

# DEPARTMENT OF GEOGRAPHY

<b>PROGRAMME OUTCOMES: B. A. GEOGRAPHY</b>	
<b>Programme Outcomes</b>	After successfully completion of three years degree programme in Geography students is able to:
	PO1: Demonstrate and understanding of principles and theories of Physical and Human geography – Economic and Population geography.
	PO2: Demonstrate the coherent and systematic knowledge in the discipline of geography to deal with current issues and their solution.
	PO3: Demonstrate connections between everyday life and knowledge of subject geography.
	PO4: Display an ability to read and understand maps, weather maps and toposheets.
	PO5: Demonstrate the ability to understand the significance of geographical aspects in relation to development of the regions and minimizing regional disparities.
	PO6: Demonstrate geographical knowledge acquired in the class, laboratory, and field visit and apply the same in real world.
	PO7: Read, interpret, and generate maps and other geographic representations as well as extract, analyse, and present information from a spatial perspective.
<b>Programme Specific Outcomes</b>	PO8: Develop ability to use of statistical methods and techniques for precise and objective geographic analysis and interpretation of complex phenomena.
	PSO1: Demonstrate the understanding of basic concepts in geography.
	PSO2: Understand the internal structure and composition of different layers of the Earth and its Atmosphere.
	PSO3: Demonstrate acquisition of Weather map, map, aerial photograph and image reading skill.
	PSO4: Evaluate the impacts of human activities on natural environments.
	PSO5: Apply statistical techniques of spatial analysis to scientific study of geography.
	PSO6: Demonstrate ability to apply knowledge learned in classroom to set and perform simple laboratory experiments in geography.
PSO7: Understand about Remote sensing, GIS, Aerial Photographs satellite images as new techniques in geography.	
<b>B.A. GEOGRAPHY: SEM.-I: COURSE OUTCOMES:</b>	
<b>F.Y.B.A.: Semester - I Course Gg-110: (A) Physical Geography</b>	After completion of these course students should be able to:
	CO1: Understand the basic concepts, nature and scope of Physical geography.
	CO2: Make aware among the students about Lithosphere, atmosphere hydrosphere and biosphere.
	CO3: Acquaint knowledge about the interior of the Earth.
	CO4: Understand Wegner's Continental Drift Theory and Davis Concept of Cycle of erosion.

	CO5: Explain the Structure of the atmosphere and assessment of heat balance.
	CO6: Knowledge about the pressure belts and their relation with wind system.
	CO7: Discuss forms and types of Precipitation and understand Hydrological cycle.
	CO8: Exhibit general structure of ocean floor and understand about waves and tides.
	CO9: Acquire direct geographical knowledge through field visit by observations geographical places and landforms.
	<b>B.A. GEOGRAPHY: SEM.-II: COURSE OUTCOMES:</b>
<b>F.Y.B.A.: Semester - II Course Gg-110: (B): Human Geography</b>	After completion of these course students should be able to:
	CO1: Describe definitions, branches, nature and scope of human geography.
	CO2: Understand factors affecting on distribution of population.
	CO3: Explain theory of demographic transition.
	CO4: Describe gender and literacy of Indian population.
	CO5: Understand types and pattern of rural settlements.
	CO6: Account of urbanisation in India and Maharashtra.
	CO7: Discuss affecting factors on agriculture activity and problems of Indian agriculture.
	<b>B.A. GEOGRAPHY: SEM.-III: COURSE OUTCOMES:</b>
<b>S.Y.B.A.: Subject Code: Gg.210 (A) Economic Geography- I (G-2)</b>	After the successful completion of the course, the students will be able to:
	CO1: To acquaint students with the basic principles and concepts of economic geography
	CO2: Define Economic Geography and Describe Its Nature and scope.
	CO3: Describe need and significance and approaches to study economic geography.
	CO4: To discuss relation of economic Geography with social sciences.
	CO5: approaches to study economic geography.
	CO6: Introduce concepts of primary, secondary and tertiary economic activities with problems and prospects.
	CO7: To understand concept of resources with major Renewable and non-renewable energy resources with their World Distribution.
	CO8: Discuss meaning and remedial measures for conservation of resources.
	CO9: Understand role of agriculture in Indian economy.
	CO10: Discuss Physical, Socioeconomic, political and cultural factors influencing Indian agriculture.
	CO11: To understand Argo based Industries in India and concept of Agro tourism.
<b>S.Y.B.A. Subject Code: Gg.220 (A) Population Geography (S1)</b>	After the successful completion of the course, the students will be able to:
	CO1: To introduction of the basic concepts in Population Geography.
	CO2: Definition, Nature, Scope and Contextual significance of Population Geography.
	CO3: Understand Relation between Population Geography and other social Sciences.

	CO4: Understand source of population data such as Census of India, National Sample Survey, Sample Registration Survey, NFHS, and DLHS.
	CO5: To understand Presentation of Population Data with the help of Maps, Graphs and Computer Application.
	CO6: Analyse factors affecting growth of Population and understand Demographic Attributes.
	CO7: Introduce concept and measurements of fertility and mortality
	CO8: To understand concept of migration, types of migration, Causes and consequences of migration.
	CO9: Understand Composition of Population with Age-Sex pyramid, Age Structure, Occupational Structure and Dependency Ratio.
	CO10: Study of Longevity, Life Expectancy with special Reference to India
<b>S.Y.B.A.</b>	After the successful completion of the course, the students will be able to:
<b>Subject Code:</b>	CO1: Develop practical skill and use of map scale and Map projection.
<b>Gg. 201 (A)</b>	CO2: To make students aware of the new techniques, accuracy and skills of map making.
<b>Practical</b>	CO3: Identify small- and large-scale maps with the help of scale
<b>Geography-I:</b>	CO4: Identify Physical and cultural maps on the basis of Physical and cultural factors.
<b>Scale and Map</b>	CO5: Explain basic concepts and types of map scales and understand conversion of map scales and their applications.
<b>Projection (S-2)</b>	CO6: Understand Basic Concepts of Projection such as Latitude, Longitude, Parallel of latitude, Meridian of longitude, Prime meridian, Equator, Direction.
	CO7: Acquaint skills of plotting and representation of graphical scale and map projections.
	CO8: Understand Calculation of time basis on meridian and GMT
	CO9: Understand Map Projection and Identify different types and Construction of Zenithal, Conical, Cylindrical and Mercator Map Projections and their properties and uses.
<b>SYBA.</b>	After the successful completion of the course, the students will be able to:
<b>Semester -III:</b>	CO1: Introduce basic concepts and fundamental structure of Disaster Management (DM).
<b>Subject Code:</b>	CO2: Inculcate critical thinking and problem-solving abilities on disaster management.
<b>SEC-A:</b>	CO3: Enable students to assess the situation and design plan for Disaster management.
<b>Applied</b>	CO4: Understand Fundamental Concepts, Measurement / Parameter and Types of Disasters.
<b>Course of</b>	CO5: Introduce Concept of Mitigation, Preparedness, Response, Recovery, and Rehabilitation.
<b>Disaster</b>	CO6: Understand Role of Geographers and organisations in Disaster Management.
<b>Management</b>	CO7: Comparative Assessment of Disaster Management- I: Earthquake: - India and Japan b) Flood: - India and Netherland

	CO8: Assessment of Disaster Management- II: Assignment based on Primary or secondary data on any one Geographical scale local/ regional/national/ global.
<b>S.Y.B.A. (2999): Environmental Studies (AECC)</b>	After the successful completion of the course, the students will be able to:
	CO1: Know Multidisciplinary nature of environmental studies with Scope and importance.
	CO2: Understand Concept of sustainability and sustainable development.
	CO3: Appreciate the structure and functions of ecosystems with Case studies.
	CO4: Explore Energy flow in an ecosystem, food chains, food webs and ecological succession.
	CO5: Understand Concept of Natural Resources with Renewable, and Non-renewable Resources.
	CO6: Detail account of Biodiversity and its Conservation and importance.
	<b>B.A. GEOGRAPHY SEM.-IV: COURSE OUTCOMES:</b>
<b>S.Y.B.A.: Subject Code: Gg.210 (B) Economic Geography- II (G-2)</b>	After the successful completion of the course, the students will be able to:
	CO1: To acquaint the students with the applications to economic geography for development in different areas.
	CO2: To integrate the various factors of economic development and to acquaint the students with this dynamic aspect of economic geography
	CO3: Modes of Transportation and their cost effectiveness with Significance of a) Road b) Rail c) Air
	CO4: Understand Transportation cost of Major types of a) Road b) Rail c) Air
	CO5: Knowledge about National and International trade and international trade of India
	CO6: Discuss Factors influencing on location of industries and Weber's theory of industrial location.
	CO7: Knowledge about Major industrial regions of India and Iron and Steel Industry in India.
	CO8: Understand distribution of Sugar Industries in Maharashtra
	CO9: Concept of regional planning and development with their importance.
	CO10: Main Objectives of regional planning and understand Regional and sectoral imbalance in India.
	CO11: Understand concept of Regional Planning and Development with importance of Regional Planning
	CO12: Understand concept and Index of Rural Development with appraisal of Rural development in India
	CO13: Discuss various schemes of government for rural development and study of IRD Programme b) DPAD Programme
<b>S.Y.B.A. Subject Code: Gg.220 (B) Population Geography (S1)</b>	After the successful completion of the course, the students will be able to:
	CO1: To acquaint students with the Concepts of over, optimum and under population
	CO2: Understand Malthusian and Marxian theories of Population growth
	CO3: Understand problems population in India and developed Countries
	CO4: To introduce students to the Population Policy of India and China.

	CO5: To understand the health indicators in India
	CO6: Understand about Population as Social Capital and introduce Human Development Index.
	CO7: To acquaint students with the concept of urbanization in population geography.
	CO8: To know about History of urbanization in India and Trends of World urbanization.
	CO9: Discuss Problems of urbanisation in India
<b>S.Y.B.A.</b>	After the successful completion of the course, the students will be able to:
<b>Subject Code: Gg. 201 (B)</b>	CO1: Develop practical knowledge and application of cartographical techniques.
<b>Practical Geography-II: Cartographic Techniques, Surveying and Excursion / Village / Project Report (S-2)</b>	CO2: To make students aware of the new techniques, accuracy and skills of Map Making.
	CO3: Definition, Development and use of cartography
	Discuss about Traditional and Modern Cartography
	CO4: Acquaint skills of plotting and construction of a. Simple line graph b. Simple bar Graph c. Pie diagram d. Choropleth Map e. Isoleth Method (Isoheight or Isothermal) f. Flow diagram
	CO5: Understand 1, Definition of Surveying 2. Types of North Direction (True, Magnetic and Grid North) 3. Types of Survey.
	CO6: Describe surveying types with respective instruments and their applications in actual measurement of land.
	CO7: Demonstrate preparation of drawing profile with the help of Plane Table, GPS and Dumpy Level and Total station Survey.
	CO8: Measurement of survey field ii) Example on measurement of area (Circle, Square, Rectangle, Triangle, Uneven shape)
	CO9: Students acquire skill of Conversion of area from: hector into Acre, Square km into square meter, square meter to square feet
	CO10: Conduct village or city survey and study tours as a part of to gain geographical study and skill of report writing.
<b>S.Y.B.A. Semester -IV: Subject Code: Sec-B: Semester -IV: Applied Course of Travel &amp; Tourism</b>	After the successful completion of the course, the students will be able to:
	CO1: Students will be able to perform online as well as offline booking and cancellation procedures for different available modes of travel and tourism.
	CO2: Students will be able to acquire earning skills in tourism industry.
	CO3: Develop basic framework to understand the various elements of tourism management.
	CO4: Evaluate the role of transport in travel and tourism industry.
	CO5: Develop the skills to arrange, manage and implement various types of tours.
<b>Environmental Studies (AECC)</b>	After the successful completion of the course, the students will be able to:
	CO1: Understand concept of Environmental pollution, types, causes, effects and controls; Air, water, soil and noise pollution.
	CO2: Understand Nuclear hazards and human health risks, Solid waste management: Control measures of urban and industrial waste.

	CO3: Understand the burning environmental issues and relevant management strategies.
	CO4: Study of Environment Laws and Environment Protection Acts for land, Air, Water, Wildlife, Forest Conservation Act.
	CO5: Know about International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD).
	CO6: Acquire knowledge about the new environmental policies and the need to revise policies to tackle the environmental issues of India, in particular.
	CO7: Awareness about Human population growth and its Impacts on environment, human health and welfare.
	CO8: Case studies of Disaster management: floods, earthquake, cyclones and landslides.
	CO9: Know about Environmental movements for protection and conservation of Natural Resources: Chipko, Silent valley, Bishnois of Rajasthan.
	CO9: Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.
	CO10: Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi).
	C11: Create Environmental Awareness among students and develop skills of Conservation of local resources through field visit and project work.
	<b>B.A. GEOGRAPHY (2013 PATTERN) TERM - I AND II</b>
<b>T.Y.B.A. Course Gg-310: Regional Geography of India (G-3)</b>	After the successful completion of the course, the students will be able to:
	CO1: Explain introduction and geopolitical significance of India.
	CO2: Describe major physiographic regions of India and their importance.
	CO3: Understand the Himalayan River system and the peninsular river system with their importance.
	CO4: Discuss climatic characteristics and various seasons of India.
	CO5: Describe the distribution and conservation of soils and natural vegetation in India.
	CO6: Explain significance and recent trends in Indian agriculture.
	CO7: Understand regional planning and development of India and Maharashtra.
<b>T.Y.B.A. Course Gg-320: Agriculture Geography (S-3)</b>	After the successful completion of the course, the students will be able to:
	CO1: Explain basic terms, definitions, Approaches, Trends, nature and scope of agriculture Geography
	CO2: Understand physical, socio-economic and technological determinants of agricultural development
	CO3: Discuss different types of agriculture and problems and prospects of agriculture with Indian examples
	CO4: Demonstrate knowledge of irrigation and watershed management for agricultural development.
	CO5: Knowledge of allied areas in agriculture and familiarize new techniques of agricultural development.
	CO6: Apply the geographical knowledge for the sustainable agriculture development and introduce characteristics of agriculture in India.

<b>T.Y.B.A. Course Gg-301 Techniques of Spatial Analysis (S-4)</b>	After the successful completion of the course, the students will be able to:
	CO1: Introduce SOI toposheet and to acquire the Knowledge of toposheet reading/interpretation.
	CO2: Identify different methods used for Relief Representation
	CO3: Understand drawing and description technique of cross and longitudinal profile from any toposheet.
	CO4: Introduction and to gain the knowledge of weather map reading / interpretation.
	CO5: Application of RS, Aerial Photographs and GIS techniques in the study of geography.
	CO6: Understand Statistical techniques and methods as an essential part of geography.
	CO7: Conduct village survey and study tours as a part of to gain geographical study and skill of report writing.

Sd/-  
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**DEPARTMENT OF GEOGRAPHY**

**Programme Outcomes, Programme Specific Outcomes and Course Outcomes: 2020-21**

	<b>M.A./M.SC. GEOGRAPHY: PROGRAMME OUTCOMES</b>
Programme Outcomes:	After successfully completion of two years degree programme in Geography students is able to:
	PO1: Demonstrate and understanding of principles and theories of geomorphology, Climatology, Economic, population and settlement geography and tourism geography.
	PO2: Good understanding about proper utilization and conservation of natural resources through geographical knowledge.
	PO3: Develop research interest to solve local emerging issues related to geography and the surrounding environment.
	PO4: Think in spatial terms to explain what has occurred in the past as well as using geographic principles to understand the present and plan for the future.
	PO5: Apply qualitative and quantitative research techniques to gather and analyse data for solutions of problems.
	PO6: Demonstrate general understanding of how the physical environment, human societies, and local and global economic systems are integral to the principles of sustainable development.
	PO7: Demonstrate acquisition of Weather chart/map, map aerial photograph and Image reading skill.
	PO8: Develop a general understanding of global human population patterns, factors influencing the distribution and mobility of human populations.
	PO9: Apply Remote sensing concepts, techniques and their application in various fields.
	PO10: Develop research questions and critically analyse both qualitative and quantitative data to answer those questions using various theoretical and methodological approaches in both physical and human geography.
PO11: Read, interpret, and generate maps and other geographic representations as well as extract, analyse, and present information from a spatial perspective.	
Programme Specific Outcomes:	PSO1: Knowledge of geographical terms, concepts and theories.
	PSO2: Understand the evolution of continents and ocean basins with theories of continental drift plate tectonics etc.
	PSO3: Ability of explanation of correlation between geographical facts and processes.
	PSO4: Development of map preparation and map reading skills.



	PSO5: Understanding of Regional Geography of India and planning for development.
	PSO6: Ability to use geographical research methodologies and research projects.
	PSO7: Apply statistical methods and recent techniques in geography for scientific study.

	<b>M.A. PART-I: SEMESTER-I: COURSE OUTCOMES</b>
<b>Course: GGUT-111: Principles of Geomorphology</b>	After completion of these courses' students should be able to:
	CO1: Introduce definitions, concepts, history, nature and scope of Geomorphology.
	CO2: Discuss different geomorphic and geologic time scales.
	CO3: Understand physical and properties of internal structure of the Earth.
	CO4: Explain different concept, theories and models for landscape evolution.
	CO5: Discuss the exogenous and endogenous processes in landforms development.
	CO6: Explain the process and types of weathering and mass movements.
	CO7: Understand the landforms created by processes of weathering, fluvial, glacial, Aeolian and coastal environments.
	CO8: Explain hill slope process and forms and understand models of slope evolution.
<b>Course: GGUT-112: Principles of Climatology</b>	CO1: Explain principal concepts, development, nature and scope of climatology.
	CO2: Understand meaning, evolution, composition and structure of Earth's atmosphere.
	CO3: Explain electromagnetic spectrum and factors affecting insolation.
	CO4: Define insolation and assessment of heat budget.
	CO5: Explain basic concepts and measurement of air temperature and its controlling factors.
	CO6: Describe basic concepts, measurements and affecting factors of air pressure and winds.
	CO7: Explain models of general circulation of the atmosphere.
	CO8: Understand atmospheric moisture, measurement of humidity and types of precipitation.
	CO9: Explain different types of lapse rates, stable and unstable air, air masses and fronts.
<b>Course: GGUT-113: Principles of Economic Geography</b>	CO1: Explain definitions, nature, scope, approaches and recent trends in Economic Geography.
	CO2: Explain definitions, types and affecting factors on location of economic activities.
	CO3: Explain Weber's and Von Thunen's theories of location of economic activities.
	CO4: Define resources and explain significance of natural and human resources in economic development.

	CO5: Describe significance of non-conventional energy resources for sustainable development.
	CO6: Explain definition, concept and measures of economic development.
	CO7: Classify countries on the basis of economic development.
	CO8: Explain affecting factors on transport, communication and trade.
	CO9: Discuss a past green revolution and need of new green revolution in India
	CO10: Understand regional disparities in India and Maharashtra.
	CO11: Discuss pre- and post-independence economic development in India with impact of Green Revolution, Privatization, and Globalization.
	CO12: Conduct A case study of one local agro-based industry and analyse its economic condition, problems and prospects.
<b>Course: GGDT-114: Principles of Population and Settlements Geography</b>	CO1: Explain definitions, nature, scope, development and the approaches of population and settlement geography.
	CO2: Give an account of India's and world distribution of population and its affecting factors.
	CO3: Understand meaning, levels and stages of urbanisation in the World and India.
	CO4: Explain concept, components, trends and theories of population growth.
	CO5: Identify population structure and characteristics of India and world.
	CO6: Understand site, situation, types and patterns of human settlement.
	CO7: Define concepts and discuss factors influencing the dispersion and nucleation
	CO8: Describe different concepts and terms used in rural and urban settlement geography.
<b>Course: GGUP-115: Practical in Physical and Human Geography</b>	CO1: Demonstrate Horton and Strahler methods of stream ordering.
	CO2: Demonstrate drainage basin relief analysis for a 3 to 5 order based on grid method
	CO3: Draw climatograph, climograph, and simple wind rose hythergraph and water budget.
	CO4: Explain climatic types of Koppen's scheme of classification.
	CO5: Apply Weaver's crop combination and Jasbir Singh's crop diversification methods
	CO6: Analyse transport network structure by ratio measure, alpha, beta, gamma, associated number and cyclomatic number.
	CO7: Calculate and demonstrates Age sex pyramid, infant mortality rate, population growth rate and population projection.
	CO8: Computer use for data analysis and presentation.
	CO9: Apply Rank size rule, Nearest Neighbour and centrality as a measure of nucleation and dispersion of settlement.
	CO10: Arrange field visit or tour at geographical interest places anywhere in the country and write excursion report in suitable format.
	<b>M.A. PART- I: SEMESTER-II: COURSE OUTCOMES</b>
<b>Course: GGUT-121: Geoinformatics - I</b>	CO1: Explain definition and potential of GIS and concepts of space and time.
	CO2: Describe history, objectives, elements, tasks and applications of GIS.
	CO3: Understand spatial and non-spatial database of GIS.

	CO4: Apply information of GIS in assessment, development and monitoring in present situation
	CO5: Explain DBMS – advantages and understand conceptual and implementation models
	CO6: Understand Operations from Algebraic theory and Set theory SQL for data analysis.
<b>Course: GGUT-125: Population Geography</b>	
	CO1: Explain definition, nature and scope of population geography.
	CO2: Knowledge about Sources of population data viz. census, national sample survey, sample registration survey, NFHS, DLHS data.
	CO3: Explain distribution and density in World population and determinates of population growth.
	CO4: Explain theories of fertility and theories of migration.
	CO5: Define the terms fertility, mortality, migration and explain their measures, determinants, levels and trends.
	CO6: Understand demographic, social, economic and cultural compositions of population.
	CO7: Explain Human Development Index (HDI) Gender Development Index (GDI) And Relation between population and development
	CO8: Understand population policy of India and new population policy of China.
<b>Course: GGUT-129: Geography of Rural Settlements</b>	
	CO1: Explain definitions, site, situation, location, evolution, history of settlements.
	CO2: Understand historical, geographical and cultural aspects of settlements reflected in place names.
	CO3: Discuss various factors affecting on settlement growth, site, distribution, dispersion and nucleation.
	CO4: Explain various factors and Von Thunen's and Ricardo's theories of rural land use pattern
	CO5: Discuss centrality, hierarchy, functional analysis of service village, trading centre, and central place theory.
	CO6: Understand morphogenesis, growth and socioeconomic transformation of rural settlements.
	CO7: Describe main demographic characteristics of rural settlement
	CO8: Describe physical, social, cultural and economic factors affecting rural house types.
	CO9: Discuss house types, settlement patterns, and modern forms of rural settlements in Maharashtra.
<b>Course: GGDT-130: Geography of Tourism</b>	
	CO1: Understand definitions of tourist and tourism and concepts of recreation and leisure.
	CO2: Explain importance and impact of tourism on economy of nation.
	CO3: Classify tourism and understand recent concepts viz. agro-tourism, eco-tourism, heritage tourism and adventure tourism.
	CO4: Explain role of accommodation and physical and socio-cultural factors of tourism.

	CO5: Apply the tourism knowledge for any one tourist place case study from India.
<b>Course: GGDP-133: Practical in Map Projections</b>	CO1: Definition and necessity of projection and Perspective and non-perspective, conventional projections.
	CO2: Classify map projection based on developable surfaces used, position of source of light and properties.
	CO3: Construct Zenithal Polar Gnomonic and Zenithal Polar Stereographic Projection.
	CO4: Demonstrate Mercator's and Universal Transverse Mercator (UTM) Projection.
	CO5: Construct Mollweide Sinusoidal Projection for preparation of maps.
<b>Course: GGUP-134: Practical of Statistical Techniques for Geography</b>	CO1: Introduce applications of statistical techniques in Geography and understand descriptive and inferential statistics.
	CO2: Understand types of Geographical data and scales of measurement.
	CO3: Calculate and analyse measures of central tendency, dispersion and skewness and kurtosis.
	CO4: Understand concept of probability, calculations and types of probability distribution.
	CO5: Define concepts of Population, sample, Null and alternate hypothesis in Inferential Statistics.
	CO6: Calculate and interpret The Chi-square, Student's 't' and 'F' tests.
	CO7: Calculate, plotting and interpretation of linear regression equation and exponential and Power law regression equation.
	CO8: Explain Concept of Bi-variate correlation, regression and significance testing in correlation analysis.
	CO9: Knowledge of general requirements for conducting an inferential statistical test
	CO10: Explain definition, component, calculation and plotting of time series and its analysis methods.
	CO11: Acquire skill of primary and secondary data collection and analyse of data by using appropriate statistical techniques and report writing.
	CO12: Define Variables and their types Understand definition and types of Hypotheses.
	CO12: Calculations of Measures for Central Tendency and Dispersion.
	CO13: Understand Correlation and Regression Analysis and Time series analysis.
CO14: Calculations and application of T test, Z test and Chi-square test for Correlation.	
	<b>M.A. PART- II: SEMESTER-III: COURSE OUTCOMES</b>
<b>Course: GGUT-235 Geoinformatics II</b>	CO1: Introduce definition, concept and principles of Remote Sensing.
	CO2: Explain History and development of Remote Sensing in India.
	CO3: Understand of EMR and EMS, Interaction of EMR with atmospheric Earth's surface.
	CO4: Understand of Black body radiation and Laws of radiation.
	CO5: Explain types and characteristics of platforms.
	CO6: Identify Geo-stationery and Sun synchronous Satellites.

	CO7: Know Earth Resources Satellites: LANDSAT, SPOT, IRS, IKONOS satellite series.
	CO8: Understand Meteorological satellites: INSAT, NOAA, GOES.
	CO9: Explain the Sensors: Across track (whiskbroom) and Along track (push broom) scanning.
	CO10: Know Optical mechanical scanners: MSS, TM, LISS, WiFS, PAN.
	CO11: Identify Spatial Resolution, Spectral Resolution, Temporal Resolution, And Radiometric Resolution.
	CO12: Introduce basic principles, types, steps and elements of image interpretation.
	CO13: Understand techniques of visual interpretation and interpretation keys.
	CO14: Understand Techniques of Aerial Photography: Aerial camera and its Components.
	CO15: Introduce Aerial Photography: Definition, characteristics and Geometry
	CO16: Types of aerial photographs based on the position of the Cameral Axis and Scale.
<b>Course GGUT-236: Geographical Thoughts</b>	CO1: Account of Historical Development of Geographical Thoughts.
	CO2: Explain brief account of Greek, Roman, and Indian Schools of thoughts vi. Contributions of Kant, Humboldt, Ritter, W. M. Davis
	CO3: Know the Contributions of Herodotus, Eratosthenes, Strabo and Ptolemy.
	CO4: A brief account of different schools of thought – Arab, German, French, British and American.
	CO5: Know contributions of Marco Polo, Columbus, Vasco-Da-Gama and Captain Cook
	CO6: Understand contributions of Kant, Humboldt, Ritter and W. M. Davis.
	CO7: Understand Dualism in Geography: Determinism and Possibilism, Systematic versus Regional Geography and Physical versus Human Geography
	CO8: Know Paradigms, System approaches and Models in Geography.
	CO9: Recent Trends in Geography: Field survey process studies and experimental studies, Quantification and application of statistical techniques in Geography, Computer based Cartography, Remote Sensing, GIS and Geo-informatics
	CO10: Applied Geography: Definition, Need and Significance ii. Application in land-use planning, regional planning and urban planning, resource management, environmental management, natural hazards, scenic evaluation
<b>Course GGUT-240: Urban Geography</b>	CO1: Introduce nature, scope and significance of urban Geography.
	CO2: Know relationship of urban Geography to other discipline.
	CO3: Understand meaning of Urban settlement and urbanization.

	CO4: Describe Brief review of spatiotemporal variations in urbanization in the world.
	CO5: Understand urbanization curve and contemporary factors of urbanization.
	CO6: Understand urban morphology through Park and Burgess Model, Homer Hoyet Model, Harris and Ullman Model of urban structure.
	CO7: Know Characteristics and demarcation of Central Business District.
	CO8: Explain functional classification of towns and cities by C.D. Harris and H. J. Nelson.
	CO9: Describe characteristics of Growth and Density of urban populations.
	CO10: Understand Age, sex and occupational structure of urban populations.
	CO11: Understand Concept, characteristics and criteria used to demarcate the city region.
	CO12: Explain Christelle's central place theory, rank-size rule and hierarchy urban settlements.
	CO13: Introduce various contemporary urban issues and their remedial measures.
	CO14: Understand need and elements of city plan,
	CO15: Explain of Urban development policy in India and use of GIS in urban planning.
<b>Course GGDP-241: Practical in Geoinformatics</b>	CO1: Aerial Photography- Acquire skill of Measurements and Interpretation of Aerial Photographs by Scale and height using parallax bar.
	CO2: Acquire skill of Visual Interpretation of single aerial photograph and Interpretation of stereo pair using Stereoscope.
	CO3: Satellite Image: Acquire skill of Visual interpretation of LISS, PAN, WiFS.
	CO4: Understand Carto-sat Data, IKONOS and Quick Bird.
	CO5: Spatial Database: Layer Generation by Raster (Full Grid, Chain Codes and Run Length Codes) and Vector data (Manual Digitization, Digitization Errors and Topology Building)
	CO6: GIS operations: Raster and vector overlay, map algebra (AND, OR) from a toposheet quadrant
	CO7: Acquire skill of Spatial interpolation from a toposheet quadrant.
	CO8: Acquire skill of GIS operations using open-source GIS software.
<b>Course GGUT-243: Watershed Management.</b>	CO1: Define concepts of watershed and watershed management with its principle.
	CO2: Understand necessity of watershed management and problems in watershed management.
	CO3: Know delineation and main characteristics of Watershed.
	CO4: Understand Hydrological process in watershed and Hydrological cycle

	CO5: Understand Methods of Water and soil conservation in watershed.
	CO6: Apply Remote Sensing and GIS in watershed management.
	CO7: Understand Integrated watershed development plans
	CO8: Understand importance of watershed management in national development.
<b>Course GGUP-248: Practical in Population and Settlement Geography</b>	CO1: Understand Demographic indices such as Mean age at marriage and fertility
	CO2: Know Measures of mortality like IMR & A.S.D.R
	CO3: Understand measurement of Dependency ratio
	CO4: Know Determinants of demographic transition compared with underdeveloped/developing/developed countries/state.
	CO5: Understand Pull-push factors affecting volume of migration.
	CO6: Understand simple correlation matrix.
	CO7: Compare Rural urban composition of population.
	CO8: Understand Age-sex and literacy.
	CO9: Understand Gravity model by W. J. Reilly and Zipf, and its application (potential population surfaces).
	CO10: Understand Indices of Central Business District (CBD).
	CO11: Understand Stages according to urbanization curve.
	CO12: Understand Rank size rule a Gini's Coefficient concentration index and its application.
	CO13: Acquire skill of Preparation of questionnaire, Collection of Population and settlement data, data analysis and preparation of report.
<b>M.A. PART- II: SEMESTER-IV: COURSE OUTCOMES</b>	
<b>Course GGUT: 249: Geography of India</b>	CO1: Introduce geographical and relative location, frontiers, Strategic Significance and geological structure of India.
	CO2: Explain main physiographic divisions and its importance.
	CO3: Understand drainage system of India.
	CO4: Explain main seasons of India and Associated weather conditions.
	CO5: Understand Origin and mechanism of monsoon.
	CO6: Describe soil types and their distribution in India through map.
	CO7: Understand Soil degradation and its Conservation.
	CO8: Describe major forest types, their distribution, deforestation and Aware among students about conservation of forest in India.
	CO9: Describe distribution and utilisation of mineral and energy resources in India.
	CO10: Distribution and Production of Major Crops in India.
	CO11: Understand Agriculture revolution in India and factors affecting Indian Agriculture.

	CO12: Distribution, development and problems of major industries in India.
	CO13: Understand population growth and distribution in India.
	CO14: Examine Growth, distribution of population in India
	CO15: Understand composition and structure of Population India
<b>Course GGUT-250: Oceanography</b>	CO1: Introduce Definition, Meaning of Oceanography.
	CO2: Review of Foundation of Modern Oceanography.
	CO3: Contribution of Oceanographers in the subject.
	CO4: Post-war Oceanography and Modern Trends in Oceanography.
	CO5: Understand origin of the Ocean Basins with the help of Continental Drift, Seafloor Spreading, and Plate Tectonics.
	CO6: Know World Oceans, their origin and distribution.
	CO7: Understand the Ocean Floor through appropriate Diagram.
	CO8: Understand main properties of Sea Water.
	CO9: Origin and distribution of Marine Sediments.
	CO10: Understand Etiology of marine and oceanic pollution
	CO11: Causes and known remedial measures of oceanic pollution.
	CO12: Account of Available, exploited, unexploited resources and known but unexploited reserves.
<b>Course GGUT-251: Research Methodology</b>	CO1: Introduce meaning, objectives and characteristics of research.
	CO2: Identify types of Research and understand various steps in Research Process
	CO3: Differentiate research methods versus methodology.
	CO4: Define Research Design, its Purpose and Characteristics of Good Research Design.
	CO5: Define Research Problem its Identification and technique involved in defining a problem.
	CO6: Definition of Population, Sample and Sampling Design.
	CO7: Identify advantages and disadvantages of Sampling
	CO8: Understand Characteristics of a good sample and identify types or method of sampling
	CO9: Understand Questionnaire, Interview and observation and field work methods of Data Collection.
	CO10: Acquire skills of primary data collection and know sources of secondary data collection.
	CO11: Define Variables and their types Understand definition and types of Hypotheses.
	CO12: Calculations of Measures for Central Tendency and Dispersion
	CO13: Understand Correlation and Regression Analysis and Time series analysis.
	CO14: Calculations and application of T test, Z test and Chi-square test for Correlation.
	CO15: Acquire skills of technical writing and reporting of research and Review of Literature.



	CO16: Understand and introduce Research ethics, plagiarism and funding agencies for Research project.
<b>GGUT-255: Regional Planning</b>	CO1: Introduce Concept and Need of Regional Planning.
	CO2: Understand Role of Geography in Regional Planning.
	CO3: Understand Hierarchy of Planning and identify Types of Planning and Levels of Planning
	CO4: Define Concept of a Region and identify Type of a Region.
	CO5: Introduce Concept of Planning Region and understand Indicators of Developments, Measurement of Regional Development.
	CO6: Introduce Regional Survey, Techno-Economic Survey and Diagnostic surveys
	CO7: Know Regional disparities, Regional Policies and Five-Year Plans in India.
	CO8: Experience of Regional Planning in India and understand Multilevel planning (State, District and Block Level Planning)
	CO9: Introduce Concept of Regionalisation.
	CO10: Understand Planning of Metropolitan regions, Planning of tribal, command areas and river basins.
	CO11: Understand National Capital Region.
<b>Course GGDP-257: Interpretation of Topographical Maps and GPS Survey</b>	CO1: Indexing systems and conventional signs and symbols of S.O.I. toposheets.
	CO2: Understand 4-figure Grid, 6-figure Grid and International grid reference.
	CO3: Introduce to US and OS sheets.
	CO4: Interpret Relief in S.O.I. Toposheets by Distribution of Spot heights, bench marks, Trigonometrical Points etc.
	CO5: Interpret Types of Slopes (convex, concave, uniform etc.) and Major landforms from contour patterns in S.O.I. Toposheets.
	CO6: Interpret main types of vegetation, Drainage network Types, Streams with water, without water and Influence of relief on drainage in S.O.I. Toposheets.
	CO7: Interpret Types of settlements, Types of roads, railway lines, facilities of communication in S.O.I. Toposheets.
	CO8: Evaluate information on the survey of India topographical map with actual ground information by carrying physical survey of particular location or village.
	CO9: Compute information regarding geology, climate, soils and vegetation of the particular location or village
	CO10: Introduce G.P.S. and Conduct G.P.S. Survey (GPS Reading and Area Measurement) of a village and acquire report writing skill.
<b>Course GGUT-258: Geography of World</b>	CO1: Introduce (Earth and solar system), Origin and Evolution of the Earth- Big-bang theory.
	CO2: Understand Geological Time scale, Origin and Evolution of the Continents and Oceans, Major natural regions.
	CO3: Understand Regional geography of Continents namely Europe, North America, South America, Africa and Australia, Asia and Antarctica.

	CO4: Introduce World contemporary issues such as Major political issues, COVID-19, Global warming, Growth, Religious conflict, Poverty, Migration
	CO5: Explain Role of WTO and IMF in World contemporary issues.
	CO6: Understand 21 <sup>st</sup> century challenges (Food security, Climate change, Global Public Health (Pandemics) and Terrorism) and opportunities (Globalisation and Tourism) in the world.

**Sd/-**  
**Dr. Pandurang Y. Thombare**  
**HOD, Geography**