leong & Morgan, G.C. (1982): Human and Economic Geography, 2nd Edition, Oxford University Press, New Delhi.
7. Khullar, D.R. (2014): India: A Comprehensive Geography, Kalyani Publishers, New Delhi.

Mapping of Program Outcomes with Course Outcomes:

| | PO1 | PO2 | PO3 | PO4 | PO5 |
|------------|------------|------------|------------|------------|------------|
| CO1 | x | | | x | x |
| CO2 | x | x | | | |
| CO3 | | | x | x | x |



Credits: 3

Course Code: GEOOE03

RURAL DEVELOPMENT

Learning Outcomes:

Upon completing this course, students will be able to:

- 1. Understand the concept of rurality and rural economic structure.*
- 2. Identify the need and significance of rural development in India*
- 3. Acquaint with the efforts on rural development in India.*

Unit - I

Introduction to Rural Development: Defining rurality and rural development - Need for rural development, rural problems, rural demographic dynamics.

Unit - II

Rural Development strategies: Rural development strategies and approaches in India, pre-independence rural development schemes/programs in India, Gandhian concept of rural development.

Unit - III

Rural Economy: Agriculture and allied sectors, seasonality, historical progress and need for expanding non-farm activities, provision of infrastructure and services, access to elementary education, primary health care, marketing and micro credit, watershed management, rural tourism.

Unit - IV

Rural Governance: Rural governance and administration in India, experiences, 73rd constitutional amendment, Panchayat raj, people's political participation.

Unit - V

Rural Development Schemes and Programs: Post-Independence rural development strategies in India; CDP, green revolution, drought prone area development program, PMGSY, integrated rural development programme, MGNREGS etc., skill development programmes and schemes, recent developments in rural development.



REFERENCES:

1. Gilg A. W., (1985): An Introduction to Rural Geography, Edwin Arnold, London.
2. Krishnamurthy, J. (2000): Rural Development - Problems and Prospects, Rawat Publications, Jaipur.
3. Lee D. A. and Chaudhri D. P. (Eds.), (1983): Rural Development and State, Methuen, London.
4. Misra R. P. and Sundaram, K. V. (Eds.), (1979): Rural Area Development: Perspectives and Approaches, Sterling, New Delhi.
5. Misra, R. P. (Ed.), (1985): Rural Development: Capitalist and Socialist Paths, Vol. 1, Concept, New Delhi.
6. Palione M. (1984): Rural Geography, Harper and Row, London.
7. Ramachandran H. and Guimaraes J. P. C. (1991): Integrated Rural Development in Asia – Learning from Recent Experience, Concept Publishing, New Delhi.
8. Robb P. (Ed.), (1983): Rural South Asia: Linkages, Change and Development, Curzon Press.
9. Yugandhar B. N. and Mukherjee N. (Eds.) (1991): Studies in Village India: Issues in Rural Development, Concept Publications. Co., New Delhi.

Mapping of Program Outcomes with Course Outcomes:

| | PO1 | PO2 | PO3 | PO4 | PO5 |
|------------|------------|------------|------------|------------|------------|
| CO1 | x | | | | x |
| CO2 | x | x | x | | x |
| CO3 | x | | x | x | x |