Savitribai Phule Pune University, Pune

(Formerly University of Pune)

Bachelor of Arts (B.A.) in Geography

(Faculty of Science and Technology)

New Syllabus of T.Y.B.A. Geography

[As Per National Education Policy (NEP-2020)]

For Colleges Affiliated to Savitribai Phule Pune University, Pune

To be implemented from Academic Year 2026-2027

Approved by

Board of Studies in Geography,

Savitribai Phule Pune University, Pune

Table of Contents

Abbreviation Used

- **NEP**
  - National Education Policy
- **DSE**
  - Discipline Specific Course
- **T**
  - Theory Course
- **P**
  - Practical Course
- **GE/OE**
  - Generic Elective/Open Elective
- **SEC**
  - Skill Enhancement Course
- **IKS**
  - Indian Knowledge System
- **AEC**
  - Ability Enhancement Course
- **VEC**
  - Value Education Course
- **CC**
  - Co-curricular Course
- **OJT**
  - On Job Training
- **CEP**
  - Community Engagement Programme
- **FP**
  - Field Project
- **RM**
  - Research Methodology
- **RP**
  - Research Project
- **VSC**
  - Vocational Skill Course

Introduction to Undergraduate Degree in Geography

As per the recommendations of UGC and Savitribai Phule Pune University guidelines, the undergraduate (UG) degree course in Geography is a VI-semester course for III- academic years or VIII- semester course for IV-academic years. The curriculum framework design is as per UGC, Savitribai Phule Pune University, NEP 2020 guidelines with the approach of student-centric Teaching- Learning Process (TLP). B.A. Geography course involves theory, practicals, vocational and skill-based verticals.

The expected programme specific outcomes outline with graduate attributes. The vision of NEP followed to enable the interdisciplinary and multidisciplinary approach within the syllabus structure. Students have appropriate flexibility in pursuing various courses and multiple entry/exit at UG level.

Award of UG Certificate/UG Diploma/Bachelor's Degree in Geography

Sr. No.	Type of Award	Stage of Exit or Continue with Major and Minor
1.	UG Certificate in Geography	Exit Option: After successful completion of first year, award of UG certificate with 44 credits and an additional 4 credits course NSQF courses / internship. Continue Option: From the DSE courses students will select Geography subject among the (Subject-1, Subject-2 and Subject-3) as a major and another as minor and third subject will be dropped.
2.	UG Diploma in Geography	After successful completion of second year, award of UG diploma in major and minor with 88 credits and an additional 4 credits course NSQF courses/Internship OR continue with major and minor.
3.	Bachelor of Arts in Geography	After successful completion of third year, award of UG degree in major with 132 credits and an additional 4 credits course NSQF courses / internship OR continue with major and minor.
4.	Bachelor of Arts in Geography (Honors)	After successful completion of semester fourth year, award of UG Degree (Honours) in major with 176 credits and an additional 4 credits course NSQF courses / internship

Objectives of the B.A. Geography Programme

1. To familiarize students with fundamentals concepts and principles of Geography.
2. To guide students in an identification and analysis of various facets of geographical features and processes.
3. To enhance students ability in spatial analysis, relationship between people, places and environment.
4. To develop critical thinking and problem-solving skills, analytical and scientific reasoning, reflective thinking, moral and reflective awareness amongst the students.
5. To facilitate the students to learn skills of cartographic techniques, data analysis and interpretation, carrying out field work, use of Geo-informatics techniques, research projects, applications and applied studies.

Programme Specific Outcomes: B.A. Geography

Sr. No.	PSO Statement: After Completing the B.A. in Geography, Students will be able to	Knowledge and Skills
PSO1	Illustrate the geographical concepts and theories, practicals, Regional approach focus on global, continental, countrywide and statewide	Disciplinary Knowledge
PSO2	Understanding the ethical consideration in geographic research and environment values in developing sustainable resolves	Moral and Ethical Awareness
PSO3	Interpret the spatial relationships between places, people And environment	Spatial Analysis Skills
PSO4	Apply geographic knowledge and skills to solve real-world Problems and issues	Critical Thinking and Problem Solving Ability
PSO5	Analyze and interpret spatial data using GIS, Remote Sensing and cartographic techniques	Analytical Reasoning/ Digitally Literacy
PSO6	Appraise geographic issues and regional to global Perspectives in the context of sustainability	Scientific Reasoning
PSO7	Capability to design, conduct and present field work/survey projects and research projects	Research Related Skills/Self-Relative Learning
PSO8	Develop team work and leadership qualities through seminars, outdoor practicals, field work and study tours	Teamwork/Leadership Qualities
PSO9	Evaluate human impacts on environment and develop Sustainable resolves	Reflective Thinking
PSO 10	Creating skills for professional careers in the field of environmental management, rural development, urban planning, geospatial technologies, cartography, field survey techniques**,** disaster management, tourism sectors etc.	Preparation for Livelihoods/Lifelong Learning

Structure of the Programme

The detailed framework of Undergraduate (B.A.) Degree Programme in Geography

Level	Semester	DSE Subject-1	DSE Subject-2	DSE Subject–3	GE/OE	SEC	IKS	AEC	VEC	CC	Total
4.5/100	I	**GEO-101-T** Introduction to Physical Geography [2T] **GEO-102-P** Practicals in Physical Geography [2P]	2(T) + 2(P)	2(T) +2 (P)	**OE-101-GEO** Geography of Tourism [2T]	**(Select any One of the following)** **SEC-101-GEO** Introduction to Water Analysis [2T] OR **SEC-102-GEO** Geography of Natural Resources [2T]	2 (T) Generic	2T	2	-	**22**
	II	**GEO-151-T** Introduction to Human Geography [2T] **GEO-152-P** Practicals in Human Geography [2P]	2(T) +2 (P)	2(T) +2 (P)	**OE-151-GEO** Practicals in Tourism Geography [2P]	**(Select any one of the following)** **SEC-151-GEO** Practicals in Water Analysis [2P] OR **SEC-152-GEO** Practicals in Geography of Natural Resources Conservation [2P]	-	2T	2	2	**22**

Exit option: Award of UG certificate in major with 44credits and an additional 4 credits course NSQF courses / internship or continue with major and minor.

Continue Option: Students will select one subject among the (subject-1, subject-2 and subject-3) as major and another as minor and third subject will be dropped.

Important Instructions:

a. It is mandatory to have a certified journal during the practical examination for practical courses.

b. Both practical and theory courses have internal and external examination and evaluation pattern.

c. Practical course external examination pattern (Skeleton) will be provided by BOS Geography before the end semester examination.

d. For the practical courses teaching batch size: **15 students** per batch

Structure of the Programme

The detailed framework of undergraduate (B.A.) Degree Programme in Geography

Level	Semester	Credits Related to Major				Minor	GE/OE	SEC	IKS	AEC	VEC	CC	Total
		Major Core	Major Elective	VSC	FP/OJT/ CEP								
5.0/ 200	III	**GEO-201-MJ** Fundamentals of Geomorphology [4T] **GEO-202-MJP** Practicals in Fundamentals of Geomorphology [2P]	--	(Select any one of the following) **GEO-221-VSC** Introduction to Cartography [2T] **OR** **GEO-222-VSC** Introduction to Surveying [2T]	**GEO-231-FP** Field Visit and Report Writing [2FP]	**GEO-241-MN** Physical Geography of India [2T] **GEO-24-MNP** Practicals in Map Reading [2P]	**OE-201-GEO** Political Geography [2T]	--	**GEO-201-IKS** Indian Geographical Knowledge [2T]	[2T]	-	[2T]	22
	IV	**GEO-251-MJ** Introduction to Population and Settlement Geography [4T] **GEO-252-MJP** Practicals in Population and Settlement Geography [2P]	--	(Selectany one of the following) **GEO-271-VSC** Practicals in Cartography [2P] **ORGEO-272-VSC** Practicals in Surveying [2P]	**GEO-281-CEP** Community Engagement Programme [2CEP]	**GEO-29-MN** Physical Geography of Maharashtra [2T] **GEO-292-MNP** Practicals in Weather Observation [2P]	**OE-251 GEO-** Introduction to GPS [2P]	**SEC-251-GEO** Practical in Fundamentals of Statistics [2P]	–	[2T]	-	[2T]	22
Exit option: Award of UG Diploma in Major and Minor with 88 credits and an additional 4 credits Course NSQF courses / Internship or Continue with Major and Minor.													

Important instructions:

a. It is mandatory to have a certified journal during the practical examination for practical courses.
b. Both practical and theory courses have internal and external examination and evaluation pattern.
c. Practical course external examination pattern (Skeleton) will be provided by BOS Geography before the end semester examination.
d. For the practical courses batch size:**12 students** per batch.

Structure of the Programme

The detailed framework of under graduate (B.A.) Degree Programme in Geography

Level	Semester	Credits Related to Major				Minor	DSE 2 & 3	GE / OE	SEC	IKS	AEC	VEC	CC	Total
		Major Core	Major Elective	VSC	FP/OJT/ CEP									
5.5 / 300	V	**GEO-301-MJ** Fundamentals of Climatology [4T] **GEO-302-MJ** Regional Geography of India [4T] **GEO-303-MJP** Practicals in Climatology and Soil Geography [4P]	(Select any one of the following) **GEO-310-MJ** Soil Geography [2T] OR **GEO-311-MJ** Fundamentals Of GIS [2T] (Select any one of the following) **GEO-312-MJP** Practicals in Fundamentals of Mapping [2P] OR **GEO-313-MJP** Practicals in GIS [2P]	(Select anyone of the following) **GEO-321-VSC** Introduction to Tourism Geography [2T] OR **GEO-322-VSC** Watershed Management [2T]	**GEO-331-FP/CEP** Field visit and report writing [2FP]	**GEO-341-MN** Environmental Geography [2T]	--	--	--	--	--	--	--	22
	VI	**GEO-351-MJ** Introduction to Economic Geography [4T] **GEO-352-MJ** Geography of Resource Management [4T] **GEO-353-MJP** Practicals in Spatial Analysis [4P]	(Select any one of the following) **GEO-360-MJ** Geography of Disaster Management [2T] **OR** **GEO-361-MJ** Introduction to Remote Sensing [2T] (Select any one of the following) **GEO-362-MJP** Practicals In Economic Geography [2P] **OR** **GEO-363-MJP** Practicals in Remote Sensing [2P]	(Select any one of the Following) **GEO-371-VSC** Practicals in Tour Planning [2P] **OR** **GEO-372-VSC** Practicals in Advanced Surveying [2P]	**GEO-381-OJT** [4OJT]	--	--	--	--	--	--	--	--	22
Total 3 Year		**44**	**8**	**8**	**10**	**18**	**8**	**8**	**6**	**4**	**8**	**4**	**6**	**132**

Exit option: Award of UG Degree in Major with132 credits and an additional 04credits Course NSQF courses / Internship or Continue with Major and Minor.

Important instructions:

a. It is mandatory to have a certified journal during the practical examination for practical courses.

b. Both practical and theory courses have internal and external examination and evaluation pattern.

c. Practical course external examination pattern (Skeleton) will be provided by BOS Geography before the end semester examination.

d. For the practical courses batch size: **12 students** per batch.

Assessment and Examination Pattern

Examination Pattern:

2 Credits Course Examination Pattern			
Evaluation Details	Total Marks	Internal Examination (Continuous Internal Evaluation)	External Examination (End Semester University Examinations)
Total Marks	50	20	30
Marks for Passing	20	08	12
Theory Examination Evaluation Pattern	--	▪ Class test/examination hort Questions, Quizzes, MCQs: Marks - 15 ▪ Home assignment /Oral examination / Students seminar / presentation / field visit /survey / project work: Marks - 05	Answer the following question in 20 words (Any five) Marks - 05 Answer the following question in 50 words (Any two) Marks - 10 Answer the following question in 100 words (Any two) Marks- 15
Practical Examination Evaluation Pattern		Student Journal / Survey report / Tour report / oral = 20 Marks	As per skeleton
4 Credits Course Examination Pattern			
Evaluation Details	Total Marks	Internal Examination (Continuous Internal Evaluation)	External Examination (End Semester University Examinations)
Total Marks	100	40	60
Marks for Passing	40	16	24
Theory Examination Evaluation Pattern	--	▪ Tutorial/examination Short Questions, Quizzes, MCQs :Marks-30 ▪ Home assignment /Oral examination/Students seminar/ presentation/field visit/survey/project work :Marks-10	Answer the following question in 20 words (Any Five) Marks - 10 Answer the following question in 50 words (Any four) Marks - 16 Answer the following question in 100 words (Any two) Marks - 14 Answer the following question in 300 words (Any one) Marks – 20
Practical Examination Evaluation Pattern		Student Journal / Survey report / Tour report / oral = 20 Marks	As per skeleton

Savitribai Phule Pune University, Pune
B.A. (Geography) as per NEP 2020

Name of the Programme	**:**	B.A. (Geography)
Class	**:**	T.Y.B.A
Semester	**:**	V
Name of Vertical Group	**:**	**Major Core**
Course Code	**:**	**GEO- 301- MJ (Major Core)**
Course Title	**:**	**Fundamentals of Climatology**
Type of course	**:**	Theory
Total Credits	**:**	04
Workload	**:**	(15 hours / credit) 4 credits x 15 hours = 60 hours in semester

Objectives of the Course:

1. To introduce the fundamental concepts, elements, and processes of climatology and their role in understanding weather and climate.
2. To explain the energy balance of the Earth–atmosphere system, atmospheric circulation, and processes responsible for weather phenomena and precipitation.
3. To create awareness about climate variability, climate change, and their environmental and socio-economic impacts at regional and global levels.

Topic No	Topic Name	Sub Topics	No. of Hours
1.	Introduction to Climatology	i. Definition, Nature and Scope ii. Weather and Climate iii. Elements of Weather and Climate iv. Branches of Climatology	12
2.	Energy System of Earth Atmosphere	i. Solar radiation and Earth–Sun relationship ii. Insolation and its spatial variation iii. Terrestrial radiation iv. Earth's heat budget	12
3.	Atmospheric Circulation and Weather Systems	i. Atmospheric pressure belts ii. Planetary wind systems iii. General circulation of the atmosphere	12
4.	Atmospheric Moisture and Precipitation	i. Humidity: concept and measurement ii. Condensation processes iii. Cloud types and classification iv. Forms of precipitation v. Mechanisms of rainfall: Convectional, Orographic and Cyclonic	12
5.	Climate Change	i. Climate variability vs. climate change ii. Evidence of climate change iii. Natural and anthropogenic causes iv. Global Warming	12

Course Outcome:

By the end of this course, students will be able to:

CO 1: Explain the basic concepts, nature, and scope of climatology along with the elements of weather and climate.

CO 2: Describe the Earth–Sun relationship, solar radiation, insolation, and the heat budget of the atmosphere.

CO 3: Analyze atmospheric circulation patterns, pressure belts, and planetary wind systems responsible for global weather conditions.

CO 4: Classify atmospheric moisture processes, cloud formation, and different mechanisms of precipitation.

CO 5: Evaluate the causes, evidence, and impacts of climate change and global warming on the environment and society.

References:

1. Atmosphere, Weather and Climate: Roger G. Barry and Richard J. Chorley (2009), Routledge, London.
2. Atmospheric Science: S.S. Singh (2005), Pinnacle Learning, Delhi.
3. Climate Change- Science, Impacts and Policy: S. C. Gupta (2011), Oxford University Press, Oxford
4. Climatology- Fundamentals and Applications: M. S. Rao (2015), McGraw Hill Education, New Delhi.
5. Climatology: An Atmospheric Science: Oliver, J. E. & Hidore, J. J. (2003), Pearson Education, Delhi.
6. Climatology: An Introduction by D.S. Lal (1998), Sharda Pustak Bhawan, Allahabad.
7. Climatology: Robert V. Rohli and Anthony J. Vega (2018), Jones & Bartlett Learning, Burlington.
8. Climatology: Rohli, R. V & Vega, A. J. (2018), Jones & Bartlett Publishers.
9. Climatology: Savindra Singh (2005), Prayag Pustak Bhawan, Allahabad.
10. Essentials of Meteorology: An invitation to the atmosphere: Ahrens, C. D. & Henson, R. (2016), Cengage Learning.
11. General Climatology: Critchfield, H. J (2010), Prentice Hall, New Delhi.
12. Introduction to Climatology: P.J. Robinson and C.W. Henderson-Sellers (1999), Routledge, London.
13. Principles of Climatology: K. S. Srivastava and P. K. Mishra (2012), Vikas Publishing House, Noida.
14. The Atmosphere- An Introduction to Meteorology: Frederick K. Lutgens, Edward J. Tarbuck, and Dennis G. Tasa (2018), Pearson Education, London.

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B.A. (Geography) as per NEP 2020

Name of the Programme	**:**	B.A. (Geography)
Class	**:**	T.Y.B.A.
Semester	**:**	V
Name of Vertical Group	**:**	**Major Core**
Course Code	**:**	**GEO-302-MJ**
Course Title	**:**	**Regional Geography of India**
Type of course	**:**	Theory
Total Credits	**:**	04
Workload	**:**	(15 hours / credit) 4 credits x 15 hours = 60 hours

Objectives of the Course:

1. To develop an understanding of the geographical location, physiographic divisions, drainage systems, climate, soils, and forests of India.
2. To explain the interrelationship between physical features, climate, natural resources, and human activities in different regions of India.
3. To create awareness about environmental issues such as soil degradation, deforestation, and the need for conservation and sustainable resource management.

Topic No	Topic Name	Sub Topics	No. of Hours
1.	Introduction	i. Geographical and relative location of India ii. Frontiers of India. iii. Strategic Significance	**10**
2.	Physiography	Main physiographic divisions & their importance i. The northern mountains ii. The north Indian Plain iii. The peninsular plateau iv. The coastal lowlands v. The islands	10
3.	Drainage Systems	A) Himalayan drainage systems: i. Ganga ii. Brahmaputra iii. Indus B) Peninsular drainage system 1.West Flowing Rivers: i. Narmada ii. Tapi iii. Mahi 2. East Flowing Rivers: i. Godavari ii. Krishna iii. Kaveri	10
4.	Climate	A) Main Seasons & Associated weather conditions: i. The winter ii. The summer iii. The rainy/monsoon B) Origin and mechanism of monsoon: i. Traditional concept: Halley's view ii. Recent Concept a. Role of Tibet plateau	10
5.	Soils	A) Major soil types and their distribution in India: i. Alluvial soil ii. Black soil	10

Topic No	Topic Name	Sub Topics	No. of Hours
		ii. Red soil iv. Laterite and Lateritic soils vi. Forest and Mountain soils vi. Arid soils vii. Peaty and Marshy soils B) Soil degradation and soil conservation	
6.	Forest	A) Major forest types and their distribution in India i. Tropical Evergreen forests ii. Dry Tropical forests iii. Montane Temperate forests iv. Alpine forests B) Deforestation and conservation of forest	10

Course Outcome:

By the end of this course, students will be able to:

CO 1: Explain the geographical location, frontiers, and strategic significance of India.

CO 2: Describe the major physiographic divisions and drainage systems of India and their regional importance.

CO 3: Analyze the climatic conditions of India, including the origin and mechanism of the monsoon.

CO 4: Classify the major soil and forest types of India along with their distribution and significance.

CO 5: Evaluate environmental problems such as soil degradation and deforestation and suggest suitable conservation measures.

References:

1. Agrawal A. N. (2019): "Indian economy, Developmental Problems and policies" New Age International Pvt. Ltd.
2. Bhende, Asha A and Kanitkar Tara (2015): "Principles of Population Studies", Himalaya Pub. House, New Delhi.
3. Chandana R. C. (2016): "Geography of population", Kalyani Publishers, New Delhi.
4. Chopra S. N. - India, an Area Study.
5. Deshpande C. D. (1992): "India: A Regional Interpretation", Indian Council of Social Science Research and National Book Centre, New Delhi
6. Dubey and Negi - Economic Geography of India.
7. Gopal Singh (1976): Geography of India" Atma Ram Pub., Delhi
8. Khullar D. R. (2018) : "India: a Comprehensive Geography" Kalyani Publishers
9. Majid Husain (2008): "Geography of India", Tata McGraw Hill, New Delhi
10. Mathur, S. M. (1994): Physical Geology of India, National Book Trust, New Delhi, India.
11. Memoria, I. B. - Geography of India. 12. Singh R. L. (1971): "India-A Regional Geography". NGSI, Varanasi.
12. Sandip Sampat Tadakhe et al (2025) "Geography of India – Landscapes, Resources and People", AG Publishing House, Bhopal, M.P. India.
13. Singh R. L. (1971): "India-A Regional Geography". NGSI, Varanasi.

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TYBA (Geography) as per NEP 2020

Name of the Programme	**:**	B.A. (Geography)
Class	**:**	TYBA
Semester	**:**	V
Name of Vertical Group	**:**	**Major Core**
Course Code	**:**	**GEO -303-MJP**
Course Title	**:**	**Practicals in Climatology & Soil Geography**
Type of course	**:**	Practical
Total Credits	**:**	04
Workload	**:**	(30 hours/credit) 4 credits x 30 hours= 120 hours in semester

Objectives of the Course:

1. To develop practical skills in the use of weather instruments, interpretation of weather maps, and analysis of climatic data for understanding atmospheric processes.
2. To provide hands-on training in soil sampling, soil testing, and laboratory techniques for identifying soil physical and chemical properties.
3. To enable students to interpret climatic and soil characteristics for agricultural suitability, environmental analysis, and resource management.

Topics and Learning Points

Topic No	Topic Name	Sub Topic	No. of Hours
1.	Introduction to Weather Instruments	1.Understanding Weather Instruments: mechanisms, functions and usage i. Temperature: Simple Thermometer, Thermograph ii. Humidity: Hygrometer and Hygrograph iii. Precipitation: Rain Gauge iv. Air Pressure: Barometer And Barograph v. Wind Direction: Wind Vane vi. Wind Velocity: Cup Anemometer 2. Practical activities: i. Demonstration of weather instruments ii. Recording and interpreting climatic readings	20
2.	Isobaric Patterns	Drawing of isobaric patterns and associated weather i. Cyclone ii. Anticyclone iii. Ridge iv. Trough v. Wedge vi. Secondary depression vii. Col	15
3	Weather Maps	1.Introduction to IMD weather maps/reports 2. Symbols in daily weather report used by (IMD) 3. Reading and interpretation of weather maps of three seasons:	20

Topic No	Topic Name	Sub Topic	No. of Hours
		i. Summer ii. Monsoon (Rainy) iii. Winter 4. Weather applications App: Mausam, Meghdoot, Damini 5. Visit to nearby Meteorological Weather Station	
4	Soil Sample Collection	Collect representative soil samples; record field notes and site conditions.	20
5	Particle Size Analysis (Texture)	Determine soil texture using sieving or hydrometer methods; plot textural triangle.	15
6	Soil Structure and Porosity	Identify soil structure types; determine porosity and aggregate size differentiation.	10
7	Soil pH, EC & Nutrient Tests	1. Measure soil pH, electrical conductivity; interpret fertility indices. 2.Visit to nearby Place for the collection of soil samples	20

Course Outcome:

By the end of this course, students will be able to:

CO 1: Demonstrate the use of weather instruments and record basic climatological observations accurately.

CO 2: Interpret isobaric patterns and weather maps to identify different weather systems and seasonal conditions.

CO 3: Analyze climatic information using IMD weather reports, maps, and weather applications.

CO 4: Collect and examine soil samples to determine texture, structure, porosity, pH, electrical conductivity, and nutrient status.

CO 5: Apply practical knowledge of climatology and soil geography in understanding environmental conditions, agriculture, and resource management.

References:

1. Birkeland, P.W. – Soils and Geomorphology (Oxford University Press).
2. Brady, N.C. & Weil, R.R. – The Nature and Properties of Soils (Pearson).
3. Buol, S.W., Southard, R.J., Graham, R.C., & McDaniel, P.A. – Soils: Genesis and Classification (Wiley).
4. Critchfield, H. J. (1997). General Climatology. Prentice Hall.
5. Jarraud,M. (2008). Guide to meteorological instruments and methods of observation (WMO No. 8). World Meteorological Organization: Geneva, Switzerland.
6. Kale, V.S. & Gupta, A. – Introduction to Climatology (Scientific Publishers).
7. Lutgens, F.K. &Tarbuck, E.J. – The Atmosphere: An Introduction to Meteorology (Pearson/Prentice Hall).
8. M. Rajeevan**,** Indian Climate and Weather Systems**,** Springer India, 2016 Barry, R. G., & Chorley, R. J. (2010). Atmosphere, Weather, and Climate. Routledge.

9. Monkhouse, F. J., & Small, J. (1978). A Dictionary of Meteorology. Edward Arnold Publishers
10. Petterssen, S. (1956). Weather Analysis and Forecasting. McGraw-Hill.
11. Practical/Field manuals and laboratory protocols in Soil Analysis and Climatology.
12. Stringer, E. T. (1972). Techniques of Meteorology. W. H. Freeman & Co.
13. Trewartha, G. T., & Horn, L. H. (1994). An Introduction to Climate. McGraw-Hill Education.
14. World Meteorological Organization. (1983). Guide to meteorological instruments andmethods of observation. Secretariat of the World Meteorological Organization.

Web References:

1. World Meteorological Organization (WMO): www.wmo.int
2. India Meteorological Department (IMD): www.imd.gov.in
3. National Weather Service: www.weather.gov

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B.A. (Geography) as per NEP 2020

Name of the Programme	**:**	B.A. (Geography)
Class	**:**	T.Y.B.A.
Semester	**:**	V
Name of Vertical Group	**:**	**Major Elective**
Course Code	**:**	**GEO-310**
Course Title	**:**	**Soil Geography**
Type of course	**:**	Theory
Total Credits	**:**	02
Workload	**:**	(15 hours / credit) 4 credits x 15 hours = 30 hours

Objectives of the Course:

1. To introduce the fundamental concepts, nature, scope, and importance of soil geography.
2. To explain the processes and factors responsible for soil formation and the development of soil profiles.
3. To create awareness about soil degradation, conservation methods, and the application of modern techniques like RS and GIS in soil management.

Topic No	Topic Name	Sub Topic	No. of Hours
1.	Introduction	i. Meaning and Definition of Soil ii. Definition of Soil Geography iii. Nature and Scope of Soil Geography iv. Importance of soil studies	08
2.	Soil Formation and Profile	i. Factors Affecting Soil Formation -Parent rock, Climate, Relief, Living Organisms, Time, Anthropogenic ii. Components of Soil iii. Soil Profile: Meaning and Horizons	11
3.	Soil Degradation & Conservation	i. Soil Degradation-Definition, Types, Causes and Effects ii. Soil Conservation- Definition and need of soil conservation iii. Methods of Soil Conservation iv. Role of RS and GIS in Soil Conservation.	11

Course Outcome:

By the end of this course, students will be able to:

CO 1: Explain the meaning, nature, scope, and importance of soil geography.

CO 2: Describe the factors and processes responsible for soil formation and soil profile development.

CO 3: Identify the components, horizons, and characteristics of different soil profiles.

CO 4: Analyze the causes, effects, and types of soil degradation.

CO 5: Evaluate various methods of soil conservation and the role of RS and GIS in soil resource management.

References

1.Birkeland, P. W. (1999): Soils and Geomorphology, Oxford University Press, New York.

2. Brady, N. C., and Weil, R. R. (2008): The Nature and Properties of Soils, Prentice Hall, New Jersey.

3. Bridges, E. M. and Davidson, D. A. (1982): Principles and Applications of Soil Geography, Longman Group, London.

4. Daji, J. A. (1970): A Textbook of Soil Science, Asia Publication House, New York.

5. Gustafson, A.S. (2007): "Soils and Management" Published by Agrobios (India).

6. Kale V. B. (2020): Soil Geography, Himalaya Publishing House, Mumbai.

7. Lal, R. (ed.), (2002): Encyclopedia of soil science. Marcel Dekker, New York.

8. Miller, C. E. & L.M. Turk, (2001): "Fundamental of soil Science" Biotech Books Delhi.

9. Miller, R. W. and Donahue, R. L. (1992): Soils: An Introduction to Soils and Plant Growth, Prentice-Hall of India, New Delhi.

10. Panda, S. C. (2007): "Soil water conservation and dry farming" Published by Agrobios (India).

11. Pitty, A. F. (1978): Geography and Soil Properties, Methuen and Co., London.

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B.A. (Geography) as per NEP 2020

Name of the Programme	**:**	B.A. (Geography)
Class	**:**	T.Y.B.A.
Semester	**:**	V
Name of Vertical Group	**:**	**Major Elective**
Course Code	**:**	**GEO-311 MJ**
Course Title	**:**	**Fundamentals of GIS**
Type of course	**:**	Theory
Total Credits	**:**	02
Workload	**:**	(15 hours / credit) 2 credits x 15 hours = 30 hours

Objectives of the Course:

1. To introduce the fundamental concepts, history, components, and significance of Geographic Information Systems (GIS).
2. To develop an understanding of spatial and non-spatial data, GIS data models, and methods of data input and management.
3. To provide basic knowledge of GIS analysis techniques and their applications in geographical and environmental studies.

Topic No	Topic Name	Sub Topic	No. of Hours
1.	Introduction to GIS	i. Meaning and Definition of Geographic Information System (GIS) ii. History of GIS iii. Components of GIS - Hardware, Software, Data, People, Methods	08
2.	GIS Data Models	i. Spatial and Non-Spatial Data ii. Sources of Spatial Data-Toposheets, Surveying, Aerial photographs, Satellite data and images iii. Types of Spatial Data- Characteristics of Vector Data and Raster Data iv. Vector Data Model-Point, Line, Polygon v. Raster Data Model-Grid and Cells	08
3	GIS Data Editing	i. Methods of Data Input -Scanning, Digitization, GPS ii. Georeferencing iii. Topology building, Topological errors, Locational errors, edge matching iv. Attribute Data linking	07
4.	GIS Analysis and Applications	i. Basic GIS Operations - Overlay Analysis, Buffer Analysis, ii. Topographic Analysis - DEM and DTM iii. Applications of GIS	07

Course Outcome:

By the end of this course, students will be able to:

CO 1: Explain the basic concepts, history, components, and functions of GIS.

CO 2: Differentiate between spatial and non-spatial data and describe vector and raster data models.

CO 3: Demonstrate understanding of GIS data input methods, georeferencing, and topology building.

CO 4: Apply basic GIS operations such as overlay and buffer analysis for spatial analysis.

CO 5: Evaluate the applications of GIS in topographic, environmental, and geographical studies.

References:

1. Kang-tsung Chang (2003) Geographic Information Systems, Tata McGraw Hill, New Delhi

2. Star J, and J. Estes, (1994), Geographic Information Systems: An Introduction, Prentice Hall, New Jersey.

3. Michael F. Goodchild and Karen K. Kemp (1990) Introduction to GIS, National Center for Geographic Information and Analysis, University of California, Santa Barbara.

4. Clarke, Keith C. (1999) Getting Started with Geographic Information Systems, Prentice Hall, New Jersey

5. Lo Albert, C.P., and Young, K.W (2003) Concepts and Techniques of Geographical Information Systems, Prentice Hall of India Pvt. Ltd., New Delhi.

6. Williams J. (1995): Geographic information from space, John Wiley and Sons, England,

7. DeMers Michel N.(2000): Geographic Information Systems, John Wiley and Sons.

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Name of the Programme	**:**	B.A. (Geography)
Class	**:**	T.Y.B.A.
Semester	**:**	V
Name of Vertical Group	**:**	**Major Elective**
Course Code	**:**	**GEO-312-MJP**
Course Title	**:**	**Practicals in Fundamentals of Mapping**
Type of course	**:**	Practical
Total Credits	**:**	02
Workload	**:**	(30 hours / credit) 2 credits x 30 hours = 60 hours

Objectives of the Course:

1. To develop a basic understanding of maps, cartographic principles, and interpretation of Survey of India (SOI) toposheets.
2. To acquire practical skills in map analysis, scale techniques, and preparation of base and thematic maps.
3. To enhance spatial thinking through mobile-based mapping, GPS applications, and field-based geographic data collection.

Topic No	Topic Name	Sub Topic	No. of Hours
1.	Toposheet Analysis and Base Map Preparation	i. Introduction to toposheets and their significance ii. Extracting a base map from toposheet iii. Cross-section drawing iv.Reduction/enlargement of map (scale techniques)	20
2.	Thematic Map Preparation Techniques for Climate data	i. Meaning and nature of climatic data ii. Data Collection and Sources iii. Methods of Climatic Data Representation Isotherms (Temperature), Isohyets (Rainfall), Isobars (Pressure) iv. Choropleth Method (Rainfall regions)	20
3.	Mobile-based Mapping	i. Introduction to GPS ii. Use of GPS in smartphones iii. Collect location points to Map objects in college campus / nearby area iv. Measure distance and area on Google MapS for same object measure by smartphone or manually with help of GPS	20

Course Outcome:

By the end of this course, students will be able to:

CO 1: Explain the fundamental concepts of maps, toposheets, and basic cartographic techniques.

CO 2: Prepare base maps and perform scale conversions including reduction and enlargement of maps.

CO 3: Interpret SOI toposheets and extract relevant geographical information for analysis.

CO 4: Construct thematic maps such as isotherms, isohyets, isobars, and choropleth maps using climatic data.

CO 5: Apply GPS and mobile-based mapping tools for field data collection, measurement, and spatial analysis

References:

1. Ahirrao, D. Y. And Karanjkhele, E.K., (2002), PratyakshikBhugol, Sudarshan Publication, Nashik.
2. M. Rajeevan, Indian Climate and Weather Systems, Springer India, 2016 Barry, R. G., & Chorley, R. J. (2010). Atmosphere, Weather, and Climate. Routledge.
3. Singh Gopal (1996). Map Work and Practical Geography, Vikas Publishing House Pvt. Ltd., New Delhi.
4. Singh, R.L., and Kanaujia L.R.S. (1963). Map Work and Practical Geography, Central Book Depot, Allahabad.
5. Singh, R.L., and Singh, R.P.B. (1997). Elements of Practical Geography, Kalyani Publishers, New Delhi.
6. Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan
7. Kumbhar, A., 2000. Pratyakshik Bhugol, Sumeru Publications, Mumbai.
8. Indian Daily Weather Report, IMD, Pune
9. Gupta, K. K. &Tyagi, V. C. (1992) Working with Maps, Survey of India, DST, New Delhi
10. Ramamurthy, K. (1982) Map Interpretation, Rex Printers, Madras
11. Negi, B. S. (2005) Practical Geography, Kedarnath and Ramnath publication Meerut
12. Khullar, Practical Geography King Publication, Dehradun
13. S.D.Pagar, D.D.Mulukh, J.C.More & Others (2025), Practicals in weather observation (Marathi), Nirali Publication Pune,

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Name of the Programme	**:**	B.A. (Geography)
Class	**:**	T.Y.B.A.
Semester	**:**	V
Name of Vertical Group	**:**	**Major Elective**
Course Code	**:**	**GEO-313- MJP**
Course Title	**:**	**Practicals in GIS**
Type of course	**:**	Practicals
Total Credits	**:**	02
Workload	**:**	(30 hours / credit) 2 credits x 30 hours = 60 hours

Objectives of the Course:

1. To introduce students to GIS software interface and basic spatial data handling techniques.
2. To develop practical skills in GIS data input, conversion, georeferencing, and data management.
3. To train students in spatial data analysis, map digitization, and map output generation using GIS tools

Topic No	Topic Name	Sub Topic	No. of Hours
1	Spatial Data Interface	i. Introduction to GIS software interface (e.g., QGIS / Arc GIS or any GIS software) ii. Understanding GIS components and workspace- Hardware, Software, Data, People, and Methods	10
2	Import of GIS Data	(Hands-on training using any GIS software) i. Scanning of maps and conversion into different formats - JPEG, PDF, BMP, TIFF ii. Conversion of coordinates – DMS to DD and DD to DMS iii. Georeferencing of maps/toposheets	10
3	Data Analysis and Manipulation	(Hands-on training using any GIS software) i. Digitization of map/quadrant of toposheet- at least one layer each of point, line, and polygon features ii. Exporting vector data as .shp files iii. Importing raster data (map, DEM, etc.) iv. Clipping area of interest (AOI) v. Exporting raster data - Arc ASCII file, Grid file, DEM file vi. Attribute data creation and linking tables to vector data	20
4	GIS Output and Visualization	(Hands-on training using any GIS software) i. Map layout preparation – Title, Grid, Scale, North Arrow, Index map (for vector and raster data) ii. Exporting maps into JPEG, PDF, and TIFF formats	20

Course Outcome:

By the end of this course, students will be able to:

CO 1: Explain the basic components and interface of GIS software such as QGIS or ArcGIS.

CO 2: Demonstrate skills in scanning, data format conversion, and georeferencing of spatial data.

CO 3: Perform digitization of point, line, and polygon features and manage vector and raster datasets.

CO 4: Apply GIS tools for spatial data analysis including clipping, attribute linking, and data manipulation.

CO 5: Prepare and export professional map layouts with essential cartographic elements using GIS software.

References:

1. Kang-tsung Chang (2003) Geographic Information Systems, Tata McGraw Hill, New Delhi

2. Star J, and J. Estes, (1994), Geographic Information Systems: An Introduction, Prentice Hall, New Jersey.

3. Michael F. Goodchild and Karen K. Kemp (1990) Introduction to GIS, National Center for Geographic Information and Analysis, University of California, Santa Barbara.

4. Clarke, Keith C. (1999) Getting Started with Geographic Information Systems, Prentice Hall, New Jersey

5. Lo Albert, C.P., and Young, K.W (2003) Concepts and Techniques of Geographical Information Systems, Prentice Hall of India Pvt. Ltd., New Delhi.

6. Williams J. (1995): Geographic information from space, John Wiley and Sons, England,

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Name of the Programme	**:**	B.A.(Geography)
Class	**:**	T.Y.B.A.
Semester	**:**	V
Name of Vertical Group	**:**	**VSC**
Course Code	**:**	**GEO-321-VSC**
Course Title	**:**	**Introduction to Tourism Geography**
Type of course	**:**	Theory
Total Credits	**:**	02
Workload	**:**	(15hours/credit) 2 Credits x15 hours = 30 hours in semester

Objectives of the Course:

1 To introduce the fundamental concepts, nature, scope, and importance of Tourism Geography and its role in geographical studies.

2 To understand different types and classifications of tourism including emerging and specialized forms such as eco-tourism, geo-tourism, and adventure tourism.

3 To analyze the physical, socio-cultural, and political determinants of tourism and understand tourism policies at global, national, and state levels.

Topic No	Topic Name	Sub Topic	No. of Hours
1.	Introduction of Tourism Geography	i. Definition of Tourism Geography ii. Definition of Tourist and Tourism iii. Nature and Scope of Tourism Geography iv. Importance of Tourism	08
2.	Types and Classification of Tourism	a. Classification based on i. Nationality ii. Travel Time iii. Purpose a. Concept of Tourism i. Geo-tourism ii. Eco-Tourism iii. Wildlife Tourism iv. Agro-Tourism v. Health/Medical Tourism vi. Sports & Adventure Tourism	12
3.	Determinants and Policies of Tourism	Determinants a. Physical i. Relief ii. Climate iii. Forest & Wildlife iv. Water bodies b. Socio-Cultural i.Religious ii. Historical iii. Sports iv. Architectural Attractions	10

Topic No	Topic Name	Sub Topic	No. of Hours
		c. Political i. Policies ii. Accessibility iii. Safety of Tourists Tourism Policy: i. World Tourism Organization ii. Indian Tourism Development Corporation iii. Maharashtra Tourism Development Corporation	

Course Outcome:

By the end of this course, students will be able to:

CO 1: Explain the basic concepts, nature, scope, and importance of Tourism Geography.

CO 2: Classify different types of tourism including geo-tourism, eco-tourism, wildlife, agro, health, and adventure tourism.

CO 3: Analyze the physical, socio-cultural, and political factors influencing tourism development.

CO 4: Describe the role of tourism organizations such as WTO, ITDC, and MTDC in tourism development.

CO 5: Evaluate current trends and sustainability considerations in the tourism industry.

References:

1. Cooper, C. and Hall, M., (2008). Tourism and Leisure: Issues and Challenges. Channel View Publications, Bristol.
2. Goeldner, C. R. and Ritchie, J.R.B.,(2017).Tourism: Principles, Practices, Philosophies. John Wiley & Sons, Hoboken.
3. Singh, V. and Joshi, S.,(2012).Tourism Planning and Development: Concepts and Issues. Sterling Publishers, New Delhi.
4. Page, S. and Connell, J., (2009).Tourism: A Modern Synthesis. Cengage Learning, Hampshire.
5. Seth P.N., (1985), Successful Tourism Management, Sterling Publisher Ltd., New Delhi.
6. Mhatre, S., (2015), Tourism Geography: An Integrated Approach. Himalaya Publishing House, Mumbai.
7. Kulkarni, A.,and Shah,N.(2018),Tourism in Nashik: A Comprehensive Guide. Notion Press, Chennai.
8. Deshmukh, P., (2019), Tourism in Ahmednagar: Trends and Challenges. Udyog Sahayadri, Ahmednagar.
9. Patil, N. and Chavan,S.,(2017),Tourism in Pune: Exploring the Cultural Capital. Sahyadri Books, Pune.
10. Sharma, S. and Gupta, M.,(2013),Tourism Development in India: A Case Study Approach. PHI Learning Pvt. Ltd., New Delhi.

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Name of the Programme	**:**	B.A.(Geography)
Class	**:**	T.Y.B.A.
Semester	**:**	V
Name of Vertical Group	**:**	**VSC**
Course Code	**:**	**GEO-322-VSC**
Course Title	**:**	**Watershed Management**
Type of course	**:**	Theory
Total Credits	**:**	02
Workload	**:**	(15hours/credit)2Creditsx15hours = 30 hours in semester

Objectives of the Course:

1 To introduce the concept, components, classification, and socio-economic importance of watershed management.

2 To understand the structure and functioning of watersheds through their morphological and climatic characteristics.

3 To develop skills in land evaluation, soil assessment, and sustainable watershed planning with community participation.

Topic No	Topic Name	Sub Topic	No. of Hours
1.	Introduction to watershed management	i. Concept of watershed management ii. Components of watershed: land, water & vegetation iii. Physical and socio-economic characteristic of watershed iv. Watershed delineation v. Classification of watershed based on area	10
2.	Function and structure of watershed	i. Morphological characteristics of watershed: linear, aerial and relief aspects ii. Climatic characteristics of watershed (water cycle): evaporation, condensation, precipitation, interception, infiltration, percolation, transpiration, runoff and storage	10
3.	Watershed Management	i. Concept of Land Evaluation ii. Land Capability Evaluation a) Definition of land capability b) Classification of land capability based on Food and Agriculture Organization (FAO) guidelines iii. Land Suitability Evaluation a) Definition of land suitability	10

Topic No	Topic Name	Sub Topic	No. of Hours
		b) Classification of land suitability based on FAO framework	

Course Outcome:

By the end of this course, students will be able to:

CO 1: Explain the basic concepts, components, and classification of watersheds.

CO 2: Describe the morphological and climatic characteristics of watershed systems and their hydrological processes.

CO 3: Analyze watershed structure and functions including water cycle processes such as runoff, infiltration, and storage.

CO 4: Apply land capability and land suitability evaluation methods for watershed planning.

CO 5: Evaluate watershed management strategies for sustainable natural resource development and community participation.

References:

1. Brosius, J. P., Lovelace, G., & Martini, F. (2005). Disciplines and interdisciplinary practices: The case of watershed management. Society & Natural Resources, 18(3), 199- 212.
2. Desai, V.R., Mishra, A., &Ashwini Kumar, (2025). Watershed Planning and Management. www.AgriMoon.com
3. Heathcote, I. W. (2009). Integrated watershed management: principles and practice. John Wiley & Sons.
4. Katyal, J.C., R.P. Singh, Shriniwas Sharma, S.K. Das, M.V. Padmanabhan and P.K. Mishra. 1995. Field Manual on Watershed Management. CRIDA, Hyderabad.
5. Katturajan, K., (2023). Watershed Management. Department of Geography School of Sciences Tamil Nadu Open UniversityChennai - 600015.
6. Lyon, J. G. (2002). GIS for water resources and watershed management. In GIS for Water Resource and Watershed Management (pp. 1-6). CRC Press.
7. Mahnot, S.C. 2014. Soil and Water Conservation and Watershed Management. International Books and Periodicals Supply Service. New Delhi.
8. McCool, D. K., & Lee, R. G. (Eds.). (2017). Watershed management: Balancing sustainability and environmental change. CRC Press.
9. Naiman, R. J. (Ed.). (2012). Watershed management: balancing sustainability and environmental change. Springer Science & Business Media.
10. Novotny, V., Ahern, J., & Brown, P. (2010). Water centric sustainable communities: planning, retrofitting, and building the next urban environment. John Wiley & Sons.
11. Sabatier, P. A., Focht, W., Lubell, M., Trachtenberg, Z., Vedlitz, A., & Matlock, M. (2005). Collaborative approaches to watershed management.
12. Sharda, V.N., A.K. Sikka and G.P. Juyal. 2006. Participatory Integrated Watershed Management: A Field Manual. Central Soil and Water Conservation Research and Training Institute, Dehradun.
13. Singh, G.D. and T.C. Poonia. 2003. Fundamentals of Watershed Management Technology. Yash Publishing House, Bikaner.

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Name of the Programme	**:**	B.A. (Geography)
Class	**:**	T.Y.B.A.
Semester	**:**	V
Name of Vertical Group	**:**	FP/OJT/CEP
Course Code	**:**	**GEO-331-FP**
Course Title	**:**	**Field Visit and Report Writing**
Type of course	**:**	FP/OJT/CEP
Total Credits	**:**	02
Workload	**:**	(30 hours / credit) 2 credits x 30 hours = 60 hours in Semester

Objectives of the Course:

1 To promote experiential and field-based learning by exposing students to real geographical environments and situations.

2 To develop skills in designing questionnaires, collecting primary data, and using field techniques for geographical investigation.

3 To enhance students' ability in data analysis, interpretation, and structured report writing based on field observations.

Guidelines for field visit in Geography:

- **Students should be taken on a field visit keeping the following points in mind, and a report should be prepared accordingly**
  - **Define Objectives:** Clearly state the purpose and objectives of the field visit.
  - **Pre-Visit Preparation:** Study the area using maps, satellite images, and previous reports etc. , Prepare questionnaires and data collection sheets. , Arrange necessary permissions and logistics (transport, equipment, etc.).
  - **Formulate a Plan:** Decide the route, time schedule, and division of tasks among team members.
  - **Gather Necessary Tools:** Bring field equipment (compass, GPS, camera, notebooks, measuring tape, surveying instruments etc.).
  - **Safety Measures:** Ensure safety protocols, carry first aid, and inform someone about your visit plan.
  - **On-Field Data Collection:** Record observations systematically (physical features, human activities, etc.). , Conduct interviews or surveys if required. , Take photographs and mark locations on maps. , Collect samples (soil, water, vegetation) if necessary.
  - **Maintain Field Diary:** Write daily records of activities, observations, and experiences.

- **Follow Ethical Practices:** Respect local communities and environment. , Do not disturb wildlife or natural habitats.

Guidelines for field visit report writing in Geography:

- **Title Page:** Include the title, name of the student, subject teacher, date, and institution.
- **Table of Contents:** List all sections with page numbers, list of maps, graphs, charts, etc.
- **Introduction:** State the objectives, significance, and location of the study.
- **Methodology:** Describe how data was collected (tools, techniques, sampling methods).
- **Description of Study Area:** Provide background information about the area (location, climate, topography, etc.).
- **Presentation of Data:** Use tables, charts, maps, and photographs to present findings.
- **Analysis and Interpretation:** Analyze data, identify patterns, and interpret results in context.
- **Discussion:** Compare findings with previous studies; discuss implications and limitations.
- **Conclusion:** Summarize key findings and relate them to objectives.
- **Recommendations:** Suggest measures for improvement, management, or further study.
- **References:** List all sources, books, articles, and websites consulted.
- **Appendices:** Attach questionnaires, raw data, maps, and additional material, if any.

Course Outcome:

By the end of this course, students will be able to:

CO 1: Plan and execute a field visit with clear objectives, preparation, and logistical arrangements.

CO 2: Design questionnaires and use appropriate techniques for primary data collection in the field.

CO 3: Apply field tools such as GPS, maps, instruments, and surveys for systematic geographical data collection.

CO 4: Analyze and interpret collected field data using tables, maps, charts, and photographs.

CO 5: Prepare a structured field visit report including methodology, analysis, discussion, conclusions, and recommendations.

Format of Field Datasheet

Department of Geography

Sr. No.	Content	Brief Information
1.	Name of the Student	
2.	Roll No.	
3.	Name of the College	
4.	Title for field visit / field visit report	
5.	Name of the Subject Teacher	
6.	Date of field visit	
7.	Objective of field visit	➢ ➢ ➢ ➢

8.	Name of the study area	
9.	Key Geographical features of study area	
10.	Time - wise scheduled of field visit Date: _____ to _____ am/pm _____ to _____ am/pm Date: _____ to _____ am/pm _____ to _____ am/pm Date: _____ to _____ am/pm _____ to _____ am/pm Date: _____ to _____ am/pm _____ to _____ am/pm Date: _____ to _____ am/pm _____ to _____ am/pm Date: _____ to _____ am/pm _____ to _____ am/pm Date: _____ to _____ am/pm _____ to _____ am/pm	Brief activity details _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____
11.	Remark of the Subject Teacher	
12.	Signature of student	Signature of Subject Teacher

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Name of the Programme	**:**	B.A. (Geography)
Class	**:**	T.Y.B.A.
Semester	**:**	V
Name of Vertical Group	**:**	**Minor**
Course Code	**:**	**GEO-341-MN**
Course Title	**:**	**Environmental Geography**
Type of course	**:**	Theory /Practical
Total Credits	**:**	02 Theory
Workload	**:**	(15 hours / credit) 2 credits x 15 hours = 30 hours

Objectives of the Course:

1. To introduce the fundamental concepts, nature, scope, and components of Environmental Geography and its relevance in geographical studies.
2. To examine the relationship between humans and the natural environment with reference to environmental changes and challenges.
3. To develop awareness of major environmental problems and the importance of environmental management and sustainable development.

Topic No.	Topic Name	Sub-Topics	No. of Hours
1.	Introduction	i. Meaning, nature and scope of Environmental Geography ii. Components of environment iii. Human–environment relationship	08
2.	Environmental Problems and Challenges	Definition, Causes and effects of i. Climate change ii. Global warming iii. Environmental pollution (air, water, soil) iv. Loss of biodiversity	12
3.	Environmental Management	i. Environmental Management ii. Concept of sustainable development iii. Environmental (Protection) Act, 1986 iv. Biological Diversity Act, 2002	10

Course Outcome:

By the end of this course, students will be able to:

CO 1: Explain the meaning, nature, scope, and components of Environmental Geography.

CO 2: Describe the interrelationship between human activities and environmental systems.

CO 3: Analyze major environmental problems such as climate change, global warming, pollution, and biodiversity loss.

CO 4: Evaluate the principles of environmental management and sustainable development.

CO 5: Understand key environmental legislations such as the Environment Protection Act (1986) and Biodiversity Act (2002).

References:

1. Agarwal, K. C. .*Environmental geography*. National Book Trust.
2. Chandna, R. C. (2013). *Environmental geography*. Kalyani Publishers.
3. Goudie, A. (2018). *The human impact on the natural environment* (8th ed.). Wiley Blackwell.
4. Odum, E. P. (2005). *Fundamentals of ecology* (5th ed.). W.B. Saunders Company.
5. Rao, M. S. (2015). *Environmental geography*. McGraw Hill Education.
6. Saxena, H. M. *Environmental geography*. Rawat Publications.
7. Singh, K., & Singh, J. (2012). *Environmental studies*. Himalaya Publishing House.
8. Singh, S. (2005). *Environmental geography*. Sharda Pustak Bhawan.

Singh, S. *Environmental geography*. Prayag Pustak Bhawan.

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B.A. (Geography) as per NEP 2020

Name of the Programme	:	B.A. (Geography)
Class	:	T.Y.B.A.
Semester	:	VI
Name of Vertical Group	:	**Major Core**
Course Code	:	**GEO-351-MJ**
Course Title	:	**Introduction to Economic Geography**
Type of course	:	Theory
Total Credits	:	04
Workload	:	(15 hours / credit) 4 credits x 15 hours = 60 hours in semester

Objectives of the Course:

1. To introduce the fundamental concepts, nature, scope, and evolution of Economic Geography.
2. To develop an understanding of economic activities such as agriculture, industry, transport, and trade and their spatial distribution.
3. To enable students to analyze factors influencing economic development and apply geographical models in economic planning.

Topic No.	Topic Name	Sub-Topics	No. of Hours
1	Introduction Economic Geography	i. Meaning, Nature and Scope ii. Evolution and Development iii. Branches of Economic Geography	10
2	Economic Development	i. Concept of Economic Development ii. Levels of Economic Development (Developed, Developing and Underdeveloped Countries) iii. Rostow's Model of Economic Growth	10
3	Agriculture	i. Meaning and Types of Agriculture (Commercial grain, Plantation, Mixed) ii. Determinants of Agriculture (Physical, Economic, Social, Technological, Political and Biological) iii. Von Thunen's Model of agricultural land use	12
4	Industry	i. Meaning and Classification of Industries ii. Factors affecting Industrial Location iii. Weber's Theory of Industrial Location	12
	Transportation	i. Transport: Factors Affecting Transportation ii. Modes of Transport iii. Major World; Transport Routes	8
5	Trade	i. Trade: meaning and factors affecting on trade ii. Types of trade and balance of trade	8

Topic No.	Topic Name	Sub-Topics	No. of Hours
		iii. World Trade Organization	

Course Outcome:

By the end of this course, students will be able to:

CO 1: Explain the meaning, nature, scope, and branches of Economic Geography.

CO 2: Describe levels of economic development and theoretical models such as Rostow's stages of growth.

CO 3: Analyze agricultural patterns and industrial location using models like Von Thünen and Weber.

CO 4: Evaluate the role of transport systems and trade in regional and global economic development.

CO 5: Apply economic geographical concepts to understand development patterns and planning issues.

References:

1. Alexander, J. W. (1963): Economic Geography. Prentice Hall of India.
2. Coe, N. M., Kelly, P. F., &Yeung, H. W. C. (2020): Economic Geography: A Contemporary Introduction (3rd Ed.) Wiley-Blackwell.
3. Gautam, A. (2010): Geography of Resources: Exploitation, Conservation and Management. ShardaPustakBhawan.
4. Grigg, D. (1995): An Introduction to Agricultural Geography. Routledge.
5. Hartshorn, T. N., & Alexander, J. W. (1988): Economic Geography. Prentice-Hall of India.
6. Husain, M. (2008): Geography of India. Tata McGraw Hill.
7. Khullar, D. R. (2010): India: A Comprehensive Geography. Kalyani Publishers.
8. Leong, G. C., & Martin, E. (1974): Human and Economic Geography. Oxford University Press.
9. Pandey, P. N., &Fernandes, M. R. (2000): General Geography of India. NiraliPrakashan.
10. Paranjape, Gupte, &Karmarkar. (1974): Economic and Commercial Geography. NiraliPrakashan.
11. Robinson, H. (1978): Geography of Transport. Macdonald & Evans.
12. Sharma, T. C., &Coutinho, O. C. (1983): Economic and Commercial Geography of India. Vikas Publishing House.
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14. Singh, J., &Dhillon, S. S. (2004): Agricultural Geography. Tata McGraw-Hill.
15. Warf, B. (Ed.): (2010): Encyclopedia of Geography. SAGE Publications.
16. Weber, A. (1929): Theory of the Location of Industries. University of Chicago Press.
17. World Trade Organization (WTO): Annual Reports. (Current data for Unit V: Trade Blocs and WTO)

1. आरेकर आर आणि .डी .अंकुशबी व्यापारी : २०१३)आहे र .भूगोल, अथर्व प्रकाशन, पुणे .
2. चौधरी शं. रा., शिंदे बा.द., चव्हाण मि आणि .भा.देशमुख भूगोलाशास्त्राची मुलतत्वे(1994), हिमालया पब्लिशिंग हाउस, मुंबई.
3. प दे प्रभावती वाणिज् :भूगोल, निराली प्रकाशन,पुणे .

4.

Savitribai Phule Pune University, Pune

B.A. (Geography) as per NEP 2020

Name of the Programme	**:**	B.A. (Geography)
Class	**:**	T.Y.B.A.
Semester	**:**	VI
Name of Vertical Group	**:**	**Major Core**
Course Code	**:**	**GEO-352-MJ**
Course Title	**:**	**Geography of Resource Management**
Type of course	**:**	Theory
Total Credits	**:**	04
Workload	**:**	(15 hours / credit) 4 credits x 15 hours = 60 hours

Objectives of the Course:

1 To understand the concept, classification, distribution, and significance of natural resources and their role in human development.

2 To analyze the challenges related to resource use, degradation, conservation, and sustainable management.

3 To study various resource management practices in land, water, forest, mineral, and energy resources with special reference to India.

Topic No	Topic Name	Sub Topic	No. of Hours
1	Fundamentals of Resource Management	i. Concept, meaning, and classification of resources ii. Resource use and human–environment relationship iii. Sustainable development: concept and goals a) Role of geography in resource management	15
2	Land and Water Resource Management	**i. Land Resource** a) Land-use and land-cover changes b) Land degradation: soil erosion, salinity, desertification c) Land conservation and management strategies ii. **Water Resource** a) Sources of water b) Water scarcity and water pollution c) Water conservation and water resource management	15
3	Forest, Mineral and Energy Resource Management	**Forest Resources** a) Types of forests b) Deforestation: causes and impacts c) Social forestry and joint forest management **Mineral and Energy Resources** a) Types and distribution of mineral resources (Iron ore, Bauxite, Copper) b) Conventional energy resources (Coal and oil) d) Non-conventional and renewable energy resources (Solar energy and wind energy)	15

Topic No	Topic Name	Sub Topic	No. of Hours
4	Environmental Issues and Resource Management	i. Resource degradation: causes, impacts and consequences of over-exploitation of natural resources ii. Environmental conservation measures: policies, community participation and sustainable management practices in India	15

Course Outcome:

By the end of this course, students will be able to:

CO 1: Explain the concept, classification, and importance of natural resources in geography.

CO 2: Describe the relationship between resource use and human–environment interactions.

CO 3: Analyze issues related to land, water, forest, mineral, and energy resource management.

CO 4: Evaluate the causes and impacts of resource degradation and environmental problems.

CO 5: Apply principles of sustainable development and resource management practices in the Indian context.

References:

1. Singh, S. (2008). *Geography of resource management*. Prayag Pustak Bhawan, Allahabad.
2. Sharma, P. D. (2012). *Environmental geography and resource management*. Rastogi Publications.
3. Roy, P., & Bhattacharya, S. (2010). *Resource geography*. New Central Book Agency.
4. Gautam, A. (2013). *Geography of resources*. Sharda Pustak Bhawan.
5. Singh, R. B. (1994). *Geography of resources*. Rawat Publications.
6. Chandna, R. C. (2000). *Environmental geography*. Kalyani Publishers.
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9. Mitchell, B. (2002). *Resource and environmental management*. Pearson Education.
10. Singh, J. S., Singh, S. P., & Gupta, S. R. (2014). *Ecology, environmental science and conservation*. S. Chand Publishing.

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B.A. (Geography) as per NEP 2020

Name of the Programme	**:**	B.A. (Geography)
Class	**:**	T.Y.B.A.
Semester	**:**	VI
Name of Vertical Group	**:**	**Major Core**
Course Code	**:**	**GEO-353-MJP**
Course Title	**:**	**Practicals in Spatial Analysis**
Type of course	**:**	Theory
Total Credits	**:**	04
Workload	**:**	(30 hours / credit) 4 credits x 30 hours = 120 hours

Objectives of the Course:

1. To introduce students to spatial analysis techniques and fundamental principles of practical geography.
2. To develop skills in interpretation of Survey of India (SOI) toposheets for physical and cultural geographical analysis.
3. To apply statistical tools and hypothesis testing methods for analyzing geographical data and spatial relationships.

Topic No	Topic Name	Sub Topic	No. of Hours
1	Introduction of S.O.I. Toposheet and Relief Representation	i. Indexing of Toposheets ii. Introduction of Survey of India Toposheets: (Marginal Information, Conventional Signs and Symbols used in toposheets)	20
2	Interpretation of S.O.I. Toposheets	i. Interpretation of SOI toposheets for physical and cultural features in plain, plateau, and mountainous regions (minimum one toposheet from each region) ii. Drawing and tracing of physical and cultural features from toposheets	30
3	Correlation analysis	i. Concept of Correlation and Regression: ii. Concept of Bivariate correlation and regression iii. Coefficient correlation (Minimum two examples) Parametric and non-parametric test: Chi square test, Spearman Rank Order method (Minimum two examples for each test)	30
4	Testing and Application of Hypothesis	i. Meaning, Definition, Types and Characteristics of Hypothesis ii. Level of Significance, Degrees of Freedom, Application of hypothesis testing in geographical analysis	30

Course Outcome:

By the end of this course, students will be able to:

CO 1: Explain the basic concepts and importance of spatial analysis in geography.

CO 2: Interpret SOI toposheets to identify and analyze physical and cultural features of different regions.

CO 3: Demonstrate skills in map reading, indexing, and representation of relief and thematic features.

CO 4: Apply statistical techniques such as correlation, regression, chi-square test, and Spearman's rank correlation in geographical studies.

CO 5: Formulate and test hypotheses for spatial and geographical data analysis using appropriate statistical methods.

References:

1. Ahirrao, D. Y. and Karanjkhele, E.K., 2002. PratyakshikBhugol, Sudarshan Publication, Nashik.
2. Buoygoot, J. 1964., An Introduction to Map work and Practical Geography, University Tutorial, London.
3. Burrough, P. A., and McDonnell, R. A., 2000. Principles of Geographical Information System, Oxford University Press.
4. Curran, P. 1989. Principlesof RemoteSensing, Logman,London.
5. Dickinson, G.C., 1979, Maps and Air Photographs, Arnold Publisher, New Delhi.
6. Dr.P.G. Saptrashi and Dr.S.R.Jog.,1991,StatisticalMethods(Marathi)
7. Ebdon, D., 1977.Statistics in Geography: APracticalApproach,BasilBlackwell,Oxford.
8. Kumbhar, A., 2000.Pratyakshik Bhugol, Sumeru Publications, Mumbai.
9. Lillesand, T. M.and Kiefer, R.W., 2002. RemoteSensing and Image Interpretation, John Wiley and Sons, New Delhi.
10. Lutgens, F. K. and Tarbuck, E.J., 2007. The Atmosphere. Prentice hall, Englewood Cliffs, New Jersey, USA.
11. Monk house, F.J. and Wilkinson, H. R.1971.Mapsand Diagrams. Methuenand Co. Ltd. London, UK. 12. Ramamurthy, K., 2006. Map Interpretation, Rex Printers, Madras.
12. Siddhartha, K., 2006. Geography through Maps, Kisalaya Publication, Pvt. Ltd, New Delhi.
13. Singh L. R. and Singh R., 1973. Map Work and Practical Geography, Central Book Depot, Allahabad.
14. Singh R. L. and Dutt, P.K., 1968. Elements of Practical Geography, Students Friends, Allahabad. 16. Singh R. L., 2005. Elements of Practical Geography. Kalyani Publishers, New Delhi.
15. 17.Singh, G., 2005. Map Work and Practical Geography, Vikas Publishing House Pvt. Ltd., New Delhi. 18. Strahler, A. A. and Strahler, A. N., 2002. Physical Geography Science and Systems of the Human Environment, John Wiley & Sons, INC.
16. 19.Strahler, A. H. and Strahler, A. N., 1992. Modern Physical Geography John. Wiley & Sons,

Savitribai Phule Pune University, Pune
B.A. (Geography) as per NEP 2020

Name of the Programme	:	B.A. (Geography)
Class	:	T.Y.B.A.
Semester	:	VI
Name of Vertical Group	:	**Major Core**
Course Code	:	**GEO- 360- MJ (Major Elective)**
Course Title	:	**Geography of Disaster Management**
Type of course	:	Theory
Total Credits	:	02
Workload	:	(15 hours / credit) 2 credits x 15 hours = 30 hours in semester

Objectives of the Course:

1. To understand the key concepts of disaster management, including hazard, risk, vulnerability, and classification of disasters.
2. To examine disaster risk reduction strategies and the institutional framework for disaster management in India.
3. To develop awareness of modern tools such as GIS and Remote Sensing for disaster preparedness, mitigation, and resilience building.

Topic No	Topic Name	Sub Topic	No. of Hours
1	Introduction to Disaster Management	i. Meaning and definition of disaster management ii. Concepts of hazard, disaster, risk, and vulnerability iii. Classification of disasters: natural and man-made disasters iv. Major natural disasters: floods, cyclones, landslides, tsunami. v. Major man-made disasters: industrial accidents, toxic waste water disposal	12
2	Disaster Risk Reduction and Management	i. Principles of disaster management ii. Disaster management cycle: mitigation, preparedness, response, recovery iii. Disaster management policies and institutional framework in India (NDM-NDRF, SDMA-SDRF) iv. Early warning systems and disaster preparedness strategies v. Role of community participation in disaster risk reduction	12
3	Tools and Approaches in Disaster Management	i. Role of GIS and Remote Sensing in disaster management ii. Training, awareness programmes, and mock drills iii. Sustainable approaches for disaster management and resilience building	06

Course Outcome:

By the end of this course, students will be able to:

CO 1: Explain the basic concepts and spatial nature of disasters and disaster management.

CO 2: Classify natural and man-made disasters and describe their causes and impacts.

CO 3: Analyze the disaster management cycle including mitigation, preparedness, response, and recovery.

CO 4: Describe the role of national and state-level institutions such as NDMA, NDRF, SDMA, and SDRF in India.

CO 5: Apply GIS, Remote Sensing, and community-based approaches in disaster risk reduction and resilience planning.

References:

1. Gupta A.K., Niar S.S and Chatterjee S. (2013) Disaster management and Risk Reduction, Role of Environmental Knowledge, Narosa Publishing House, Delhi
2. Murthy D.B.N. (2012) Disaster Management, Deep and Deep Publication PVT. Ltd. New Delhi.
3. More J. C. and A. H. Musmade (2021) Geography of Disaster Management, NiraliPrakashan, Shivajinagar , Pune.
4. NDMA (2005 & updates). Disaster Management Guidelines. Government of India.
5. Nathaniel O'Grady & Gemma Sou: Geography and Disasters: Places, Processes and the Human Geographical Imagination
6. Brian Tomaszewski (2020) Geographic Information Systems (GIS) for Disaster Management
7. Peter van Osterom, SiykaZlatanova&ElfriedeFendel (2005)A:Geo-Information for Disaster Management

Savitribai Phule Pune University, Pune
T.Y.B.A. (Geography) as per NEP 2020

Name of the Programme	**:**	B.A. (Geography)
Class	**:**	T.Y.B.A.
Semester	**:**	VI
Name of Vertical Group	**:**	**Major Elective**
Course Code	**:**	**GEO-361-MJ**
Course Title	**:**	**Introduction to Remote Sensing**
Type of course	**:**	Theory
Total Credits	**:**	02
Workload	**:**	(15 hours / credit) 2 credits x 15 hours = 30 hours

Objectives of the Course:

1. To introduce the fundamental concepts, principles, and evolution of Remote Sensing and its applications in geography.
2. To understand electromagnetic radiation, spectral signatures, and interaction of energy with the Earth's atmosphere and surface features.
3. To develop awareness of satellite platforms, sensors, and the Indian Remote Sensing Programme (IRS) and their role in spatial data acquisition.

Topic No	Topic Name	Sub Topic	No. of Hours
1.	Introduction to Remote Sensing	i. Definitions, Concepts ii. History, Developmental Stages, iii. Types, Satellite data, Aerial Photography iv. Applications of Remote Sensing (RS)	10
2.	Electromagnetic Radiation (EMR) and Spectral Signature	a) EMR: Characteristics, Electromagnetic Radiation b) Interaction with Earth's Atmosphere: Reflection, Absorption, Transmission, Scattering and Refraction. c) Spectral Signature : meaning and concepts	10
3.	Platforms and Sensors	a) Types of Platforms b) Types of Sensors- Active and Passive, Satellite Orbits c) Indian Remote Sensing Program	10

Course Outcome:

By the end of this course, students will be able to:

CO 1: Explain the basic concepts, history, and types of Remote Sensing.

CO 2: Describe the characteristics of electromagnetic radiation and its interaction with the atmosphere and Earth's surface.

CO 3: Identify spectral signatures of major land cover features such as water, soil, vegetation, and snow.

CO 4: Distinguish between different types of satellite platforms, sensors, and orbital systems.

CO 5: Understand the structure and significance of the Indian Remote Sensing (IRS) Programme in spatial data acquisition.

References:

1. Lillesand, T. M., Kiefer, R. W., & Chipman, J. W. (2015). *Remote sensing and image interpretation* (7th ed.). Wiley.
2. Jensen, J. R. (2013). *Remote sensing of the environment: An earth resource perspective* (2nd ed.). Pearson.
3. Campbell, J. B., & Wynne, R. H. (2011). *Introduction to remote sensing* (5th ed.). Guilford Press.
4. Sabins, F. F. (1997). *Remote sensing: Principles and interpretation* (3rd ed.). W.H. Freeman.
5. Richards, J. A., & Jia, X. (2006). *Remote sensing digital image analysis*. Springer.
6. Joseph, G. (2016). *Fundamentals of remote sensing*. Universities Press, India.
7. Avery, T. E., & Berlin, G. L. (1992). *Fundamentals of remote sensing and air photo interpretation*. Prentice Hall.
8. Gupta, R. P. (2003). *Remote sensing geology*. Springer.
9. Curran, P. J. (1985). *Principles of remote sensing*. Longman.
10. Jensen, J. R. (2007). *Remote sensing of the environment: An earth resource perspective*. Pearson.

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B.A. (Geography) as per NEP 2020

Name of the Programme	**:**	**B.A. (Geography)**
Class	:	T.Y.B.A.
Semester	:	VI
Name of Vertical Group	:	**Major Elective**
Course Code	:	**GEO-362-MJP**
Course Title	:	**Practicals in Economic Geography**
Type of course	:	Practical
Total Credits	:	02
Workload	:	(30 hours / credit) 2 credits x 30 hours = 60 hours in semester. For the practical courses batch size: 12 students per batch.

Objectives of the Course:

1. To introduce students to quantitative and statistical techniques used in agricultural, industrial, trade, and transport geography.
2. To develop skills in analyzing spatial patterns of agriculture and industry using appropriate geographical and statistical methods.
3. To enable students to evaluate trade systems and transport networks through models, indices, and quantitative techniques.

Topic No.	**Topic Name**	**Sub-Topics**	**No. of Hours.**
1.	Agriculture	a) Crop Combination Analysis: Doi's Method b) Crop Concentration: Location Quotient Method	20
2.	Industry	a) Industrial Concentration: Location Quotient Method b) Coefficient of Localization: Edgar M. Hoover Method c) Industrial Intensity Index	20
3.	Trade & Transport	a) Calculation of breaking-point of trade between two cities: based on Converse's Model b) Transportation Network Efficiency: Detour Index c) Network Analysis: Alpha Index , Beta Index, Gamma Index, Cyclomatic Number	20

Course Outcome:

By the end of this course, students will be able to:

CO 1: Apply statistical methods to analyze crop combination, crop concentration, and agricultural productivity.

CO 2: Evaluate agricultural patterns using techniques such as crop diversification and agricultural efficiency analysis.

CO 3: Analyze industrial distribution using Location Quotient, Coefficient of Localization, and Industrial Intensity Index.

CO 4: Examine trade relationships and market areas using Converse's breaking-point model.

CO 5: Evaluate transport network efficiency using indices such as Beta, Alpha, Gamma, and Cyclomatic numbers.

CO 6: Develop practical skills in interpreting and presenting quantitative geographical data effectively.

References:

1. Alexander, J. W. (1963):Economic Geography. Prentice Hall of India.
2. Berry, B. J. L. (1972): Geography of Market Centers and Retail Distribution. Prentice Hall.
3. Clarke, J. I. (1998): Statistical Methods in Geography. Prentice Hall.
4. Coe, N. M., Kelly, P. F., &Yeung, H. W. C. (2020): Economic Geography: A Contemporary Introduction. Wiley-Blackwell.
5. Gautam, A. (2010): Geography of Resources: Exploitation, Conservation and Management. ShardaPustakBhawan.
6. Grigg, D. (1995):An Introduction to Agricultural Geography. Routledge.
7. Haggett, P., & Chorley, R. J. (1969):Network Analysis in Geography. Edward Arnold.
8. Hartshorn, T. N., & Alexander, J. W. (1988):Economic Geography. Prentice-Hall of India.
9. Husain, M. (2008):Economic Geography. Rawat Publications.
10. Husain, M. (2008): Geography of India. Tata McGraw Hill.
11. Husain, M. (2014): Systematic Agricultural Geography. Rawat Publications.
12. Isard, W. (1960): Methods of Regional Analysis. MIT Press.
13. Leong, G. C., & Martin, E. (1974): Human and Economic Geography. Oxford University Press.
14. Khullar, D. R. (2010): India: A Comprehensive Geography. Kalyani Publishers.
15. Robinson, H. (1978): Geography of Transport. Macdonald & Evans.
16. Siddhartha, K. (2014): Economic Geography. Kisalaya Publications.
17. Singh, J., &Dhillon, S. S. (2004): Agricultural Geography. Tata McGraw-Hill.
18. Singh, R. L., &Maurya, S. D. (2003): A Textbook of Practical Geography. Concept Publishing Company.
19. Warf, B. (Ed.): (2010): Encyclopaedia of Geography. SAGE Publications.
20. Weber, A. (1929): Theory of the Location of Industries. University of Chicago Press.

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T.Y.B.A (Geography) as per NEP 2020

Name of the Programme	**:**	B.A. / B.Sc. (Geography)
Class	**:**	T.Y.B.A.
Semester	**:**	VI
Name of Vertical Group	**:**	**Major Elective**
Course Code	**:**	**GEO-363-MJP**
Course Title	**:**	**Practicals in Remote Sensing**
Type of course	**:**	Practical
Total Credits	**:**	02
Workload	**:**	(30 hours / credit) 2 credits x 30 hours = 60 hours

Objectives of the Course:

1. To introduce students to satellite data, aerial photographs, and open-source platforms for downloading and handling remote sensing data.
2. To develop practical skills in using remote sensing software such as QGIS, SAGA GIS, and Google Earth Engine for image processing and analysis.
3. To train students in digital image processing and land use/land cover (LULC) mapping using classification techniques and cartographic layout preparation.

Topic No	Topic Name	Sub Topic	No. of Hours
1.	Introduction to Open-Source image processing Software's	i. Introduction Satellite Imageries and Aerial Photographs ii. Downloading satellite images through Indian Geo-platform of ISRO (e.g. Bhuvan, Bhoonidhi) and Sentinel, and USGS platforms (Open-Source Softwares: QGIS, SAGA GIS, Google Earth Engine etc.)	15
2.	Image Processing	i. Loading of Image ii. Georeferencing / Rectification iii. Layer stacking iv. Image Enhancement v. Layer stacking	15
3.	LULC and Layout / Mapping	a) By using Open-source software classify the satellite images by Applying following methods/techniques. i. Supervised Classification ii. Unsupervised Classification b) Layout Creation: Location Map, LULC Map	30

Course Outcome:

By the end of this course, students will be able to:

CO 1: Identify and use satellite data sources such as Bhuvan, Sentinel, and USGS for downloading spatial data.

CO 2: Demonstrate skills in image processing techniques including georeferencing, enhancement, format conversion, and layer stacking.

CO 3: Apply supervised and unsupervised classification techniques for LULC mapping using open-source GIS/RS software.

CO 4: Analyze and interpret remote sensing images for land use and environmental studies.

CO 5: Prepare thematic maps such as location maps, LULC maps, and change detection maps with proper cartographic layout.

References:

1. Lillesand, T. M., Kiefer, R. W., & Chipman, J. W. (2015). *Remote sensing and image interpretation* (7th ed.). Wiley.
2. Jensen, J. R. (2013). *Remote sensing of the environment: An earth resource perspective* (2nd ed.). Pearson.
3. Campbell, J. B., & Wynne, R. H. (2011). *Introduction to remote sensing* (5th ed.). Guilford Press.
4. Joseph, G. (2016). *Fundamentals of remote sensing*. Universities Press, India.
5. Sabins, F. F. (1997). *Remote sensing: Principles and interpretation* (3rd ed.). W.H. Freeman.
6. Richards, J. A., & Jia, X. (2006). *Remote sensing digital image analysis*. Springer.
7. Gupta, R. P. (2003). *Remote sensing geology*. Springer.
8. Avery, T. E., & Berlin, G. L. (1992). *Fundamentals of remote sensing and air photo interpretation*. Prentice Hall.
9. Campbell, J. B. (2002). *Introduction to remote sensing* (4th ed.). Taylor & Francis.
10. Jensen, J. R. (2007). *Remote sensing of the environment: An earth resource perspective*. Pearson.

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B.A. (Geography) asperNEP2020

Name of the Programme	**:**	B.A.(Geography)
Class	**:**	T.Y.B.A.
Semester	**:**	VI
Name of Vertical Group	**:**	**VSC**
Course Code	**:**	**GEO-371-VSC**
Course Title	**:**	**Practical in Tour Planning**
Type of course	**:**	Practical
Total Credits	**:**	02
Workload	**:**	(30 hours/credit) 2 Credits x 30 hours = 60 hours in semester

Objectives of the Course:

1. To provide students with practical knowledge and skills in tour planning, itinerary design, and tourism management.
2. To familiarize students with costing, budgeting, and documentation required for organizing tours.
3. To train students in online booking systems and preparation of structured tour plans and reports.

Topic No	Topic Name	Sub Topic	No. of Hours
1.	Introduction to Tour Planning and Itinerary Design	i. Meaning and Importance of Tour Planning ii. Types of Tours (Domestic, International, Cultural, Adventure, and Eco-tourism). iii. Components of Itinerary (Route, Duration, Cost, Attractions). iv. Principles of Itinerary Preparation. v. Preparation of One Day Tour Plan	15
2.	Costing and Budgeting of Tour Packages	i. Elements of Tour Cost (Transport, Accommodation, Food, and Entry Fees). ii. Preparation of cost sheet for tour package. iii. Prepare tour budget for 2–3 Days Tour.	15
3	Travel Documentation and Booking Procedures	i. Basic Travel Documents (ID Proof, Tickets, Permits). ii. Introduction to Passport and Visa Process. iii. Modes of Transport Booking (Railway, Air, Bus). iv. Hotel Booking Procedures (Online/Offline).	15
4	Planning and visit to tourist places	Preparation of one short or long international, national/Local tour plan. Study tour Report Writing.	15

Course Outcomes:

By the end of this course, students will be able to:

CO 1: Explain the basic concepts, types, and components of tour planning and itinerary preparation.

CO 2: Design simple tour itineraries including one-day, short-term, and long-distance travel plans.

CO 3: Prepare cost sheets and budgets for different types of tour packages.

CO 4: Demonstrate understanding of travel documentation, including tickets, permits, passport, and visa procedures.

CO 5: Apply practical skills in online booking of transport and accommodation services.

CO 6: Develop and present a complete tour plan along with a structured tour report.

References:

1. BhattH(2007)TourismPlanningandDevelopment,CommonwealthPublishers, New Delhi
2. Bhatia AK (2002), Tourism Development: Principles and Practices, Revised edition Sterling Publishers Private Limited, New Delhi.
3. Chand, M(2002)Travel Agency Management, Anmol Publication
4. Ghosh Bishwanth (2000), Tourism & Travel Management, Second Revised Edition Vikas Publishing House Pvt Ltd, New Delhi.
5. Seth, P.N.(1998).An Introduction to Travel and Tourism, Sterling Publishers Pvt. Ltd., New Delhi.
6. Muluk, Doke, Musmade, More (2021), Geography of Tourism – II, Nirali Publication, Pune
7. Sinha, P (1998).Tourism Planning. Anmol Publication Pvt. Ltd., New Delhi.
8. Pacharne, Patil, Suryavanshi, Chaudhar (2014)Tourism Geography, Atharv Publication, Pune.

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B.A.(Geography) asperNEP2020

Name of the Programme	**:**	B.A.(Geography)
Class	**:**	T.Y.B.A.
Semester	**:**	VI
Name of Vertical Group	**:**	**VSC**
Course Code	**:**	**GEO-372-VSC**
Course Title	**:**	**Practicals in Advanced Surveying**
Type of course	**:**	Practical
Total Credits	**:**	02
Workload	**:**	(30hours/credit)2Credits x 30 hours = 60 hours in semester

Objectives of the Course:

1. To integrate modern GNSS (GPS) and GIS technologies for accurate spatial data collection, processing, and mapping.
2. To develop practical skills in the use of surveying instruments such as GPS, theodolite, total station, and drone-based systems for field measurements.
3. To understand and apply principles of advanced surveying techniques including photogrammetry and digital mapping for geographical analysis.

Topic No	Topic Name	Sub Topic	No. of Hours
1.	Global Navigation Satellite System (GNSS) and Global Positioning System (GPS)	A. Introduction of Global Navigation Satellite System (GNSS) and Global Positioning System (GPS) B. Segments of GPS : i) Control segment, ii) Space segment, iii) User Segment C. GNSS:- IRNSS, GPS Perform field setup and operation of a GPS receiver to record way points, track logs, latitude–longitude–elevation data, set datum and projection, download observations, and prepare a basic map using the (GPS) data.	20
2.	Theodolite Surveying	A. Components and common terms B. Types of Thedolite C. Procedure of the Theodolite Survey D. Measurement of angles and plotting E. Methods of Theodolite surveying: Triangular & Traverse.	20

Topic No	Topic Name	Sub Topic	No. of Hours
3.	Introduction to Total Station & Drone Survey	**A. Total Station** a. Instrument components and setup b. Remote distance measurement (RDM) and Elevation (REM) c. Coordinates take-out and data downloading workflows **B. Drone Survey** a. Introduction, Types of Drone and Sensors. b. Role of Aerial Surveying and Mapping	20

Course Outcome:

By the end of this course, students will be able to:

CO 1: Explain the principles and components of GNSS (GPS), including control, space, and user segments.

CO 2: Demonstrate field skills in GPS data collection, waypoint recording, and map preparation using GNSS data.

CO 3: Apply theodolite surveying techniques for measuring angles, distances, and plotting survey data.

CO 4: Operate total station instruments for coordinate measurement, data collection, and mapping workflows.

CO 5: Understand the basics of drone surveying and photogrammetry for aerial data acquisition and mapping.

CO 6: Integrate modern surveying technologies for spatial analysis and geographical applications.

References:

1. Advanced Surveying: Total Station, GPS, GIS, and Remote Sensing by Satheesh Gopi (Pearson Education) – Excellent for modern instrument workflows.
2. Essentials of GPS, Agarwal, N. K., B S Publications.
3. Gopi S, R. Sathikumar, N. Madhu. 2018. Advances Surveying: Total Station, GPS, GIS and Remote Sensing, Person India Education Services Pvt. Ltd, Noida, Uttar Pradesh, India.
4. Introduction to Surveying and Geomatics Engineering by P. K. Garg (CBS Publishers) – Focuses on digital data acquisition and geometrics
5. Jeff, H.(1995).Differential GPS Explained, Trimble Navigation

6. Lawrence, L., & Alex, L. (2008). GPS Made Easy: Using Global Positioning Systems in the Outdoors. Calgary: Rocky Mountain Books.
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Savitribai Phule Pune University, Pune
B.A. (Geography) as per NEP 2020

Name of the Programme	**:**	B.A.(Geography)
Class	**:**	T.Y.B.A.
Semester	**:**	VI
Name of Vertical Group	**:**	**FP/OJT/ CEP**
Course Code	**:**	**GEO-381-OJT**
Course Title	**:**	**On Job Training**
Type of course	**:**	Practical
Total Credits	**:**	04
Workload	**:**	(30 hours/credit) 4 Credits x 30 hours = 120 hours in semester

Objectives of the Course:

1. To provide students with hands-on professional experience in organizations related to geography and allied fields.
2. To develop practical and market-oriented skills through real-world exposure in industrial, educational, and research institutions.
3. To enable students to apply theoretical knowledge in practical situations and develop technical report writing skills

Guidelines
▪ For on-job training, the students will be attached with the local institutions and employing establishments, which have laboratory/workshop, other related facilities and where adequate supervision by qualified personnel will be available. ▪ A student is expected to spend not less than 120 working hours on On-job training and ▪ related activities. ▪ On-job training will be carried in the summer vacation after the students complete their ▪ second semester examinations. ▪ Students need to provide the confirmation letter from the organization or the institute ▪ where they have joined for on-job training. ▪ The continuous evaluation of the students' performance in the on job-Training will be ▪ carried out with the assistance of the personnel of training institutions/employing establishments where this training will be imparted. ▪ The proof of completion of on-job training (work experience certificate and field report) ▪ should be submitted during examination to the parent institution, duly issued and signed by the concerned training authority.

Course Outcome:

By the end of this course, students will be able to:

CO 1: Demonstrate practical exposure by working in relevant organizations under professional supervision.

CO 2: Apply geographical knowledge and skills to real-world industrial, academic, or research environments.

CO 3: Develop employability skills such as communication, teamwork, and workplace adaptability.

CO 4: Understand professional work culture and institutional functioning in related sectors.

CO 5: Prepare structured technical reports based on field training and industrial experience.