

Rayat Shikshan Sanstha's
SADAGURU GADAGE MAHARAJ COLLEGE KARAD
Accredited By NAAC with 'A+' Grade
An Autonomous College
Department of Geography



[Affiliated to Shivaji University, Kolhapur]



Revised Syllabus of
M.A. / M.Sc. Geography Part - II
(CHOICE BASED CREDIT SYSTEM)

Implemented from July 2023



Rayat Shikshan Sanstha's
Sadguru Gadage Maharaj College, Karad
(An Autonomous College)
Choice Based Credit System
Department of Geography
M. A. II Syllabus (From 2023-24) / SEM-III Paper- IX –
GEOHYDROLOGY AND OCEANOGRAPHY
(Teaching Hours-60, Credit-04)

Preamble

The importance of hydrology is increasing because of the global growth of water needs and the rise of water scarcity, which together cause greater risk and unreliability in water resources management. The basic task of hydrology, which is fundamental for water resources management, is the accurate definition and control of the water balance for different space and time increments. Oceanography is a branch of earth science, which deals with the study of world oceans. Oceanography is a broader term in which many sciences focused on the common goal of understanding the oceans. Oceanography has moved into the spotlight of urgent social concern, because of the oceans' impact on issues such as global climate change, biodiversity, and even national security.

Course Outcomes:

- CO-1. Explain the basic concept of basin hydrology and oceanography.
- CO-2. Elaborate the distribution of ground water and oceanic features.
- CO-3. Distinguish between geohydrology and oceanography.
- CO-4. Formulate clearly and briefly elements watershed management.
- CO-5. Classify the various ground water regimes and water circulation in the coastal area.
- CO-6. Understand the common goal the hydrology and oceans.
- CO-7 Apply the knowledge for conservation of water resources.

Expected Skills impartation (Through theory and practical's)

1. Map reading skills
2. Problem solving
3. Analytical skills
4. Comprehension skills
5. Good computing ability



SEM-III

Paper- IX – GEOHYDROLOGY AND OCEANOGRAPHY

Module -1: Groundwater & Basin Hydrology (15)

- 1.1 Surface & subsurface water resources;
- 1.2 Groundwater: occurrence, movement and management; types of aquifers
- 1.3 Groundwater regimes in India
- 1.4 Basin hydrology: Hydrological cycle -precipitation, evaporation infiltration and run off

Module -2: Applied Geohydrology (15)

- 2.1 Water Pollution;
- 2.2 Problems related to water use: salinity, alkalinity and water logging;
- 2.3 Conservation and planning of water resources;
- 2.4 Watershed Management

Module -3: Oceanography (15)

- 3.1 Definition, Importance of Oceanography.
- 3.2 Topography of the ocean floor: continental shelf, slope, rise, submarine channels, hills, ridges, trenches and abyssal plains;
- 3.3 Bottom relief of Pacific, Atlantic and Indian Ocean;
- 3.4 Origin and evolution of island arcs

Module-4: Physical, Chemical and Biological Oceanography (15)

- 4.1 Ocean circulation: currents, waves and tides; Currents of Pacific, Atlantic, & Indian Ocean;
- 4.2 Properties of oceanic water: chemical composition, salinity, temperature, and density;
- 4.3 Origin and growth of coral reefs, Marine resources;
- 4.4 Ocean and global environment, Marine pollution.

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M. A. II Syllabus (From 2023-24) / SEM-III, Paper- X –
FUNDAMENTALS OF REMOTE SENSING AND DIGITAL IMAGE
PROCESSING
(Teaching Hours-60, Credit-04)

Preamble

Remote Sensing is an emerging field highly supports to makes available the recent and past earth's features data. This data is useful in different fields such as; geography, Environment, agriculture, regional planning, oceanic study and disaster management etc. This paper gives a general overview of the fundamental mechanism of Satellite remote sensing, aerial photography and digital image processing. The remotely sensed data and digital image processing enhances the capabilities of users to portray the dynamic changes of earth surface. It is helpful to researchers, civilian and decision makers for different purposes. This technique reduces the costs, time and efforts of data acquisition and increases efficiency. Technical study of remote sensing and digital image processing will be beneficial to increase the interest of this specific subject among the students, researchers as well as among the faculties.

Course Outcomes:

CO1- Explain fundamental and principles of Remote Sensing and Aerial Photography.

CO2- Understand the basic difference between various kinds of satellites and sensors

CO3- Understand the process of digital image processing.

CO4- Know the application of Remote Sensing in various fields.

Expected Skills impartation (Through theory and practical's)

1. Knowledge of functioning of Remote Sensing
2. Knowledge of Aerial Photography
3. Remotely Sensed data analysis and interpretation
4. Digital image processing



SEM-III

Paper- X – FUNDAMENTALS OF REMOTE SENSING AND DIGITAL IMAGE PROCESSING

Module I - Introduction & Principles of Remote Sensing (15)

1.1 Definition, Scope, Development of Remote Sensing; Fundamentals of Remote Sensing: EMR and Electromagnetic spectrum, EMR interaction with atmosphere and earth surface, Platforms of Remote Sensing

1.2 Types of remote sensing; Types of Resolution in remote sensing

1.3 Atmospheric window and Blackbody, Spectral signature - Interaction with Soil, Water and Vegetation

1.4 Applications of optical, thermal & microwave remote sensing.

Module II Aerial Photography (15)

2.1 Types of aerial cameras and photographic films Types of Aerial photographs.

2.2 Geometry of aerial photographs, Relief displacement, Parallax and Stereoscopy

2.3 Elements of Photo Interpretation.

2.4 Digital Photogrammetry and orthophotos.

Module III Satellite Remote Sensing (15)

3.1 Satellite: types and their characteristics;

3.2 Types of Sensors

3.3 Orbital and sensor characteristics of major earth resource satellites: LANDSAT, SPOT, IRS, Sentinel & Quickbird

3.4 Remote Sensing Scenario in Indian Context

Module IV Digital Image Processing (15)

4.1 Introduction to digital image and image processing

4.2 Sources of Errors

4.3 Image rectification, Image enhancement: methods and techniques

4.4 Types Image classification: Supervised, unsupervised and Object based

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3. Jenson R. Jhon, (2003), Remote Sensing of the Environment-An Earth Resource Perspective, Pearson Education Pvt. Ltd., Indian Branch, Patparganj, Delhi, India.
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12. Wolf P., DeWitt B., (2000): Elements of Photogrammetry with Applications in GIS (3rd Ed.) McGraw-Hill

Journals:

1. ASPRS Photogrammetric Engineering and Remote Sensing
2. Geospatial world
3. IEEE Letters on Geosciences and Remote Sensing
4. IEEE Transactions on Geosciences and Remote Sensing
5. IJPRS Journal of Photogrammetry and Remote Sensing
6. International Journal of Remote Sensing
7. Journal of the Indian Society of Remote Sensing
8. Remote Sensing of Environment

Websites:

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2. Indian Space Research Organisation (ISRO), India: <http://www.isro.org>
3. International Society for Photogrammetry and Remote Sensing (ISPRS): <http://www.isprs.org>
4. National Aeronautics and Space Administration (NASA), USA: <http://www.nasa.gov>
5. National Oceanic and Atmospheric Administration (NOAA), USA: <http://www.noaa.gov>
6. National Remote Sensing Centre (NRSC), India: <http://www.nrsc.gov.in>
7. United States Geological Survey (USGS), USA: <http://www.usgs.gov>
8. Wikimapia: <http://www.wikimapia.org>



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M. A. II Syllabus (From 2023-24), SEM-III Paper- XI –
GEOGRAPHY OF ENVIRONMENT
(Teaching Hours-60, Credit-04)

Preamble:

Study of Environment is become a mandatory part in structure of the education programmes. The Geography is a known for studies of the earth; obviously the environment comes under the study of geography. The current syllabus is designed to promote to make the students aware about the ecology, ecosystem, physical and manmade environment, natural phenomena etc. its interaction and its correlation along with the impact of human activities on it. Students will get the knowledge of importance of the environmental balance and the conservation necessity of the different elements of the environment. Students will get the knowledge of different policies for the conservation and sustainable development.

Course outcome:

CO1- Explain fundamental Concept of environment: Major elements of environment.

CO2- Understand the Ecosystem, Ecology, food chain and food web in the environment.

CO3- Understand the different hazards and disaster occurs in environment.

CO4- Know the conservation and its policies for sustainable development.

Skills imparted (Through theory and practical):

1. Knowledge of functioning of Environment
2. Knowledge of correlation between different ecosystems.
3. How to manage in disastrous situation though Disaster management.
4. Environmental conservation techniques



SEM-III
Paper- XI – GEOGRAPHY OF ENVIRONMENT

Module-I

Concept of environment: Major elements of environment; Functioning of environmental systems: role of biotic and abiotic elements; Biodiversity: meaning, factors influencing biodiversity.

Module – II

Ecosystem (geographic classification) terrestrial and aquatic ecosystems - location, types and characteristics; Energy flow in an ecosystem; food chain, food web and Ecological pyramids; succession; Biogeochemical cycles (carbon, nitrogen and oxygen)

Module –III

Environmental hazards and disasters: earthquakes, tsunami, tropical cyclones, droughts, floods, forest fires: distribution, causes and consequences; Global warming, Disaster management in Maharashtra and India.

Module-IV

Conservation and management of environment; Concept of sustainable development; environmental pollution (water, Air, Noise), Land degradation; Environment impact assessment; Environmental issues, policies and efforts in India, International programmes and Policies (Brundtland commission, Kyoto protocol, agenda 21, Sustainable development goals, Paris agreement.

Practical work: Case Study / Field Survey / Field Visits / Project

1. Categories biotic and abiotic elements in college campus.
2. Visit to your nearest aquatic ecosystem.
3. Make a collection of information about past 1 year's environmental disasters.
4. Visit to GOs and NGOs those are working for environmental conservation.

REFERENCES:

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2. Botkin, D.B., Keller, E.A. (2007): Environmental science: Earth as a Living Planet. John Wiley and Sons, New York.



3. Cunningham, W. Cunningham, Mary: Environmental Science: A Global Concern (2010). MacGraw-Hill, London.
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M. A. II Syllabus (From 2023-24) / SEM-III Paper- XII –
SETTLEMENT GEOGRAPHY
(Teaching Hours-60, Credit-04)

Preamble:

The aims of this course are to acquaint the students with the spatial and structural characteristics of human settlement under varied environment conditions. Settlement geography is the study of human land, water and resource use, population density patterns, and settlement growth. Settlement geography studies these villages, towns, etc. and the types of relationships they generate. A comprehensive study of settlement requires explanation of site & situation, function, types & patterns, characteristics, morphology, Study of urban hierarchy / ranking-spacing & morphology, theories and models of settlement helps to show the realistic scenario.

Outcome

CO-1. Acquaint the students with the spatial and structural characteristics of human settlement under varied environment conditions

CO-2. Study of human land, water and resource use, population density patterns, and settlement growth

CO-3 Understand the fundamental concepts in settlement geography

CO-4 Familiarize about rural settlement

CO-5. Distinguish between rural and urban settlement

CO-6. Compare various terms in urban and rural settlement

CO-7. Assess various urban problems and suggest remedies for them

Expected Skills impartation (Through theory and practical's)

1. Reading skill
2. Evaluating skill
3. Thinking skill
4. Analyzing skill



SEM-III

Paper- XII – SETTLEMENT GEOGRAPHY

Module-1: Fundamentals of Settlement Geography (15)

- 1.1 Meaning, nature, scope and significance;
- 1.2 Evolution and growth of human settlements;
- 1.3 Types of settlements
- 1.4 Site and Situation: Concept, Type and affecting factors

Module -2: Geography of Rural Settlements (15)

- 2.1 Morphology and regional characteristics,
- 2.2 Rural Housing and its problems in India,
- 2.3 Transformation of Indian villages, Rural planning and challenges.
- 2.4 Rural Housing schemes in India

Module -3: Geography of Urban Settlements (15)

- 3.1 Processes of urbanization, suburbanization, urban fringe, urban sprawl,
- 3.2 Functional classification of urban settlements;
- 3.3 Size and spacing of cities- rank-size rule, law of primate city, urban hierarchies;
- 3.4 Urban problems, planning and challenges, Concept of smart city, Garden city movement, Urban agriculture.

Theories and Models in Settlement Geography (15)

- 4.1 Concentric zone theory,
- 4.2 Multiple nuclei theory,
- 4.3 Central place theory,
- 4.4 Sector model and the exploitative model

REFERENCES:

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**M. A. II Syllabus (From 2023-24) / SEM-IV Paper- XIII –
DEVELOPMENT OF MODERN GEOGRAPHICAL THOUGHT
(Teaching Hours-60, Credit-04)**

Preamble

“Geographic thought” as commonly understood in the discipline of geography encompasses the development of geographic knowledge in particular places, times, and contexts. Accordingly, it has traditionally been—and continues to be—primarily approached from a historical perspective. The accumulation of geographical scholarship since the late nineteenth century has encouraged a fusion of historical and geographical skills and interests. In the process, the study of the history of geographical thought should continue to strengthen its central position within the subject as a whole. Yet at the same time, research into this modern era insists upon a more generous incorporation of significant contributions to environmental appraisal and landscape authorship developed by government and non-government actors, and a consideration of vernacular or non-scientific modes of inquiry.

Course Outcomes:

- CO-1. Explain the philosophy in geography
- CO-2. Compare the various dualisms in geography
- CO-3. Distinguish between systematic and regional geography
- CO-4. Rephrase geography as scientific discipline
- CO-5. Identify various paradigms in geography,
- CO-6. Illustrate the process of law, model and theory building

Expected Skills impartation (Through theory and practical's)

1. Asking Geographic Questions
2. Organizing Geographic Information
3. Perspectives and viewpoints on different aspects of geography
4. Critical Writing skill
5. Reading skill
6. Interpersonal communication
7. Critical Thinking ability



SEM-IV

Paper- XIII – DEVELOPMENT OF MODERN GEOGRAPHICAL THOUGHT

Module -1: Introduction to Geographical Thought (15)

- 1.1 Philosophy of Geography,
- 1.2 Geography as a social and natural Science,
- 1.3 General nature of geographic knowledge during the ancient and medieval period.
- 1.4 Development of geography as a discipline in India.

Module -2: Contribution of Modern Geographers (15)

- i) Alexander Von Humboldt,
- ii) Carl Ritter,
- iii) Friedrich Ratzel
- iv) Vidal de la Blache,
- v) Ellen Churchill Sample,
- vi) Richard Hartshorne
- vii) Halford Mackinder
- viii) W. M. Davis

Module -3 Dichotomy in Geography (15)

- 3.1 Dualism in Geography: Physical and Human Geography,
- 3.2 Systematic and Regional Geography,
- 3.3 Determinism and Possibilism
- 3.4 Quantitative and Qualitative

Module -4 : Scientific Explanations and Approaches (15)

- 4.1 Explanation in Geography,
- 4.2 Approaches in Geography- Positivism, humanism, radicalism, Behaviouralism and Post modernism.
- 4.3 Paradigms in Geography
- 4.4 Areal Differentiation, Spatial Organization. Scientific explanations: routes to scientific explanations (inductive / deductive),

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M. A. II Syllabus (From 2023-24) / SEM-IV, Paper- XIV –
REGIONAL PLANNING AND DEVELOPMENT
(Teaching Hours-60, Credit-04)

Course outcome:

1. Understanding Process of Regional Planning
2. Describe local, regional and central relationship and coordination for creating a regional plan
3. Identify effective tools to implement regional infrastructure, transportation & land use plans
4. Understanding utilities of theoretical framework in regional planning an

Skills imparted (Through theory and practical):

1. Delineation of regions and
2. Resource mobilization
3. Identifying measures
4. Analyze information
5. Developed field methodologies and research



SEM-IV,

Paper- XIV – REGIONAL PLANNING AND DEVELOPMENT

Module-1: Basic Concept of Region Planning (15)

- 1.1 Concept and types of Region,
Concept and types of Planning
- 1.2 Concept of Planning Region,
Delineation of Planning Region
- 1.3 Concept of growth and development,
Concept of Regional Development
- 1.4 Indicators of Regional Development,
Measures of Regional Development

Module-2: Theories and Models for Regional Development (15)

- 2.1 Myrdal's Cumulative Causation Theory,
Friedman's Core-Periphery Model
- 2.2 Central Place Theory
- 2.3 Growth Pole Theory, R. P. Mishra's Growth Foci approach
- 2.4 Rostow's Economic Growth Stage Model

Module-3: Planning in India (15)

- 3.1 Institutional Planning Framework- National, State,
District level development plans, Five Year Plans-
policies, plans and outcome
- 3.2 Special Economic Zones
- 3.3 Damodar Valley Corporation
- 3.4 Krishna Valley Development Corporation

Module-4: Regional Planning: India (15)

- 4.1 Regional Disparities-Physical and Socio- economical
- 4.2 Rural Planning and Urban Planning- NCR Delhi
- 4.3 Command Area Development Programme, Drought
Prone Area Development Programme
- 4.4 Tribal Area Development Programme, Hilly Area
Development Programme

Practical:

- Prepare a List of Indicators for a Tahsil level Development
- Assess The Backwash Effect and Spread Effect with reference to your village and Urban Centre
- Collect the information of salient features of District Development Plans of current year of your district
- Collect the Information of Planning process and plans of District Rural Development System of your district

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Department of Geography
M. A. II Syllabus (From 2023-24), SEM-IV Paper- XV –
FUNDAMENTALS OF GEOGRAPHICAL INFORMATION SYSTEM
AND INTRODUCTION TO GPS
(Teaching Hours-60, Credit-04)

Preamble

Geospatial Technology is an emerging field of study that includes Geographic Information System (GIS), Remote Sensing (RS) and Global Positioning System (GPS). Geospatial technology enables us to acquire data, i.e. referenced to the earth and use it for analysis, modeling, simulations and visualization. These techniques are useful to improve decision-making. These decisions are made easier because of specific and detailed information is presented about one or more locations. These tools reduce costs and increase efficiency – especially regarding maintenance schedules, fleet movements or scheduling timetables.

Course Outcomes:

- CO-1. Explain the basic concept of geospatial technology.
- CO-2. Categorize the GIS analysis and
- CO-3. Distinguish between different geographic data structure.
- CO-4. Adopt the knowhow the use of GIS and GPS
- CO-5. Conduct different project of GNSS Integration with GIS and Remote Sensing.
- CO-6. Apply geospatial technology in various geographic field.

Expected Skills impartation (Through theory and practical's)

1. Surveying and Project Management Skill
2. IT skills
3. Numerical skills
4. Basic Programming Knowledge
5. Involvement in Professional Organizations
6. Communication Skill



SEM-IV

Paper- XV – FUNDAMENTALS OF GEOGRAPHICAL INFORMATION SYSTEM AND INTRODUCTION TO GPS

Module 1: Introduction to GIS (15)

1.1 Definition of GIS, History and development of GIS, Components of GIS, 1.2 Types of Geographic data; Raster and Vector data model: Advantages and Disadvantages;

1.3 Spatial data input: Digitization and Conversion; Spatial Features: Point, line and polygon; Concept of Arc, node and vertices;

1.4 Digitization errors; Topology and topological relationship

Module 2: GIS Analysis (15)

2.1 Spatial analysis: Overlay and Buffer Analysis, Interpolation techniques in GIS;

2.2 Terrain analysis: DEM: DTM, DSM and TIN;

2.3 Non-spatial data: Data quality Issues, 2.4 Database Management system (DBMS); Introduction to DSS

Module 3: Global Navigation Satellite System (15)

3.1 Introduction to GNSS; GNSS Receiver,

3.2 GPS satellite; Working principle of GPS; Source of GPS errors;

3.3 Differential GPS; GNSS & GIS Integration,

3.4 Applications of GPS/GNSS; IRNSS

Module 4: Applications of Geospatial Technology (15)

4.1 Geospatial Technology in Urban and Regional planning, Agricultural Management,

4.2 Forestry and Environment, Land use/ and Land cover mapping,

4.3 Landform analysis, Disaster Management;

4.4 Application in Navigation Mapping, Quick Response System

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Department of Geography
M. A. II Syllabus (From 2023-24) / SEM-IV Paper- XVI –
AGRICULTURAL GEOGRAPHY
(Teaching Hours-60, Credit-04)

PREAMBLE:-

Agricultural Geography is a major and developed branch of Economic Geography. Being a dominant economic activity, it has a great importance in the developing world. The present syllabus of this paper includes Definition, Nature, Scope, approaches and significance of Agricultural Geography. It includes determinants of Agriculture and Agricultural systems of the world, various techniques of delimitations. This paper consist land use theories, agricultural development in India.

Course Outcomes:

- CO-1. Examining the introduction to agriculture, nature, scope, significance and development of agriculture geography, approaches to study
- CO-2. Understand the determinants of agricultural activities, physical determinants, and socio-economic determinants
- CO-3 Understand the agricultural system of the world, types of agricultural, study of the following types of agricultural in respect of area, salient features and their problems
- CO-4 Know the techniques of delimitation of agriculture regions
- CO-5 Identify agricultural problems and prospects in India

Expected Skills impartation (Through theory and practical's)

1. Acquiring agriculture sector information
2. Evaluating skills
3. Adopting suitable techniques for agricultural regionalization
4. Adopting agricultural development planning



SEM-IV

Paper- XVI – AGRICULTURAL GEOGRAPHY

Module -1: Introduction to agricultural Geography (15)

- 1.1 Meaning and Definition,
- 1.2 Nature and scope of agricultural geography;
- 1.3 Origin and dispersion of agriculture;
- 1.4 Approaches to the agricultural geography.

Module -2: Agricultural Systems (15)

- 2.1 Determinants of agricultural patterns-physical, economic and technological;
- 2.2 Agricultural systems of the world - location, distribution, types & characteristics of agriculture.

Module -3: Methods of Agricultural Regionalization (15)

- 3.1 Concept & techniques of delimitation of agricultural regions- Crop combination (Weavers minimum deviation method),
Crop diversification; (Bhatia's Method)
- 3.2 Measurement and determinants of agricultural Productivity (Kendall's Method),
- 3.3 Von Thunen's Agricultural land use theory,
- 3.4 Spatial diffusion Process - Haggerstand

Module -4: Agricultural development in India (15)

- 4.1 Agricultural Revolution in India (Green, White) Nature, Socio-economic constraints in the adoption, performance, Problems & prospects.
- 4.2 Land use survey, Dry land Agriculture, Food Security, Organic farming, Agro Tourism
- 4.3 Agricultural Policies in India,
- 4.4 Geographical indications (G.I.), patent bill and seeds act 2004, TRIPS :Haldi and Neem

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M. A. II Syllabus (From 2023-24) / PRACTICAL - SEM-IV, Paper- VII –
Introduction to GIS software and GPS
(Teaching Hours-60, Credit-04)

Preamble

Geographical Information System (GIS) and Global Navigation Satellite System (GNSS) is a powerful, efficient and advance tool for the manipulation and representation of geographical data. It widely used in the different fields since four decade. Geographical information system has ability to capture, store, arrange, manipulate, classify, analyze, manage, and present huge geographic data in short period with the help of software and hardware. Different licensed and open source software's are available globally. Quantum GIS (Q-GIS) is open source GIS software widely used in the different government and private sectors. Introduction and basic function of this software is useful for the students for getting better knowledge of GIS with free of cost. Today different countries launched their own Positioning System for the identification of location on the earth surface. The basic knowledge and technical information of the GPS will be useful for the student for the various application including surveying, mapping and navigation.

Course Outcomes:

CO1- Introduction of open source Q-GIS software

CO2- Application of QGIS

CO3- Explain the Functioning and Application of GPS

Expected Skills impartation (Through practical's)

1. Handling of Q-GIS software
2. Digitization and spatial analysis techniques
3. Practical knowledge of GPS



SEM-IV

Paper- VII – Introduction to GIS software and GPS

Module I Introduction to QGIS (15)

- 1.1 Introduction of QGIS - Desktop and Toolbars
- 1.2 Plugins
- 1.3 Georeferencing: Toposheet
- 1.4 Projection and Reprojection

Module II Basics of QGIS (15)

- 2.1 Image Registration
- 2.2 Digitization
- 2.3 Map preparation or Map Layout
- 2.4 Working with Google Earth

Module III Data Exploration (15)

- 3.1 Data query: Spatial
- 3.2 Data query: Attribute.
- 3.3 Data exploration & working with tables.

Module IV Introduction to GPS (15)

- 4.1 Basic functions & Components of GPS
- 4.2 GPS surveying: Waypoints demarcation, Distance and Area Calculation
- 4.3 Navigational application and Geotagging by Cell phone
- 4.4 Data Import, Processing and Mapping

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Journals:

1. ASPRS Photogrammetric Engineering and Remote Sensing
2. Geospatial world
3. IEEE Letters on Geosciences and Remote Sensing
4. IEEE Transactions on Geosciences and Remote Sensing
5. IJPRS Journal of Photogrammetry and Remote Sensing
6. International Journal of Remote Sensing
7. Journal of the Indian Society of Remote Sensing
8. Remote Sensing of Environment

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M. A. II Syllabus (From 2023-24), PRACTICAL - SEM-IV, Paper- VII
PHOTOGRAMMETRY, REMOTE SENSING AND DIGITAL IMAGE
PROCESSING
(Teaching Hours-60, Credit-04)

Preamble

Satellite Remote Sensing and Photogrammetry is widely used in the different fields. The practical knowledge of this field is requiring handling, analyzing and interpreting the data. A hand on practical of aerial photos and satellite images gives the basic and advanced practical knowledge to the students. The practical knowledge and technical skills of this field will be provides the understanding of Photogrammetry, Remote Sensing and Digital Image Processing and their various applications.

Course Outcomes:

- CO1- Basics of aerial photogrammetry.
- CO2- Procurement of satellite data from online sources.
- CO3- Visual interpretation of Satellite imageries and Aerial photographs.
- CO4- Practical knowledge of digital image processing.

Expected Skills impartation (Through theory and practical's)

1. Handling of remotely sensed data
2. Effective visual interpretation
3. Enhancement and processing of digital imageries



SEM-III

Paper- VI – PHOTOGRAMMETRY, REMOTE SENSING AND DIGITAL IMAGE PROCESSING

Module I - Practical in Photogrammetry (20)

- 1.1 Marginal information of aerial photographs,
- 1.2 Calculation of Photo scale, Average Photo Scale, Focal length and Flying height.
- 1.3 Orientation & construction of 3-D model under stereoscope
- 1.4 Calculation of Relief Displacement and Object height determination from relief Displacement, Object height determination from Parallax.
- 1.5 Area Calculation and Flight Planning,
- 1.6 Interpretation of Stereo Pair of Aerial Photographs.

Module II Practical in Satellite Remote Sensing (20)

- 2.1 Study of satellite image browsing system
- 2.2 Visual interpretation of satellite images (True Color, FCC, Thermal)

Module III – Practical in DIP (20)

- 3.1 Introduction to DIP software, Loading of image data,
- 3.2 Layer stacking, study of histogram and layer information
- 3.3 Supervised Classification and Accuracy assessment
- 3.4 Unsupervised classification and Recoding

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4. IEEE Transactions on Geosciences and Remote Sensing
5. IJPRS Journal of Photogrammetry and Remote Sensing
6. International Journal of Remote Sensing
7. Journal of the Indian Society of Remote Sensing
8. Remote Sensing of Environment

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3. International Society for Photogrammetry and Remote Sensing (ISPRS):
<http://www.isprs.org>
4. National Aeronautics and Space Administration (NASA), USA:
<http://www.nasa.gov>
5. National Oceanic and Atmospheric Administration (NOAA), USA:
<http://www.noaa.gov>
6. National Remote Sensing Centre (NRSC), India: <http://www.nrsc.gov.in>
7. United States Geological Survey (USGS), USA: <http://www.usgs.gov>