



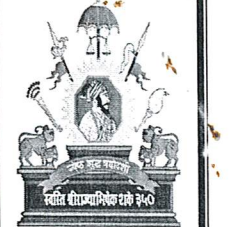
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NAAC (2021)
With CGPA 3.52

SHIVAJI UNIVERSITY, KOLHAPUR - 416004,
MAHARASHTRA

PHONE: EPABX-2609000, www.unishivaji.ac.in, bos@unishivaji.ac.in

शिवाजी विद्यापीठ, कोल्हापूर - ४१६००४, महाराष्ट्र

दूरध्वनी-ईपीएबीएक्स -२६०९०००, अभ्यासमंडळे विभाग दुरध्वनी ०२३१-२६०९०९४
०२३१-२६०९४८७



Ref.No.SU/BOS/Science/150

Date: 26/05/2026.

The Principal,
All Concerned Affiliated Colleges/Institutions
Shivaji University, Kolhapur

The Head/Co-ordinator/Director
All Concerned Department (Science)
Shivaji University, Kolhapur.

Subject: Regarding revised syllabi of degree programme under the Faculty of Science and Technology as per NEP-2020.

Sir/Madam,

With reference to the subject mentioned above, I am directed to inform you that the university authorities have accepted and granted approval to the revised syllabi, nature of question paper and equivalence of degree programme under the Faculty of Science and Technology as per NEP-2020.

1.	B.Sc. Part II Medicinal Chemistry (Entire) (2.0)	6.	BCA Part III
2.	B.A./B.A.B.Ed Part III Geography (2.0)	7.	B.Sc. Part II Data Science
3.	B.Sc. Part II Artificial Intelligence	8.	B.Sc.-M.Sc. Part III AI & ML
4.	B.Sc.-M.Sc. Part IV Nano Science and Technology (1.0)	9.	MCA Part II (YCSRSD)
5.	B.Sc.-M.Sc. Part III Nano Science and Technology (2.0)	10.	MCA Part II

This syllabus, nature of question and equivalence shall be implemented from the academic year 2026-2027 onwards. A soft copy containing the syllabus is attached herewith and it is also available on university website www.unishivaji.ac.in>Syllabus>Syllabus as per NEP2020.

The question papers on the pre-revised syllabi of above-mentioned course will be set for the examinations to be held in October /November 2026 & March/April 2027. These chances are available for repeater students, if any.

You are, therefore, requested to bring this to the notice of all students and teachers concerned.

Thanking you,

Yours faithfully,

Dy Registrar

Encl: as above

for information and necessary action

Copy to:

1	Dean, Faculty of Science & Technology	6	Appointment Section A & B
2	Director, Board of Examinations and Evaluation	7	I.T.Cell /Computer Centre
3	Chairman, Respective Board of Studies	8	Eligibility Section
4	B.A.,OE-II & B.Sc.-M.Sc. Exam Section	9	Affiliation Section (T.1) (T.2)
5	Internal Quality Assurance Cell (IQAC Cell)	10	P.G. Seminar Section

SHIVAJI UNIVERSITY, KOLHAPUR



Established: 1962

A++ Accredited by NAAC (2021) With CGPA 3.52

Bachelor of Arts (B. A.)

In

Geography

Under

Faculty of Science and Technology

B. A. / B. A. B. Ed. Part-III (Semester – V and VI)

STRUCTURE AND SYLLABUS IN ACCORDANCE WITH

NATIONAL EDUCATION POLICY – 2020

HAVING CHOICE BASED CREDIT SYSTEM

WITH MULTIPLE ENTRY AND MULTIPLE EXIT OPTIONS

TO BE IMPLEMENTED FROM ACADEMIC YEAR 2026-2027 ONWARDS

1. Preamble

The B. A./B. A. B. Ed. syllabus advances undergraduate education through innovation and holistic learning, guided by NEP 2020 and UGC recommendations. It is designed to develop comprehensive disciplinary knowledge and encourage critical, scientific thinking in students. Students cultivate effective communication skills through written, oral and digital media for diverse academic and professional contexts. Emphasis is placed on teamwork, cooperation and leadership in multidisciplinary and community settings. Digital literacy and research competencies are integral to engaging with modern analytical and geospatial tools. The curriculum sensitizes learners to moral, ethical and responsible citizenship in personal and social spheres. Geography, disaster management and cartographic techniques are taught with both theoretical depth and hands-on practical exposure. Skill enhancement modules, internships and field projects connect academic inquiry with real-world problem-solving. Programme Outcomes are mapped to ensure clarity, relevance and continuous improvement in learning achievements. The syllabus fosters lifelong learning, global awareness and readiness for diverse careers and higher studies.

2. Duration:

The programme shall be full-time course and of one year (Semester V and VI).

3. Eligibility for Admission:

Eligibility for admission to B.A./B.A.B.Ed. Part III typically requires successful completion of B.A./B.A.B.Ed. Part I & II as per the criteria prescribed by the affiliating Shivaji University, Kolhapur.

4. Medium of Instruction:

Marathi / English

5. Programme Outcomes and Programme Specific Outcomes

Programme Outcomes (POs)

As per the **National Education Policy (NEP 2020)** and **UGC guidelines**, the following 12 POs are defined for UG level.

Programme Outcomes for Undergraduate Programmes (Graduation Level)

PO No.	Programme Outcome	Explanation / Purpose
PO1	Disciplinary Knowledge	Demonstrate comprehensive knowledge of one's discipline and related areas.
PO2	Communication Skills	Express ideas clearly and effectively in written and oral forms using appropriate media.
PO3	Critical Thinking	Apply analytical thinking to identify, define and solve problems with well-reasoned conclusions.
PO4	Problem Solving	Use logical reasoning and innovation to solve complex problems systematically.
PO5	Research-related Skills	Develop skills for research design, data analysis, interpretation and inferences.
PO6	Cooperation / Team Work	Work effectively as a member or leader in diverse teams and multidisciplinary settings.
PO7	Scientific Reasoning / Reflective Thinking	Apply scientific knowledge and ethical reasoning to real-world situations.
PO8	Digital Literacy	Use ICT tools efficiently for communication, analysis and information management.
PO9	Moral and Ethical Awareness / Reasoning	Recognize ethical issues and behave with integrity and fairness.
PO10	Lifelong Learning	Acquire the ability to engage independently in continuous learning.
PO11	Leadership Readiness / Qualities	Exhibit qualities of responsibility and leadership in personal, social and professional domains.
PO12	Global Citizenship / Multicultural Competence / Environment & Sustainability	Understand global issues, respect cultural diversity and act for sustainable development.

Programme Outcomes (POs) for B. A./B. A. B. Ed. Part-III

In accordance with the National Education Policy (NEP 2020) and the guidelines issued by the University Grants Commission (UGC), a total of twelve Programme Outcomes (POs) have been outlined on the preceding page. From these, six POs have been specifically adopted for implementation in the third year of the B.A. programme.

Programme Outcomes for B.A./B.A.B.Ed. – III

PO No.	Programme Outcome	Explanation / Purpose
PO1	Disciplinary Knowledge	Demonstrate comprehensive knowledge of one's discipline and related areas.
PO2	Problem Solving	Use logical reasoning and innovation to solve complex problems systematically.
PO3	Scientific Reasoning / Reflective Thinking	Apply scientific knowledge and ethical reasoning to real-world situations.
PO4	Digital Literacy	Use ICT tools efficiently for communication, analysis and information management.
PO5	Moral and Ethical Awareness / Reasoning	Recognize ethical issues and behave with integrity and fairness.
PO6	Global Citizenship / Multicultural Competence / Environment & Sustainability	Understand global issues, respect cultural diversity and act for sustainable development.

Programme Specific Outcomes (PSOs)

PSO	Outcomes
PSO1	Students will apply fundamental and practical knowledge of Geography.
PSO2	Students will perform effective spatial data collection, analysis and inferences.
PSO3	Students will utilize digital tools and geospatial techniques.
PSO4	Students will integrate AI and technological approaches in Geography.
PSO5	Students will apply knowledge for areal/regional planning and development.
PSO6	Students will communicate effectively and practice responsible global citizenship.

7. Examination Pattern:

The pattern of examination will be a end of Semester with Internal Assessment/ Evaluation.

NOTE: Separate passing for theory and Practical for both the Semester Final Examination and Internal Evaluation.

Shivaji University, Kolhapur

Third Year Bachelor of Arts (B. A. / B. A. B. Ed. -III) (UG DEGREE)

8. Course codes

Year	B. A. / B. A. B. Ed. Part-III
Semester	V & VI
Level	5.5
Total Credits	22 + 22 = 44

B. A./ B. A. B. Ed. Part-III; Semester-V (5.5): Total Credits-22				
Course Category		Course Name	Course Code	Credits
Major VII	Mandatory	Human Geography of Maharashtra	BAU0325MMT422E07	4
Major VIII	Mandatory	Geospatial Analysis: Map and Image Interpretation	BAU0325MMP422E08	4
Major IX	Mandatory	Research Methodology	BAU0325MMT422E09	2
Major	Elective-I	Agricultural Geography Or Fundamental and Applications of Geospatial Technology	BAU0325MET422E01	4
Minor- III	Mandatory	Physical Geography of India	BAU0325MNT422E03	4
OE		Water Literacy and Water Budgeting	BAU0325OET422E05	2
FP		Field Project	BAU0325FPT422E01	2
Credits for B. A./ B. A. B. Ed. Part-III SEM-V				22

B. A./ B. A. B. Ed. Part-III; Semester-VI (5.5): Total Credits-22				
Course Category		Course Name	Course Code	Credits
Major X	Mandatory	Regional Planning and Development	BAU0325MMT422E10	4
Major XI	Mandatory	Geospatial Mapping and Land Survey Technologies	BAU0325MMP422E11	4
Major XI	Mandatory	Geography of Health and Nutrition	BAU0325MMT422E12	2
Major	Elective-II	Economic Geography Or Settlement Geography	BAU0325MET422E02	4
Minor- IV	Mandatory	Human Geography of India	BAU0325MNT422E04	4
OJT		On Job Training	BAU0325OJTT422E01	4
Credits for B. A./ B. A. B. Ed. Part-III; Semester-VI				22

Shivaji University, Kolhapur
B. A. / B. A. B.Ed., Semester V
Major VII: Human Geography of Maharashtra
As per NEP 2020 (2.0)

Name of the Programme	:	B. A. / B. A. B. Ed. (Geography)
Class	:	B. A. / B. A. B. Ed.-III
Semester	:	V
Name of Vertical Group	:	Major-VII
Course Code	:	BAU0325MMT422E07
Course Title	:	Human Geography of Maharashtra
Total Credit	:	04
Workload	:	04 credit X 15 Hours = 60 hours in semester
Duration	:	Semester
Medium of instruction	:	Marathi / English
Examination Pattern	:	80:20 (The pattern of examination will be Semester End Examination with Internal Assessment / Evaluation)
Nature of Question Paper	:	As per guidelines of Shivaji University, Kolhapur

Preamble :

The course Human Geography of Maharashtra is designed to provide undergraduate students with a comprehensive understanding of the socio-cultural, demographic and economic dimensions of Maharashtra from a geographical perspective. It focuses on the historical evolution of the state, its socio-cultural characteristics, population structure, urbanisation processes and regional disparities.

The course enables students to analyse spatial patterns and regional variations in population distribution, resource utilisation and industrial development across Maharashtra. It also emphasises the role of tourism and the public health system in regional development, highlighting their economic importance and social relevance.

Through the study of major public health programmes and regional health issues, students develop ethical awareness and a sense of social responsibility. The course encourages the use of maps, statistical data, census reports and ICT tools for effective geographical analysis and interpretation.

By integrating theoretical knowledge with real-world regional issues, the course enhances analytical skills, scientific reasoning and awareness of sustainability. Overall, the

course prepares students for higher education, competitive examinations and careers related to regional planning, development, research and public services.

General Objectives of the Course:

1. To understand the socio-cultural background and regional diversity of Maharashtra from a geographical perspective.
2. To analyse the demographic structure and urbanisation patterns of Maharashtra using spatial approaches.
3. To assess the distribution and development of resources and industries in Maharashtra.
4. To examine the spatial, social and economic dimensions of tourism in Maharashtra in relation to sustainable development.

Course Outcomes and Programme Outcomes:

Paper Title - Human Geography of Maharashtra Major - Theory				
CO Code	Course Outcome	PO Code	Programme Outcome	Explanation / Purpose
CO1	Explain the historical evolution, socio-cultural characteristics and regional diversity of Maharashtra with reference to fairs, festivals, folk traditions and socio-cultural issues.	PO1	Demonstrate comprehensive knowledge of one's discipline and related areas.	Demonstrate comprehensive knowledge of one's discipline and related areas.
CO2	Analyse the demographic structure, spatial distribution, population growth and patterns of urbanisation in Maharashtra using logical and systematic reasoning.	PO2	Use logical reasoning and innovation to solve complex problems systematically.	Use logical reasoning and innovation to solve complex problems systematically.
CO3	Apply geographical and scientific knowledge to assess the distribution and development of resources, industries and energy systems in Maharashtra.	PO3	Apply scientific knowledge and ethical reasoning to real-world situations.	Apply scientific knowledge and ethical reasoning to real-world situations.
CO4	Use maps, statistical data, census reports and digital tools to interpret demographic, industrial, tourism and health-related patterns in Maharashtra.	PO4	Use ICT tools efficiently for communication, analysis and information management.	Use ICT tools efficiently for communication, analysis and information management.

CO5	Critically examine ethical issues related to regional disparities, urban problems, public health challenges and sustainable use of resources in Maharashtra.	PO5	Recognize ethical issues and behave with integrity and fairness.	Recognize ethical issues and behave with integrity and fairness.
CO6	Analyse tourism in Maharashtra in relation to global tourism issues, cultural diversity and sustainable development, with reference to spatial distribution, social inclusion, economic contribution and challenges.	PO6	Understand global issues, respect cultural diversity and act for sustainable development.	Understand global issues, respect cultural diversity and act for sustainable development.

11. Scheme of Teaching and Examination:

The Scheme of teaching and examination should be given as applicable to the course / paper concerned)

B. A. / B. A. B. Ed. Part –III

Sr. No.	Subjects/Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Theory	Term Work	Total (Semester)
1	Human Geography of Maharashtra - 4	04	04	---	04	80	20	100

Scheme of Examination:

- The examination shall be conducted at the end of each semester year.
- The theory course shall carry 100 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester theory examination of 80 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester internal evaluation of 20 marks.
- Question Paper will be set in the view of the / in accordance with the entire syllabus and preferably covering each Module of syllabi.

Standard of Passing:

As prescribed by the Shivaji University under rules & regulation for each diploma / degree / programme.

Nature of Question Paper:

The student's examination and evaluation methods are as per the guidelines of the Shivaji University, Kolhapur.

Title of Course: Major VII: Human Geography of Maharashtra					
Module No.	Module Name	Sub-module	Difficulty Level	Credit	No. of Hours
1	Social and Cultural Background of Maharashtra	1.1 Social and Cultural Awakening of Maharashtra	2	1	15
		1.2 Socio-Cultural Characteristics of Maharashtra	3		
		1.3 Fairs, Festivals and Folk Traditions of Maharashtra	1		
		1.4 Regional Disparities and Socio-Cultural Issues in Maharashtra	4		
2	Demography and Urbanisation in Maharashtra	2.1 Demographic Structure of Maharashtra (Rural–Urban, Age–Sex Composition, Literacy)	2	1	15
		2.2 Growth of Population and its Spatial Distribution	3		
		2.3 Growth and Regional Pattern of Urbanisation in Maharashtra	4		
		2.4 Problems and Challenges of Urbanisation in Maharashtra	1		
3	Resources and Industries in Maharashtra	3.1 Mineral Resources in Maharashtra (Manganese, Bauxite)	4	1	15
		3.2 Power Resources in Maharashtra (Hydroelectricity, Wind Power)	3		
		3.3 Agro-based Industries in Maharashtra (Sugar, Textile)	2		
		3.4 Industrialisation and Industrial Regions in Maharashtra	1		
4	Tourism in Maharashtra : Spatial, Social and Economic Dimensions	4.1 Classification and Spatial Distribution of Tourism Centres	1	1	15
		4.2 Tourism and Social Inclusion	4		
		4.3 Role of Tourism in the Economy of Maharashtra	3		
		4.4 Problems and Challenges of Tourism in Maharashtra	2		
Difficulty Level: 4 – Very High, 3 – High, 2- Moderate, 1- Easy					

Learning Resources

References

- 1 सावंत प्रकाश., महाराष्ट्राचा सामाजिक व सांस्कृतिक भूगोल, फडके प्रकाशन, कोल्हापूर.
- 2 पाटील, एस. व्ही., महाराष्ट्राचा लोकसंख्या भूगोल, प्ररूप प्रकाशन, कोल्हापूर.
- 3 देशमुख, बी. टी., महाराष्ट्राचा आर्थिक भूगोल, विद्या प्रकाशन, औरंगाबाद.
- 4 खतीब, के. ए., महाराष्ट्राचा भूगोल, संजोग प्रकाशन, कोल्हापूर.
- 5 जाधव आर. जी., (2019): मानवी भूगोल, प्ररूप प्रकाशन, कोल्हापूर.
- 6 सवदी, ए. बी., लोकसंख्या व वसाहत भूगोल, निराली प्रकाशन, पुणे.
- 7 जोगळेकर, ए. बी., पर्यटन भूगोल, विद्या प्रकाशन, नागपूर.
- 8 Majid Hussain, Human Geography, Rawat Publications, Jaipur & New Delhi
- 9 K. Siddhartha & S. Mukherjee, Cities, Urbanization and Urban Systems, Kisalaya Publications, New Delhi
- 10 C. D. Deshpande, Geography of Maharashtra, National Book Trust, New Delhi

CO-PO Mapping Strength												
CO Code	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	1	1	0	1	2	3	1	0	0	2	2
CO2	2	3	2	1	0	1	2	3	1	0	2	1
CO3	2	2	3	1	1	2	3	2	1	1	3	1
CO4	1	2	2	3	0	1	2	3	3	2	1	2
CO5	1	1	2	0	3	3	1	1	0	0	2	3
CO6	2	2	2	1	1	3	2	2	1	1	3	3

Legend: 3 - Strongly related, 2 - Moderately related, 1 - Slightly related, 0/- - Not related

Shivaji University, Kolhapur
B. A. / B. A. B.Ed., Part-III Semester V
Major VIII: Geospatial Analysis: Map and Image Interpretation
As per NEP 2020 (2.0)

Name of the Programme	:	B. A. / B. A. B.Ed. (Geography)
Class	:	B. A. / B. A. B.Ed. - III
Semester	:	V
Name of Vertical Group	:	Major-VIII
Course Code	:	BAU0325MMP422E08
Course Title	:	Geospatial Analysis: Map and Image Interpretation
Total Credit	:	04
Workload	:	04 credit X 30 Hours = 120 hours in semester
Duration	:	Semester
Medium of instruction	:	Marathi / English
Examination Pattern	:	80:20 (The pattern of examination will be Semester End Practical Examination with Internal Assessment / Evaluation)
Nature of Question Paper	:	As per guidelines of Shivaji University, Kolhapur

Preamble:

Geospatial Analysis: Map and Image Interpretation is a core practical-oriented course in Geography that equips students with the skills required to analyze spatial information from topographical maps, weather data, satellite images, aerial photographs and field observations. The course integrates theoretical concepts with practical exercises to develop spatial thinking, analytical ability and interpretative skills essential for understanding physical and human landscapes. By combining map interpretation, weather analysis, remote sensing data and field-based learning, the course prepares students for advanced geographical studies, research, planning, environmental assessment and professional applications in geospatial fields.

General Objectives of the Course:

- To introduce students to the concepts, scope, and importance of topographical maps, and develop their ability to analyze relief, drainage, landforms, and human features using toposheets.
- To enable students to interpret weather data, climatic diagrams and synoptic weather maps.

- To familiarize students with principles and techniques of satellite image and aerial photograph interpretation.
- To develop the ability to integrate map, image, weather and field-based information for geographical analysis.
- To enhance field observation, data recording and report writing skills through educational tours and field visits.

Course Outcomes and Programme Outcomes:

Paper Title – VIII : Geospatial Analysis: Map and Image Interpretation				
Major - Practical				
CO Code	Course Outcome	PO Code	Programme Outcome	Explanation / Purpose
CO1	Explain the concepts, principles and significance of topographical maps and image interpretation in Geography.	PO1	Disciplinary Knowledge	Builds strong foundational knowledge of maps, images and interpretative techniques in Geography.
CO2	Interpret relief, drainage, landforms and human features from Survey of India toposheets.	PO2	Problem Solving	Enables logical interpretation of spatial patterns and real-world geographical problems using maps.
CO3	Analyze weather data, climatic diagrams and weather maps for geographical interpretation.	PO3	Scientific Reasoning / Reflective Thinking	Promotes scientific analysis and interpretation of weather and climatic data.
CO4	Interpret satellite images and aerial photographs using elements and keys of image interpretation.	PO4	Digital Literacy	Enhances use of digital platforms and geospatial imagery for spatial interpretation.
CO5	Correlate map, weather, satellite and field-based data for integrated geographical analysis.	PO5	Problem Solving	Encourages integration of multiple data sources for comprehensive geographical analysis.
CO6	Prepare structured field visit reports by applying principles of observation, interpretation and geographical reasoning.	PO6	Environment & Sustainability / Global Citizenship	Develops awareness of environmental processes and responsible interpretation of field-based geographical realities.

11. Scheme of Teaching and Examination:

The Scheme of teaching and examination should be given as applicable to the course / paper concerned)

B. A. / B. A. B. Ed. Part –III

Sr. No.	Subjects/Course & Credit	Practical Teaching Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Practical	Term Work	Total (Semester)
1	Geospatial Analysis: Map and Image Interpretation - 4	08	--	08	08	80	20	100

Scheme of Examination:

- The examination shall be conducted at the end of each semester year.
- The practical course shall carry 100 marks.
- The evaluation of the performance of the student in practical course shall be on the basis of semester practical examination of 80 marks.
- The evaluation of the performance of the student in practical course shall be on the basis of semester internal practical evaluation of 20 marks.
- Question Paper will be set in the view of the / in accordance with the entire syllabus and preferably covering each Module of syllabi.

Standard of Passing:

As prescribed by the Shivaji University under rules & regulation for each diploma / degree / programme

Nature of Question Paper:

The student's practical examination and evaluation methods are as per the guidelines of the Shivaji University, Kolhapur.

Title of Course: Major VIII: Geospatial Analysis: Map and Image Interpretation

Module No.	Module Name	Sub-module	Difficulty Level	Credit	No. of Hours
1	Interpretation of Topographical Maps	1.1 Concept, scope and importance of topographical map interpretation.	1	1	30
		1.2 Scale, projection, contour interval and marginal information of Survey of India toposheets.	2		
		1.3 Principles of contour representation, relief depiction and slope analysis.	3		
		1.4 Drainage systems, basin concept and morphometric interpretation based on topographical maps.	4		
		Practical Exercises: a. Procurement / Download of Toposheets (Demonstration of online & offline sources)	2		
		b. Identification of marginal information: projection, scale, contour interval, grid reference, sheet number and conventional symbols.	2		
		c. Identification and sketching of landforms & slopes from contours: ridge, spur, escarpment, valley, conical hill, flat-topped hill, saddle, cliff, gorge, waterfall, gentle/steep/concave/convex slopes.	3		
		d. Identification and classification of drainage patterns: dendritic, trellis, parallel, radial, centripetal, rectangular.	3		
		e. Delineation of drainage basin and watershed boundary.	4		
		f. Preparation of longitudinal or valley cross profile	4		
g. Preparation of average slope map using Wentworth method.	4				

		h. Basic morphometric calculations: stream order, drainage density	3		
		i. Interpretation of physical and human features in topographical maps	3		
2	Weather Data and Weather Map Interpretation	2.1 Weather and climate: concepts and significance in geographical analysis.	1	1	30
		2.2 Weather elements and their measurement.	2		
		2.3 Principles of climatic maps, diagrams and graphs.	3		
		2.4 Interpretation of weather maps.	3		
		Practical Exercises: a. Identification and interpretation of weather instruments: thermometer, hygrometer, barometer, wind vane, anemometer, rain gauge.	1		
		b. Construction and interpretation of isotherm, isobar	3		
		c. Identification and Construction of isobaric patterns	4		
		d. Preparation of climatic diagrams: Rainfall temperature diagram, Ergograph, Wind-rose diagram, US Dept of Agriculture Climograph, Hythergraph	3		
		e. Interpretation of Indian daily weather report showing pressure, winds and rainfall.	4		
f. Use of Windy App for real-time weather interpretation	2				
3	Satellite Image and Aerial Photograph Interpretation	3.1 Concept and scope of Remote Sensing and aerial photography in geography.	2	1	30
		3.2 Types of aerial photographs and satellite images.	2		
		3.3 Resolution concepts and scale in image interpretation.	3		
		3.4 Elements and keys of image interpretation.	3		
		Practical Exercises:	2		

		a. Procurement / Download of satellite data from platforms like Bhoonidhi / Earth Explorer 2(USGS) / Bhuvan			
		b. Basic understanding of file formats and metadata (conceptual level)	2		
		c. Interpretation of physical and human features from Aerial Photographs.	3		
		d. Interpretation of physical and human features from satellite imagery.	4		
		e. Interpretation of satellite weather images	4		
4	Field Visit and Brief Interpretative Report	4.1 Significance of fieldwork and educational tour in geography.	1	1	30
		4.2 Techniques of field observation, sampling and data recording.	3		
		4.3 Correlation of field data with maps, weather information and satellite images.	4		
		4.4 Principles of geographical interpretation and report writing.	3		
		Practical Exercises			
		a. Pre-field exercise: Study of toposheet, satellite image and secondary data of the selected area.	2		
		b. Field observation of relief, drainage, land use, settlement and observable weather conditions.	3		
		c. Preparation of field sketches, notes and photographic records.	3		
		d. Correlation of field observations with map and satellite image interpretation.	4		
		e. Preparation and submission of structured educational tour / field visit report.	4		
Difficulty Level: 4 – Very High, 3 – High, 2- Moderate, 1- Easy					

Learning Resources

1. Aher, A. B., Chodhari, A. P., & Bharambe, S. N. (2015). Techniques of spatial analysis. Prashant Publication, Jalgaon.
2. Bygott, J. (1964). An introduction to mapwork and practical geography. University Tutorial Press.
3. Khan, M. Z. A. (1998). Textbook of practical geography. Concept Publishing Company, New Delhi.
4. Khullar. Essentials of practical geography. New Academic Publishing Co, India.
5. Mishra, R. P., & Ramesh, A. (2000). Fundamentals of cartography. Concept Publishing Company, New Delhi.
6. Monkhouse, F. J., & Wilkinson, H. R. (1971). Maps and diagrams: Their compilation and construction. Methuen & Co. Ltd., London.
7. Negi, B. S. Practical geography. Kedar Nath Ram Nath, Meerut, Delhi.
8. Raisz, E. (1962). Principles of cartography. McGraw Hill Book Company, Inc., New York.
9. Robinson, A. H. (2010). Elements of cartography (6th ed.). John Wiley & Sons.
10. Saha, P. K., & Basu, P. (2010). Advanced practical geography: A laboratory manual. Books and Allied (P) Ltd, Kolkata.
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CO-PO Mapping Strength												
CO Code	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	1	2	1	0	1	3	1	1	0	1	1
CO2	3	2	3	1	0	1	3	3	1	0	2	1
CO3	2	2	3	2	0	1	2	3	2	0	1	1
CO4	2	2	2	3	0	1	2	3	3	0	1	1
CO5	2	3	3	2	1	2	2	3	2	0	2	2
CO6	2	1	2	1	2	3	2	1	1	0	2	3
Legend: 3 - Strongly related, 2 - Moderately related, 1 - Slightly related, 0/- - Not related												

Shivaji University, Kolhapur
B. A./B.A.B.Ed. Part – III, Semester V
Major IX : Research Methodology
As per NEP 2020 (2.0)

Name of the Programme	:	B. A. / B. A. B. Ed. (Geography)
Class	:	B. A. / B. A. B. Ed. Part – III
Semester	:	V
Name of Vertical Group	:	Major
Course Code	:	BAU0325MMT422E09
Course Title	:	Research Methodology
Total Credits	:	02
Workload	:	02 Credit × 15 Hours = 30 Hours
Duration	:	Semester
Medium of Instruction	:	Marathi / English
Examination Pattern	:	40 : 10 (The pattern of examination will be Semester End Examination with Internal Assessment / Evaluation)
Nature of Question Paper	:	As per guidelines of the Shivaji University, Kolhapur

Preamble:

The course "Major IX: Research Methodology" aims to introduce students to the fundamentals of research and equip them with the necessary skills to undertake research projects. This course covers the basics of research, research techniques, and report writing, enabling students to understand and apply research methodology in their respective fields.

General Objectives of the Course:

- 1) To understand the meaning, definitions, and types of research.
- 2) To familiarize with the research process and ethics.
- 3) To develop skills in formulating research problems, data collection and research methods.
- 4) To learn and develop report writing and presentation skills.

Course Outcomes and Programme Outcomes:

Paper Title - Research Methodology				
Major - Theory				
CO Code	Course Outcome	PO Code	Programme Outcome	Explanation / Purpose
CO1	Explain the Meaning, Definition and types of Research (Remember, Understand)	PO1	Disciplinary Knowledge	Demonstrate understanding of research concepts and geographical inquiry

CO2	Describe the steps in research process and research design (Understand, Apply)	PO3	Critical Thinking	Apply analytical thinking in defining research design
CO3	Understand the importance of research ethics, plagiarism, copyrights, IPR and responsibility of researcher (Apply, Analyze)	PO5	Moral and Ethical Awareness	Use logical reasoning for data analysis and interpretation
CO4	Formulation of Research Problem, types of data collection and methods of data sampling (Analyze, Evaluate)	PO4	Problem Solving	Develop skills in methods of data collection and sampling
CO5	Create the outline of research report and apply the research methodology, data processing and analysis for using ICT and geospatial tools (Apply, Create)	PO8	Digital Literacy	Utilize digital and geospatial tools effectively for research report writing skill
CO6	Finalize research reports with the help of Referencing, citation, and bibliography, Presentation of tables, charts, and diagrams (Evaluate, Create)	PO9	Research-related Skills	Practice ethical conduct and academic integrity in research

11. Scheme of Teaching and Examination:

The Scheme of teaching and examination should be given as applicable to the course / paper concerned)

B. A. / B. A. B. Ed. Part –III

Sr. No.	Subjects/Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Theory	Term Work	Total (Semester)
1	Research Methodology - 2	02	02	---	02	40	10	50

Scheme of Examination:

- The examination shall be conducted at the end of each semester year.
- The theory course shall carry 50 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester theory examination of 40 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester internal evaluation of 10 marks.

- Question Paper will be set in the view of the / in accordance with the entire syllabus and preferably covering each Module of syllabi.

Standard of Passing:

As prescribed under rules & regulation for each diploma / degree / programme

Nature of Question Paper:

The student's examination and evaluation methods are as per the guidelines of the Shivaji University, Kolhapur.

Title of Course: Major IX: Research Methodology					
Module No.	Module Name	Sub-module	Difficulty level	No. of hours	Credit
1	Fundamentals of Research	1.1 Meaning and Definitions of Research	1	15	01
		1.2 Types of Research	2		
		1.3 Research Process	3		
		1.4 Research Ethics	4		
2	Research Techniques and Report Writing	2.1 Formulation of Research Problem	2	15	01
		2.2 Data Collection	3		
		2.3 Sampling	3		
		2.4 Research Methods and Report Writing	4		
Difficulty Level: 4 – Very High, 3 – High, 2- Moderate, 1- Easy					

Learning Resources

References

- 1 डॉ. भा. ल. भोसले सामाजिक संशोधन पद्धती श्री साईनाथ प्रकाशन, पुणे.
- 2 डॉ. गंगाधर पाटील संशोधन पद्धती व तंत्रे फडके प्रकाशन, कोल्हापूर.
- 3 डॉ. अरुण कोल्हे संशोधन पद्धतीशास्त्र विद्या प्रकाशन, नागपूर.
- 4 डॉ. रामचंद्र थिटे भूगोलातील संशोधन पद्धती डायमंड पब्लिकेशन्स, पुणे.
- 5 डॉ. शिवाजीराव देशमुख भूगोल संशोधन व क्षेत्रकार्य नित्यनूतन प्रकाशन, पुणे.
- 6 डॉ. वसंत कानेटकर भौगोलिक संशोधन तंत्रे मेहता पब्लिशिंग हाऊस, पुणे.
- 7 डॉ. बी. टी. देशमुख सामाजिक संशोधनातील सांख्यिकी फडके प्रकाशन, पुणे.
- 8 डॉ. अनिल पाटील संशोधन अहवाल लेखन व संदर्भ लेखनप्रशांत पब्लिकेशन, जळगाव.
- 9 यूजीसी (मराठी अनुवाद) साहित्य चोरी प्रतिबंध व शैक्षणिक प्रामाणिकता नियमावली
- 10 डॉ. शरद जोशी संशोधन नीतिशास्त्र कॉन्टिनेंटल प्रकाशन, पुणे.

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- 12 **Wilkinson, T. S. & Bhandarkar, P. L.** *Methodology and Techniques of Social Research*, Himalaya Publishing House, Mumbai.
- 13 **Young, P. V.** *Scientific Social Surveys and Research* Prentice Hall, New Delhi.
- 14 **Nachmias, D. & Nachmias, C.** *Research Methods in the Social Sciences* St. Martin's Press, New York.
- 15 **Gregory, D., Johnston, R., Pratt, G., Watts, M., & Whatmore, S.** *The Dictionary of Human Geography* Wiley-Blackwell, Oxford.
- 16 **Clifford, N., French, S., & Valentine, G.** *Key Methods in Geography* SAGE Publications, London.
- 17 **Flowerdew, R. & Martin, D.** *Methods in Human Geography* Pearson Education, London.
- 18 **Burrough, P. A. & McDonnell, R. A.** *Principles of Geographical Information Systems* Oxford University Press.
- 19 **Longley, P. A., Goodchild, M. F., Maguire, D. J., & Rhind, D. W.** *Geographic Information Systems and Science* Wiley, New York.
- 20 **Creswell, J. W.** *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* SAGE Publications.
- 21 **Creswell, J. W.** *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* SAGE Publications.
- 22 **APA Publication Manual** *Publication Manual of the American Psychological Association*
- 23 **UGC UGC Regulations on Academic Integrity and Prevention of Plagiarism**

CO-PO Mapping Strength												
CO Code	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	1	2	–	1	3	3	2	2	1	2	2
CO2	2	1	3	2	1	2	2	2	2	1	2	3
CO3	2	–	2	2	3	2	2	3	2	2	2	2
CO4	1	–	2	3	2	1	2	3	3	2	3	2
CO5	1	2	1	2	3	1	3	3	3	2	2	2
CO6	1	2	1	1	2	1	2	2	2	1	2	3

Legend: 3 - Strongly related, 2 - Moderately related, 1 - Slightly related, 0/- - Not related

Shivaji University, Kolhapur
B. A. / B. A. B. Ed. Part-III, Semester V
Major Elective I: Agricultural Geography

As per NEP 2020 (2.0)

Name of the Programme	:	B. A. / B. A. B.Ed. (Geography)
Class	:	B. A./B. A. B. Ed. Part -III
Semester	:	V
Name of Vertical Group	:	Major- EL-I
Course Code	:	BAU0325MET422E01
Course Title	:	Agricultural Geography
Total Credit	:	04
Workload	:	04 credit X 15 Hours = 60 hours in semester
Duration	:	Semester
Medium of instruction	:	Marathi / English
Examination Pattern	:	80:20 (The pattern of examination will be Semester End Examination with Internal Assessment / Evaluation)
Nature of Question Paper	:	As per guidelines of Shivaji University, Kolhapur

Preamble:

The course “Agricultural Geography” introduces students to the spatial and ecological aspects of agriculture. It explains the nature, scope, and factors influencing agriculture with emphasis on modern concepts like NDVI. Students learn major agricultural systems, agricultural land use theories and agricultural problems at global level in general and at local level in particular. The syllabus integrates modern agricultural themes such as the irrigation, green and white revolutions, organic farming, and use of GIS, GPS, and remote sensing in Agriculture. Overall, it develops analytical understanding of agricultural patterns and regional issues.

General Objectives of the Course:

- 1) To understand the basic concepts, scope, influencing factors, and modern techniques like NDVI in Agricultural Geography.
- 2) To examine different agricultural systems of the world and India, including their classification, characteristics, and spatial distribution.
- 3) To analyze major agricultural land use theories and evaluate agricultural problems at global, national, and regional levels.
- 4) To understand modern agricultural practices, irrigation techniques, technological applications, and agricultural revolutions.

Course Outcomes and Programme Outcomes:

Paper Title - Agricultural Geography Major Elective - Theory				
CO Code	Course Outcome	PO Code	Programme Outcome	Explanation / Purpose
CO1	Define and explain the scope and nature of Agricultural Geography, including concepts like NDVI and influencing factors (Remember, Understand).	PO1	Disciplinary Knowledge	Demonstrate comprehensive knowledge of Agricultural Geography concepts.
CO2	Analyze major agricultural systems, including subsistence and commercial agriculture; identify problems in general and in Satara / Sangli / Kolhapur district in particular (Understand, Apply).	PO2	Problem Solving	Use reasoning and innovation to address agricultural problems.
CO3	Describe agricultural land use theories, Bases for the whittlesey's classification of agriculture (Analyze, Evaluate)	PO3	Scientific Reasoning / Reflective Thinking	Apply scientific method and reflect on agricultural spatial patterns.
CO4	Evaluate irrigation types & techniques, Green/White Revolution, organic farming, and Use of GIS, GPS, and remote sensing in agriculture (Evaluate, Create).	PO4	Digital Literacy	Use ICT tools for agricultural data management and analysis.
CO5	Examine ethical issues related to agricultural and sustainable development (Evaluate, Create).	PO5	Moral and Ethical Awareness / Reasoning	Recognize ethical and moral dimensions of agricultural practices.
CO6	Communicate effectively on Agricultural Geography topics; appreciate sustainability and global agricultural issues (Create).	PO6	Global Citizenship / Multicultural Competence / Environment & Sustainability	Promote responsible global citizenship through agricultural geography knowledge.

Scheme of Teaching and Examination:

The Scheme of teaching and examination should be given as applicable to the course / paper concerned)

B. A. / B. A. B. Ed. Part –III

Sr. No.	Subjects/Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Theory	Term Work	Total (Semester)
1	Agricultural Geography-4	04	04	---	04	80	20	100

Scheme of Examination:

- The examination shall be conducted at the end of each semester year.
- The theory course shall carry 100 marks.

- The evaluation of the performance of the student in theory course shall be on the basis of semester theory examination of 80 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester internal evaluation of 20 marks.
- Question Paper will be set in the view of the / in accordance with the entire syllabus and preferably covering each Module of syllabi.

Standard of Passing:

As prescribed under rules & regulation for each diploma / degree / programme

Nature of Question Paper:

The student's examination and evaluation methods are as per the guidelines of the Shivaji University, Kolhapur.

Title of Course: Major Elective-I: Agricultural Geography					
Mod ule No.	Module Name	Sub-module	Diffi culty level	Cre dit	No. of hours
1	Introduction to Agricultural Geography	1.1 Definition of Agricultural Geography.	1	1	15
		1.2 Nature, Scope of Agricultural Geography.	1		
		1.3 Factors Influencing agriculture	3		
		1.4 Concept of NDVI (Agricultural Health)	4		
2	Major Agricultural Systems	2.1 Bases for the Whittlesey's Classification of Agriculture	3	1	15
		2.2 Subsistence Agriculture	2		
		2.3 Commercial Agriculture	2		
		2.4 Classification of Indian Agriculture	4		
3	Agricultural Land Use Theories and Agricultural Problems	3.1 Von Thunen's Model of Agricultural Land Use	3	1	15
		3.2 Olof Jonasson's Model	3		
		3.3 Problems of Agriculture	3		
		3.4 Agricultural problems of Satara / Sangli / Kolhapur District	4		
4	Modern Agriculture	4.1 Irrigation: type and techniques.	2	1	15
		4.2 Green and White Revolution	2		
		4.3 Organic farming	3		
		4.4 Use of GIS, GPS, and remote sensing in Agriculture	4		
Difficulty Level: 4 - Very High, 3 - High, 2- Moderate, 1- Easy					

Learning Resources

- | Sr. No. | References |
|---------|--|
| 1. | कृषी भूगोल - कुंभारे अरुण राजाराम, पायल प्रकाशन, पुणे, २००४. |
| 2. | कृषी भूगोल - खतीब के. ऐ., संजोग प्रकाशन, कोल्हापूर, २००९. |
| 3. | कृषी भूगोल - सावंत प्रकाश, फडके प्रकाशन, कोल्हापूर, २००९. |
| 4. | कृषी भूगोल - धारपुरे विठ्ठल, पिंपळापुरे अँड कंपनी पब्लिशर्स, नागपूर, २०००. |
| 5. | कृषी भूगोल - सवदी ए. बी. आणि कोळेकर पी. एस., निराली प्रकाशन, पुणे, २०१४. |
| 6. | मानवी भूगोल - जाधव आर. जी., प्ररूप प्रकाशन, कोल्हापूर, २०१९. |
| 7. | कृषी भूगोल - पाटील एस. व्ही., प्ररूप प्रकाशन, कोल्हापूर, २०२२. |
| 8. | Agriculture Geography - Morgan W.B. and Norton, R.J.C., Mathuen, London, 1971. |
| 9. | Agriculture Geography - Singh Jasbir and Dhillon S.S., Tata McGraw Hill Publication, New Delhi, 1988. |
| 10. | Systematic Agriculture Geography - Majid Hussain, Rawat Publication, Jaipur and New Delhi, 2001. |
| 11. | Origin and Introduction of Crop Plants, Cereals and Pulses - Usha Rao & B. K. Pandey, [Publication name not provided], 2007. |

CO-PO Mapping Strength												
CO Code	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	1	3	2	2	2	2	1
CO2	2	3	3	1	3	2	3	3	2	3	3	3
CO3	3	2	2	2	1	2	2	1	1	1	2	2
CO4	3	3	3	3	3	3	3	3	3	3	3	3
CO5	2	2	2	2	3	2	2	2	3	2	2	2
CO6	3	3	2	2	2	3	3	2	2	2	2	3

Legend: 3 - Strongly related, 2 - Moderately related, 1 - Slightly related, 0/- - Not related

Shivaji University, Kolhapur
B. A. / B. A. B.Ed. Part-III, Semester V
Major Elective I: Fundamental and Applications of Geospatial
Technology
As per NEP 2020 (2.0)

Name of the Programme	:	B. A. / B. A. B.Ed. (Geography)
Class	:	B. A./ B. A. B. Ed. Part -III
Semester	:	V
Name of Vertical Group	:	Major Elective-I
Course Code	:	BAU0325MET422E01
Course Title	:	Fundamental and Applications of Geospatial Technology
Total Credit	:	04
Workload	:	04 credit X 15 Hours = 60 hours in semester
Duration	:	Semester
Medium of instruction	:	Marathi / English
Examination Pattern	:	80:20 (The pattern of examination will be Semester End Examination with Internal Assessment / Evaluation)
Nature of Question Paper	:	As per Shivaji University, Kolhapur rules and regulations.

Preamble:

Geospatial Technology has emerged as a vital interdisciplinary field integrating Geographic Information Systems (GIS), Remote Sensing, and Global Positioning Systems (GPS) to analyse, manage, and visualize spatial information for solving the practical world problems by inculcating systematic and scientific decision-making capabilities. This syllabus is designed to provide B.A. III Geography students with a systematic understanding of the fundamentals of Geo-informatics, including spatial data models, geospatial data sources, data processing, analysis techniques, and web-based geospatial services, along with their practical applications across major sectors. The course ensures academic continuity and conceptual depth at the undergraduate level. The syllabus follows Bloom's Taxonomy, emphasizing the development of knowledge, comprehension, application, analysis, and evaluation skills. It aims to cultivate geospatial thinking, analytical capability, and technical awareness, thereby preparing students for higher education, research, professional employment, and technology-driven geographical applications.

General Objectives of the Course:

1. To develop a strong foundation in GIS, Remote Sensing, and GNSS, including their principles, data models, standards, and spatial data management concepts.

2. To build practical skills in geospatial data handling and analysis, including satellite image processing, GIS operations (overlay, buffer, editing), and spatial database management using modern GIS software.
3. To enhance analytical and problem-solving abilities by applying geospatial technologies in soil, water, agriculture, urban planning, and resource management.
4. To promote critical thinking and the integration of emerging digital and AI-based technologies for sustainable development and informed decision-making in geographic planning

Course Outcomes and Programme Outcomes:

Paper Title – Fundamental and Applications of Geospatial Technology				
Major Elective I - Theory				
CO Code	Course Outcome	PO Code	Programme Outcome	Explanation / Purpose
CO1	Explain the fundamental concepts, history, scope, and components of Geospatial Technologies including GIS, Remote Sensing, and GNSS.	PO1	Understand the domain knowledge of geospatial science and technology to solve environmental and spatial problems.	To develop fundamental understanding of GIS, RS, and GNSS concepts for solving spatial problems.
CO2	Differentiate between raster, vector, and attribute data models and apply appropriate data standards and metadata principles for geospatial datasets.	PO2	Analyze spatial data using appropriate geospatial tools and techniques.	To enable understanding and application of spatial data models and standards for geospatial analysis.
CO3	Demonstrate the principles of Remote Sensing including EMR interaction, satellite data products, and perform basic image processing operations.	PO3	Design and develop geospatial solutions for resource management and planning.	To provide practical knowledge of remote sensing principles and satellite data applications.
CO4	Perform GIS operations such as data editing, overlay analysis, buffer analysis, and spatial database integration using QGIS.	PO4	Use modern geospatial tools (GIS, RS, GNSS, Q GIS) effectively.	To build technical skills in performing GIS operations using modern geospatial tools.

CO5	Analyze geospatial datasets for resource management applications such as soil, water, agriculture, and urban planning.	PO5	Evaluate geospatial data quality, metadata standards, and spatial accuracy for resource management.	To enhance analytical ability for evaluating geospatial data in resource management.
CO6	Design geospatial-based solutions for real-world environmental and developmental problems using appropriate tools and techniques.	PO6	Demonstrate problem-solving ability in multidisciplinary contexts.	To develop capability to design geospatial solutions for environmental and developmental issues.

11. Scheme of Teaching and Examination:

The Scheme of teaching and examination should be given as applicable to the course / paper concerned)

B. A. / B. A. B. Ed. Part –III

Sr. No.	Subjects/Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Theory	Term Work	Total (Semester)
1	Fundamental and Applications of Geospatial Technology - 4	04	04	---	04	80	20	100

Scheme of Examination:

- The examination shall be conducted at the end of each semester year.
- The theory course shall carry 100 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester theory examination of 80 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester internal evaluation of 20 marks.
- Question Paper will be set in the view of the / in accordance with the entire syllabus and preferably covering each Module of syllabi.

Standard of Passing:

As prescribed by the Shivaji University under rules & regulation for each diploma / degree / programme

Nature of Question Paper:

The student's examination and evaluation methods are as per the guidelines of the Shivaji University, Kolhapur.

Title of Course: Major Elective I: Fundamental and Applications of Geospatial Technology					
Module No.	Module Name	Sub-module	Difficulty level	Credit	No. of hours
1	Introduction to Geospatial Technology	1.1 Introduction and scope of Geospatial Technologies 1.2 History and development of GIS & Remote sensing 1.3 Geospatial data models and types: raster, vector and attribute data 1.4 Data standards, metadata, and Geospatial data quality	1 1 2 3	1	15
2	Remote Sensing and Image Processing	2.1 Principles of Remote Sensing: EMR, spectrum and energy interactions 2.2 Types of Sensors & Platforms, Types of Remote Sensing 2.3 Geospatial Data Sources : Exploration of Indian satellite data products browsing and image characteristics 2.4 Basic image processing	1 1 3 3	1	15
3	Geographic Information Systems (GIS) and GNSS	3.1 GIS fundamental concepts, data editing and overlay analysis 3.2 Spatial analysis: Buffer analysis 3.3 GPS, GNSS and IRNSS fundamentals and applications 3.4 Introduction to Quantum GIS: software interface and capabilities	2 3 2 4	1	15
4	Applications of Geospatial Technology	4.1 Application of geospatial technologies in soil resource conservation 4.2 Application of geospatial technologies in water resource conservation 4.3 Application of geospatial technologies in vegetation analysis and agricultural development 4.4 Application of geospatial technologies in urban development	4 4 4 4	1	15
Difficulty Level: 4 – Very High, 3 – High, 2- Moderate, 1- Easy					

Learning Resources

References

- 1 महाराष्ट्र राज्य पाठ्यपुस्तक निर्मिती व अभ्यासक्रम संशोधन मंडळ).2020). भूगोलआधुनिक तंत्रज्ञान : राज्य शैक्षणिक संशोधन व प्रशिक्षण परिषद :पुणे .व अनुप्रयोग
 - 2 भोसले, ए) .आर .2019). दूरसंवेदनसिद्धांत :, प्रतिमा विश्लेषण व उपयोग.निराली प्रकाशन :पुणे .
 - 3 निकम, एस) .डी .2015). उपग्रह प्रतिमा व भू.निराली प्रकाशन :पुणे .अभ्यास-
 - 4 देशमुख, ए) .बी .2017). दूरसंवेदन व भौगोलिक माहिती प्रणाली.विद्या प्रकाशन :नागपूर .
 - 5 मोरे, डी) .के .2018). GPS व GNSS तंत्रज्ञानाचा भूगोलातील उपयोग.युनिक अकॅडमी :पुणे .
 - 6 Karlekar, S. (2017). भूगोल आणि GIS : सिद्धान्त आणि तंत्रज्ञान .प्रसार विज्ञान प्रकाशन :मुंबई .
 - 7 ISRO. (2022). Bhuvan geoportal user manual. Indian Space Research Organisation.
 - 8 National Remote Sensing Centre (NRSC). (2020). Indian satellite data products handbook. ISRO.
 - 9 QGIS Development Team. (2023). QGIS geographic information system user guide. Open Source Geospatial Foundation.
 - 10 Lillesand, T. M., Kiefer, R. W., & Chipman, J. W. (2015). Remote sensing and image interpretation (7th ed.). Wiley.
 - 11 Tomlinson, R. F. (2013). Thinking about GIS: Geographic information system planning for managers (4th ed.). ESRI Press.
 - 12 Shukla, A., & Agarwal, A. (2021). NAVIC: Concepts and engineering applications. New Delhi: Tech Knowledge Publishers.
 - 13 Rai, H., & Singh, P. (2020). Integration of GNSS and GIS for spatial data collection. International Journal of Geospatial Science, 12(3), 89–110.
 - 14 Burrough, P. A., McDonnell, R. A., & Lloyd, C. D. (2015). Principles of geographical information systems (3rd ed.). Oxford University Press.
- Web sources**
- 1 Open Geospatial Consortium (OGC) – Standards for WMS/WFS/WCS, GML <https://www.ogc.org>
 - 2 QGIS Training, QGIS official documentation & tutorials <https://docs.qgis.org>
 - 3 NRSC, National Remote Sensing Centre (Bhuvan Portal) <https://bhuvan.nrsc.gov.in>
 - 4 ISRO – IRNSS/NavIC Overview <https://www.isro.gov.in/irnss>
 - 4 National Spatial Data Infrastructure (NSDI) – NIC <https://nsdiindia.gov.in>
 - 5 Esri MOOCs – Spatial Data Science, Story Maps, Smart Cities <https://www.esri.com/training/mooc>

CO-PO Mapping Strength												
CO Code	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	0	2	1	0	3	1	1	0	0	0
CO2	2	3	1	2	3	0	2	3	2	1	0	0
CO3	2	3	1	3	2	1	2	3	3	1	0	0
CO4	2	3	2	3	2	2	2	3	3	2	1	1
CO5	3	3	3	2	2	3	3	3	2	2	3	2
CO6	3	3	3	2	2	3	3	3	2	3	3	3

Legend: 3 - Strongly related, 2 - Moderately related, 1 - Slightly related, 0/- - Not related

Shivaji University, Kolhapur
B. A. / B. A. B.Ed. Part-III, Semester V
Minor III: Physical Geography of India
As per NEP 2020 (2.0)

Name of the Programme	:	B. A. / B. A. B.Ed. (Geography)
Class	:	B. A. / B. A. B.Ed. Part -III
Semester	:	V
Name of Vertical Group	:	Minor-III
Course Code	:	BAU0325MNT422E03
Course Title	:	Physical Geography of India
Total Credit	:	04
Workload	:	04 credit X 15 Hours = 60 hours in semester
Duration	:	Semester
Medium of instruction	:	Marathi / English
Examination Pattern	:	80:20 (The pattern of examination will be Semester End Examination with Internal Assessment / Evaluation)
Nature of Question Paper	:	As per Shivaji University, Kolhapur rules and regulations.

Preamble:

The course “**Physical Geography of India**” introduces students to the location and physical setup in India. It explains the origin, physical characteristics, relief, drainage, climate, soils, and natural vegetation of the country with a scientific and regional approach. Students learn about major physiographic divisions, monsoon mechanisms, river systems, and climatic variations. The syllabus integrates themes such as mineral and power resource. Overall, it develops a comprehensive understanding of India’s physical landscape.

General Objectives of the Course:

- 1) To develop a comprehensive understanding of the physiographic divisions of India.
- 2) To examine the climate of India, including monsoon mechanism, seasons, rainfall distribution, and climatic regions.
- 3) To understand the drainage systems of India, including the Himalayan and Peninsular river systems and their significance.
- 4) To study the **soil** and forest types of India, their distribution, characteristics, and importance.

Course Outcomes and Programme Outcomes:

Paper Title - Physical Geography of India Minor - Theory				
CO Code	Course Outcome	PO Code	Programme Outcome	Explanation / Purpose
CO1	Understand the major physiographic divisions of India and their physical features. They will analyse how physical features.	PO1	Scientific Reasoning / Reflective Thinking,	Apply scientific method and reflect on physiographic patterns.
CO2	Understand the factors influencing India's climate and the characteristics of monsoon systems. They will be able to analyse seasonal variations and their impact on agriculture, water resources, and human activities.	PO2	Problem Solving	Use reasoning and innovation to address agricultural problems.
CO3	Students will understand the origin, evolution, and classification of India's river systems and their relation to relief and climate. They will be able to analyse the role of rivers in Indian development	PO3	Problem Solving,	Use reasoning and innovation to address river problems
CO4	Understand the major types, distribution, and characteristics of Indian soils. They will analyse the relationship between soil types, crops, and sustainable agricultural practices.	PO4	Moral and Ethical Awareness / Reasoning	Recognize ethical and moral dimensions of soil practices.
CO5	Understand the types, distribution, and ecological significance of Indian forests. They analyse the role of forests in biodiversity conservation, climate regulation, and sustainable development.	PO5	Moral and Ethical Awareness / Reasoning	Recognize ethical and moral dimensions of forest practices.
CO6	understand the distribution, types, and economic importance of mineral and power resources in India. They will develop awareness about conservation, sustainable use, and the role of these resources in national development.	PO6	Global Citizenship / Multicultural Competence / Environment & Sustainability	Promote responsible global citizenship through mineral and power recourse knowledge.

Scheme of Teaching and Examination:

The Scheme of teaching and examination should be given as applicable to the course / paper concerned)

B. A. / B. A. B. Ed. Part –III

Sr. No.	Subjects/Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Theory	Term Work	Total (Semester)
1	Physical Geography of India-4	04	04	---	04	80	20	100

Scheme of Examination:

- The examination shall be conducted at the end of each semester year.
- The theory course shall carry 100 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester theory examination of 80 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester internal evaluation of 20 marks.
- Question Paper will be set in the view of the / in accordance with the entire syllabus and preferably covering each Module of syllabi.

Standard of Passing:

As prescribed by Shivaji University under rules & regulation for each diploma / degree / programme

Nature of Question Paper:

The student's examination and evaluation methods are as per the guidelines of the Shivaji University, Kolhapur.

Title of Course: Minor III: Physical Geography of India					
Module No.	Module Name	Sub-module	Difficulty level	Credit	No. of hours
1	General Information of India	1.1 Location, shape and Extent 1.2 Structure of India 1.3 Boundaries: Natural, Artificial 1.4 India as a Land of Diversities	1 1 4 3	1	15
2	Physical Divisions of India	2.1 Northern Mountain Region 2.2 The Northern Plains 2.3 The Peninsular Plateau 2.4 Coast, Shoreline and Islands	1 1 2 4	1	15
3	Climate and Drainage	3.1 Origin of Monsoon and Seasons in India 3.2 Climatic Regions of India 3.3 Major River Systems: Indus, Ganga, Brahmaputra, Godavari, Krishna and Cauvery 3.4 Lakes of India	1 2 2 2	1	15
4	Soil and Natural Vegetation	4.1 Types and Distribution of soils in India 4.2 Problems of Soils in India 4.3 Floristic Regions of India 4.4 Problems of Indian Forestry	2 2 3 4	1	15
Difficulty Level: 4 – Very High, 3 – High, 2- Moderate, 1- Easy					

Learning Resources

Sr. No.

References

- 1 Majid H., (2013): Geography of India, Tata Mcgraw Hill Education (India) Private Limited, New Delhi.
- 2 Khullar R. D. (2007): India- A Compressive Geography, Kalayani Publisher.
- 3 Tirtha, R., (2002): Geography of India, Rawat Pubs., Jaipur & New Delhi.
- 4 Pathak, C. R. (2003): Spatial Structure and Processes of Development in India. Regional Science
- 5 Soil and Water conservation manual Govt. of India.
- 6 Savadi, Kolekar: Bharatacha Samarag Bhugol, Nirali Prakashan, Pune.
- 7 Johnson, B. L. C., ed. (2001). Geographical Dictionary of India. Vision Books, New Delhi.
- 8 Sharma, T.C. (2013): Economic Geography of India. Rawat Publication, Jaipur.
- 9 खतीब के ए भारता :चा भूगोल
- 10 डॉ .सावंत प्रकाश : भारताचा भूगोल

CO-PO Mapping Strength												
CO Code	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	1	3	2	2	2	2	1
CO2	2	3	3	1	3	2	3	3	2	3	3	3
CO3	3	2	2	2	1	2	2	1	1	1	2	2
CO4	3	3	3	3	3	3	3	3	3	3	3	3
CO5	2	2	2	2	3	2	2	2	3	2	2	2
CO6	3	3	2	2	2	3	3	2	2	2	2	3

Legend: 3 - Strongly related, 2 - Moderately related, 1 - Slightly related, 0/- - Not related

Shivaji University, Kolhapur
B. A. / B. A. B. Ed. Part-III, Semester VI
Major X: Regional Planning and Development
As per NEP 2020 (2.0)

Name of the Programme	:	B. A. / B. A. B. Ed. (Geography)
Class	:	B. A./ B. A. B. Ed. - III
Semester	:	VI
Name of Vertical Group	:	Major
Course Code	:	BAU0325MMT422E10
Course Title	:	Regional Planning and Development
Total Credit	:	04
Workload	:	04 credit X 15 Hours = 60 hours in semester
Duration	:	Semester
Medium of instruction	:	Marathi / English
Examination Pattern	:	80:20 (The pattern of examination will be Semester End Examination with Internal Assessment / Evaluation)
Nature of Question Paper	:	As per guidelines of Shivaji University, Kolhapur

Preamble:

This syllabus provides a comprehensive exploration of Regional Planning and Development, bridging the gap between theoretical frameworks and real-world geographical facts. It begins by establishing a foundational understanding of "region" and the core principles of planning, progressively moving into advanced theories and the socio-economic indicators used to measure regional development.

Particularly focusing on the specific contexts of India and Maharashtra, the curriculum highlights the practical challenges of regional imbalances and the evolution of governance through micro, meso and macro planning. The study concludes with a forward-looking perspective, addressing contemporary issues like Rurban dynamics and climate resilience, while equipping students with modern technological tools such as Remote Sensing and GIS to solve complex spatial problems.

General Objectives of the Course:

1. To understand the concept of region, planning, their types, and the interrelationship between region and planning in the context of balanced development.

2. To examine the principles, approaches, indicators, and theoretical foundations of regional planning and development, including regional imbalances and the role of government.
3. To analyze the evolution, policies, programmes, and regional development strategies in India and Maharashtra with special reference to reducing disparities.
4. To evaluate contemporary regional challenges such as urbanization and climate change and to understand the application of geospatial technologies like Remote Sensing and GIS in regional planning.

Course Outcomes and Programme Outcomes:

Paper Title - Regional Planning and Development				
Major – Theory Mandatory				
CO Code	Course Outcome	PO Code	Programme Outcome	Explanation / Purpose
CO1	Understand the concept and types of regions and the need and objectives of planning. (Understand)	PO1	Disciplinary Knowledge	Students gain conceptual and theoretical knowledge about regions, their types, and the importance of planning in geography.
CO2	Explain the relationship between region and planning and types of planning. (Understand, Apply)	PO2	Problem Solving	Learners relate spatial concepts of regions to different planning approaches, helping them interpret real-world developmental issues.
CO3	Analyse regional development and imbalances using indicators and approaches like Growth Pole Theory. (Analyse, Evaluate)	PO3	Scientific Reasoning / Reflective Thinking	Students develop analytical and evaluative abilities to understand regional disparities and planning strategies for balanced development.
CO4	Examine the role of government and policy interventions in regional planning and development. (Evaluate)	PO4	Digital Literacy	Encourages awareness of governance, policy ethics, and equitable regional development for social justice.
CO5	Evaluate regional planning practices in India and Maharashtra with special reference to Five-Year Plans and regional development programs. (Analyse, Evaluate)	PO5	Moral and Ethical Awareness / Reasoning	Learners understand the evolution of regional planning in India and Maharashtra and assess policy effectiveness in reducing imbalances.
CO6	Discuss contemporary regional issues such as urban–rural linkages, climate change, and resilience. (Analyse, Evaluate)	PO6	Global Citizenship / Multicultural Competence / Environment & Sustainability	Learners become aware of global and local sustainability challenges and understand the importance of inclusive, resilient regional development.

11. Scheme of Teaching and Examination:

The Scheme of teaching and examination should be given as applicable to the course / paper concerned)

B. A. / B. A. B. Ed. Part –III

Sr. No.	Subjects/Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Theory	Term Work	Total (Semester)
1	Regional Planning and Development - 4	04	04	---	04	80	20	100

Scheme of Examination:

- The examination shall be conducted at the end of each semester year.
- The theory course shall carry 100 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester theory examination of 80 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester internal evaluation of 20 marks.
- Question Paper will be set in the view of the / in accordance with the entire syllabus and preferably covering each Module of syllabi.

Standard of Passing:

As prescribed by the Shivaji University under rules & regulation for each diploma / degree / programme

Nature of Question Paper:

The student's examination and evaluation methods are as per the guidelines of the Shivaji University, Kolhapur.

Title of Course: Major X: Regional Planning and Development					
Module No.	Module Name	Sub-module	Difficulty level	Credit	No. of hours
1	Introduction to Region and Planning	1.1 Concept of Region, Types of Regions 1.2 Planning: Concept, objectives and need 1.3 Types of Planning 1.4 Relationship between Region and Planning	1 2 3 4	1	15
2	Regional Planning and Development	2.1 Concept of Regional Planning 2.2 Regional Development: Meaning and indicators, Regional imbalances 2.3 Approaches to Regional planning, Growth Pole Theory 2.4 Role of Government in Regional Planning	1 2 3 4	1	15
3	Regional Planning and Development in India and Maharashtra	3.1 Regional Planning in India: Evolution, Five Year Plans, Backward region development programmes 3.2 Regional Imbalances in India 3.3 Regional Planning in Maharashtra 3.4 Regional Development Programmes in Maharashtra	4 2 4 3	1	15
4	Contemporary issues and Use of Geospatial Technologies in Regional Planning	4.1 The "Rurban" Challenge & Urban Fringe Dynamics 4.2 Climate Change and Regional Resilience 4.3 Application of Remote Sensing in Regional Planning 4.4 Applications of GIS in regional planning	3 3 4 4	1	15
Difficulty Level: 4 – Very High, 3 – High, 2- Moderate, 1- Easy					

Learning Resources

- Batchi, M., & Moumane, A. (Eds.). (2025). *Applying remote sensing and GIS for*

spatial analysis and decision-making. IGI Global Scientific Publishing.

- Bishnoi, R. (2022). *Regional planning and development*. AkiNik Publications.
- Chandna, R. C. (2023). *Regional planning and development* (6th ed.). Kalyani Publishers.
- Conyers, D., & Hills, P. (1984). *An introduction to planning in the Third World*. John Wiley and Sons.
- Glasson, J., & Marshall, T. (2007). *Regional planning*. Routledge.
- Hall, P. G. (1992). *Urban and regional planning*. Routledge.
- Misra, R. P., Sundaram, K. V., & Rao, V. L. S. P. (1974). *Regional development planning in India: A new strategy*. Vikas Publishing House.
- Moharir, K., & Pande, C. (2022). *Remote sensing and GIS application in forest conservation and planning*. Springer.
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- Sabnis, N. (n.d.). *Maharashtra regional and town planning (MRTP) act and rules*. Mukund Prakashan.
- Shelkar, A. (2022). *Maharashtra pradeshik va nagarrachna adhiniyam 1966* [Maharashtra regional and town planning act 1966]. Nasik Law House.
- Shinde, K. B., & Tatipamul, R. V. (2022). *Pradeshik niyojan ani vikas bhugol* [Geography of regional planning and development]. Jyotikiran Publication.
- Singh, R. (2025). *Bhartiya arthvyavastha* [Indian economy 2025-26] (16th ed.). McGraw Hill. (Includes dedicated sections on Maharashtra's budget, economic survey, and regional planning)
- Waterston, A. (1979). *Development planning: Lessons of experience*. Johns Hopkins University Press.

CO-PO Mapping Strength												
CO Code	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	1	1	1	3	3	1	1	1	1	3	3
CO2	3	2	3	1	3	2	2	2	1	1	3	3
CO3	2	3	3	1	3	4	3	3	2	1	3	4
CO4	2	3	3	2	3	3	2	3	2	1	3	3
CO5	3	4	2	2	3	4	2	4	2	2	3	4
CO6	2	3	2	2	3	4	2	3	2	2	3	4

Legend: 3 - Strongly related, 2 - Moderately related, 1 - Slightly related, 0/- - Not related

Shivaji University, Kolhapur
B. A. / B. A. B.Ed., Semester VI
Major XI: Geospatial Mapping and Land Survey Technologies
As per NEP 2020 (2.0)

Name of the Programme	:	B. A. / B. A. B. Ed. (Geography)
Class	:	B. A. / B. A. B. Ed. - III
Semester	:	VI
Name of Vertical Group	:	Major-XI
Course Code	:	BAU0325MMP422E11
Course Title	:	Geospatial Mapping and Land Survey Technologies
Total Credit	:	04
Workload	:	04 credit X 30 Hours = 120 hours in semester
Duration	:	Semester
Medium of instruction	:	Marathi / English
Examination Pattern	:	80:20 (The pattern of examination will be Semester End Practical Examination with Internal Assessment / Evaluation)
Nature of Question Paper	:	As per guidelines of Shivaji University, Kolhapur

Preamble:

The course “Surveying and GIS Mapping” is designed for B. A./ B. A. B. Ed. Part-III Geography students with the objective of developing practical skills in conventional, instrument-based, modern surveying techniques and GIS-based spatial analysis. The course integrates field-based surveying methods with modern geospatial technologies such as GPS, Total Station, satellite imagery and GIS software, ensuring a balanced combination of traditional and advanced approaches. Emphasis is laid on hands-on training, demonstration-based learning, data-based exercises and educational field visits to provide real-world exposure. The course aims to enhance students’ spatial understanding, technical competence, map-making ability and analytical skills, thereby preparing them for higher studies, research, competitive examinations and employment opportunities in geography, planning, surveying and geospatial fields.

General Objectives of the Course:

1. To provide students with practical knowledge and hands-on field exposure to modern satellite-based surveying techniques, including GPS, DGPS, Total Station, and drone surveying, for real-world applications.

2. To enable students to collect, observe, and analyze real-world spatial data during field visits.
3. To develop the ability to integrate classroom knowledge with field-based survey practices.
4. To enhance students' skills in map preparation, positioning, measurement, and spatial interpretation.
5. To encourage experiential learning through educational tours, helping students understand survey operations in real geographical settings.

Course Outcomes and Programme Outcomes:

Paper Title – XI: Geospatial Mapping and Land Survey Technologies				
Major - Practical				
CO Code	Course Outcome	PO Code	Programme Outcome	Explanation / Purpose
CO1	Explain the principles and applications of surveying in geography and allied fields.	PO1	Disciplinary Knowledge	This outcome develops a strong theoretical foundation in surveying concepts and their applications, enhancing students' core disciplinary knowledge in Geography and related fields.
CO2	Conduct basic field surveys using conventional surveying instruments and prepare accurate maps.	PO2	Problem Solving	This outcome enables students to apply logical reasoning and practical skills to solve real-world field survey problems and transform observations into accurate maps.
CO3	Perform instrument-based surveys to measure elevations, slopes and angles and interpret the results.	PO3	Scientific Reasoning / Reflective Thinking	This outcome strengthens scientific reasoning by encouraging systematic observation, measurement, interpretation, and reflective analysis of survey data collected using optical instruments.
CO4	Interpret and utilize GPS, satellite imagery and modern survey data for spatial analysis.	PO4	Digital Literacy	This outcome enhances digital literacy by enabling students to interpret and use GPS data, satellite imagery, and modern digital survey datasets through ICT-based spatial analysis tools.
CO5	Integrate field survey data with GIS software to generate georeferenced spatial datasets.	PO5	Digital Literacy	This outcome develops advanced digital skills by training students in GIS-based data integration, geo-referencing, and spatial database creation for accurate digital mapping.
CO6	Prepare and interpret GIS-based thematic maps for planning, research and decision-making.	PO6	Global Citizenship / Environment & Sustainability	This outcome promotes responsible global citizenship by applying GIS-based thematic mapping to planning, environmental management, and sustainable decision-making processes.

11. Scheme of Teaching and Examination:

The Scheme of teaching and examination should be given as applicable to the course / paper concerned)

B. A. / B. A. B. Ed. Part –III

Sr. No.	Subjects/Course & Credit	Practical Teaching Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Practical	Term Work	Total (Semester)
1	Geospatial Mapping and Land Survey Technologies - 4	08	--	08	08	80	20	100

Scheme of Examination:

- The examination shall be conducted at the end of each semester year.
- The practical course shall carry 100 marks.
- The evaluation of the performance of the student in practical course shall be on the basis of semester practical examination of 80 marks.
- The evaluation of the performance of the student in practical course shall be on the basis of semester internal evaluation of 20 marks.
- Question Paper will be set in the view of the / in accordance with the entire syllabus and preferably covering each Module of syllabi.

Standard of Passing:

As prescribed by the Shivaji University, Kolhapur under rules & regulation for each diploma / degree / programme

Nature of Question Paper:

The student's examination and evaluation methods are as per the guidelines of the Shivaji University, Kolhapur.

**Title of Course: Major XI:
Geospatial Mapping and Land Survey Technologies**

Module No.	Module Name	Sub-module	Difficulty Level	Credit	No. of Hours
1	Conventional Surveying Techniques	1.1 Surveying: Definition, Objectives and Classification	1	1	30
		1.2 Chain and Tape Surveying: Instruments and Methods	1		
		1.3 Plane Table Surveying: Instruments and Methods	2		
		1.4 Compass Surveying: Bearings and Local Attraction	2		
		Practical Exercises: Any Two surveying technique (Chain & Tape / Plane Table / Prismatic Compass) from this module shall be selected.			
		A. Chain & Tape Surveying: a. Measurement of a small open area using chain and tape	1		
		b. Preparation of rough field sketch	1		
		c. Calculation of area from chain survey data	2		
		d. Identification and correction of common chain surveying errors	2		
		e. Preparation of a neat map	2		
		B. Plane Table Surveying: a. Plane table setting: levelling, centring and northing	2		
		b. Mapping by radiation method	2		
		c. Mapping by intersection method	3		
		d. Mapping by open and close travers method	3		
		C. Compass Surveying: a. Identification of prismatic compass parts and its mechanism	1		
		b. Orientation and reorientation (forward and back bearings)	2		
		c. Detection of local attraction and correction of bearings	3		
d. Mapping by radiation and intersection methods	3				

		e. Mapping by open and close travers method	2		
2	Instrument-based and Optical Surveying	2.1 Levelling: Concept and Types	2	1	30
		2.2 Dumpy Level Surveying: Profile and Contour Levelling	2		
		2.3 Theodolite Surveying: Measurement of Horizontal and Vertical Angles	3		
		2.4 Abney Level and Indian Clinometer	2		
		Practical / Skill Component: Any ONE surveying technique (Dumpy level/ Abney level/ Clinometer / Theodolite) from this module shall be selected.			
		A. Dumpy Level:	1		
		a. Identification of parts	1		
		b. Temporary adjustments / levelling	2		
		c. Profile levelling along a line	2		
		d. Spot height collection	2		
		e. Preparation of profile/contour sketch	3		
		B. Abney Level / Indian Clinometer:	1		
		a. Parts identification	1		
		b. Measurement of slope angle	2		
		c. Calculation of gradient (%)	2		
		d. Preparation of longitudinal profile	3		
		C. Theodolite:	2		
a. Identification of parts	2				
b. Measurement of horizontal angles	3				
c. Measurement of vertical angles	3				
d. Simple traverse / triangulation demonstration	3				
e. Plotting measured angles	3				
3	Modern and Satellite-based	3.1 Introduction to Modern Surveying	2	1	30
		3.2 GPS / DGPS Surveying: Principle, Types and Accuracy	3		
		3.3 Total Station Surveying: Components and Field Procedure	4		
		3.4 Air Surveying (Drone / Satellite-based)	4		
		Practical / Skill Component:			

Surveying Techniques	Practical / Skill Component shall include the following two components:		
	i. One practical exercise based on any ONE of the modern surveying techniques (GPS / DGPS / Total Station / Drone / Satellite-based Survey)		
	ii. Educational Tour / Field Visit as prescribed below		
	A. GPS / DGPS Surveying (Hands-on / Demonstration-based)		
	a. Identification of GPS / DGPS device or mobile application	1	
	b. Understanding coordinate system and accuracy levels	3	
	c. Collection and recording of latitude–longitude points	3	
	d. Waypoint creation and naming (practical / demonstrated)	2	
	B. Total Station Surveying (Hands-on / Demonstration-based)		
	a. Identification of major components of Total Station	2	
	b. Observation of field data collection procedure	2	
	c. Understanding angle and distance measurement process	3	
	d. Preparation of map using total station data	4	
	C. Air Surveying (Drone / Satellite-based Survey)		
	a. Identification of terrain features using drone or satellite images	2	
	b. Measurement of distance and area using drone / satellite imagery	3	
	c. Preparation of location / land-use map using drone / satellite imagery	4	
d. Comparison of satellite-based information with field knowledge or topographical maps	3		
D. Educational Tour / Field Visit (Demonstration-based Exercise)			
a. Educational tour / field visit to a suitable site such as: Survey office,			

		Construction site, Irrigation project, Municipal GIS cell, Academic survey camp, Any other geographically relevant field site			
		b. Observation of modern surveying instruments and practices	2		
		c. Interaction with professionals (where feasible)	2		
		d. Submission of field visit report with sketches, photographs and interpretation	3		
4	GIS Mapping and Applications	4.1 Introduction to GIS Software (QGIS / ArcGIS)	3	1	30
		4.2 Import of Survey Data into GIS: Conventional survey data, GPS / Total Station data	4		
		4.3 Data Editing, Geo-referencing and Projection	4		
		4.4 Map Preparation in GIS: Base Map, Contour Map, Location and Thematic Maps	4		
		Practical / Skill Component:			
		a. Introduction to QGIS interface and basic tools	3		
		b. Creation of point, line, polygon layers	3		
		c. Import of GPS / survey data (Primary or secondary)	4		
		d. Geo-referencing of scanned field map / toposheet	4		
		e. Preparation of thematic map	4		
Difficulty Level: 4 – Very High, 3 – High, 2- Moderate, 1- Easy					

Learning Resources

References

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CO-PO Mapping Strength												
CO Code	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	1	2	0	0	1	3	1	1	0	1	1
CO2	2	2	1	1	1	1	2	3	2	1	1	1
CO3	2	3	2	1	0	1	2	3	2	1	1	0
CO4	2	2	3	2	0	1	2	3	3	2	1	1
CO5	1	2	2	3	0	1	1	2	3	2	2	1
CO6	1	2	2	2	1	3	1	2	2	1	3	2

Legend: 3 - Strongly related, 2 - Moderately related, 1 - Slightly related, 0/- - Not related

Shivaji University, Kolhapur
B. A. / B. A. B.Ed., Semester VI
Major XII: Geography of Health and Nutrition

As per NEP 2020 (2.0)

Name of the Programme	:	B. A. / B. A. B.Ed. (Geography)
Class	:	B. A. / B. A. B.Ed. -III
Semester	:	VI
Name of Vertical Group	:	Major-XII
Course Code	:	BAU0325MMT422E12
Course Title	:	Geography of Health and Nutrition
Total Credit	:	02
Workload	:	02 Credit X 15 Hours = 30 hours in semester
Duration	:	Semester
Medium of instruction	:	Marathi / English
Examination Pattern	:	40:10 (The pattern of examination will be Semester End Examination with Internal Assessment / Evaluation)
Nature of Question Paper	:	As per Shivaji University, Kolhapur rules and regulations.

Preamble :

Health and nutrition are fundamental dimensions of human development and quality of life. Geography, as a spatial and integrative discipline, provides a unique framework to understand the interrelationships between population, environment, food systems, and health outcomes. The course ‘Geography of Health and Nutrition’ is designed to introduce students to the concepts, patterns, and processes of health and nutrition from a geographical perspective. It focuses on spatial variations in nutrition, causes and consequences of malnutrition, lifestyle diseases, health indicators, population assessment, food security and sustainable nutrition in the context of climate change. This course aims to equip students with conceptual clarity, analytical skills and applied understanding necessary to address emerging health and nutrition challenges at local, regional, national, and global levels.

General Objectives of the Course:

1. To understand the concepts, dimensions and determinants of health and nutrition from a geographical perspective.
2. To examine spatial patterns of food availability, nutrition, malnutrition and disease in India.
3. To analyse the relationship between environment, population characteristics, food security and public health.

4. To apply geographical methods and health indicators to assess nutritional status, health disparities and sustainable development.

Course Outcomes and Programme Outcomes:

Paper Title - Geography of Health and Nutrition				
Major - Theory				
CO Code	Course Outcome	PO Code	Programme Outcome	Explanation / Purpose
CO1	Understand the basic concepts of health and nutrition and their significance in human geography.	PO1	Disciplinary Knowledge	Builds foundational knowledge of health and nutrition concepts within geographical studies.
CO2	Analyze spatial patterns of food consumption, nutrition, malnutrition, and deficiency diseases.	PO2	Analytical and Spatial Thinking	Develops the ability to interpret regional variations and spatial disparities in nutrition and health.
CO3	Evaluate the relationship between lifestyle changes, dietary patterns, and lifestyle-related diseases.	PO3	Critical Thinking and Problem Solving	Encourages critical evaluation of contemporary health issues arising from socio-economic and lifestyle transitions.
CO4	Apply health indices and population assessment methods to evaluate health and nutritional status.	PO4	Research and Methodological Skills	Enhances skills in applying health indicators, data interpretation and basic population health assessment.
CO5	Assess food security, carrying capacity and the impact of climate change on sustainable nutrition.	PO5	Environmental Awareness and Sustainability	Promotes understanding of sustainability, climate change impacts, and responsible resource management.
CO6	Critically examine public nutrition programmes and ethical issues in health and nutrition planning.	PO6	Social Responsibility and Ethics	Sensitizes learners to policy frameworks, ethical concerns and social responsibility in public health planning.

11. Scheme of Teaching and Examination:

The Scheme of teaching and examination should be given as applicable to the course / paper concerned)

B. A. / B. A. B. Ed. Part –III

Sr. No.	Subjects/Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Theory	Term Work	Total (Semester)
1	Geography of Health and Nutrition - 2	02	02	---	02	40	10	50

Scheme of Examination:

- The examination shall be conducted at the end of each semester year.
- The theory course shall carry 50 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester theory examination of 40 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester internal evaluation of 10 marks.
- Question Paper will be set in the view of the / in accordance with the entire syllabus and preferably covering each Module of syllabi.

Standard of Passing:

As prescribed by the Shivaji University under rules & regulation for each diploma / degree / programme

Nature of Question Paper:

The student's examination and evaluation methods are as per the guidelines of the Shivaji University, Kolhapur.

Title of Course: Major XII: Geography of Health and Nutrition					
Module No.	Module Name	Sub-module	Difficulty level	Credit	No. of hours
1	Geography of Nutrition and Health Patterns	1.1 Concept of Health and Nutrition 1.2 Food and Nutrition 1.3 Malnutrition and Deficiency Diseases 1.4 Lifestyle Diseases and Nutrition Awareness	1 2 3 4	1	15

2	Environmental Exposure, Health Risks and Disease Patterns in India	2.1 Health Indices and Population Assessment	2	1	15
		2.2 Body Composition and Nutritional Status	2		
		2.3 Food Security, Carrying Capacity and Climate Change	3		
		2.4 Public Nutrition Programmes and Ethical Issues	4		
Difficulty Level: 4 – Very High, 3 – High, 2- Moderate, 1- Easy					

Learning Resources

Sr.
No.

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CO-PO Mapping Strength												
CO Code	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	1	2	1	1	2	3	1	1	0	1	2
CO2	3	3	2	1	1	2	3	2	2	0	3	2
CO3	2	3	3	1	1	3	3	2	2	2	2	3
CO4	2	3	3	3	2	2	2	3	3	2	2	2
CO5	3	2	3	1	3	3	2	2	3	1	3	3
CO6	2	3	3	1	2	3	2	2	3	2	2	3

Legend: 3 - Strongly related, 2 - Moderately related, 1 - Slightly related, 0/- - Not related

Shivaji University, Kolhapur
B. A. / B.A. B.Ed. Part-III, Semester VI
Major Elective II : Economic Geography
As per NEP 2020 (2.0)

Name of the Program	:	B. A. / B. A. B.Ed. (Geography)
Class	:	B. A. // B. A. B.Ed. Part-III
Semester	:	VI
Name of Vertical Group	:	Major Elective -II
Course Code	:	BAU0325MET422E02
Course Title	:	Economic Geography
Total Credit	:	04
Workload	:	04 credit X 15 Hours = 60 hours in semester
Duration	:	Semester
Medium of instruction	:	Marathi / English
Examination Pattern	:	80:20 (The pattern of examination will be Semester End theory Examination with Internal Assessment / Evaluation)
Nature of Question Paper	:	As per Shivaji University, Kolhapur rules and regulations.

PREAMBLE :

Economic Geography explores the dynamic relationship between space and economic activity, examining how resources, production, trade, and services are organized across regions and its landscapes. This course provides a framework for understanding the spatial patterns of economies, from local agricultural systems to global financial networks, with a particular emphasis on issues of development, sustainability, and globalization relevant to contemporary India and Maharashtra.

Structured to build both theoretical knowledge and applied analysis, the syllabus progresses through primary, secondary, tertiary, and quaternary sectors, integrating key models and real-world case studies. It aims to equip students with the analytical tools to critically assess regional disparities, location theories, and planning strategies, fostering skills essential for further academic research or careers in development, policy, and spatial planning.

General Objectives of the Course:

1. Explain the definition, nature, scope, and recent trends in Economic Geography, and describe its relationship with other disciplines.

2. Classify and differentiate primary, secondary, and tertiary economic activities with suitable examples, and evaluate the role of international trade and the WTO.
3. Analyze and compare agricultural and industrial location theories, including Weber's least cost theory and Lösch's theory of market areas.
4. Delimit economic regions using appropriate criteria, describe the economic regions of India, and assess the significance of the Chennai-Bengaluru Industrial Corridor.

Course Outcomes and Programme Outcomes:

Paper Title Major Elective –II: Economic Geography				
CO Code	Course Outcome	PO Code	Program Outcome	Explanation / Purpose
CO1	Articulate the fundamental nature, scope, and evolving branches of Economic Geography, and classify economic activities (Primary to Quaternary) while explaining the factors and spatial patterns that govern their global and regional distribution.	PO1	Disciplinary Knowledge	Demonstrate systematic knowledge and understanding of the core spatial principles that explain the distribution, organization, and integration of global and regional economic systems.
CO2	Apply core industrial location theories (Weber's Least Cost, Lösch's Zone of Profitability) to diagnose and propose solutions for real-world problems in industrial location, cluster formation, and the planning of economic corridors.	PO2	Problem Solving	Develop competency in applying geographical theories and spatial analysis to identify, model, and address practical challenges in economic landscape planning, industrial development, and regional growth.
CO3	Critique geographical models and theories by scientifically analyzing the logic behind global industrial patterns, trade flows, and transport networks, and reflect on the causes and consequences of regional specialization and economic interdependence.	PO3	Scientific Reasoning / Reflective Thinking	Cultivate a structured, evidence-based approach to deconstructing complex spatial-economic phenomena, fostering critical reflection on theoretical assumptions and their real-world validity.
CO4	Utilize digital tools and geospatial resources to source, analyze, and visually represent data related to spatial patterns of economic activities, industrial regions, and transport networks for enhanced geographical inquiry.	PO4	Digital Literacy	Acquire and apply skills in using contemporary digital and geospatial technologies for data collection, analysis, and cartographic presentation specific to economic and infrastructural Geography.
CO5	Evaluate the ethical implications and socio-economic equity of economic processes, including regional specialization, resource exploitation, and the benefits and disparities	PO5	Moral and Ethical Awareness / Reasoning	Develop a reasoned ethical perspective on issues of development, resource allocation, and trade justice, recognizing the

	created by global trade blocks and economic integration.			geographer's role in promoting equitable and responsible economic practices.
CO6	Synthesize geographical knowledge to propose balanced regional development strategies that consider economic efficiency, social equity, and environmental sustainability.	PO6	Global Citizenship / Multicultural Competence / Environment & Sustainability	Understand global economic interdependence, respect cultural diversity in economic systems, and evaluate development through sustainability lenses.

11. Scheme of Teaching and Examination:

The Scheme of teaching and examination should be given as applicable to the course / paper concerned)

B. A. / B. A. B. Ed. Part –III

Sr. No.	Subjects/Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Practical	Term Work	Total (Semester)
1	Economic Geography - 4	04	--	04	04	80	20	100

Scheme of Examination:

- The examination shall be conducted at the end of each semester year.
- The practical course shall carry 100 marks.
- The evaluation of the performance of the student in practical course shall be on the basis of semester practical examination of 80 marks.
- The evaluation of the performance of the student in practical course shall be on the basis of semester internal evaluation of 20 marks.
- Question Paper will be set in the view of the / in accordance with the entire syllabus and preferably covering each Module of syllabi.

Standard of Passing:

As prescribed by the Shivaji University under rules & regulation for each diploma / degree / programme

Nature of Question Paper:

The student's examination and evaluation methods are as per the guidelines of the Shivaji University, Kolhapur.

Title of Course: Major Elective II: Economic Geography					
Module No.	Module Name	Sub-module	Difficulty level	Credit	No. of hours
1	Introduction to Economic Geography	1.1 Definition, Nature and Scope 1.2 Relation of Economic Geography with other disciplines 1.3 Fundamental Concepts in Economic Geography 1.4 Recent Trends in Economic Geography	1 1 3 4	1	15
2	Economic Activities	2.1 Primary Activities: Livestock Farming, Agriculture, Fishing and Mining 2.2 Secondary Activities: Manufacturing and Processing Industries 2.3 Tertiary Activities: Transport, Trade and Tourism 2.4 International Trade and World Trade Organisation (WTO)	1 2 3 4	1	15
3	Theoretical Economic Geography	3.1 Agricultural Location Theories 3.2 Industrial Location Theories 3.3 Weber's Least cost location theory 3.4 Theory of Market Areas - August Losch	1 3 2 4	1	15
4	Economic Regions	4.1 Concept of Economic Region 4.2 Delimitation of Economic Regions 4.3 Economic Regions of India 4.4 Chennai - Bengluru Industrial Corridor (CBIC)	2 2 3 4	1	15
Difficulty Level: 4-Very High, 3- High, 2- Moderate, 1- Easy					

Learning Resources

Sr. No.

References

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CO-PO Mapping Strength												
CO Code	Program Outcomes (PO)						Program Specific Outcomes (PSO)					
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	1	1	1	1	3	2	1	1	1	1
CO2	1	3	3	2	2	1	2	3	3	2	2	1
CO3	1	2	3	1	2	2	2	2	3	1	2	2
CO4	1	2	2	3	1	1	1	2	2	3	1	1
CO5	1	1	2	1	3	3	1	1	2	1	3	3
CO6	2	1	2	1	3	3	2	1	2	1	3	3

Legend: 3 - Strongly related, 2 - Moderately related, 1 - Slightly related, 0/- - Not related

Shivaji University, Kolhapur
B. A. / B. A. B. Ed. Part-III, Semester VI
Major Elective II: Settlement Geography
As per NEP 2020 (2.0)

Name of the Programme	:	B. A. / B. A. B.Ed. (Geography)
Class	:	B. A. / B. A. B.Ed. Part-III
Semester	:	VI
Name of Vertical Group	:	Major Elective II
Course Code	:	BAU0325MET422E02
Course Title	:	Settlement Geography
Total Credit	:	04
Workload	:	04 credit X 15 Hours = 60 hours in semester
Duration	:	Semester
Medium of instruction	:	Marathi / English
Examination Pattern	:	80:20 (The pattern of examination will be Semester End Examination with Internal Assessment / Evaluation)
Nature of Question Paper	:	As per guidelines of Shivaji University, Kolhapur

Preamble :

The course “Settlement Geography” introduces Students challenges from rapid urbanization, climate change, and socio-economic disparities, this course aims to bridge the gap between theoretical frameworks and real-world problem-solving. It integrates classical spatial theories, such as Christaller’s Central Place Theory and Rank-Size Rule with contemporary urban concepts like Smart Cities and Mega Cities, ensuring students are equipped with 21st-century analytical skills. The curriculum is designed to foster Conceptual Clarity regarding the rural-urban dichotomy and to cultivate Spatial Analysis skills necessary for understanding settlement hierarchies and urban morphology. Furthermore, in line with NEP’s emphasis on social responsibility and sustainability, the course encourages students to identify and propose ethical solutions for urban problems and rural transformations.

General Objectives of the Course:

1. To define the nature and scope of Settlement Geography and trace the evolutionary origin and growth of human settlements across various geographical contexts.
2. To analyze the types, patterns, and morphology of rural settlements, including the influence of environmental factors on house types and the modern transformation of Indian villages.

3. To evaluate critical spatial theories, including Christaller's Central Place Theory and the Rank-Size Rule, to understand the functional classification and hierarchy of towns.
4. To examine modern urban morphology—from "Smart Cities" to "Mega Cities"—and identify sustainable planning solutions to address contemporary urban problems and policy challenges in India.

Course Outcomes and Programme Outcomes:

Course Title Major Elective II: Settlement Geography				
CO Code	Course Outcome	PO Code	Programme Outcome	Explanation / Purpose
CO1	Define and explain the nature, scope, and basic concepts of Settlement Geography.	PO1	Disciplinary Knowledge	To build a foundational theoretical framework and grasp core geographic terminology.
CO2	Analyze rural settlement patterns, morphology, and house types, building material based on environmental factors.	PO2	Problem Solving	To understand how spatial layout addresses local environmental and logistical constraints.
CO3	Apply spatial theories like Christaller's Central Place Theory and the Rank-Size Rule to understand regional hierarchies.	PO3	Scientific Reasoning/ Reflective thinking	Critically examining and understand spatial patterns of hierarchies of settlement
CO4	Evaluate the process of rural transformation and identify solutions for rural dwellings in Indian villages.	PO4	Digital Literacy	To utilize satellite images used in modern spatial mapping.
CO5	Critique urban morphology and modern urban concepts like Smart Cities and Mega cities.	PO5	Moral and Ethical Awareness / Reasoning	To evaluate the ethical implications of urban development and social equity in new city initiatives.
CO6	Formulate sustainable town planning solutions by addressing urban problems and reviewing Indian urban policies.	PO6	Global Citizenship / Multicultural Competence / Environment & Sustainability	To develop policy-driven strategies that balance urban growth with environmental preservation

11. Scheme of Teaching and Examination:

The Scheme of teaching and examination should be given as applicable to the course / paper concerned)

B. A. / B. A. B. Ed. Part –III

Sr. No.	Subjects/Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Theory	Term Work	Total (Semester)
1	Settlement Geography - 4	04	04	---	04	80	20	100

Scheme of Examination:

- The examination shall be conducted at the end of each semester year.
- The theory course shall carry 100 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester theory examination of 80 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester internal evaluation of 20 marks.
- Question Paper will be set in the view of the / in accordance with the entire syllabus and preferably covering each Module of syllabi.

Standard of Passing:

As prescribed by the Shivaji University under rules & regulation for each diploma / degree / programme

Nature of Question Paper:

The student's examination and evaluation methods are as per the guidelines of the Shivaji University, Kolhapur.

Title of Course: Major Elective : Settlement Geography					
Module No.	Module Name	Sub-module	Difficulty level	Credit	No. of hours
1	Introduction to Settlement Geography	1.1 Definition of Settlement Geography 1.2 Nature, Scope of Settlement Geography 1.3 Origin and growth of Human Settlement 1.4 Approaches of Settlement Geography	1 1 2 4	1	15
2	Rural Settlement	2.1 Types of Rural Settlement 2.2 Morphology of Rural Settlement 2.3 Rural Dwellings: House types based on building materials and environmental factors. 2.4 Rural Transformation: Changing nature of Indian villages	1 3 3 4	1	15
3	Settlement Theories and Urban classification	3.1 Christaller's Central Place theory 3.2. Rank-Size Rule 3.3 Primate City Concept 3.4 Functional classification of Towns	3 3 2 4	1	15
4	Urban Morphology and problem	4.1 Urban Morphology 4.2 Modern Urban Concepts: Introduction to Mega cities, Global cities, Edge cities, and the "Smart City" initiative and Satellite town 4.3 Urban problems 4.4 Town Planning in India: Key urban policies, challenges and sustainable planning solutions.	3 2 3 4	1	15
Difficulty Level: 4 – Very High, 3 – High, 2- Moderate, 1- Easy					

Learning Resources

Sr.
No.

References

- मानवी भूविज्ञान केचे के. एम . आणि , सवदी ए. बी.सी जमानदास कंपनी मुंबई , १९७९
- नागरी भूगोल - सावंत प्रकाश, फडके प्रकाशन, कोल्हापूर, १९९८.
- मानवी भूगोल - के, सागर पब्ली केशन, पुणे, २००४.
- मानवी भूगोल - खतीब के. ऐ., संजोग प्रकाशन, कोल्हापूर, २००७.
- वसाहती भूगोल- खतीब के. ऐ., संजोग प्रकाशन, कोल्हापूर, २००७.

6. Introduction to Settlement Geography- Sumita Ghosh, orient Blackswan, 2009.
7. Geography of Settlement Geography- R,Y, Shing, Rawat publication, Jaipur, 2010.
8. वस्ती भूगोल- विठ्ठल धारपुरे, २०१३
9. महाराष्ट्राचा भूगोल - सवदी ए. बी. आणि कोळेकर पी. एस., निराली प्रकाशन, पुणे, २०२१-२२
10. महाराष्ट्राचा भूगोल -खतीब, के. ऐ., के, सागर पब्लीकेशन, कोल्हापूर, २०२२.

CO-PO- PSO Mapping Strength												
CO Code	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	1	1	1	1	1	3	2	1	1	1	1
CO2	2	3	2	1	1	2	2	3	2	2	1	2
CO3	3	2	3	2	1	1	3	2	3	1	1	1
CO4	2	3	2	3	2	2	2	3	2	3	2	2
CO5	2	2	2	2	3	2	1	2	3	1	3	2
CO6	1	2	2	1	2	3	1	2	2	1	3	3

Legend: 3 - Strongly related, 2 - Moderately related, 1 - Slightly related, 0/- - Not related

Shivaji University, Kolhapur
B. A. /B. A. B. Ed., Semester VI
Minor IV: Human Geography of India

As per NEP 2020 (2.0)

Name of the Programme	:	B. A. / B. A. B. Ed (Geography)
Class	:	B. A. / B. A. B. Ed. Part-III
Semester	:	VI
Name of Vertical Group	:	Minor – IV
Course Code	:	BAU0325MNT422E04
Course Title	:	Human Geography of India
Total Credit	:	04
Workload	:	04 credit X 15 Hours = 60 Hours in semester
Duration	:	Semester
Medium of Instruction	:	Marathi/English
Examination Pattern	:	80:20 (The pattern of examination will be Semester End Examination with Internal Assessment / Evaluation)
Nature of Question Paper	:	As per Shivaji University, Kolhapur rules and regulation

Preamble:

This course Human Geography of India is designed to provide undergraduate Students will explore how India's long history and diverse social layers, including caste and tribe, cultural regions and ethnic diversity have shaped a unique national identity. The course aims to decode population growth and distribution, population policy, migration patterns to better manage the challenges of modern urbanization and rural living. Students will learn to Indian agricultural characteristics, land reforms, green revolution and agricultural challenges and prospects to understand for sustainable development. The structure and spatial dynamics of industrial development in India with special reference to special economic Zones (SEZs), major industrial regions, and key agro-based industries such as the sugar industry. It analyses the geographical, economic and policy factors influencing industrial growth and regional disparities. This course aims to provide an integrated and analytical understand, evaluate of human geography of India. students will identify regional inequalities and propose ways to ensure that economic growth reaches every corner of the country.

General Objective of the Course:

1. To examines the historical and anthropological roots, from ancient civilizations to the intricate the mosaic of the culture.
2. To analyses the demographic dynamics, growth, distribution, migration & its policies.

3. To examine the agriculture characteristics, land reforms and green revolution to identify current challenges and strategic prospects for Indian agriculture.
4. To examines the spatial framework of SEZs and industrial regions along with the problems and prospects of the sugar industry.

Course Outcomes and Programme Outcomes:

Course Title: Minor IV: Human geography of India				
CO Code	Course Outcome	PO Code	Programme Outcome	Explanation
CO1	Analysis the historical and ethnic evolution of Indian society by mapping the racial composition and spatial distribution of the tribal groups.	PO1	Demonstrate the ability to apply multidisciplinary framework to interpret the demographic complexities.	Disciplinary knowledge with critical thinking and social analysis of related areas.
CO2	Evaluate the formation of cultural regions in India and to understand its diversity.	PO2	Develop the analytical competence to assess regional variation and social stratification.	Disciplinary knowledge with critical thinking and social analysis of related areas.
CO3	Analyse the demographic dynamics in India to identify demographic trend and the strategic implication to help human resource development.	PO3	Using detailed population statistics and policy analysis to contest for social improvement that ensure fair opportunities for everyone	apply quantitative reasoning to spatial analysis for sustainable development systematically.
CO4	Apply geographical and scientific knowledge to distinguish the agriculture Characteristics, challenges, land reforms and green revolution in India.	PO4	Apply critical problem solving and technical integration to related areas situation.	Apply critical problem solving and technical integration to related areas situation.
CO5	analyse the conceptual framework spatial distribution, economic performance, and socio-environmental implications of Special Economic Zones (SEZs) in India,	PO5	Critically evaluate the economic gains and socio-environmental concerns and linked with SEZ development.	apply and interpret the locational patterns of SEZs across major industrial states using geographical tools and statistical techniques, and evaluate their contribution toward sustainable regional development.
CO6	Analysis industrial region and SEZ, to assess the operational challenges of Indian industries with a specific focus on the sugar industry and the development of legacy rural industrial clusters.	PO6	Demonstrate the ability to apply geographical and economic principles to solve spatial industrial challenges and critically evaluate policies to advocate for sustainable industrial growth	Apply the principles of sustainable planning to critically assess industrial challenges and meet national development goals

Scheme of teaching and Examination:

The Scheme of teaching and examination should be given as applicable to the course / paper concerned

B. A. / B. A. B. Ed. Part –III

Sr. No.	Subjects/Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Theory	Term Work	Total (Semester)
1	Human Geography of India - 4	04	04	---	04	80	20	100

Scheme of Examination:

- The examination shall be conducted at the end of each semester year.
- The theory course shall carry 100 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester theory examination of 80 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester internal evaluation of 20 marks.
- Question Paper will be set in the view of the / in accordance with the entire syllabus and preferably covering each Module of syllabi.

Standard of Passing:

As prescribed by the Shivaji University under rules & regulation for each diploma / degree / programme

Nature of Question Paper:

The student's examination and evaluation methods are as per the guidelines of the Shivaji University, Kolhapur.

Title of Course: Minor IV: Human Geography of India					
Module No.	Module Name	Sub-Module	Difficulty Level	Credit	No. of Hours
1	Cultural Setting of India	1.1 Historical Perspective of Indian Society 1.2 Racial and Ethnic Diversity in India 1.3 Spatial Distribution in India 1.4 Cultural Regions of India	2 4 3 3	1	15
2	Demographic Dynamics	2.1 Population Growth and Distribution 2.2 Population Composition in India 2.3 Migration Pattern in India 2.4 National Population Policy 2020 in India	3 2 2 1	1	15
3	Agriculture	3.1 Characteristics of Indian Agriculture 3.2 Land Reforms in India 3.3 Green Revolution in India 3.4 Indian Agriculture: challenges and Prospects	2 4 3 3	1	15
4	Industrial Insights	4.1 Special Economic Zone (SEZ) 4.2 Industrial Regions in India 4.3 Sugar Industry in India 4.4 Industrial Problems of India	2 3 2 3	1	15

Learning Resources:

References

- 1 Human Geography: Majid Husain., Rawat Publication
- 2 India A Comprehensive Geography: D. R. Khullar., Kalyani Publication
- 3 Tribal Demography in India: C. B. Mamoria., Hassell Street Press
- 4 Geography of India: P Ravikumar., McGraw Hill
- 5 मानवी भूगोल: Dr. Vitthal Ghodake
- 6 भारताचा भूगोल: A. B. Savadi
- 7 Economic and Social Geography Made Simple: R. Knowles., Rupa
- 8 Geography of Population: R. C. Chandna., Kalyani Publication
- 9 Agricultural Geography of India: Jayashri Murmu., Shine Publication

- 10 The Sugar Cane Industry and Historical Geography from its origins to 1914: J H Galloway., Cambridge University Press

CO-PO Mapping Strength												
CO Code	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	1	0	0	0	3	2	1	0	1	2
CO2	2	3	1	0	0	0	3	2	1	0	2	2
CO3	1	2	3	1	0	0	2	3	2	1	2	2
CO4	0	1	2	3	0	1	3	2	2	1	3	1
CO5	0	0	2	1	3	2	2	3	3	2	3	2
CO6	0	0	1	2	2	3	2	2	2	2	3	3

Legend: 3 - Strongly related, 2 - Moderately related, 1 - Slightly related, 0/- - Not related

SHIVAJI UNIVERSITY, KOLHAPUR



Established: 1962

A++ Accredited by NAAC (2021) With CGPA 3.52

Semester – III and IV
B. A. / B. A. B. Ed. III

Geography
OTHER ELECTIVE (OE)

Under
Faculty of Science and Technology

STRUCTURE AND SYLLABUS IN ACCORDANCE WITH
NATIONAL EDUCATION POLICY – 2020
HAVING CHOICE BASED CREDIT SYSTEM
WITH MULTIPLE ENTRY AND MULTIPLE EXIT OPTIONS

TO BE IMPLEMENTED FROM ACADEMIC YEAR 2026-2027 ONWARDS



Shivaji University, Kolhapur
B. A. / B. A. B. Ed. Part-III, Semester V
Other Elective (OE) V: Water Literacy and Water Budgeting
As per NEP 2020 (2.0)

Name of the Programme	:	B. A. / B. A. B.Ed. (Geography)
Class	:	B. A. –III
Semester	:	V
Name of Vertical Group	:	OE-5
Course Code	:	BAU0325OET422E05
Course Title	:	Water Literacy and Water Budgeting
Total Credit	:	02
Workload	:	02 credit X 15 Hours = 30 hours in semester
Duration	:	Semester
Medium of instruction	:	Marathi / English
Examination Pattern	:	40:10
Nature of Question Paper	:	As per Shivaji University, Kolhapur rules and regulations.

Preamble:

Water is one of the most vital natural resources essential for life, economic development, and environmental sustainability. Although water is a renewable resource, its availability is limited due to uneven distribution, overexploitation, pollution, and the impacts of climate change. India, and particularly states like Maharashtra, face serious challenges related to water scarcity, droughts, floods, and inefficient water management. In this context, water literacy is crucial for developing awareness, responsible attitudes, and sustainable practices among students.

This course introduces undergraduate students to the fundamental concepts of water resources, water scarcity, conservation, and management. It also provides practical exposure to water Budgeting, enabling students to understand water use patterns, identify wastage, and adopt water-saving measures at household, campus, and community levels. By integrating theoretical knowledge with practical applications, the course aims to empower students to become informed citizens capable of contributing to sustainable water management and conservation efforts.

General Objectives of the Course:

1. To develop an understanding of water literacy by examining the hydrological cycle, global water resources, patterns of water use, emerging water issues, and the need for conservation and sustainable management.
2. To enable learners to understand and apply the concepts, components, processes, and significance of water budgeting for effective and sustainable water resource management.

Course Outcomes and Programme Outcomes:

Paper Title - Water Literacy and Water Budgeting				
OE – Theory				
CO Code	Course Outcome	PO Code	Programme Outcome	Explanation / Purpose
CO1	Understand the concept of water literacy and its importance. (Understand)	PO1 – Disciplinary Knowledge	Demonstrate comprehensive knowledge of water as a renewable but limited natural resource.	Students gain conceptual clarity about water literacy, its scope, and its role in sustainable resource management.
CO2	Identify and explain different water resources and their significance. (Understand, Apply)	PO2 – Problem Solving	Use logical reasoning and innovation to solve complex problems systematically.	Learners identify types of water resources (surface, groundwater, rainwater) and evaluate their utility for local and regional development.
CO3	Analyse the causes and impacts of water scarcity and water-related issues. (Analyse, Evaluate)	PO3 – Scientific Reasoning / Reflective Thinking	Apply scientific knowledge and ethical reasoning to real-world situations.	Students apply scientific understanding to assess factors causing scarcity, droughts, and pollution, and reflect on mitigation strategies.
CO4	Use geoinformatics and digital tools for water conservation and management. (Evaluate, Create)	PO4 – Digital Literacy	Use ICT tools efficiently for communication, analysis, and information management.	Encourages students to utilize GIS, remote sensing, and other digital techniques to support water resource management and decision-making.
CO5	Understand the concept and process of water budgeting and assess water use and wastage. (Evaluate, Create)	PO5 – Moral and Ethical Awareness / Reasoning	Recognize ethical issues and behave with integrity and fairness.	Students understand the ethical responsibility of conserving water and analyze patterns of water use and wastage for sustainable management.
CO6	Apply water budgeting techniques for sustainable development at community or	PO6 – Global Citizenship / Environment	Understand global issues, respect cultural diversity, and	Learners practically apply water budgeting methods, promoting environmental

	institutional levels. (Evaluate, Create)	& Sustainability	act for sustainable development.	awareness, conservation ethics, and responsible global citizenship.
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11. Scheme of Teaching and Examination:

The Scheme of teaching and examination should be given as applicable to the course / paper concerned)

B. A. / B. A. B. Ed. Part –III

Sr. No.	Subjects/Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Theory	Term Work	Total (Semester)
1	Water Literacy and Water Budgeting - 2	02	02	---	02	40	10	50

Scheme of Examination:

- The examination shall be conducted at the end of each semester year.
- The theory course shall carry 50 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester theory examination of 40 marks.
- The evaluation of the performance of the student in theory course shall be on the basis of semester internal evaluation of 10 marks.
- Question Paper will be set in the view of the / in accordance with the entire syllabus and preferably covering each Module of syllabi.

Standard of Passing:

As prescribed by the Shivaji University under rules & regulation for each diploma / degree / programme

Nature of Question Paper:

The student's examination and evaluation methods are as per the guidelines of the Shivaji University, Kolhapur.

Title of Course: OE V: WATER LITERACY AND WATER BUDGETING					
Module No.	Module Name	Sub-module	Difficulty level	Credit	No. of hours
1	Water Literacy	1.1 Water Literacy : Concept and Importance	2	1	15
		1.2 Hydrological Cycle and Global Scenario of Water Resources	3		
		1.3 Water use and Emerging Water Problems	2		
		1.4 Need of Water Conservation and Sustainable Water Management	4		
2	Water Budgeting	2.1 Water Budgeting: Concept and Need	3	1	15
		2.2 Components and types of water budget	3		
		2.3 Process of water budgeting	3		
		2.4 Importance and outcomes of water budgeting	3		
Difficulty Level: 4 – Very High, 3 – High, 2- Moderate, 1- Easy					

Learning Resources

1. Agarwal, Anil & Narain, Sunita (1997). *Dying Wisdom: Rise, Fall and Potential of India's Traditional Water Harvesting Systems*. Centre for Science and Environment (CSE), New Delhi.
2. Bhatia, Bela & Falkenmark, Malin (2004). *Water and Women: Perspectives from India*. Sage Publications, New Delhi.
3. Central Ground Water Board (CGWB) (2020). *Ground Water Year Book – India*. Ministry of Jal Shakti, Government of India.
4. Central Public Health and Environmental Engineering Organisation (CPHEEO) (2012). *Manual on Water Supply and Treatment*. Ministry of Housing and Urban Affairs, Government of India.
5. Central Water Commission (CWC) (2018). *Guidelines for Water Budgeting and Water Conservation*. Ministry of Jal Shakti, Government of India.
6. CSE (2021). *Down to Earth Reports on Water Conservation and Water Budgeting Practices*.
7. Gadgil, Madhav & Guha, Ramachandra (1995). *Ecology and Equity: The Use and Abuse of Nature in Contemporary India*. Oxford University Press, New Delhi.
8. Government of India (2019). *National Water Policy*. Ministry of Jal Shakti, Government of India.
9. Indian Water Works Association (IWWA) (2015). *Water Budgeting Manual*. IWWA, Mumbai.
10. Jain, S.K., Agarwal, P.K., & Singh, V.P. (2007). *Hydrology and Water Resources of India*. Springer (Indian authors and Indian context).
11. Jal Shakti Abhiyan (2021). *Guidelines for Water Conservation and Management*. Government of India.

12. Joshi, R.K. (2020). *Water Footprint Assessment: Concept and Applications in India*. Indian Journal of Environmental Protection, 40(5), 442–449.
13. Kuber, B.M. (2015). *Water Management in Maharashtra: Issues and Challenges*. Himalaya Publishing House, Mumbai.
14. Kulkarni, Himanshu & Shah, Mihir (2013). *Groundwater: Towards an Equity and Sustainability Framework*. Advanced Centre for Water Resources Development and Management (ACWADAM), Pune.
15. Kulkarni, S.S. (2014). *Rainwater Harvesting and Water Conservation: Community Approach*. National Environmental Engineering Research Institute (NEERI), Nagpur.
16. Maharashtra Jeevan Pradhikaran (2017). *Water Budgeting Practices for Urban Local Bodies in Maharashtra*.
17. Maharashtra Water Resources Department (2018). *State Water Policy, Government of Maharashtra*.
18. National Institute of Hydrology (NIH) (2016). *Water Budgeting Techniques and Methodologies*. Roorkee.
19. NITI Aayog (2019). *Composite Water Management Index: A Tool for Water Management*. Government of India.
20. Patel, C.C. (2019). *Water Budgeting and Conservation: A Practical Guide*. Nirali Prakashan, Pune.
21. Sehgal, Vijay Kumar & Sharma, R.K. (2012). *Water Resources of India*. National Institute of Hydrology, Roorkee.
22. Sharma, V.K. (2016). *Water Resources Management: Traditional and Modern Approaches*. Rawat Publications, Jaipur.
23. TERI (2018). *Water Budgeting and Efficiency in India: Guidelines and Case Studies*. The Energy and Resources Institute, New Delhi.
24. UNESCO (2020). *World Water Development Report*. (for global comparison).

CO-PO Mapping Strength												
CO Code	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	1	2	1	3	2	3	2	1	1	2	2
CO2	2	2	2	2	2	2	2	3	2	1	3	3
CO3	3	3	3	2	3	3	2	3	2	2	4	4
CO4	1	2	3	3	2	2	1	2	2	2	3	4
CO5	3	4	3	2	4	4	3	3	1	1	4	4
CO6	3	4	2	2	4	4	3	3	2	2	4	4

Legend: 3 - Strongly related, 2 - Moderately related, 1 - Slightly related, 0/- - Not related