SNDT Women's University, Mumbai

Credit structure For Under Graduate Programmes in Humanities, Science and Technology and Interdisciplinary Studies Faculties

As per Government of Maharashtra Circular dated 13th March, 2024

NEP – 2020

BA GEOGRAPHY SEM. V & VI

(w.e.f. 2026-27)

Credit structure For Under Graduate Programmes in Humanities, Science and Technology and Interdisciplinary Studies Faculties
(2024 May as per GR dated 13/03/2024)

	Sem I	Sem II	Sem III	Sem IV	Sem V	Sem VI	Total
Subject No 1 (to be treated as Major)	2	2	12	12	8	10	46
Subject No 2 (A and B), so minor	2	2	2		4	4	14
Subject No 3	2	2					4
VSC S1	2				2		4
VSC S2		2					2
VSC S3		2					2
Major (Elective)					4	4	8
OEC	4	4	2	2			12
SEC	2	2		2			6
AEC (English)	2	2					4
AEC (Modern Indian Language)			2	2			4
VEC	2	2					4
CC	2	2	2	2			8
IKS (Generic)	2						2
IKS (Major-Specific)					2		2
FP			2		2		4
CE				2			2
OJT						4	4
	22	22	22	22	22	22	132

Terminologies

Abbreviation	Full-form	Remarks	Related to Major and Minor Courses
Major (Core)	Main Discipline		
Major (Elective)	Elective Options		related to the Major Discipline
Minor Stream	Other Disciplines (Inter/ Multidisciplinary) not related to the Major	either from the same Faculty or any other faculty	
OEC	Open Elective Courses/ Generic		Not Related to the Major and Minor
VSEC	Vocational and Skill Enhancement Courses		
VSC	Vocational Skill Courses		Not Related to the Major and Minor
SEC	Skill Enhancement Courses		Not Related to the Major and Minor
AEC	Ability Enhancement Courses	Communication skills, critical reading, academic writing, etc.	Not Related to the Major and Minor
VEC	Value Education Courses	Understanding India, Environmental science/education, Digital and technological solutions, Health & Wellness, Yoga education, sports, and fitness	Not Related to the Major and Minor
IKS	Indian Knowledge System	I. Generic IKS Course: basic knowledge of the IKS II. II. Subject-Specific IKS Courses: advanced information about the subject: part of the major credit	Subject Specific IKS related to Major
OJT	On-Job Training (Internship/Apprenticeship)	corresponding to the Major Subject	Related to the Major
FP	Field projects	corresponding to the Major Subject	Related to the Major
CC	Co-curricular Courses	Health and Wellness, Yoga education sports, and fitness, Cultural Activities, NSS/NCC and Fine/	Not Related to the Major and Minor

		Applied/Visual/ Performing Arts	
CE	Community Engagement and service		Not Related to the Major and Minor
RP	Research Project	corresponding to the Major Subject	Related to the Major

(External exam can also be No-paper-pencil test depending on the nature of the subject. (Pl write 'Pract' below the credits in the External field for such courses. 'Pract' may mean any Assessment method where external examiners are involved))

Structure with Course Titles (Revised May 2024)

Structure with Course Titles:

Sr. No.	Courses	Type of Course	Credits	Marks	Int	Ext
	Semester V					
50110711	Agricultural Geography	Major (Core)	4	100	50	50
50110722	Practical of Cartography and Weather Data Analysis	Major (Core)	4	100	50	50
51010711	Geography of Indian Heritage	IKS (Major Specific)	2	50	0	50
50210711	Basics of Remote Sensing and Aerial Photography	Major (Elective)	4	100	50	50
50310711	Resource Geography	Minor Stream	4	100	50	50
50610701	Fundamentals of GIS	VSC-IV	2	50	50	0
51310701	Field Project	FP	2	50	50	0
			22	**550**	**300**	**250**
	Semester VI					
60110711	Industrial Geography	Major (Core)	4	100	50	50
60110712	Geography of Tourism	Major (Core)	4	100	50	50
60210711	Basics in GIS and GPS	Major (Elective)	4	100	50	50
60310711	Bio Geography	Minor Stream	2	50	0	50
60310712	Population Geography	Minor Stream	4	100	50	50
61210721	**OJT**	OJT	4	100	50	50
			22	**550**	**250**	**300**

Exit with Degree (3-year)

Semester V
5.1 Major (Core)

Course Title	**Agricultural Geography**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. Enlighten the key concepts, scope, and growth of Agricultural Geography and outline the major soil types of India.
	2. Analyze the determinants of agriculture and differentiate between various agricultural practices.
	3. Evaluate the global distribution and changing patterns of major crops and assess the significance of irrigation and major irrigation projects in India.
	4. Critically assess key agricultural policies and technological revolutions in India and apply sustainable agricultural practices.
Module 1(Credit 1): Introduction of Agricultural Geography	
Learning Outcomes	After learning the module, learners will be able to
	1. Explain the concept, nature, scope, and development of Agricultural Geography
	2. Describe soil formation, composition, characteristics, and major soil types in India.
Content Outline	1.1 Definition of Agricultural Geography 1.2 Nature & Scope of Agricultural Geography 1.3 Development of Agricultural Geography 1.4 Approaches to study Agricultural Geography 1.5 Concept of Agricultural regionalization
Module 2(Credit 1): Agricultural Occupation	
Learning Outcomes	After learning the module, learners will be able to
	1. Analyze the physical and socio-economic factors influencing agriculture.
	2. Learners will be able to differentiate between major types of agricultural practices across regions.
Content Outline	2.1 Physical and Socio-Economic Determinants 2.2 Types of Agriculture 2.2.1 Shifting cultivation 2.2.2 Subsistence Agriculture 2.2.3 Intensive Agriculture 2.2.4 Commercial grain farming 2.2.5 Plantation Agriculture 2.2.6 Dairy farming
Module 3(Credit 1): Important Crops	
Learning Outcomes	After learning the module, learners will be able to
	1. Evaluate the world distribution and production patterns of major food and cash crops.
	2. Assess the importance, types, and major projects of irrigation in India.

Content Outline	World Distribution and Production & Changing Pattern of following Crops 3.1 Food Crops: Rice 3.2 Food Crops: Wheat 3.3 Cash Crops: Cotton 3.4 Cash Crops: Sugarcane & Tea 3.5 Irrigation: i) It's Importance and classification 3.6 Irrigation: ii) Major Irrigation projects in India
Module 4(Credit 1): Important Policies in Indian Agricultural and Milestones	
Learning Outcomes	After learning the module, learners will be able to
	1. Summarize key agricultural policies and major revolutions in Indian agriculture.
	2. Apply knowledge of technological and sustainable practices to promote eco-friendly agriculture.
Content Outline	4.1 Important Policies in Indian Agriculture 4.2 a) Green revolution 4.3 b) White revolution 4.4 c) Yellow revolution 4.5 d) Blue revolution 4.6 e) Tissue culture 4.7 f) Sustainable and Eco-friendly practices in agriculture

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal Evaluation – (Comprehensive Continuous Evaluation (CCE) should cover at least Three out of four types of activities from the Suggested Activities)

Suggested Activities:

1. Seminars / Presentations

- Present the concept, nature, and scope of Agricultural Geography.
- Present soil types of India and their agricultural suitability.
- Compare different agricultural practices through a presentation.
- Present global distribution and production patterns of major food and cash crops.

2. Group Discussions

- Discuss the role of physical and socio-economic factors influencing agriculture.
- Debate the relevance and challenges of shifting and subsistence agriculture.
- Discuss the impact and necessity of major irrigation projects in India.
- Debate the effectiveness of sustainable and eco-friendly agricultural practices.

3. Projects

- Conduct a soil analysis project using samples from nearby areas.
- Prepare a field-based report on regional agricultural practices.
- Create crop distribution maps for rice, wheat, cotton, sugarcane, and tea.
- Prepare a case study on a major irrigation project in India.

4. Home Assignments

- Write short notes on Agricultural Geography, soil formation, and soil types.
- Prepare a comparative table of major agricultural practices.
- Write an essay on changing patterns of global crop production.
- Review and summarize major agricultural policies and revolutions in India.

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1. Husain, M. (2001). Agricultural geography. Rawat Publications.
2. Mamoria, C. B., & Tripathi, B. (2000). Agricultural geography. Kitab Mahal.
3. Morgan, W. B., & Munton, R. J. C. (2002). Agricultural geography. Methuen & Co. Ltd.
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11. Sundaram, K. V. (2021). Geography of agriculture in India. Concept Publishing Company.
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14. पाटील, व्ही. जी. (2022). कृषी व जलसंपदा भूगोल. कोल्हापूर: फडके प्रकाशन.
15. घारपुरे व्ही. (2021) कृषी भूगोल, वेळापूरकर प्रकाशन.

Semester V
5.2 Major (Core)

Course Title	**Practical of Cartography and Weather Data Analysis**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. Explain the fundamental concepts of cartography and basic of Projections, as well as identify different types of maps and data sources.
	2. Apply appropriate scale construction methods and convert scales for cartographic representation.
	3. Analyze and represent quantitative climatic data using suitable graphical techniques.
	4. Interpret Indian weather maps across seasons and evaluate weather patterns using signs, symbols, and isobaric features.
Module 1(Credit 1): Introduction of Cartography	
Learning Outcomes	After learning the module, learners will be able to
	1. Identify and explain various concepts, types of maps, and sources of geographical data.
	2. Apply basic sketching methods to process, organize, and visually present geographic information.
Content Outline	1.1 Meaning of Cartography 1.2 Importance and types of Map Projections 1.3 Concepts and Types of Maps 1.4 Data Source, Data Ordering and Processing 1.5 Introduction to Methods of Sketching
Module 2(Credit 1): Types of Scale	
Learning Outcomes	After learning the module, learners will be able to
	1. Explain the concept of scale and differentiate between various types of map scales.
	2. Construct and transform simple graphical and comparative scales for practical cartographic use.
Content Outline	2.1 Definition of scale 2.2 Transformation of Scales 2.3 Types of Scales 2.3.1 Simple Graphical scale 2.3.2 Comparative scale
Module 3(Credit 1): Representation of Quantitative Data	
Learning Outcomes	After learning the module, learners will be able to
	1. Interpret various forms of climatic data and distinguish between climographs, hythergraphs, and wind roses.
	2. Construct line graphs, bar graphs, and other climatic diagrams to effectively represent quantitative weather data.

Content Outline	Representation of Climatic Data 3.1 Climograph 3.2 Hythergraph 3.3 Simple Wind Roses 3.4 Line and Bar Graph
Module 4(Credit 1): Indian Weather Map Analysis	
Learning Outcomes	After learning the module, learners will be able to
	1. Identify weather map signs, symbols, and isobaric patterns used in different seasons**.**
	2. Interpret seasonal weather maps to analyze and explain variations in atmospheric conditions**.**
Content Outline	4.1 Weather Map: Sign & Symbols 4.2 Isobar, Isobaric Patterns 4.3 Interpretation of Weather Map 4.3.1 Weather Map of Rainy Season 4.3.2 Weather Map of winter Season 4.3.3 Weather Map of Summer Season.

Practical Journal and Viva

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal Evaluation – (Comprehensive Continuous Evaluation (CCE) should cover at least four activities from the Suggested Activities)

Suggested Activities:

1. Conduct a quiz on basic concepts, types of maps, and cartographic terminology.
2. Ask students to sketch a simple map of the college campus using cartographic rules.
3. Provide a worksheet to compare thematic and topographical maps.
4. Assign students to evaluate two maps for accuracy, clarity, and presentation.
5. Instruct students to create a thematic map using collected data.
6. Conduct a recall test on definitions and types of map scales.
7. Assign students to convert representative fraction scales into graphical scales.
8. Give an activity to identify and correct errors in an incorrectly drawn scale.
9. Ask students to justify the suitability of different types of scales for various purposes.
10. Assign students to construct a comparative scale for a given map distance.
11. Conduct an identification exercise on climograph, hythergraph, and wind rose diagrams.
12. Ask students to plot line and bar graphs using climatic or weather-related data.
13. Provide two climographs for comparative interpretation of climatic conditions.
14. Conduct a peer review activity to evaluate the accuracy and quality of students' graphs.
15. Assign students to prepare a climograph or hythergraph using real weather data.
16. Conduct a quiz on weather map symbols and signs used by IMD.
17. Ask students to draw isobars on a blank map using provided pressure data.
18. Provide seasonal weather maps for analysis and interpretation of weather patterns.
19. Assign students to predict next-day weather conditions based on a given map.
20. Ask students to prepare a short weather bulletin using weather map interpretation.

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Semester V
5.3 IKS (Major Specific)

Course Title	**Geography of Indian Heritage (IKS)**
Course Credits	**2**
Course Outcomes	After going through the course, learners will be able to
	1. Explain India's physical and cultural geography as reflected in ancient texts and traditions.
	2. Analyze the relationship between geography and the development of Indian civilization and heritage.
	3. Evaluate traditional ecological knowledge (TEK), environmental ethics, and sustainable practices found in Indian Knowledge Systems.
	4. Interpret the geographical significance of heritage sites, sacred landscapes, and cultural routes.
Module 1(Credit 1): Foundations of Indian Heritage Geography	
Learning Outcomes	After learning the module, learners will be able to
	1. Analyze key elements of India's heritage geography, including ancient civilizations and sacred landscapes.
	2. Apply geographical concepts to assess the cultural and ecological importance of heritage areas.
Content Outline	1.1 Meaning and scope of "Geography of Indian Heritage." 1.2 India as a cradle of civilization: Indus–Saraswati region, Gangetic plains, Peninsular settlements. 1.3 Sacred rivers: Ganga, Yamuna, Saraswati, Narmada, Godavari, Krishna, Kaveri – cultural geography and rituals. 1.4 Sacred mountains: Himalaya, Kailash, Vindhya, Sahyadri – spiritual symbolism and ecological significance. 1.5 Traditional mapping: *Jambudvipa* concept, ancient cartography, navigation traditions.
Module 2(Credit 1): Cultural Landscapes, Sacred Routes & Indigenous Environmental Knowledge	
Learning Outcomes	After learning the module, learners will be able to
	1. Explain and analyze India's heritage landscapes, sacred routes, and traditional ecological knowledge.
	2. Apply geographical perspectives to evaluate the significance of UNESCO World Heritage Sites and traditional heritage systems.
Content Outline	2.1 Heritage landscapes: forts, caves, temple towns, stepwells 2.2 Sacred routes of India: Chardham, Buddhist & Jain circuits 2.3 Festivals and seasons: Nature-based cultural calendar, monsoon festivals, agricultural rituals. 2.4 Traditional ecological knowledge (TEK): Water harvesting, sacred groves (*Devrai*). 2.5 UNESCO world heritage sites of India: geographical significance and conservation issues.

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal Evaluation – (Comprehensive Continuous Evaluation (CCE) should cover at least Two out of Two types of activities from the Suggested Activities)

Suggested Activities:

Module 1 Activities:

1. Seminar on geographical references in ancient Indian texts.
2. Group discussion on sacred rivers and environmental conservation.
3. Project on preparing a traditional map model (*Jambudvipa* or ancient routes).
4. Home assignment on sacred mountains and their cultural–ecological linkages.

Module 2 Activities:

1. Seminar on indigenous water management practices across India.
2. Group discussion on sacred groves and biodiversity conservation.
3. Project on mapping pilgrimage circuits (Hindu/Buddhist/Jain/Sufi).
4. Home assignment on UNESCO heritage sites and their geographical context.

References:

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2. Chakrabarti, D. K. (2019). *The archaeology of ancient Indian cities*. Cambridge University Press.
3. Fisher, M. H. (2018). *A history of India*. Routledge.
4. Jain, S., & Rehbein, B. (2021). *Ethics, ecology, economy: Indian traditions of environmental ethics*. Springer.
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6. Thapar, R. (2020). *Indian civilization and its foundations*. Zed Books.
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Semester V

5.4 Major (Elective)

Course Title	**Basics of Remote Sensing and Aerial Photography**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. Explain the concepts, evolution, and applications of remote sensing and aerial photography
	2. Identify their key elements such as electromagnetic spectrum, sensors, platforms, scales, and photo types.
	3. Analyze aerial photographs and satellite images through visual interpretation; and can handle Mirror Stereoscope and Pocket Stereoscope.
	4. Apply these methods for spatial problem-solving and geographic decision-making
Module 1(Credit 1): Introduction to Remote Sensing	
Learning Outcomes	After learning the module, learners will be able to
	1. Explain the meaning, historical development, and evolution of remote sensing as a scientific discipline.
	2. Describe how remote sensing is used in India and its applications in key sectors such as agriculture, forestry, water resources, and disaster management.
Content Outline	1.1 Meaning of Remote Sensing 1.2 Historical Development of Remote Sensing 1.3 Remote Sensing in India 1.4 Application of Remote Sensing
Module 2(Credit 1): Elements of Remote Sensing Component of Aerial Photography	
Learning Outcomes	After learning the module, learners will be able to
	3. Identify and explain key elements of remote sensing, including the electromagnetic spectrum, sensors, and platforms.
	4. Differentiate between various types of aerial cameras, films, aerial photograph scales, and photographic types based on their characteristics.
Content Outline	2.6 Elements of Remote Sensing, - Electromagnetic Spectrum, Sensors, Platforms 2.7 Component of Aerial Photography - Types of camera's, films, Scale of Aerial Photographs, Types of Aerial Photographs
Module 3(Credit 1): Aerial Photographs	
Learning Outcomes	After learning the module, learners will be able to
	1. Apply elements of aerial photo interpretation to extract meaningful geographical information.
	2. Interpret aerial photographs using visual interpretation techniques to identify landforms, land use, and surface features.

Content Outline	3.1 Elements of Aerial Photo interpretation 3.2 Draw the 3D Overlap using Mirror Stereoscope 3.3 Study the Aerial Photograph with the help of Pocket Stereoscope 3.4 Visual Interpretation of Aerial Photographs
Module 4(Credit 1): Satellite Images	
Learning Outcomes	After learning the module, learners will be able to
	1. Explain the essential elements of satellite image interpretation and their significance in geographic analysis.
	2. Analyze and interpret satellite images visually to identify spatial patterns and geographic features.
Content Outline	4.1 Elements of satellite image interpretation 4.2 Visual Interpretation of Satellite Images

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal Evaluation – (Comprehensive Continuous Evaluation (CCE) should cover at least Three out of four types of activities from the Suggested Activities)

Suggested Activities:

1. **Presentation Activities**
- Present **the** historical development of remote sensing with emphasis on global and Indian milestones.
- Prepare a PPT on the electromagnetic spectrum and explain how different wavelengths are used for remote sensing applications.
- Give a presentation comparing types of aerial photographs (vertical, oblique, low oblique, high oblique) and their uses.
- Present a case-based analysis on visual interpretation of satellite images, using examples of land use/land cover changes.

2. **Group Discussion Activities**
- Discuss: "Is aerial photography still relevant in the era of satellite imagery?" Provide arguments with examples.
- Group discussion on importance of sensors and platforms in modern remote sensing technology.
- Debate: "Visual interpretation vs. Digital interpretation – which method is more reliable?"
- Discuss the role of remote sensing in disaster management, such as floods, forest fires, and drought.

3. **Project Activities**
- Prepare a small project on applications of remote sensing in India (agriculture, forestry, water resources).
- Create a diagrammatic chart or model showing types of sensors, platforms, and their functions.
- Conduct a mini-project interpreting aerial photographs to identify landforms, drainage patterns, or settlement patterns.
- Analyze freely available satellite images (e.g., Google Earth) and prepare a report interpreting major visible features.

4. **Home Assignments**
- Write a detailed note on the meaning and significance of remote sensing with examples.
- Prepare an assignment illustrating the components of aerial photography, including camera types, films, and scales.

- Create a table comparing aerial photographs and satellite images based on characteristics, scale, resolution, and uses.
- Write a short report on the elements of image interpretation (tone, texture, shape, size, pattern, shadow, association).

References:

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7. Sons. Online Learning CCRS Canada Centre for Remote Sensing
8. http://landmap.mimas.ac.uk/ipc/ccrs/fundam_e.html NASA Remote Sensing Tutorial
9. http://rst.gsfc.nasa.gov

Semester V
5.5 Minor Stream

Course Title	**Introduction to Resource Geography**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. Explain the meaning, nature, scope, and significance of resource geography and the factors influencing resource utilization.
	2. Classify and analyze different types of mineral resources and evaluate their global distribution and uses.
	3. Interpret major power resources by examining their production patterns and global distribution.
	4. Justify, and recommend appropriate strategies for resource management and conservation of land, water, plants, and animals.
Module 1(Credit 1): Introduction	
Learning Outcomes	After learning the module, learners will be able to
	1. Explain the meaning, definition, nature, and scope of Resource Geography.
	2. Analyze the importance, utilization, and factors affecting the use of various resources.
Content Outline	1.1 Meaning and Definition 1.2 Nature and Scope of Resource Geography 1.3 Importance and Utilization of Resources 1.4 Factors affecting on Utilization of Resources
Module 2(Credit 1): Mineral Resources	
Learning Outcomes	After learning the module, learners will be able to
	1. Classify major types of mineral resources and describe their key characteristics and uses.
	2. Evaluate the global production and distribution patterns of important minerals such as iron, manganese, bauxite, copper, and mica.
Content Outline	2.8 Classification of Mineral Resources 2.9 Characteristics and Uses of Mineral Resources 2.10 Major Mineral Resources in the World: Production & their Distribution (Iron, Manganese, Bauxite, Copper & Mica)
Module 3(Credit 1): Power Resources	
Learning Outcomes	After learning the module, learners will be able to
	1. Explain the importance and classification of power resources.
	2. Analyze and compare global production and distribution of major power resources.
Content Outline	3.1 Importance of Power Resources 3.2 Classification of Power Resources 3.3 Major Power Resources in the World: Production & their Distribution 3.3.1 Exhaustible Energy Resources: (Coal, Mineral Oil, Natural Gas, Atomic Energy) 3.3.2 Non-Exhaustible Energy Resources: (Hydroelectricity, Solar

	Energy, Wind Energy, Tidal Energy & Geothermal Energy)
Module 4(Credit 1): Conservation of Resources	
Learning Outcomes	1. Analyze strategies and policies for natural resource management and planning.
	2. Apply conservation methods and propose sustainable solutions for land, water, plant, and animal resources
Content Outline	4.3 Management and Planning of Resources 4.4 Land Conservation 4.5 Water Conservation 4.6 Plant and Animal Conservation

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal Evaluation – (Comprehensive Continuous Evaluation (CCE) should cover at least Three out of four types of activities from the Suggested Activities)

Suggested Activities:

1. **Seminar/Presentation Activities**

- Present the *meaning, nature, and scope* of Resource Geography with real-life examples showing its significance.
- Prepare a PPT comparing the *global distribution patterns of major minerals* such as iron, bauxite, and copper, explaining spatial variations.
- Give a presentation evaluating *exhaustible vs. non-exhaustible power resources* and their environmental implications.
- Present a detailed case study on *effective land or water conservation initiatives* and justify their outcomes.

2. **Group Discussion Activities**

- Discuss: *"Is resource availability or technology more important in resource utilization?"* Provide logical justification.
- Debate on *"Uneven global distribution of mineral resources and factors responsible for it."*
- Discuss the global shift from fossil fuels to renewable energy and evaluate its practicality for developing countries.
- Discuss: *"Community involvement is key to successful resource conservation."* Provide arguments and examples.

3**. Project Activities**

- Conduct a locality-based study examining *patterns of resource utilization* (e.g., land use, water use).
- Prepare thematic maps or infographics showing *global distribution of major minerals* and analyze leading producer regions.
- Carry out a mini-project comparing *energy production patterns* of India with other major countries; interpret trends and gaps.
- Develop a *sustainable resource management action plan* for your college or community (land, water, vegetation, waste, etc.).

4. **Home Assignments**

- Write a detailed note on *factors influencing resource utilization* with appropriate examples.

- Prepare an assignment describing *characteristics and uses* of major minerals such as iron, manganese, bauxite, copper, and mica.
- Create a comparison table of *major power resources*, including their types, leading producing countries, and advantages.
- Write a reflective assignment on *practical water conservation measures* that can be adopted in day-to-day life.

References:

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Semester V
5.6 VSC

Course Title	**Geographical Data Analysis**
Course Credits	**2**
Course Outcomes	After going through the course, learners will be able to
	1. Recognize fundamental statistical techniques in geographical data analysis.
	2. Represent statistical data by various graphical techniques.
	3. Apply the descriptive statistical techniques for analyzing geographical data.
Module 1(Credit 1): Introduction to Statistical Techniques in Geographical Data Analysis	
Learning Outcomes	After learning the module, learners will be able to
	1. Explain the importance of statistical techniques, types of data, variables, and measurement scales in geography.
	2. Distinguish univariate, bivariate, and multivariate data and classify data types accurately.
Content Outline	1. Importance of Statistical Techniques 2. Branches of Statistics: Descriptive and Inferential 3. Definition of Univariate, Bivariate and Multivariate Data 4. Continuous and Discrete data 5. Variables: Qualitative and Quantitative 6. Scales of measurement: Nominal, Ordinal, Interval and Ratio Scales
Module 2(Credit 1): Graphical Representation of Data	
Learning Outcomes	After learning the module, learners will be able to
	1. Construct frequency tables and represent data using suitable statistical graphs.
	2. Calculate and interpret mean, median, and mode for summarizing geographic data.
Content Outline	2.1 Frequency Distribution: Ungrouped and grouped data Frequency Distribution Table 2.2 Graphical Representation of Frequency Data: Frequency Histogram Frequency Polygon Ogive Curve 2.3 Measures of Central Tendency: Mean Median Mode

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal Evaluation – (Comprehensive Continuous Evaluation (CCE) should cover at least two out of four types of activities from the Suggested Activities)

Suggested Activities:

1. Presentation Activities

- Present the importance of statistical techniques in geographical studies using real-world examples.

- Prepare a PPT explaining types of data (univariate, bivariate, multivariate) with suitable case illustrations.
- Give a presentation on scales of measurement (nominal, ordinal, interval, ratio) and their application in geography.
- Present a comparative analysis of continuous vs. discrete data and qualitative vs. quantitative variables with field-based examples.

2. Group Discussion Activities

- Discuss: "Why statistics is essential for geographical data interpretation?"
- Debate on limitations of descriptive statistics in analyzing complex geographic patterns.
- Discuss how different measurement scales influence the choice of statistical techniques.
- Conduct a discussion on errors in data collection and their impact on statistical results.

3. Project Activities

- Prepare a project involving construction of frequency distribution tables from collected field data.
- Develop graphical outputs (histogram, frequency polygon, ogive) from a given dataset and interpret the results.
- Collect a small geographical dataset (e.g., rainfall, population, temperature) and compute mean, median, and mode with interpretation.
- Create a comparative graphical report using multiple graphical techniques to explain a single dataset.

4. Home Assignments

- Write an assignment on branches of statistics (descriptive and inferential) with examples relevant to geography.
- Prepare a short note explaining frequency distribution tables and their significance.
- Solve a numerical assignment involving mean, median, and mode for a given ungrouped or grouped dataset.
- Draw neat hand-made diagrams of histogram, frequency polygon, and ogive, explaining when each is used.

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Semester V

5.7 FP (Field Project)

Field Excursion- Visits to tourist places/ village/ Natural features/ weather observatory

Course Title	**Field Project**
Course Credits	**2**
Course Outcomes	After going through the course, learners will be able to
	1. Analyze real-world scenarios to identify key issues and their implications.
	2. Apply knowledge to solve problems and make informed decisions.
	3. Propose feasible solutions by evaluating challenges and recommending strategies.**.**
Module 1	Introduction to Field Project (10 Lectures)
Learning Outcomes	After learning the module, learners will be able to
	1. Explain the methods, goals, and ethical considerations of geographic field surveys.
	2. Apply data collection, analysis, and report-writing techniques for field projects.
Content Outline	1. Methods of Field Survey: 1.1 Meaning, Goals and Scope of Field project 1.2 Methods of data collection in Geography (quantitative and qualitative) 1.3 Data analysis and reporting Ethical consideration Safety during field surveys 1.4 Actual designing of project report Arrangement of report, chapter writing, references and acknowledgements 1.5 Assessment and feedback
Module 2	Field Survey and Report Writing (20 Lectures)
Learning Outcomes	After learning the module, learners will be able to
	1. Conduct field surveys in a selected area of geographical interest.
	2. Analyze and interpret collected data to prepare a comprehensive field report.
Content Outline	Field survey - any area of geographical interest

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Report, Presentation and Viva

References:

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Semester VI
6.1 Major (Core)
Industrial Geography

Course Title	**Industrial Geography**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. Explain the fundamental concepts, theories, and scope of industrial geography.
	2. Analyze the locational factors and spatial patterns of major world industries.
	3. Evaluate different industrial location theories and interpret their relevance in modern industrial development.
	4. Compare global industrial regions and assess their geographical, economic, and technological characteristics.
Module 1(Credit 1): Introduction of Industrial Geography	
Learning Outcomes	After learning the module, learners will be able to
	1. Explain the concept, patterns, and determinants of population distribution and density.
	2. Analyze regional variations in population distribution and interpret factors responsible for spatial differences in population density.
Content Outline	1.1 Meaning & Definition of Industrial Geography 1.2 Nature & Scope of Industrial Geography 1.3 Factors affecting the Location of Industry
Module 2(Credit 1): Important Industries	
Learning Outcomes	After learning the module, learners will be able to
	1. **Describe** the spatial distribution and characteristics of major world industries such as iron & steel, cotton textiles, sugar, ship-building, and information technology.
	2. Analyze the geographic, economic, and technological factors influencing the location, growth, and global significance of these industries.
Content Outline	2.1 Iron & steel industries: U.S.A., Russia, Germany, Great Britain & India 2.2 Cotton Textile Industries : U.K., Japan and India 2.3 Sugar industries: All Important Countries 2.4 Ship Building Industries: All Important Countries 2.5 Information Technology Industry
Module 3(Credit 1): Theories of Industrial Location	
Learning Outcomes	After learning the module, learners will be able to
	1. Explain the fundamental principles of Weber's Industrial Location Theory, Lösch's Theory of Industrial Location, and Isard's Space Economy.
	2. Compare these industrial location theories and evaluate their applicability in contemporary industrial development.
Content Outline	3.1 Malthusian Theory 3.2 The Theory of Demographic Transition 3.3 Optimum Population Theory
Module 4(Credit 1): Population Change and Components of Population Change	
Learning Outcomes	After learning the module, learners will be able to

	1. Identify and describe the major industrial regions of the Middle East, North America, Eastern Europe, Russia, Western & Central Europe, and South & East Asia.
	2. Analyze the geographical, economic, and resource-based factors influencing industrial development in these global regions.
Content Outline	4.1 Middle East Regions in North America 4.2 Eastern Europe and Russian Industrial Region 4.3 Western and Middle European Industrial Region 4.4 South and Eastern Asia Industrial Region

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal Evaluation – (Comprehensive Continuous Evaluation (CCE) should cover at least Three out of four types of activities from the Suggested Activities)

Suggested Activities:

1. Home Assignment / Written Assignment

Topics such as:
– Impact of industrialization
– Factors affecting resource utilization
– Causes of biodiversity loss
– Urban–industrial growth

2. Seminar / Presentation

Students present topics such as:
– Industrial location theories
– Distribution of world industries
– Population distribution patterns
– Resource classification

3. Group Discussion (GD)

Suggested topics:
– Sustainable industrial development
– Resource conservation
– Industrial pollution issues

4. Project Work / Mini Research Project

Includes data collection, analysis, charts, and interpretation.

References:

1. Chandna, R. C. (2018). Geography of Population: Concepts, Determinants and Patterns. New Delhi: Kalyani Publishers.
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Semester VI

6.2 Major (Core)

Course Title	**Geography of Tourism**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. Explain the foundational concepts and scope of tourism geography.
	2. Differentiate and categorize various forms and types of tourism.
	3. Analyze the key physical, social, economic, and cultural factors influencing tourism development.
	4. Evaluate the positive and negative environmental, economic, and social impacts of tourism.
Module 1(Credit 1): Introduction to Tourism Geography	
Learning Outcomes	After learning the module, learners will be able to
	1. Explain the basic meaning, nature, and components of tourism.
	2. Describe the role of geography in tourism and state its significance.
Content Outline	1.1 Definition of Tourists and Tourism 1.2 Nature and Scope of Tourism Geography 1.3 Components of Tourism: Attraction, Accommodation, Accessibility, Activities and Amenities 1.4 Role of Geography in Tourism 1.5 Importance of Tourism
Module 2(Credit 1): Classification and Types of Tourism	
Learning Outcomes	After learning the module, learners will be able to
	1. Classify tourism into inbound and outbound categories.
	2. Identify and differentiate various types of tourism based on purpose and characteristics.
Content Outline	2.1 Classification of Tourism: In-bound (National) & Out-bound (International) 2.2 Types of Tourism: Geo-Tourism, Agro-Tourism, Eco-Tourism, Wildlife Tourism, Heritage Tourism, Adventure Tourism, Religious Tourism, Sports Tourism, Health and Medical Tourism
Module 3(Credit 1): Factors Affecting on Tourism	
Learning Outcomes	After learning the module, learners will be able to
	1. Identify major physical, socio-cultural, economic, and political factors influencing tourism.
	2. Explain how these factors affect tourism development and tourist decision-making.
Content Outline	3.1 Physical Factors: Relief, Climate, Vegetation 3.2 Socio-Cultural Factors: Religious, Historical, Linguistic 3.3 Economic Factors: Level of Income, Multiplier effect 3.4 Political Factors: Local and National Government Polices, Safety of Tourists
Module 4(Credit 1): -Tourism Impacts	
Learning Outcomes	After learning the module, learners will be able to

	1. Identify the positive and negative environmental, economic, and social impacts of tourism.
	2. Explain how tourism affects natural resources, local economy, and society.
Content Outline	Positive and Negative Impacts of Tourism: 4.1 Environmental: Land, Water, Noise & Air 4.2 Economic: Employment, Foreign exchange, Trading, Increase in revenue 4.3 Social: Gambling, Crimes, Terrorism, linguistics.

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal Evaluation – (Comprehensive Continuous Evaluation (CCE) should cover at least Three out of four types of activities from the Suggested Activities)

Suggested Activities:

1. **Seminars / Presentations**
    1. Present on the definition, nature, and scope of tourism geography.
    2. Present a case study on classification and types of tourism.
    3. Present the role of physical, socio-cultural, economic, and political factors in tourism development.
    4. Present examples of positive and negative impacts of tourism on environment, economy, and society.
2. **Group Discussions**
    1. Discuss the importance and components of tourism in regional development.
    2. Discuss the differences between inbound and outbound tourism and their significance.
    3. Discuss how physical, social, economic, and political factors influence tourist decisions.
    4. Debate the economic, environmental, and social impacts of tourism in local areas.
3. **Projects**
    1. Prepare a map or presentation showing major tourist attractions and types of tourism in a selected region.
    2. Conduct a survey to analyze factors affecting tourism in a local area.
    3. Prepare a report evaluating the impacts of tourism on environment and economy.
    4. Develop a case study on sustainable tourism practices in a specific location.
4. **Home Assignments**
    1. Write a short note on the components of tourism and their significance.
    2. Classify tourism into inbound and outbound categories with examples.
    3. List and explain physical, socio-cultural, economic, and political factors affecting tourism.
    4. Analyze positive and negative impacts of tourism using real-life examples.

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1. Bhatia, A. K. (2002). Tourism development: Principles and practices. Sterling Publishers.
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7. Sharma, A. (2008). Tourism development. RBSA Publishers.
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12. Pearce, D. (1987). Tourism today: A geographical analysis. (Publisher not specified).
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14. Bhole, N., & Bhatewal, A. (2012). *Paryatan bhugol*. Prashant Prakashan.
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Semester VI

6.3 Major (Elective)

Course Title	Basics in GIS and GPS
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. Explain the basic concepts of GIS, including its definition, history, and core components.
	2. Differentiate between spatial and non-spatial data and apply GIS techniques such as geo-referencing, digitization, and map making.
	3. Describe the fundamentals of GPS, including its structure, instruments, and functioning.
	4. Evaluate the applications of GIS and GPS in geography and various related fields and practically use GPS and GIS tools on field.
Module 1(Credit 1): Fundamentals of GIS	
Learning Outcomes	After learning the module, learners will be able to
	1. Describe the meaning, historical development, and major components of GIS.
	2. Identify the hardware, software, and data elements required for GIS operation.
Content Outline	1.1 Definition of GIS 1.2 History of GIS, 1.3 Components of GIS- Computer Hardware, Software, Data
Module 2(Credit 1): GIS Data and Map Making	
Learning Outcomes	After learning the module, learners will be able to
	1. Explain spatial and non-spatial data models.
	2. Apply geo-referencing, digitization, and map-making techniques.
Content Outline	2.1 Spatial Data Models - Raster and Vector Data Model 2.2 Non-Spatial Data , Analysis of Geographic Data, Geo-referencing, Digitization, 2.3 Map making
Module 3(Credit 1): Fundamentals of GPS	
Learning Outcomes	After learning the module, learners will be able to
	1. Describe the basic concept, structure, and components of GPS.
	2. Identify GPS instruments and explain how GPS technology functions.
Content Outline	3.1 Concept of GPS 3.2 Segments of GPS 3.3 Various GPS instruments 3.4 Functioning of GPS
Module 4(Credit 1): Application of GIS and GPS	
Learning Outcomes	After learning the module, learners will be able to
	1. Identify major applications of GIS in geography and related fields.
	2. Evaluate the role and uses of GPS in geography and other sectors.

Content Outline	4.1 Application of GIS in general, application of GIS in various branches in Geography 4.2 Prepare the map with the help of reference point collected through GPS or Mobile Application in any open source GIS software. 4.3 Application of GPS in general, application of GPS in various branches in Geography 4.4 Data Collection through GPS instrument or free Mobile Application.

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal Evaluation – (Comprehensive Continuous Evaluation (CCE) should cover at least Three out of four types of activities from the Suggested Activities)

Suggested Activities:

1. Seminars / Presentations

1. Present on the definition, history, and components of GIS.
2. Present a case study on spatial vs non-spatial data models.
3. Present the fundamentals of GPS, including its structure and instruments.
4. Present examples of GIS and GPS applications in different branches of geography.

2. Group Discussions

1. Discuss the advantages and limitations of GIS in geographic studies.
2. Discuss the differences between raster and vector data models.
3. Discuss the role of GPS in modern surveying and navigation.
4. Discuss the impact of GIS and GPS applications on various sectors.

3. Projects

1. Prepare a map using georeferencing and digitization techniques.
2. Conduct a small GIS-based analysis of a selected area.
3. Conduct a GPS survey to record coordinates and analyze spatial data.
4. Develop a report on GIS and GPS applications in a specific geographic study.

4. Home Assignments

1. Write a short note on GIS components and their functions.
2. Explain spatial and non-spatial data and their significance.
3. Describe GPS segments and instruments.
4. Summarize real-world applications of GIS and GPS in geography and related fields.

References:

1. Burrough, P. A. (1986). *Principles of geographical information systems for land resource assessment*. Clarendon Press.
2. Campbell, J. B. (2002). *Introduction to remote sensing* (3rd ed., pp. 555–556). Taylor & Francis.
3. Panigrahi, N. (2008). *Geographical information science* (p. 207). Universities Press.
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6. Dr. K N Tiwari, Dr. C Chatterjee, Prof. N K Gontia, Dr. Susanta Kumar Jena, Remote Sensing and GIS Application PDF Book (Available online at: https://agrimoon.com/remote-sensing-and gis-application-pdf-book/)
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Semester VI

6.4 Minor

Course Title	**Bio Geography**
Course Credits	**2**
Course Outcomes	After going through the course, learners will be able to
	1. Explain the fundamental concepts, definitions, nature, scope, historical development, and branches of biogeography, along with the basic concepts of ecosystems and the biosphere.
	2. Analyze the structure and components of ecosystems and the biosphere, and examine major biogeographic processes influencing the distribution of plants and animals.
	3. Apply the principles of biogeography to interpret ecosystem–biosphere interactions and spatial patterns of biodiversity.
	4. Evaluate the importance of biogeographic studies in understanding environmental interactions, biodiversity conservation, and sustainable environmental management.
Module 1(Credit 1): Introduction to Biogeography	
Learning Outcomes	After learning the module, learners will be able to
	1. Explain and analyze the concept, definition, nature, scope, historical development, and branches of biogeography.
	2. Apply and evaluate the principles of biogeography to understand the importance of biogeographic studies in biodiversity conservation and environmental management.
Content Outline	1.1 Biogeography-Concept, definition, nature and scope 1.2 Historical development and branches of Biogeography 1.3 Importance of Biogeographic studies
Module 2(Credit 1): Ecosystem and Biosphere	
Learning Outcomes	After learning the module, learners will be able to
	1. Explain and analyze the concepts, types, and components of ecosystems, the meaning and components of the biosphere, and the major biogeographic processes.
	2. Apply and evaluate knowledge of ecosystems, the biosphere, and biogeographic processes to understand environmental interactions and their impact on life on Earth.
Content Outline	2.1 Ecosystem: Concept, types and Components 2.2 Biosphere: Concept, meaning and components 2.3 Biogeographic processes

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal Evaluation – (Comprehensive Continuous Evaluation (CCE) should cover at least Two out of four types of activities from the Suggested Activities)

Suggested Activities:

1. Seminars / Presentations
Individual or group presentation on themes like Importance of Biogeographic Studies, Ecosystem–Biosphere Relationship, or Human impact on Biogeographic Processes.

2. Diagram and Map Work Activity:
Drawing and labeling ecosystem components, biosphere components, or schematic diagrams explaining biogeographic processes; basic world biogeographic regions on maps.

3. Projects / Reports
1. Study of Major Ecosystem Types (Forest, Grassland, Desert, Aquatic) and their components.
2. Biogeographic Regions of the World and their characteristic flora and fauna.
3. Biogeographic Processes (dispersal, migration, adaptation, extinction) and their role in biodiversity.
4. Role of Biogeography in Biodiversity Conservation with reference to protected areas

4. Home Assignments
Students prepare a written assignment on topics such as Types of Ecosystems, Major Biogeographic Processes, or Role of Biogeography in Biodiversity Conservation.

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Semester VI
6.5 Minor Stream

Course Title	**Population Geography**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. Explain the basic concepts, nature, scope, and sources of population data.
	2. Analyze the distribution and density patterns of population with reference to influencing factors.
	3. Compare major population theories and interpret their relevance in contemporary population studies.
	4. Examine population change and assess the role of fertility and mortality as key demographic components.
Module 1(Credit 1): Introduction To Population Geography	
Learning Outcomes	After learning the module, learners will be able to
	1. Enlighten the need and scope of population data.
	2. Identify types and sources of population data.
Content Outline	1.1 Definition, Nature & Scope 1.2 Needs of Population Data 1.3 Types of Population Data 1.4 Methods of Sources of Collection of Population Data i) Primary Data ii) Secondary Data
Module 2(Credit 1): Distribution And Density of Population	
Learning Outcomes	After learning the module, learners will be able to
	1. Discuss the factors influencing population distribution in India.
	2. Outline the general distribution pattern of the Indian population.
Content Outline	2.1 Factors Affecting The Distribution Of Indian Population 2.1.1 Physical Factors 2.1.2 Human / Social Factors 2.1.3 Economic Factors 2.2 General Distribution of Indian Population
Module 3(Credit 1): Population Theories	
Learning Outcomes	After learning the module, learners will be able to
	1. Explain major population theories.
	2. Compare their relevance in demographic studies.
Content Outline	3.1 Malthusian Theory 3.2 The Theory of Demographic Transition 3.3 Optimum Population Theory
Module 4(Credit 1): Population Change and Components of Population Change	
Learning Outcomes	After learning the module, learners will be able to
	1. Summarize the meaning, measurement, and types of population growth**.**
	2. Examine fertility and mortality as key components influencing population change.

Content Outline	4.1 Population Change i) Meaning And Measurement of Population Change ii) Rate of Population Growth iii) Types of Population Growth 4.2 Components of Population Change i) Fertility- Meaning And Measurement of Fertility, Determinants of Fertility ii) Mortality :- Meaning And Measurement of Mortality, Determinants of Mortality

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal Evaluation – (Comprehensive Continuous Evaluation (CCE) should cover at least Three out of four types of activities from the Suggested Activities)

Suggested Activities:

1. Seminars / Presentations

1. Present on the need and scope of population data and its sources.
2. Present a case study on factors affecting population distribution in India.
3. Present a comparison of major population theories and their relevance today.
4. Present findings on population growth patterns and the role of fertility and mortality.

2. Group Discussions

1. Discuss the types of population data and methods of collection.
2. Discuss the impact of physical, social, and economic factors on population distribution.
3. Debate the applicability of Malthusian vs Demographic Transition Theory in modern India.
4. Discuss population change trends and determinants of fertility and mortality.

3. Projects

1. Prepare a project mapping the distribution and density of population in a selected Indian state.
2. Conduct a survey on a small population sample to study fertility or mortality patterns.
3. Prepare a report comparing population theories with real demographic data.
4. Develop a population growth chart using historical census data.

4. Home Assignments

1. Write a short note on the definition, nature, and scope of population geography.
2. List and explain factors affecting population distribution in India.
3. Summarize Malthusian, Demographic Transition, and Optimum Population theories.
4. Analyze components of population change (fertility and mortality) using secondary data.

References:

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Semester VI

6.6 OJT

An indicative list of areas for OJT:

1. Communication
2. Data Scientist
3. Demography and Settlement
4. Digitization & Emerging Technologies
5. Disaster Management
6. Geoinformatics
7. Geomorphology and Climate
8. Information Technology / Information Technology Enabled Services
9. Medical Geography, Healthcare & Life Science
10. Soil and Agriculture
11. Surveying and Mapping
12. Tourism & Hospitality, Environment and Sustainable Development
13. Trade and Industries

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