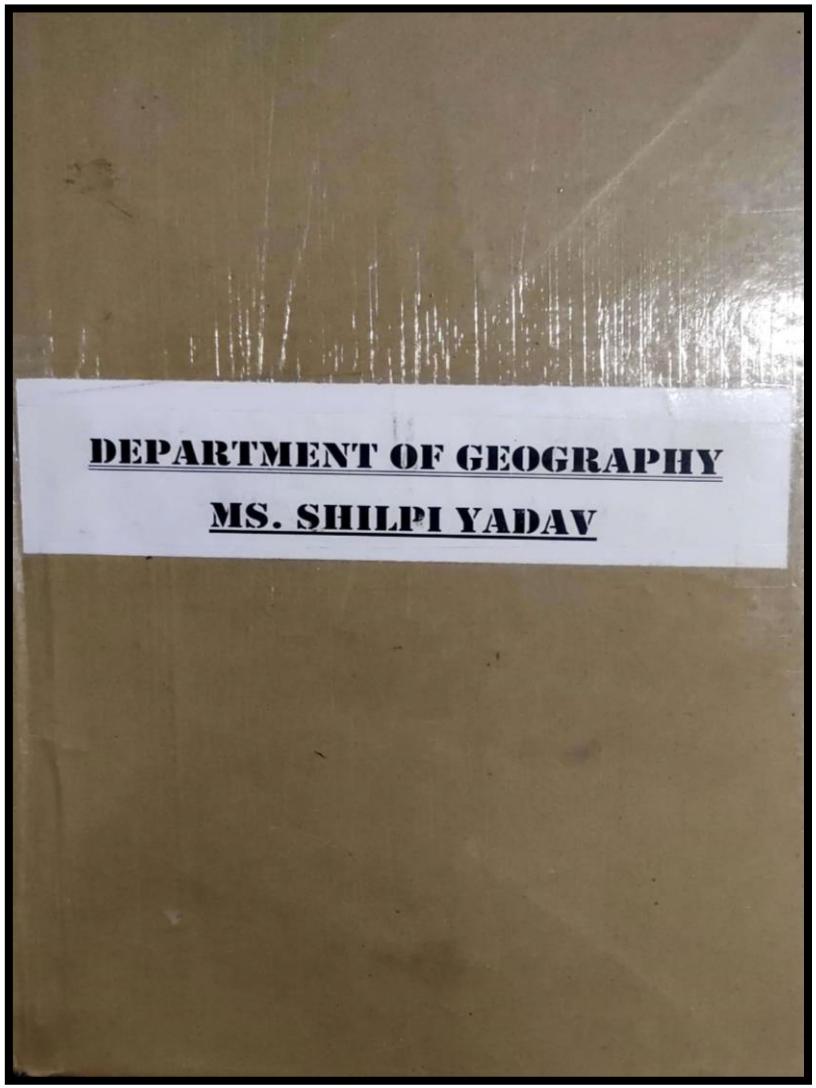
SOPHIA GIRLS' COLLEGE(AUTONOMOUS), AJMER



COURSE_PLAN_2019-20_MS_SHILPI_YADAV

SOPHIA GIRL'S COLLEGE, AJMER (*AUTONOMOUS*)

B.A SEMESTER I **PHYSICAL GEOGRAPHY–I (PAPER I) (GEO-101)**

(Elements of Geomorphology)

Max. Marks : 75 (50Ext; 25 Int) Min. Marks: 30 (20 Ext;10 Int) Credit: 03 Duration: 21/2 hrs

COURSE PLAN

SEM/ Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM I JULY	**UNIT I** Solar System; Geological Time Scale; Origin of the Earth: Kant, Chamberlin and James Jeans, Big Bang Theory;	Ice age, Super Nova,	PPT, Chart, Maps, Visual 3- D Models	Identify the concepts of origin of earth and landform.	*Knowledge Based* 1. What is Solar System? 2. Illustrate the different layers of Earth's Interior? *Understanding Based* 1. Compare the Continental Drift Theory and the concept of Plate Tectonics? 2. Classify the different landforms formed by the action of river? *Higher Order Thinking Skills Based* 1. Justify the present distribution of world continents and oceans on the basis of Harry Hess's Plate Tectonics Theory? 2. Critically evaluate the concepts of Sea Floor spreading?	Knowledge--60 Understanding-30 Higher Order-10
	Earth's interior: Structure and zoning of the Earth's interior;	Law of Floatation	Quiz, Diagrams			
	Forces of the Earth: Endogenetic and Exogenetic; Folds and Faults.	Force of Buoyancy & Gravitation	Maps, Flow Charts			
AUGUST	**UNIT II** Origin of Continents & Oceans: Wegner's Continental Drift Theory,	Climatic Zones, Layers of the earth, Force of Boyancy	Diagrams, Models, Globe	Illustrate the different forces acting over the earth.		
	Theory of Plate tectonics, Sea-floor spreading; Theory of Isostacy;	Isostatic Balance, Himalayan Disturbances, Concept of Displacement, Law of Floatation	Diagrams, Models, demonstration through Globe			
	Volcanoes: types, distribution and related landforms; Earthquakes: occurrence, distribution.	Seismography	Maps, Diagrams, Models, Demonstration			
SEPTEMBER-OCTOBER	**UNIT III** Rocks: Igneous, Sedimentary and Metamorphic;	Geological Structure, Fossils, Interior of the earth, Landforms	Demonstration through rock samples	Compare and analyze the different cycles of landform erosion and their processes.		
	Denudation: Weathering and its types, Erosion and resulted landforms:	Exogenetic Forces of the earth, Agents erosion	PPT, Demonstration			
	Work of River, Glacier, Wind (arid and semi-arid), Waves and Karst, Davison Cycle of erosion.	Stages of development, World Physiography	PPT, Case Studies, Flipped Classroom			

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COURSE_PLAN_2019-20_MS_SHILPI_YADAV

SOPHIA GIRLS' COLLEGE, AJMER (*Autonomous*)
B.A SEMESTER III
ECONOMIC GEOGRAPHY-I (PAPER I) (GEO-301)

Max. Marks : 75 (50Ext; 25 Int) **Min. Marks: 30(20 Ext;10 Int)** **Credit: 03** **Duration: $2^{1/2}$ hrs**

COURSE PLAN

SEM/ Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Distribution
SEM I JULY	**UNIT I** Introduction: Definition, Nature, Scope and recent trends of economic geography, its relation with allied subjects;	Development in economic geography.	PPT, Chart, Flow charts.	Analyze the impact of economic activities on environment.	*Knowledge Based* Explain the nature and scope of economic geography.	
	Classification of economies, Sectors of economy-primary, secondary and tertiary;	Public sector, private sector, industrialisation.	Match the following, Quiz,			
	The impact of economic activities on environment.	Pollution, Sustainable management of resources.	Maps, Flow Charts		*Understanding Based* Discuss the importance of classification of economies.	Knowle dge--50
AUGUST	**UNIT II** Natural Resource Classification: Introduction to Renewable and Non-renewable resources;	Gift of nature, Concept of resources.	Diagrams, Models, Flow charts.	Classify the different types of resources and practice conservation with possible solutions.		
	Conservation of resources; Changing nature of economic activities: forestry, agriculture and industrial activities;	Agro-forestry, Subsistence agriculture, truck farming.	Diagrams, Models,			Underst anding-
	Soil and major soil types.	Entisols, Inceptisols.	Maps, Diagrams, Models, PPT.		*Higher Order Thinking Skills Based* Summarize the relevance of Von Thunen's Agricultural Model.	
SEPTEMBER-OCT	**UNIT III** Agriculture: Land use and Locational theory by Von Thunen;	Land-use pattern, Locational Rent.	PPT, Case Studies, Flipped Classroom	Critically evaluate the land use by location theory of Von Thunen and compare agricultural regions of the world.		35
	Principal crops- rice, wheat, sugarcane, cotton, tea, coffee rubber; Agricultural regions of the world by Whittlesey;	Agricultural Typologies of the world	PPT, Demonstration, Maps.			
	types and their products.	Agro-forestry, Community forestry.	PPT, Case Studies, Maps.			Higher Order- 15

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B.A SEMESTER III

PRACTICAL: INTERPRETATION OF TOPOGRAPHICAL MAPS (GEO-303)

Max. Marks: 50(40Ext; 10 Int) Min Marks: 20(16 Ext;4 Int) Credits: 02 Duration: 5 hrs

COURSE PLAN

SEM/ Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM,I JULY	**Interpretation of Topographical Map.** a. Primary Information (About Indexing, latitude and longitude explanations and administrative setup)	Basic mathematics, Tables, Conversion Units	Exercises with Use of Wooden Geometry Box, Demonstration	Develop understanding of the Topographical landscapes in consonance to Survey of India Toposheets and asses their regional differentiation.	*Knowledge Based* Practical File Work *Understanding Based* Lab exercises Draw a Plain Scale on R.F 1:50,000 *Higher Order Thinking Skills Based* Interpret and develop a Profile for the given region? Viva Voce	Knowledge--30 Understanding-50 Higher Order-20
AUGUST	b. Arrangement and Identification of Toposheets of India; c. Conventional signs and symbols; d. Methods of representing relief on map contours level colouring spot heights, benchmarks.	Topographical understanding, Landform distribution	Demonstration with 3 D Models, Tracing Table			
SEPTEMBER - OCTOBER	e. Identification of relief features on a map through contours –conical hill, plateau, ridge, v-shaped valley, escarpment, cliff, waterfall, types of slopes (uniform, undulating, convex and concave, gentle and steep); Interpretation of Relief, Drainage, Settlements, Land-use, Vegetation and Transport network on Toposheets.	Slopes, Areal topographical interpretation	Demonstration and Lab exercises with Video Animations			

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B.A SEMESTER V

ENVIRONMENT GEOGRAPHY- (PAPER I) (GEO-501)

Max. Marks : 75 (50Ext; 25 Int) **Min. Marks: 30(20 Ext;10 Int)** **Credit: 03** **Duration: $2^{1/2}$ hrs**

COURSE PLAN

SEM/ Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Distribution
SEM I JULY	**UNIT I** Definition, Scope and Importance of Environment Geography; Elements of Environment: Physical and Cultural;	ecological niche, succession	PPT, Chart, Maps, Quiz, Demonstration.	Recall and relate the elements of environment which are impacting the climate and present surroundings.	*Knowledge Based* 1. Distinguish the physical and cultural elements of environmental geography. 2. Elaborate man and environment relationship. *Understanding Based* 3. Critically evaluate the conservation of water as a resource. 4. Classify the different kinds of disasters related to water. *Higher Order Thinking Skills Based* 5. Justify the present scenario of growing energy needs. 6. Critically evaluate the concepts of Desertification.	Knowledge—40 Understanding-35 Higher Order-25
	Approaches of Environmental Study: Determinism, Possibilism, Neo Determinism & Ecological; Relation between Man and Nature;	Early human activities.	Match the following, Quiz			
	Forest as a Resource: Use and over-exploitation, Deforestation, Forest policy of India.	Ecological certification.	Maps, Flow Charts			
AUGUST	**UNIT II** Water as a Resource: Surface and Ground water, Its use and over-utilization;	Scarcity of water, pollution.	Diagrams, Models, charts.	Prioritize the need and importance of conserve resources.		
	Disasters related: Floods, Drought, Dams- Benefits and problems, Case study of Kariba dam (Zimbabwe) and Tehri dam (India);	Concrete dams, gravity dams, flash floods, soil erosion.	PPT, Case Studies, Flipped Classroom			
	Mineral as a Resource: Use and exploitation, environmental effects of extracting and using mineral resources.	Ores, drilling, open shaft drilling.	Maps, Diagrams, Models.			
SEPTEMBER-OCTOBER	**UNIT III** Energy as a Resource: Growing energy needs; Renewable and Non Renewable energy sources, Use of alternate energy sources;	Energy needs, sustainability, concept of clean energy.	Diagrams, Models, demonstration through Globe	Prioritize the importance and the need to conserve Land resource.		
	Land as a Resource: Land degradation, Soil erosion and Desertification, Conservation of conventional energy resources;	Water logging, salinization, Concept of 3 R's.	PPT, Demonstration through flow charts,			
	Development of non-conventional energy resources according to five year plans in India.	Environmental Planning in India, SDG.	PPT, Case Studies.			

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COURSE_PLAN_2019-20_MS_SHILPI_YADAV

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M. A/M.Sc GEOGRAPHY (Previous) SEMESTER II

POPULATION GEOGRAPHY (GEOM - 103)

Max Marks: 100(70Ext; 30 Int) **Min. Marks: 40(28 Ext;12 Int)**

Credit: 06 **Duration: 03 hrs**

COURSE PLAN

SEM/ Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM I JULY	**UNIT I** Population Geography: Nature, Scope and Objectives;	Demography, Factors affecting.	PPT, Chart, Maps.	Explain the development of demography and elaborate the concept of population.	*Knowledge Based* Summarize the development of demography and elaborate the concept of population.	
	Approaches;	Demography, Factors affecting.	PPT, Quiz.			
	Modern theories: Malthusian Theory, Optimum Theory and Demographic Transition Theory.	Concept of Sustainable development	Flow Charts, Diagrams.			Knowledge--40
AUGUST	**UNIT II** Population Dynamics: Fertility, Mortality, Age, Sex, Family & Households, Literacy, Education, Religion, Caste and Tribes, Rural & Urban,	Age pyramids, Factors affecting, Qualitative aspects of population.	Diagrams, Models, demonstration through Globe	Measure and discuss the population dynamics of the world.		Understanding-30
	Urbanization, Occupational Structure, Gender Issues (with special reference to India);	Urban Sprawl, Slum development.	Diagrams, Models,		*Understanding Based* Examine the population dynamics of the world.	Higher Order-30
	Migration: Types, Causes, Consequences and related theories.	Push and Pull Factors	Maps, Diagrams, Models, Demonstration		*Higher Order Thinking Skills Based* Evaluate the theories of migration.	
SEPTEMBER-OCTOBER	**UNIT III** World Population Distribution;	Regional disparity	Demonstration through rock samples	Critically evaluate the population as a resource and population policies.		
	Ackerman's Population Resource Regions; Critical appraisal of Population Policies of India;	Government initiatives and need of regional planning.	PPT, Demonstration			
	Human Development Index: Indicators and Measurements.	Social welfare and well-being, Happiness Index.	PPT, Case Studies, Flipped Classroom			

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M. A/M.Sc GEOGRAPHY (Final) **SEMESTER III**

SOCIAL GEOGRAPHY (a) **(GEOM-304)**

Max Marks: 100(70Ext; 30 Int) **Min. Marks: 40(28 Ext;12 Int)** **Credits: 06** **Duration: 03 hrs**

COURSE PLAN

SEM/ Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM I JULY	**UNIT I** Nature and development of social geography;	Society and social structure.	PPT, Chart, Maps, Visual 3- D Models	Discuss the knowledge of formation of societies and social consciousness.	*Knowledge Based* Discuss the measurement of human development with social, economic and environmental indicators. *Understanding Based* Explain the concepts of social well-being, physical quality of life, *Higher Order Thinking Skills Based* Speculate Social and environmental impact assessment of development projects.	Knowledge--30 Understanding-40 Higher Order-30
	Philosophical bases of social geography-Positivists, structuralist, radical, humanist, post-modern and post structuralist; social geography in the realm of social sciences.	Social transformation	Match the following, Quiz,			
	Space and society: Understanding society and its structure and process.	Society and social structure.	Maps, Flow Charts			
AUGUST	**UNIT II** Social differentiation and region formation; bases of social region formation; role of race, caste, ethnicity; religion and languages;	Society and space	Diagrams, Models,	Explain the formation of regions with respect to various social parameters.		
	Indian unity and diversity; social transformation and change in India. Social well-being: Concepts of social well-being, physical quality of life,	Social well-being, Holistic development	Diagrams, Models, Globe.			
	Human development; measurement of human development with social, economic and environmental indicators.	HHI ,HDI	Maps, Diagrams,			
SEPTEMBER-OCTOBER	**UNIT III** Rural urban deprivation in India with respect to health care; education and shelter;	rural and urban societies.	Maps, Flow Charts	Speculate public policies and evaluate social planning system in India		
	deprivation and discrimination issues relating to women and under privileged groups, Patterns and bases of rural and urban society;	rural and urban societies	PPT, Demonstration			
	Public policy and social planning in India: review of Five year Plans and area plans towards social policy in India; Strategies to improve social well-being in tribal, hill, drought and flood prone areas; Social and environmental impact assessment of development projects.	Five year planning in India	PPT, Case Studies, Flipped Classroom			

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B.A SEMESTER II

PHYSICAL GEOGRAPHY –II PAPER I (GEO-201) (Climatology and Oceanography)

Max. Marks : 75 (50Ext; 25 Int) **Min. Marks: 30 (20 Ext;10 Int)** **Credit: 03** **Duration: 2 1/2 hrs**

COURSE PLAN

SEM/ Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Distribution
SEM II DEC	**UNIT I** Definition and Significance of Climatology; Composition and structure of the atmosphere;	Concept of Climate and Weather,	PPT, Chart, Maps, Visual 3- D Models	Understand the meaning and significance of climatology.	*Knowledge Based* 1. Illustrate the composition and structure of atmosphere. 2. Distinguish between planetary and periodic winds. *Understanding Based* 1. Discuss the horizontal and vertical distribution of temperature. 2. Define cyclones and their types. *Higher Order Thinking Skills Based* 1. Explain the origin and development of coral reefs. 2. Discuss the importance ocean currents.	Knowledge--55 Understanding-30 Higher Order-15
	Atmospheric Temperature: Vertical and Horizontal distribution of temperature; Atmospheric pressure and Pressure belts;	State Conversions, Relationship between Temperature and pressure	Match the following, Quiz, Demonstration			
	Winds: Planetary, Periodic and Local winds; Hydrological cycle	Global Climatic Zones	Maps, Flow Charts			
JAN	**UNIT II** Air masses; Fronts: Concept, classification and properties;	Atmospheric Circulations	Diagrams, Models, Globe.	Explain various climatic phenomenon and deduce measures to control global warming.		
	Cyclones: Tropical and Temperate cyclones;	Pressure circulation, Western Disturbances.	Diagrams, Models, demonstration through Globe.			
	Climatic classification of Koppen and Thornwait; Atmospheric pollution; Global warming	Ozone depletion, Greenhouse gases.	Maps, Diagrams, Models			
FEB. TO MARCH	**UNIT III** Definition and significance of Oceanography; Ocean Bottom Relief: Atlantic, Pacific and Indian Ocean;	Plate movements, Formation of Trenches.	PPT, Maps and diagrams.	Define oceanography and elaborate the significance of oceans.		
	Distribution of Temperature and Salinity; Circulation of oceanic waters- Tides: Concept and types; Currents: Atlantic, Pacific and Indian ocean;	Factors affecting salinity, Fishing Grounds.	PPT, Demonstration			
	Coral Reefs: Types, Darwin's Subsidence Theory.	Great Barrier Reef,	PPT, Flipped Classroom.			

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B.A SEMESTER IV

ECONOMIC GEOGRAPHY-II (PAPER I) (GEO-401)

Max. Marks : 75 (50Ext; 25 Int) **Min. Marks: 30(20 Ext;10 Int)** **Credit: 03** **Duration: $2^{1/2}$ hrs**

COURSE PLAN

SEM/ Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Distribution
SEM IV DEC.	**UNIT I** Minerals: Ferrous and Non-Ferrous - major distribution and production (Iron ore, Manganese, Aluminum, Bauxite, Copper, Mica and Gold);	Illegal mining, geological structure, rocks types, Alloys.	PPT, Chart, Maps, Rock Samples.	Categorize ferrous and non-ferrous minerals and identify their distribution on a world map.	*Knowledge Based* 1. Explain the distribution of Iron in the world. 2. Discuss the distribution of power resources. *Understanding Based* Discuss the relevance of non-conventional resources. *Higher Order Thinking Skills Based* 1. Discuss the factors affecting trade in India. 2. Explain the factors affecting localisation of industries.	Knowled ge--50 Understa nding-35 Higher Order-15
	Power Resources: Coal, Petroleum, Natural Gas, Atomic Energy,	metamorphism, continental shelf, sustainable utilization.	Match the following, Quiz, Demonstration			
	Solar, Tidal, Wind and Hydroelectricity.	Availability of Resources,	Maps, Flow Charts			
JAN	**UNIT II** Industries: Factors affecting localization , Classification on the basis of raw material, size and ownership;	Industrialisation, Localisation factors.	Diagrams, Models, Globe	Relate factors affecting localization of industries and discuss the major industries of the world.		
	Major industries of the world- Iron and steel, Textile- Cotton And Woolen,	International trade - Import and export,	Diagrams, Models, Globe			
	Chemicals, Cement, Paper, Ship Buildings.	Metamorphism, Agro-forestry.	Maps, Diagrams,			
FEB TO MARCH	**UNIT III** Transport: Factors affecting, Major water, land and air transport;	Silk Route, Inland waterways, SEZ.	Diagrams, Models, Globe	Identify the influence of geographical factors in the development of trade and transport.		
	Trade: Major importing and exporting countries;	Intra and inter countries trade.	PPT, Demonstration			
	Major Trade organizations: EU, EFTA, WTO, ASEAN, NAFTA, OPEC.	Block integrations, Free trade Zones.	PPT, Case Studies, Flipped Classroom			

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B.A III (SEMESTER VI)
REGIONAL GEOGRAPHY OF THE WORLD:
(Egypt, China and Australia) (PAPER II) (GEO-602)

Max. Marks : 75 (50Ext; 25 Int) **Min. Marks: 30(20 Ext;10 Int)** **Credit: 03** **Duration: $2^{1/2}$ hrs**

COURSE PLAN

SEM/ Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Distribution
SEM VI DEC	**UNIT I** Egypt: Physiography, Drainage-Nile Valley, Climate, Natural Vegetation, Agriculture, Irrigation projects,	Geology, Deserts, Drylands, Nile river basin.	PPT, Chart, Maps, quiz and maps.	Develop geographical understanding of Egypt and analyze its economic development.	*Knowledge Based* 1. Illustrate the physiographic features of Egypt. 2. Discuss the minerals distribution of China and Australia. *Understanding Based* 1. Illustrate the climate of China. 2. Discuss the population distribution of Australia. *Higher Order Thinking Skills Based* 1. Compare the climatic features of Egypt and China. 2. Discuss the relevance of agricultural produce in Australia.	Knowledge-40 Understanding-35 Higher Order-25
	Minerals, Power resources, Industries, Spatial distribution of Population,	Concept of resources, Extraction of resources.	Match the following, Quiz, Demonstration			
	Economic development and Impact of Desertification.	Suez canal,	Maps, Flow Charts			
JAN	**UNIT II** China: Physiography, Drainage, Climate, Natural Vegetation,	Siberian winds, formation of mountain ranges and Tibet plateau.	Diagrams, Models, Globe	Develop geographical understanding of China and analyze its economic development.		
	Minerals, Power resources, Industrial Region,	Spatial distribution of eastern and western China, Silk Route.	Diagrams, Models, Globe			
	Spatial distribution of Population and its economic development.		Maps, Diagrams, Models.			
FEB TO MARCH	**UNIT III** Australia: Physiography, Drainage, Climate, Natural Vegetation,	Great Barrier Reef, Mediterrancan climate.	PPT, Flipped Classroom	Develop geographical understanding of Australia and analyze its economic development.		
	Dairy farming, Power resources, Industries,	Agriculture, International Trade.	Demonstration through rock samples			
	Spatial distribution of Population and Economic development.	Aborigines, White policy.	PPT, Case Studies, Flipped Classroom			

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M. A/M.Sc GEOGRAPHY

SEMESTER II

CLIMATOLOGY AND OCEANOGRAPHY (GEOM-201)

Max Marks: 100(70Ext; 30 Int) **Min. Marks: 40(28 Ext;12 Int)** **Credit: 06** **Duration: 03 hrs**

COURSE PLAN

SEM/ Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM II DEC	**UNIT I** Nature and Scope of Climatology; Composition and Structure of the atmosphere;	Concept of climate and weather.	PPT, Chart, Maps, Visual 3- D Models	Distinguish the various climatic phenomenons and explain their global to regional distribution.	*Knowledge Based* Describe the structure and composition of the atmosphere. *Understanding Based* Compare the tropical and temperate cyclones. *Higher Order Thinking Skills Based* Evaluate the theories depicting presence of coral reefs.	Knowledge --40 Understand ing-30 Higher Order-30
	Insolation; Heat Budget; Vertical and Horizontal distribution of temperature;	Aphelion and perihelion, revolution chart.	Demonstration by models.			
	Atmospheric pressure; Winds: Planetary, Periodic and Local winds.	Land and water distribution, rotation and revolution.	Maps, Flow Charts			
JAN	**UNIT II** Atmospheric moisture: Absolute and Relative Humidity; Types of Clouds and Precipitation;	Composition of the earth, layers of atmosphere.	Diagrams, Models, demonstration through Globe	Classify climatic regions of the world and observe dynamics of cyclones.		
	Air Masses and Fronts: Concept, Classification and properties. Atmospheric Disturbances: Tropical and Temperate cyclones;	Global wind circulation.	Diagrams, Models, demonstration through Globe			
	Climatic classification of Koppen and Thornthwaite; Major climates of the World.	Insolation, air masses, temperature and pressure.	Maps, Diagrams, Models, Demonstration			
FEB TO MARCH	**UNIT III** Nature and scope of Oceanography; Major features of ocean basins;	Hypsometric curve,	Globe, Diagrams, PPT.	Sketch the major features of ocean basins and critically evaluate the distribution of temperature and salinity in oceans.		
	Ocean Temperature and Distribution; Salinity; currents; Tides: Types and Theories (Progressive Wave Theory and Newton Equilibrium Theory);	Ocean bottom relief, gravitation and buoyancy.	PPT, Demonstration			
	Coral reefs: Types and Theories (Darwin, Daly and Murray); Marine Resources; Law of the Sea.	Marine organisms, Ocean bottom relief.	PPT., Flipped Classroom			

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M. A/M.Sc GEOGRAPHY **SEMESTER II**

DIGITAL CARTOGRAPHY, AERIAL PHOTOGRAPHY AND GPS **(GEOM-204)**

Max Marks: 100(70Ext; 30 Int) **Min. Marks: 40(28 Ext;12 Int)** **Credits: 06** **Duration: 03 hrs**

COURSE PLAN

SEM/ Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM II DEC	**UNIT I** Introduction to cartography; Nature and scope of cartography; Basic concept of map; Direction and its principles; Elements of digital cartography;	Understanding of a map.	PPT, Chart, Maps, Visual 3- D Models	Identify the components on an aerial photography and distinguish the elements of photo interpretation.	*Knowledge Based* Discuss the principles and elements of Digital Cartography. *Understanding Based* Exemplify the functional segments of GPS. *Higher Order Thinking Skills Based* Compare the limitations and advantages of Arial Photographs.	Knowledge--40 Understanding-30 Higher Order-30
	principle of digital cartography; Purpose and Classification of map- according to scale, according to amount of topographic details, according to purpose, according to style of construction (Qualitative and Quantitative);	Map coordinate system, Topographic maps.	Match the following, Quiz, Demonstration			
	Map Layout, Map Symbols, Use of colors and pattern, Lettering, Generalization of map, Compilation of map; Data models for digital cartographic information, Concepts of cartographic database; Qualitative mapping techniques: Choroschematic and Chorochromatic; Quantitative mapping techniques: Choropleth and Isopleth.	Data models for digital cartographic information	Maps, Flow Charts			
JAN	**UNIT II** Aerial photography: Definition, Scope, Advantages and Limitation; Specifications of aerial photographs (Vertical and Oblique);	Map generalisation, mosaicking	Diagrams, Models.	Become familiar with the history, film type, and angles of aerial photography distortions and displacement.		
	Flight planning, Aerial cameras types and their characteristics, Including digital mapping camera, Types and geometry of aerial photographs;	Map generalisation, mosaicking	Diagrams, Models, demonstration through Globe			
	Aerial photography, Season and time, Photo Index, Scale of aerial photographs and its determination, Comparison of aerial photographs and Map.	Stereographic vision,	Maps, Diagrams,			
FEB TO MARCH	**UNIT III** Introduction to Global Position System (GPS) - Fundamental concepts of GPS; History of GPS development and GPS satellite system;	Coordinate system, Locational understanding.	Maps, Diagrams, Models, Demonstration	Use photogrammetric techniques to calculate: distance, area and object height from aerial photographs.		
	Functional segments of GPS, GPS satellite constellation, GPS positioning type, GPS receivers and codes, antenna, GPS accuracy, Error correction, GPS measuring techniques, signals structure and data;	Map coordinate system, Topographic maps.	PPT, Demonstration			
	Factors affecting of GPS, Basic concepts- IRNSS, NAVSTAR, GLONASS, GALILEO, MTSAT, GAGAN, Mobile mapping, Applications of GPS.	Understanding satellite signals, Space Programs.	PPT, Case Studies, Flipped Classroom			

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M. A/M.Sc GEOGRAPHY (Final) SEMESTER IV

QUANTITATIVE TECHNIQUES IN GEOGRAPHY (a) (GEOM-403)

Max Marks: 100(70Ext; 30 Int) Min. Marks: 40(28 Ext;12 Int)

Max Marks: 100(70Ext; 30 Int) Min. Marks: 40(28 Ext;12 Int) Credits: 06 Duration: 03 hrs

COURSE PLAN

SEM/ Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM IV DEC	**UNIT I** Statistics – Meaning and Objective ; Sampling techniques;	Data understanding and analysis.	PPT, Chart, Maps, Visual 3- D Models	Understand and estimate the importance of quantitative techniques.	*Knowledge Based* Understand and estimate the importance of quantitative techniques.	
	Central Tendencies – Mean, Median, Mode. Measures of Dispersion – Range, Quartile deviation,	Central Tendencies	Quiz, Demonstration			
	Standard deviation; Its uses and computation.	Understanding variability.	Maps, Flow Charts			Knowledg
JAN	**UNIT II** Types of Statistics – Parametric & Non-Parametric, descriptive and inferential statistics;	Parametric & Non-Parametric	Diagrams, Models, demonstration through Globe	Differentiate between parametric and non-parametric inferences.	*Understanding Based* Differentiate between scales of measurement	e--30
	scales of measurement: Nominal, Ordinal, Interval Ratio:	scales of measurement	Diagrams, Models			Understan
	Correlation: Meaning, rank, Spearman; Regression Analysis.	Understanding of Correlation	Maps, Diagrams, Models.			
FEB 16 - MARCH	**UNIT III** Hypothesis testing, Level of significance;	Understanding of statistical methods.	Demonstration through rock samples	Formulate hypothesis and measure the level of significance.	*Higher Order Thinking Skills Based* Formulate hypothesis and measure the level of significance.	Higher Order-40
	Chi-square test: Meaning & Computation; t-test; z-test; Analysis of Variance (ANOVA);	Understanding of statistical methods.	PPT, Demonstration			
	Factor analysis and Principal Component Analysis.	Understanding of statistical methods.	PPT, Case Studies, Flipped Classroom			

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