



DEPARTMENT OF GEOGRAPHY

EMPLOYABILITY

ENTREPRENEURSHIP

SKILL DEVELOPMENT

SEMESTER - I

CORE COURSE - III

ADVANCED CARTOGRAPHY

Theory Hours	: 5	Course Code	: P21GC103
Practical Hours	: --	Credits	: 5
Exam Hours	: 3	Marks	: 100

UNIT I

Nature, Scope and content of Cartography - Arts and Science of Cartography - Cartography as a system of communication - Maps - Classification and their uses

UNIT II

Growth, Development and Modern Trends in Cartography - The Earth and System of Coordinates - Choice of Map Projection - UTM Projection

UNIT III

Compilation and Generalization - Symbolization - Mapping the Qualitative and Quantitative Data - Representation of Relief, Physical and Cultural Features

UNIT IV

Map Design and Layout - General design problems - Principles and Techniques of Map Design and layout - Design of Map Symbols - Lettering and Toponymy - Lettering Methods - Types and Characteristics.

UNIT V


Map Reproduction - Reproduction Processes - Printing and Non-Printing Processes, Photo copier, Plotter and Scanner - Modern Techniques (GIS and GNSS)

REFERENCE BOOKS

1. Monkhouse, F.J. and Wilkinson, H.R. (1994) Maps and Diagrams, Methuen, London.
2. Robinson, A.H. et al. (1995) Elements of Cartography, John Wiley & Sons, U.S.A
3. Kraak M.J. (2010) Cartography: Visualization of Geospatial Data (3rd edition), Pearson Education Ltd., London.
4. Slocum T., McMaster R., Kessler F. and Howard H. (2013). Thematic Cartography and
5. Geovisualization (3rd edition), Pearson New International Edition (eBook).

SEMESTER - IIEXTRA DISCIPLINARY COURSE




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REMOTE SENSING AND GIS

Theory Hours	: 2	Course Code	: P21G2EDC
Practical Hours	: --	Credits	: 2
Exam Hours	: 3	Marks	: 100

UNIT I

Introduction: Aerial remote sensing, Photogrammetry, Remote Sensing: active and passive, GIS and GNSS - historical development - emerging trends - multidisciplinary nature

UNIT II

Terrestrial and Aerial Remote Sensing: Basic principles - Elements of EMR - Energy interaction in atmosphere - Terrestrial interaction - Spectral signature - Spectral reflectance curves - Aerial photography - Types of photographs - Aerial triangulation - Photogrammetry - Visual interpretation: Equipment's - Elements of image interpretation

UNIT III

Satellite Remote Sensing: Platforms - Sensors - FOV and IFOV - Pixel - Resolution: spatial, spectral, radiometric and temporal - Earth observation satellites: weather satellites, land and marine observation satellites - Image pre-processing - Image enhancement - Image classification - Accuracy assessment

UNIT IV

Geographical Information System: Definition - Components of GIS - Raster and vector data structures - RDBMS - Spatial referencing - Spatial data input and editing - GIS analysis

UNIT V

Applications of Remote sensing and GIS - Resource Mapping - Land and Water Resources, Urban Studies, Disaster Management and Land Use Planning

REFERENCE BOOKS

1. Lillisand T.M and R.W. Kiefer (1994) Remote Sensing and Image Interpretation. John Wiley & Sons, New York.
2. Burrough, P. A., & McDonnell, R., (2000) Principles of Geographical Information Systems, Oxford Press, London.
3. Jensen, J.R., (2006). Introductory Digital Image Processing: A Remote Sensing Perspective, Prentice-Hall Inc., New Jersey.
4. Jensen, J. R., (2007). Remote Sensing of the Environment: An Earth Resource Perspective, Prentice-Hall Inc., New Jersey & Wasle, (2008) Global Navigational Satellite Systems, Springer Wien New York.
5. Gomasasca, M. A. (2009) Basics of Geometrics, Springer Science, New York

SEMESTER I

ALLIED COURSE II


PRACTICAL - CARTOGRAPHY II

UNIT I

Latitude and Longitude - Time Conversion - International Date Line - Direction and Bearings.

UNIT II




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Measurement of Distance: Thread, Divider and Rotometer methods - Measurement of Area- Square and strip methods - Function of Planimeter.

UNIT III

Qualitative Distribution Maps – Types: Chorochromatic Maps, Simple Colour Maps, Choroschematic Maps with Pictorial.

UNIT IV

Quantitative Distribution Maps – Types: Dot Maps: Mono dot, Multiple Dot –Located Diagrams – Bar Graph, Circle, Sphere, Flow Maps, Volume Maps.

REFERENCES:

1. S. Jayachantran. practical Geography (Tamil Edition) Tamil Nadu Text Book Society, Chennai.
2. Z.A .Khan (1998), Text Book of practical Geography, concept publishing Company.
3. B.S. Negi (1995) Text Book of practical Geography, KedarNath, Ramnath, Meerut.
4. Gopal Singh (1996) Map Work Practical Geography, Vikas Publishing Hous Pvt. Ltd., New Delhi
5. F.J. Monk house and H.R. Wilkinson, (1980) Maps and Diagrams, B.I. Publications, New Delhi.

SEMESTER – II

SKILL ENHANCEMENT COURSE (PRACTICAL)

GIS


Theory Hours	: --	Course Code	: P21G2SE2P
Practical Hours	: 2	Credits	: 1 Exam
Hours	: 2	Marks	: 100

GIS

1. Geo reference of Base Map
2. Digitizing Point and Line Features
3. Digitizing Polygon Features
4. Attribute Input and Editing
5. Spatial and Attribute Query
6. Overlay and Buffering
7. Map Design and Layout

REFERENCE BOOKS




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1. Kang-t sung Chang, 2002. Introduction to Geographical Information Systems, Tata McGraw-Hill Publishing Company Limited, New Delhi.
2. QGIS Manual - https://docs.qgis.org/2.14/en/docs/training_manual/
3. Chang, K. T. (2006) Introduction to Geographic Information Systems. 3rd Edition, McGraw Hill, New York.

P.G Question Paper Pattern (SEM: 60 marks + CIA: 40 marks = Total: 100 marks)

SEMESTER – II

CORE COURSE - VI

AGRICULTURAL GEOGRAPHY

Theory Hours	: 5	Course Code	: P21GC206
Practical Hours	: --	Credits	: 5
Exam Hours	: 3	Marks	: 100

UNIT I

Nature, Scope and significance of agricultural geography – Approaches - Agricultural types and their Characteristics - Determinants of Agriculture – Physical, Economic, Social Institutional and technological factors – Green Revolution – First and Second - Implications.

UNIT II

Agricultural Statistics and Sampling: Geographical, Agricultural, Land Utilization, Crop, Irrigation, Indian and World Agricultural Statistics – Techniques and Methods of Sampling: Random, Purposive, Systematic, Stratified and Multistage

UNIT III

Agricultural productivity – Determinants - Measurements - Cropping Pattern – Crop combinational Analysis: Weaver's, Doi's and Rafiullah's Method. Crop diversification – Bhatia.

UNIT IV

Von Thunen's model - Modification and Application of VonThunen's theory – Land use - Types – Land Evaluation and GIS Land use Planning - Land capability classification – Remote sensing in land use analysis.

UNIT V

Agricultural systems of the World, India – Whittlessey's agricultural classification – Agro-Ecological Regions in India

REFERENCE BOOKS

1. Hussain, M. (2004) – Agricultural Geography, Rawat Publications, New Delhi
2. Morgan, W.B & Muntan, R.J.C. – Agricultural Geography
3. Singh Jasbir, and Dhillon - Agricultural Atlas of India - A Geographical Analysis, Vista Publishers, Krukshetra.
4. Symons, I – Agricultural Geography, G. Bells & Sons, London.
5. Savindra Singh and Dhillon - Agricultural Geography.
6. Dr. Alka Gautam (2016) – Sharda Pustak Bhavan, Allahabad.

P.G Question Paper Pattern (SEM: 75 marks + CIA: 25 marks = Total: 100 marks)




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PART IV

NON - MAJOR ELECTIVE COURSE II

AGRICULTURAL GEOGRAPHY

OBJECTIVES: The performance of various crops in a country or region is not uniform. There are inter regional, intra-regional, intra-village and intra-farm variations in the production and productivity of different crops are simplify studying in non major students.

UNIT I

Agriculture : Meaning - Factors influencing of Agriculture (Physical, Cultural, Socio-economic factors) – Approaches of Agriculture.

UNIT II

Soil: Soil Classification – Erosion and Conservation. Irrigation, Types and Methods and the need.

UNIT III

Agricultural crops: Food Crops – Rice and Wheat. Plantation Crops: Tea, Coffee and Rubber. Commercial Crops: Cotton, Jute and Sugar cane.

UNIT IV

Agricultural regions: Methods of Delineation – Agricultural regions of the World (Wittlessey's) – Agricultural region of India and their characteristic features.

UNIT V

Vonhunen's Theory of agricultural location and its recent modifications. Agricultural problems in India.

REFERENCES:

1. Morgan W.B. and Munton R.Jc(1971) Agricultural Geography, Methuen, London.
2. Majid Hussain (1971) Agricultural Geography, Inter-India Publications, Delhi.
3. Coh Cheng Leong, Human and Economic Geography, Oxford University Press, Kolalumthur.
4. Misra. R.P.(1986) Agricultural Geography, Heritage Publishers, New Delhi.
5. Ali Mohammed (1978) Studies in Agricultural Geography, Rajesh Publications, New Delhi.
6. Gregor and Howard F (1979) Geography of Agriculture: Themes in Research Printice Hall, New Jersey.

U.G Question Paper Pattern (SEM: 75 marks + CIA : 25 marks = Total : 100 marks)

Section – A	Five questions from each unit (Either or type)	5 x 15 = 75 marks
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PRACTICAL I - MAP SCALE AND REPRESENTATION OF RELIEF

Theory Hours	: -	Course Code	: U21GC102P
Practical Hours	: 3	Credits	: 2
Exam Hours	: 3	Marks	: 100

1. Methods of Representation of Scales

- a. Statement Scale
- b. Graphical Scale
- c. RF Scale

2. Construction of scales

- a. Simple Linear Scale
- b. Comparative Scale
- c. Diagonal Scale
- d. Time Scale

3. Enlargement and Reduction Maps

- a. Enlargement of Map
- b. Reduction of Maps

4. Qualitative and Quantitative Methods

- a. Hachures Method
- b. Layer-tinting Method
- c. Hill Shading Method
- d. Spot Heights
- e. Bench Marks
- f. Trigonometrical Stations
- g. Contours

5. Cross Section of Relief Features

- a. Methods of drawing Profile
- b. Slopes
- c. Hills and Valleys
- d. Plateau, Ridge and Spur
- e. George and Waterfall

1. .

References:

- 1. Jayachandran, (1964): Practical Geography (Tamil Edition) Tamil Nadu Text Book Society, Chennai.
- 2. B.S. Negi (1995) Text Book of practical Geography, KedarNath, Ramnath, Meerut.
- 3. Gopal Singh (1996) Map Work Practical Geography, Vikas Publishing House Pvt. Ltd., New Delhi
- 4. Monk House, F.J. & Wilkinson, H.R. (1973) Maps and Diagrams, Methuen & Co Ltd, London.
- 5. Saha, P. & Basu, P. (2014) Advanced Practical Geography, Books and Allied Ltd., Kolkatta.
- 6. Singh, R.L. & Singh, R. P. B. (2009) Elements of Practical Geography, Kalyani Publishers, New Delhi.
- 7. Gopal Singh (1998) Map Work and Practical Geography (4th Edition), Vikas Publishing House, Ahmedabad.
- 8. Zulfequar Ahmad Khan, M.D. (1998) Text book of Practical Geography, Concept Publishing Company, New Delhi.





SEMESTER IV

SKILL ENHANCEMENT- I

BASICS OF COMPUTER APPLICATIONS

Theory Hours	: 1		Course Code	: U214GSE1
Practical Hours	: -	Credits	: 1	
Exam Hours	: 2	Marks	: 20 (CIA 20)	

Theory

Components of Computer – Operating Systems – Information Technology – Social Media – Usefulness and limitations.

References:

1. Stefano Ceri, Dino Mandrioli & Licia Sbattella, (1998) The Art and Craft of Computing, Addison-Wesley.
2. User Manual of Microsoft Office Packages.

U.G Question Paper Pattern (CIA : 20 marks = Total : 20 marks)

SEMESTER IV

SKILL ENHANCEMENT- I

COMPUTER APPLICATIONS

Theory Hours	: -		Course Code	: U214GSE1
Practical Hours	: 1	Credits	: 1	
Exam Hours	: 2	Marks:	80 (CIA020+ESE060)	

Practical

I Word Processor

- a. Create and Save Word Document
- b. Paragraph Editing
- c. Table Preparation
- d. Header and Footer




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II Spreadsheet

- Create and Save Excel Sheet
- Prepare a Table
- Calculate Basic Statistics
- Prepare Charts and Diagrams

III Power Point

- Create and Save Presentation
- Insert Different Layout
- Apply Custom Animation and Slide Show

References:

- Stefano Ceri, Dino Mandrioli & Licia Sbattella, (1998) The Art and Craft of Computing, Addison-Wesley.
- User Manual of Microsoft Office Packages.

U.G Question Paper Pattern (SEM: 60 marks + CIA : 20 marks = Total : 80 marks)

SEMESTER V

CORE COURSE XII

PRACTICAL V –SURVEYING

Theory Hours	: -	Course Code	: U21GC512P
Practical Hours	: 6	Credits	: 4
Exam Hours	: 3	Marks	: 100

- Chain Survey**
 - Open Traverse
 - Closed Traverse
- Prismatic Compass Survey**
 - Open Traverse
 - Closed Traverse
- Plane Table Survey**
 - Radiation Method
 - Resection Method
- Dumpy Level Measurement**
 - Height Measurement
 - Rise and Fall Method
- Indian Clinometer Survey**
 - Accessible Method



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- b. Inaccessible Method
6. **Abney Level Measurement**
- a. Accessible Method
- b. Inaccessible Method

References:

1. Khullar, D. R., (2010) India: A Comprehensive Geography, Kalyani Publishers, New Delhi.
2. Jayachandaran, S. (1964). Practical Geography (Tamil Edition). Tamil Nadu Text Book Society, Chennai.
3. Khan, M.Z.A. (1998). Text Book of Practical Geography. Concept Publishing Company, New Delhi.
4. Negi, B.S. (1998). Practical Geography. Kedarnath and Ramnath, Meerut.
5. Singh, G. (1995). Map Work and Practical Geography (3rd Edition). Vikas Publishing House Pvt. Ltd., New Delhi.
6. Saha, P. and Basu, P. (2013). Advanced Practical Geography. Kolkata Books and Allied Publisher, Kolkata.
7. Alvi, Z. (1998). A Text book of Practical Geography. Sangam Books Limited, Hyderabad.
8. Herubin, C.A. (1991). Principles of Surveying (4th Edition). Prentice Hall, New Jersey.

MAPPING OF POs WITH COs

U.G Question Paper Pattern (SEM: 60 marks + CIA : 40 marks = Total : 100 marks)

SEMESTER V

SKILL ENHANCEMENT- II

FIELD TECHNIQUES

Theory Hours	: 1	Course Code	: U215GSE2
Practical Hours	: -	Credits	: 1
Exam Hours	: 2	Marks	: 20 (CIA 20)


THEORY

Basic principles of field work – Approaches to the field study – Types of field survey – Sequence of steps in fieldwork

REFERENCE

1. Ashis Sarkar, (2015) A Systematic Approach, Third Edition, Orient Blackswan Publication.
2. R.L Singh Rana, P.B. Sing, (2014) Elements of Practical Geography, Kalyani Publication.




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SEMESTER V

SKILL ENHANCEMENT- II

FIELD TECHNIQUES

Theory Hours	: -	Course Code	: U215GSE2
Practical Hours	: 1	Credits	: 1
Exam Hours	: 2	Marks	:80 (CIA 20+ESE 60)

Practical:

Students will have to conduct a field survey on any theme of their interest by following the steps:

1. Choosing a topic
2. Data Collection
3. Data processing and presentation
4. Writing a field Report (5 to 10 pages)

Reference:

1. Ashis Sarkar, (2015) A Systematic Approach, Third Edition, Orient Blackswan Publication.
2. R.L Singh Rana, P.B. Sing, (2014) Elements of Practical Geography, Kalyani Publciation.

U.G Question Paper Pattern (SEM: 60 marks + CIA : 20 marks = Total : 80 marks)

SEMESTER V

SKILL ENHANCEMENT- III

BASICS OF GNSS

Theory Hours	: 1	Course Code	: U215GSE3
Practical Hours	: -	Credits	: 1
Exam Hours	: 2	Marks	: 20 (CIA 20)


Theory:

History of GNSS - Segments of GNSS - GNSS Constellations: GPS, GLONASS, Galileo, BeiDou, IRNSS – Errors in GNSS.

References:

1. Agarwal, N. K., (2006). Essentials of GPS, Geodesy and GPS publications, Hyderabad.
2. AnjuReddy (2006) Remote Sensing and Geographical Information System Sulthan Bazar Hyderabad.




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SEMESTER V

SKILL ENHANCEMENT- III

GNSS SURVEY

Theory Hours	: -	Course Code	: U215GSE3
Practical Hours	: 1	Credits	: 1
Exam Hours	: 2	Marks	: 80 (CIA 20 +ESE 60)

Practical:

Students will have to conduct a GNSS survey using GPS receivers or Smart Phone Apps and collect the following data:

1. Point features (Electrical poles, facilities)
2. Line features (Road, Fence)
3. Area features (Building, Boundary)

References:

1. Agarwal, N. K., (2006). Essentials of GPS, Geodesy and GPS publications, Hyderabad.
2. AnjuReddy (2006) Remote Sensing and Geographical Information System Sulthan Bazar Hyderabad.

U.G Question Paper Pattern (SEM: 60 + CIA : 20 marks = Total : 80 marks)

SEMESTER – III

CORE COURSE – XII
PRACTICAL – III

APPLIED STATISTICS

Theory Hours	: --	Course Code	: P21GC312P
Practical Hours	: 6	Credits	: 3 Exam
Hours	: 3	Marks	: 100

1. **SPATIAL MEASURES OF CENTRAL TENDENCY**
 - a. Mean, Median and Mode
 - b. Euclidean distances
2. **MEASURES OF DISPERSION**
 - a. Mean Deviation and Standard Deviation



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b. Lorenz Curve

3. CORRELATION

- Rank Correlation
- Co-efficient of Correlation

4. REGRESSION

- Linear Regression
- Multiple Linear Regression

5. HYPOTHESIS TESTING

- t^2 -test
- F^2 -test
- Chi-Square testing

REFERENCE BOOKS

- Monkhouse F.J. and Wilkinson H.R.-Maps and Diagrams-Dirton Co., Newyork.
- Gregory S. - Statistical Methods and the Geographer, Longman, London, 1978.
- David Unwin - Introductory Spatial Analysis, Methuen, London, 1981.
- Aslam Mahmood, and Moonis Raza, (1986). Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi
- Singh R.L. and P.K.Dutt - Elements of Practical Geography.
- Khullar. D.R., Practical Geography, Kalyani Publishers, New Delhi.
- Dr.Rajamohan .S&Thilagaraj .A (2008), Introduction to Statistics, Learntech Press, Trichy.
- Pillai .R.S.N. &Bagavathi (2010), S.Chand& Company Limited, New Delhi.

P.G Question Paper Pattern (SEM: 60 marks + CIA: 40 marks = Total: 100 marks)

SEMESTER – IV

CORE COURSE – XIV

PRACTICAL – IV

MAP AND IMAGE INTERPRETATION

Theory Hours	: --	Course Code	: P21GC414P
Practical Hours	: 6	Credits	: 4
Exam Hours	: 3	Marks	: 100

1. SOI Sheets

- Appreciation of SOI Sheets
- Interpretation of Physical Features
- Interpretation of Cultural Features


2. U.S. Maps

- Appreciation of US Maps
- Interpretation of Physical Features
- Interpretation of Cultural Features

3. OS Maps and NATMO Maps

- Appreciation of OS Maps and NATMO Maps




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- b. Interpretation of OS Maps
- c. Interpretation of National Atlas of India and Census Atlas (NATMO) Maps

4. AERIAL PHOTOGRAPHS

- a. Stereoscope Vision Test
- b. Marginal Information of Aerial Photographs
- c. Interpretation of Aerial Photographs

5. SATELLITE IMAGE


- a. Marginal Information of Satellite Images
- b. Interpretation of Physical Features
- c. Interpretation of Cultural Features

REFERENCE BOOKS

1. Robinson A.H. and R.D.Sale - Elements of Cartography - John Wiley and Sons, New York.
2. F.J. Monkhouse and H.R Wilkinson, Maps and Diagrams, B.I. Publications, Madras.
3. Lillisand T.M., and Kiefer P.W. - Remote Sensing and Image Interpretation, John Wiley & Sons, New York.
4. Wolf P. R - Elements of Photogrammetry, McGraw Hill books Co., London.
5. Rampal K.K - Hand Book of Aerial Photography and Interpretation, Concept Publishing Company, New Delhi.
6. Lillisand, T.M., and Kiefer, P.W., (2007). Remote Sensing and Image Interpretation, 6th Edition, John Wiley & Sons, New York.
7. Campbell, J. B. and Wynne, R.H., (2011). Introduction to Remote Sensing, 5th Edition, The Guilford Press, New York.

P.G Question Paper Pattern (SEM: 60 marks + CIA: 40 marks = Total: 100 marks)




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