

SHIVAJI UNIVERSITY, KOLHAPUR



Established: 1962

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

Bachelor of Arts

In

Geography

Under

Faculty of Science and Technology

B. A. / B. A. B. Ed. Part-II (Semester – III and IV)

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 2025-2026 ONWARDS



Shivaji University, Kolhapur
Second Year Bachelor of Arts (B. A. / B. A. B. Ed. -II) (UG DIPLOMA)
in Geography

Year	B. A. / B. A. B. Ed. - II
Semester	III & IV
Level	5.0
Total Credits	22 + 22 = 44
Degree Awarded	UG DIPLOMA (After 44 Credits in Total)

A-I) B. A. / B. A. B. Ed. – II: Semester-III (Total Credits-22):

Course Category		Course Name	Course Code	Credits
DSC-Major- III	Mandatory	Environmental Geography	BAU0325MML322C03	4
DSC-Major- IV		Basics of Map Making (Practical)	BAU0325MMP322C04	4
DSC-Minor-I		Environmental Geography	BAU0325MNL322C01	4
IDC/MDC/ GEC/OE	OE	Geography of Agro-based Rural Development	BAU0325OEL322C03	2
VSC/SEC	VSC	Soil Analysis (Practical)	BAU0325VSP322C01	2
	SEC	Geo-statistics and Data Visualization (Practical)	BAU0325SEP322C03	2
AEC/VAC/ IKS	AEC	--	--	2
	IKS	Water Management in Ancient India	BAU0325IKL322C01	2
	VAC	--	--	--
	CC	--	--	--
Credits for B. A./ B. A. B. Ed. – II SEM-III				22

A-I) B. A. / B. A. B. Ed. – II: Semester-IV (Total Credits-22):

Course Category		Course Name	Course Code	Credits
DSC-Major- V	Mandatory	Physical Geography of Maharashtra	BAU0325MML322D05	4
DSC-Major- VI		Quantitative Techniques in Geography (Practical)	BAU0325MMP322D06	4
DSC-Minor-II		Physical Geography of Maharashtra	BAU0325MNL322D02	4
IDC/MDC/ GEC/OE	OE	Geography of Rural Economic Development	BAU0325OEL322D04	2
VSC/SEC	VSC	Water Survey and Mapping (Practical)	BAU0325VSP322D02	2
	SEC	Land Record (Practical)	BAU0325SEP322D04	2
AEC/VEC/ IKS	AEC	--	--	2
	IKS	--	--	--
	VEC	--	--	2
	CC	--	--	--
Credits for B. A./ B. A. B. Ed. – II SEM-IV				22

Shivaji University, Kolhapur

B. A. / B. A. B. Ed. II

Geography

Semester III

Major III and Minor I: Environmental Geography as per NEP 2020

Name of the Programme	:	B. A. / B. A. B. Ed. (Geography)
Class	:	B.A. / B. A. B. Ed.-II
Year of Implementation	:	Revised Syllabus will be implemented from June, 2025 onwards.
Semester	:	III
Name of Vertical Group	:	Major III and Minor I
Course Code	:	BAU0325MML322C03
Course Title	:	Environmental Geography
Total Credit	:	04
Workload	:	04 credit X 15 Hours = 60 hours in semester
Duration	:	The course shall be a full time course
Medium of instruction	:	Marathi / English
Eligibility of Admission	:	As per eligibility criteria prescribed by the University
Examination Pattern	:	80:20, The pattern of examination will be Semester End Examination with Internal Assessment / Evaluation.

Preamble:

Environmental Geography is an interdisciplinary field that explores the dynamic interactions between humans and the environment, focusing on spatial patterns, processes, and issues related to the natural world. This course seeks to equip students with the knowledge and analytical skills necessary to understand and address contemporary environmental challenges from both a geographical and ecological perspective.

The syllabus provides a comprehensive overview of key environmental concepts, such as environmental pollution, global warming, climate change, ozone depletion, biodiversity hotspots and explore environmental policies, planning and management.

It delves into the complex ways in which physical landscapes and human societies interact, emphasizing the role of geographical factors in shaping environmental outcomes. Students will examine human impact on the environment.

General Objectives of the Course:

1. To familiarize students with the fundamental concepts of Environmental Geography.
2. To explore how human societies impact, adapt to, and modify their environment.
3. To examine pressing global and local environmental issues such as pollution, global

warming, climate change, ozone depletion, biodiversity hotspots etc.

4. To analyze the spatial distribution of environmental problems and how geographical factors, such as location, climate, and landforms, influence these issues.
5. To provide insight into environmental policies, governance, and the role of national, and local organizations in addressing environmental challenges.

Course Outcomes:

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

1. Demonstrate an understanding of key concepts of Environmental Geography.
2. Critically analyze environmental problems at local, national, and global levels, such as pollution, global warming, climate change, ozone depletion, and biodiversity loss.
3. Identify the causes and effects of various environmental issues from a geographical perspective.
4. Gain knowledge of the role of national, and local governments, organizations, and policies in managing environmental resources, environmental planning and management and addressing environmental challenges.

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 –II

Sr. No.	Subjects/Course	Theory Teaching Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Theory	Term Work	Total (Semester)
1	Environmental Geography	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.

- Internal evaluation should be based on Home Assignment/Unit Test/Case Study

Modules: Environmental Geography				
Module No.	Module Name	Sub-module	No. of hours	Credit
1	Introduction to Environmental Geography	1.1 Definition, Nature and scope of Environmental Geography. 1.2 Types of Environment 1.3 Importance of Environmental Geography 1.4 Approaches to study of Environmental Geography	15	01
2	Environmental Pollution	2.1 Air pollution 2.2 Water pollution 2.3 Soil pollution 2.4 Noise Pollution (Concept, Causes, Effects and Measures)	15	01
3	Environmental Problems	3.1 Global Warming 3.2 Climate Change 3.3 Ozone Depletion 3.4 Biodiversity Hotspots in India	15	01
4	Environmental Policies, Planning and Management	4.1 Environmental Impact Assessment (EIA) 4.2 Environmental organizations in India 4.3 Environmental Policies and Acts in India 4.4 Need of Environmental Planning and Management	15	01

Modules: Environmental Geography				
Module No.	Module Name	Sub-module	No. of hours	Credit
1	Introduction to Environmental Geography	1.1 Definition, Nature and scope of Environmental Geography. 1.2 Types of Environment 1.3 Importance of Environmental Geography 1.4 Approaches to study of Environmental Geography	15	01
2	Environmental Pollution	2.1 Air pollution 2.2 Water pollution 2.3 Soil pollution 2.4 Noise Pollution (Concept, Causes, Effects and Measures)	15	01
3	Environmental Problems	3.1 Global Warming 3.2 Climate Change 3.3 Ozone Depletion 3.4 Biodiversity Hotspots in India	15	01
4	Environmental Policies, Planning and Management	4.1 Environmental Impact Assessment (EIA) 4.2 Environmental organizations in India 4.3 Environmental Policies and Acts in India 4.4 Need of Environmental Planning and Management	15	01

Suggested Readings:

1. Miller G.T., 2004, Environmental Science Working with the Earth, Thomson Books Cole, Singapore
2. Saxena H.M., 2017, Environmental Geography,(III ED) Rawat Publications, Jaipur
3. Odum E.P. et al.2005, Fundamentals of Ecology, Ceneage Learning, India
4. Sharma P.D.2015, Ecology and Environment, Rastogi Publications,Meerut
5. Kormondy, Edward J, 2012, Concept of Ecology, PHI Learning Pvt. Ltd, New Delhi
6. Singh R.B.(Eds) 2009, Biogeography and Biodiversity, Rawat Publications, Jaipur
7. Singh S,Prayag, 1997, Environment Geography, Pustak Bhawan, Allahabad
8. Chandana R.C.2002, Environmental Geography, Kalyani Publication, Ludhiana
9. Goudie A, 2001, The Nature of The Environment, Blackwell ,Oxford
10. Gholap T. N., 2000, Environment Science, Nishikant Publications, Pune. (Marathi)
Diamond Publishing, Pune. (Marathi)

Shivaji University, Kolhapur

B. A. / B. A. B. Ed. II

Geography

Semester III

MAJOR IV: Basics of Map Making (Practical) as per NEP 2020

Name of the Programme	:	B. A. / B. A. B. Ed. (Geography)
Class	:	B. A. / B. A. B. Ed.-II
Year of Implementation	:	Revised Syllabus will be implemented from June, 2025 onwards
Semester	:	III
Name of Vertical Group	:	Major IV
Course Code	:	BAU0325MMP322C04
Course Title	:	Basics of Map Making (Practical) - IV
Total Credit	:	04
Workload	:	04 credit (4*30= 120 hours) in semester
Duration	:	The course shall be a full time course
Medium of instruction	:	Marathi / English
Eligibility of Admission	:	As per eligibility criteria prescribed by the University
Examination Pattern	:	Practical for 100 Marks, the pattern of examination will be Semester End Examination with Assessment / Evaluation

Preamble:

The field of cartography has been pivotal in human history, allowing us to navigate, explore, and understand the world around us. In the era of digital technology and geospatial innovations, the art and science of map-making have evolved, yet the foundational principles remain as important as ever. This course, "Basics of Map Making," aims to equip students with the essential skills and knowledge required to master the basics of cartography, from traditional methods to modern digital techniques.

General Objectives of the Course:

1. To understand the fundamental principles, definitions, and scope of cartography
2. To learn about different types of map scales and their practical applications
3. To gain a comprehensive understanding of various map projections
4. To learn the principles of effective map design and layout, create thematic maps, and use modern mapping technologies

Course Outcomes:

By the end of the syllabus, students will be able to:

1. Explain the fundamental concepts, historical development, and different types of maps
2. Identify, utilize, and convert various map scales accurately in practical applications
3. Understand, classify, and accurately draw different map projections based on their properties
4. Design balanced and visually appealing map layouts, create thematic maps, and employ modern mobile mapping tools for data collection and analysis

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 –II

Sr. No.	Subjects/Course	Practical Hours per week				Examination scheme (Marks)		
1	Basics of Map Making	L	T	P	Total	Practical	Term Work	Total (Semester)
		08	---	08	08	100	---	100

Scheme of Examination:

- The examination shall be conducted at the end of each semester year.
- The Practical paper shall carry 100 marks.
- The evaluation of the performance of the student in practical papers shall be on the basis of semester practical examination of 100 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 and Scheme of Marking:

(As per rules & regulation of Shivaji University)

Course Title: Basics of Map Making (Practical)-IV

Module No.	Module Name	Sub Module	No. of hours & Marks	Credit
I	Introduction to Cartography	1.1 Definition, Nature and Scope of Cartography 1.2 History of cartography 1.3 Elements of Maps 1.4 Types of Maps Practical Exercises: a. Identification and comparison of different types of maps b. Annotating map elements c. Draw a sketch of local area with key elements labelled	30 (20)	1
II	Understanding Map Scales	2.1 Types of Map Scales: Verbal, Representative Fraction (RF) and Graphical 2.2 Conversion of Scales: RF to Verbal, Graphical Scale and Vice Versa 2.3 Types of Graphical Scales 2.4 Application of Map Scales in Real-World Scenarios Practical Exercises: a. Identifying map scales on various maps b. Drawing and converting different types of map scales c. Measuring distances on a map using different scales. d. Creating a scale conversion table e. Drawing simple linear, Time and Distance scales for different RF values	30 (20)	1

III	Exploring Map Projections	3.1 Principles of Map Projection 3.2 Classification of Map Projections: Cylindrical, Conical, Azimuthal, and Conventional 3.3 Applications and Limitations of Different Map Projections 3.4 Commonly Used Digital Projections in GIS Software Practical Exercises: a. Identifying map projections used in different maps. b. Drawing at least 3 projections, with emphasis on their properties and uses. (Zenithal Polar Gnomonic Projection, Cylindrical equal area projection, Simple Conical Projection with one Standard Parallel, Universal Transverse Mercator (UTM) Projection) c. Creating a map using a selected projection	30 (20)	1
IV	Map Design & Mobile Mapping	4.1 Principles of Map Design and Layout 4.2 Creating Thematic Maps 4.3 Mobile Navigation A-GPS 4.4 Mobile Mapping Apps Practical Exercises: a. Applying color schemes and symbols b. Designing a dot density map c. Create a map of a local area using Google Earth d. Collecting and plotting field data using Locus Map, Mappt and GPS Waypoints	30 (20)	1
V	Journal and Viva Voce		(20)	

Note:

1. Figures in the bracket indicate weightage of marks to concern module.
2. Use of stencils, log tables, computer and calculator are allowed.
3. Journal should be completed and duly certified by practical in-charge and Head of the Department.

Suggested Readings

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.
11. Sarkar, A. (1997). Practical geography: A systematic approach. Orient Longman Limited, Calcutta.
12. Singh, G. (1996). Map work and practical geography. Vikas Publishing House Pvt. Ltd., New Delhi.
13. Singh, L. R. (2011). Fundamentals of practical geography. Sharda Pustak Bhawan.
14. Singh, R., & Kanaujia, L. R. S. Map work and practical geography. Central Book Depot, Allahabad.
15. Yeats, M. (1974). An introduction to quantitative analysis in human geography. McGraw Hill, New York.
16. National Atlas & Thematic Mapping Organization. NATMO Atlas. National Atlas & Thematic Mapping Organization. Retrieved from <https://portal.natmo.gov.in/en/>

Shivaji University, Kolhapur

B. A. / B. A. B. Ed. II

Geography

Semester IV

**Major V and Minor II: Physical 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.-II
Year of Implementation	:	Revised Syllabus will be implemented from June, 2025 onwards.
Semester	:	IV
Name of Vertical Group	:	Major V and Minor-II
Course Code	:	BAU0325MML322D05
Course Title	:	Physical Geography of Maharashtra
Total Credit	:	04
Workload	:	04 credit (4 X 15 Hours) 60 hours in semester
Duration	:	The course shall be a full time course
Medium of instruction	:	Marathi / English
Eligibility of Admission	:	As per eligibility criteria prescribed by the University
Examination Pattern	:	80:20, The pattern of examination will be Semester End Examination with Internal Assessment/Evaluation.

Preamble

This course on "Physical Geography of Maharashtra" provides a comprehensive understanding of Maharashtra's physiography, including its physical structure, climate, soil, forests, rivers, and mineral resources. The course aims to foster an appreciation of Maharashtra's unique geographical features and the challenges it faces in managing its natural resources sustainably. It also emphasizes the interrelationship between geography, natural resources, and human activities to encourage informed decision-making for regional development.

Objectives

1. To introduce the geographical, political, and administrative context of Maharashtra, highlighting its formation and development.
2. To analyse the physiography, climate, and seasonal variations in Maharashtra, emphasizing their impact on human life and activities.
3. To study the river systems and water bodies in Maharashtra, focusing on sustainable utilization.

4. To explore the types, distribution, and conservation of soil, forests, and biodiversity in Maharashtra.

Course Outcomes

1. **Knowledge of Maharashtra's Geography:** Students will gain a detailed understanding of Maharashtra's location, its formation, physiographic division, and climatic conditions.
2. **Application of Geographical Knowledge:** Students will be able to analyse and propose solutions to regional challenges such as floods, droughts, and energy shortages, contributing to sustainable development.
3. **Water Resource Management Skills:** Students will understand the geographical distribution and management of river and water bodies for proper utilization of water in Maharashtra.
4. **Sustainability Awareness:** Students will develop insights into issues like soil degradation, deforestation, biodiversity and its loss, along with strategies for their mitigation.

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 –II

Sr. No.	Subjects/Course	Teaching (Theory) Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Theory	Term Work	Total (Semester)
1	Physical Geography of Maharashtra	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.

- Internal evaluation should be based on Home Assignment/Unit Test/Case Study

Modules: Physical Geography of Maharashtra				
Module No.	Module Name	Sub-module	No. of hours	Credit
1	Introduction to Maharashtra	1.1 Origin of the word "Maharashtra" 1.2 Changing map of Maharashtra 1.3 Location and extent of Maharashtra 1.4 Administrative divisions of Maharashtra	15	01
2	Physiography and Climate of Maharashtra	2.1 Theories of physiographic formation of Maharashtra 2.2 Physiographic division: Konkan, Western Ghats, Maharashtra Plateau 2.3 Seasons of Maharashtra: Types and characteristics 2.4 Trewartha's Climatic regions of Maharashtra	15	01
3	River Systems and water bodies in Maharashtra	3.1 East Flowing river system in Maharashtra 3.2 West Flowing river system in Maharashtra 3.3 Flood issues in Maharashtra 3.4 Dams and Reservoirs in Maharashtra		
4	Soil and Forest in Maharashtra	4.1 Types and Distribution of soil in Maharashtra 4.2 Soil degradation and reclamation measures in Maharashtra 4.3 Types and distribution of forest in Maharashtra 4.4 Deforestation and conservation in Maharashtra	15	01

Suggested Readings

1. महाराष्ट्राचा भूगोल, सुभाष पाटील, डायमंड पब्लिकेशन, 2020.
2. पर्यावरण भूगोल आणि जैवविविधता, डॉ. सुभाष कदम, सुभाष पब्लिकेशन, 2019.
3. नद्या आणि जलसंपत्ती व्यवस्थापन, दिलीप गायकवाड, डायमंड पब्लिकेशन, 2021.
4. महाराष्ट्राचा भूगोल, के. ए. खतीब, के. सागर, 2022.
5. महाराष्ट्राचा भूगोल, संजय पगार व इतर, निराली प्रकाशन, 2018.
6. महाराष्ट्राचा भूगोल, ए. बी. सवदी, निराली प्रकाशन, 2018.
7. महाराष्ट्राचा भूगोल, श्रिकांत कार्लेकर, डायमंड प्रकाशन, 2014.
8. Geography of Maharashtra, S.N. Patil, Himalaya Publishing House, 2019.
9. Physical Geography of Maharashtra, A.V. Deshpande, Popular Prakashan, 2018.
10. Environmental Geography and Biodiversity of Maharashtra, R.P. Kulkarni, Oxford University Press, 2020.
11. Water Resource Management in Maharashtra, N.B. Jadhav, Sage Publications, 2021.
12. Geography of Maharashtra, Jaymala Diddee, S. R. Jog, Rawat Publications, 2002.

Shivaji University, Kolhapur
B. A. / B. A. B. Ed. II
Geography
Semester IV
Major VI: Quantitative Techniques in Geography (Practical) as per NEP
2020 (2.0)

Name of the Programme	:	B. A. / B. A. B. Ed. (Geography)
Class	:	B. A.-I/ B. A. B. Ed.-II
Year of Implementation	:	Revised Syllabus will be implemented from June, 2025 onwards.
Semester	:	IV
Name of Vertical Group	:	Major VI
Course Code	:	BAU0325MMP322D06
Course Title	:	Quantitative Techniques in Geography
Total Credit	:	04
Workload	:	04 credits Practical (4 X 30 Hours) 120 hours in semester
Duration	:	The course shall be a full time course
Medium of instruction	:	Marathi / English
Eligibility of Admission	:	As per eligibility criteria prescribed by the University
Examination Pattern	:	Practical for 100 Marks, The pattern of examination will be Semester End Examination with Assessment/Evaluation.

Preamble:

The paper “Quantitative Techniques in Geography” offers students a practical knowledge in quantitative techniques. This practical knowledge aims to students acquaint themselves with the distinctiveness of quantitative techniques in geography. In the process of development of science and technology, the changing nature of subject of geography will make aware to the students about use of various quantitative techniques. By the end of this paper, students will have a understanding of the various quantitative techniques in population, transportation, agriculture etc.

General Objectives of the Course:

1. To familiarize the students with the different quantitative techniques and methods.
2. To prepare students to analysis of population dynamics with help of quantitative techniques.
3. To understand the different quantitative techniques in network analysis.

4. To give composed knowledge of agricultural regionalization and settlement characteristics.

Course Outcomes:

By the end of the course, students would be able to:

1. The students would familiar with the different quantitative techniques and methods.
2. The students would prepared for analysis of population dynamics with help of quantitative techniques.
3. The students would understand the different quantitative techniques in network analysis.
4. The students would apply composed knowledge of agricultural regionalization and settlement characteristics.

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 –II

Sr. No.	Subjects/Papers	Practical Hours per Week				Examination scheme (Marks)		
		L	T	P	Total	Practical	Term Work	Total (Semester)
1	Quantitative Techniques in Geography	08	---	08	08	100	---	100

Scheme of Examination:

- The examination shall be conducted at the end of each academic year.
- The Practical paper shall carry 100 marks.
- The evaluation of the performance of the student in practical papers shall be on the basis of annual practical examination of 100 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 / program)

Nature of Question Paper and Scheme of Marking:

(As per rules & regulation of Shivaji University)

Modules: Quantitative Techniques in Geography (Practical)

Module No.	Module Name	Sub-module	No. of hours & Marks	Credit
1	Population Dynamics	1.1 Population Dynamics: Aspects of Population its Importance in Regional Development Practical Exercise: a) Measurement of Sex Ratio b) Measurement of Literacy Rate c) Measurement of Population Growth by Gibb's Method d) Measurement of Decadal Population Growth	30 (20)	01
2	Network Analysis	2.1 Concept of Network 2.2 Importance of Road Network Practical Exercise: a) Prithar's Method of Degree Connectivity b) Measurement of Road Accessibility (D-Matrix) c) Routeway Analysis d) Traffic Flow Analysis	30 (20)	01
3	Agricultural Regionalization	3.1 Agricultural Regionalization Methods 3.2 Importance of Agricultural Regionalization Practical Exercise: a) Kendall's Method of Agricultural productivity b) Weaver's Method of Crop Combination c) Bhatia's Method of Crop Concentration d) Gibbs and Martin's Method of Crop Diversification	30 (20)	01
4	Settlement Characteristics	4.1: Concept of Settlement 4.2 Types and Characteristics of Settlements Practical Exercise: a) H. J. Nelson's Method of Classification of Town b) Nearest Neighbor Analysis c) Demongeons Co-efficient of Dispersion d) Reciprocal Method	30 (20)	01
5	Journal and Viva Voce		(20)	

Note :

1. Figures in the bracket indicate weightage of marks to concern module.
2. Use of stencils, log tables, computer and calculator is allowed.
2. Journal should be completed and duly certified by practical in-charge and Head of the Department.

Suggested Readings

1. Chandra R. C. (2016). Population Geography, Kalyani Publisher, New Delhi
2. Jean-Paul Rodrigue (2024): Geography of Transport System, A&M University – Galveston, Texas.
3. Majid Husain (1995) Systematic Agricultural Geography, Rawat Publication, Jaipur
4. Maurya S. D. (2017), Population Geography, Provolika Publication, Alahabad.
5. Robert Hammond, (1978): Quantitative Techniques in Geography: An Introduction, Oxford University Press, Mumbai: 02-127, 2nd Floor, Express Towers, Marine Drive, Nariman Point, Mumbai, Maharashtra 400021.
6. अहिरावव करंजखेळे : प्रात्यक्षिक भूगोल, सुदर्शन पब्लिकेशन, नाशिक
7. कुंभार अर्जुन : प्रात्यक्षिक भूगोल, सुमेरू पब्लिकेशन, मुंबई
8. श्रीकांत कार्लेकर : प्रात्यक्षिक भूगोल, डायमंड प्रकाशन, पुणे

Shivaji University, Kolhapur

B. A. / B. A. B. Ed. Part – II

Geography

Semester III

VSC I: Soil Analysis (Practical) As Per NEP 2020 (2.0)

Name of the Programme	:	B. A. / B. A. B. Ed. (Geography)
Class	:	B. A. / B. A. B. Ed.-II
Year of Implementation	:	Revised Syllabus will be implemented from June, 2025 onwards.
Semester	:	III
Name of Vertical Group	:	VSC
Course Code	:	BAU0325VSP322C01
Course Title	:	Soil Analysis (Practical)
Total Credit	:	02
Workload	:	Practical 02 credit (02 X 30 = 60 hours in semester)
Duration	:	The course shall be a full time course
Medium of instruction	:	Marathi / English
Eligibility of Admission	:	As per eligibility criteria prescribed by the University
Examination Pattern	:	Practical for 50 Marks, The pattern of examination will be Semester End Examination with Assessment/Evaluation.

Preamble:

Soil is a fundamental natural resource that plays a crucial role in sustaining life of the Earth. Understanding its composition, structure, and various physical, chemical, and biological properties are essential for effective applications for land use, management and sustainability. Soil analysis is an interdisciplinary field of study that integrates aspects of geography, chemistry, biology, geography, geology, and environmental science. It provides valuable information on soil health, fertility, and suitability for various agricultural and ecological applications.

This syllabus aims to equip students with a comprehensive understanding of the principles and practices involved in soil analysis. Through both theoretical learning and hands-on laboratory experience, students will gain the necessary skills to assess soil quality, preparation and interpret soil testing results, and apply these findings in real-world scenarios such as agriculture, land reclamation, and environmental monitoring.

General Objectives of the Course:

The general objectives of the Soil Analysis course are as to provide students with a solid foundation in soil science, focusing on the principles, techniques, and applications of soil analysis. By the end of the course, students would be able to:

1. To understand the concept of soil and its formation.
2. To acquire the proper techniques for soil sample collection.
3. To gain practical knowledge of soil analysis particularly physical properties of soil.
4. To gain practical knowledge of soil analysis particularly chemical properties of soil.

Course Outcomes:

By the end of the course, students would be able to:

1. The students will possess a comprehensive understanding of Soil Properties and Their Significance.
2. They will demonstrate proficiency in correctly collect soil samples from various areas and prepare them for laboratory analysis.
3. Practically the students will be performing scientific analyzer of soils.
4. The students will be apply soil analysis data to overcome real-world problems related to soil fertility, erosion control, land reclamation, and sustainable agriculture.

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 –II

Sr. No.	Subjects/Papers	Practical Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Practical	Term Work	Total (Semester)
1	Soil Analysis	04	---	04	04	50	--	50

Scheme of Examination:

- The examination shall be conducted at the end of each Semester.
- The Practical paper shall carry 50 marks.
- The evaluation of the performance of the student in practical papers shall be on the basis of semester practical examination of 50 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 / program)

Nature of Question Paper and Scheme of Marking:

(As per rules & regulation of Shivaji University)

Modules: Soil Analysis (Practical)				
Module No.	Module Name	Sub-module	No. of hours & Marks	Credit
1	Physical Analysis of Soil	Introduction to soil 1.1 Definition of soil and importance of soil analysis 1.2 Process of Soil formation 1.3 Physical properties of soils Practical Exercise: Physical Analysis of Soil a) Soil sampling b) Draw a cross section c) Soil Structure by observation d) Porosity e) Colour f) Temperature	30 (20)	01
2	Chemical Analysis of Soil	2.1 Chemical Properties of Soils 2.2 Importance of Chemical Properties of Soils in Relation to Crops Practical Exercise: Chemical Analysis of Soil a) pH b) Electric conductivity c) Nitrogen (N) d) Phosphorus (P) e) Potassium (K)	30 (20)	01
3	Journal & Viva Voce		(10)	

Note :

1. Figures in the bracket indicate weightage of marks to concern module.
2. Use of stencils, log tables, computer and calculator is allowed.

2. Journal should be completed and duly certified by practical in-charge and Head of the Department.

Suggested Readings

1. Backman, H.O and Brady, N.C.(1960.)The Nature and Properties of Soils, Mc Millan NewYork.
2. Bennet, Hugh H.: Soil Conservation, McGraw Hill, New York .
3. Bunting, B.T.(1973) The Geography of Soils, Hutchinson, London.
- 4.Carter, M.R.(1993): Soil Sampling and Method of Analysis.Ed Canadian Soc. Soil Sci. Lewis Publisher, USA.823
5. Chairas, D. D., Reganold, J. P., and Owen, O. S., (2002): National Resource Conservation and Management for a Sustainable Future, 8th edition, Prentice Hall, Englewood Cliffs.
6. Clarke G.R.(1957) Study of the Soil in the Field, Oxford University Press, Oxford.
7. Daji, J. A., (1970): A Text Book of Soil Science, Asia Publishing House, London.
8. Foth H.D. and Turk, L.M.(1972) Fundamentals of Soil science, John Wiley, New York.
9. Ghosh, A.B.(1983): Soil and Water Testing Methods, A Laboratory Manual,IARI, New Delhi.
10. Gupta P.K. (2004): Methods in Environmental Analysis Water Soil and Air,Agrobios.
11. GovindaRajan, S.V. and Gopala Rao, H.G.(1978) Studies on Soils of India Vikas, New Delhi.
12. MathurNeeru, (2012): Soils, Rajat Publications, New Delhi-02 (India).
13. Mc. Bride, M.B.(1999)Environmental Chemistry of Soils, Oxford University Press, New York.
14. Morgan, R. P. C., (1995): Soil Erosion and Conservation, 2nd edition, Longman, London.
15. Nye, P.H. and Greene, D.J.(1960)The Soil under Shifting Cultivation Commonwealth Bureau of Soil Science, Technical Communication, No. 51; Harpender, England.
16. Plaster, E. J., (2009): Soil Science and Management, Cengage Learning, Boston.
17. Raychoudhuri, S.P., (1958): Soils of India, ICAR, New Delhi.
18. Russell, Sir Edward J.:(1961) Soil Conditions and Plant Growth, Wiley, New York.

Shivaji University, Kolhapur

B. A. / B. A. B. Ed. Part – II

Geography

Semester III

SEC III: Geo-statistics and Data Visualization (Practical)

Name of the Programme	:	B. A. / B. A. B. Ed. (Geography)
Class	:	B. A. / B. A. B. Ed.-II
Year of Implementation	:	Revised Syllabus will be implemented from June, 2025 onwards.
Semester	:	III
Name of Vertical Group	:	SEC
Course Code	:	BAU0325SEP322C03
Course Title	:	Geo-statistics and Data Visualization (Practical)-III
Total Credit	:	02
Workload	:	Practical 02 credit (02 X 30 = 60 hours in semester)
Duration	:	The course shall be a full time course
Medium of instruction	:	Marathi / English
Eligibility of Admission	:	As per eligibility criteria prescribed by the University
Examination Pattern	:	Practical for 50 Marks, The pattern of examination will be Semester End Examination with Assessment/Evaluation.

Preamble:

Geography, as a discipline, encompasses the study of spatial patterns, processes, and phenomena across the Earth's surface. In this context, geo-statistics and data visualization play a pivotal role in analysing, interpreting, and presenting geographical data. This practical course is designed to equip students with essential skills in geo-statistical techniques and data visualization tools, enabling them to address complex geographical questions with precision and clarity. The course emphasizes the integration of statistical methods, graphical techniques, and cartographic principles to analyze spatial and temporal data effectively. Students will gain hands-on experience in collecting and organizing geographical data, applying statistical techniques for analyses the data as well as data visualization methods.

General Objectives of the Course:

The objectives of the course are as following:

1. To train the students in practical applications of geo-statistics and data analysis.
2. To acquire knowledge about various techniques for accurate and reliable data acquisition.

3. To prepare the students for analyzing spatial and non-spatial data.
4. To study and implement techniques for graphical representation and cartographic visualization for effective presentation and interpretation of geographical data.

Course Outcomes:

1. The students would demonstrate the ability to design and implement data collection methods for effective spatial and non-spatial data acquisition.
2. The students will be prepared to make practical applications of geo-statistics for proper inferences.
3. The students would develop the ability to use geo-statistical and visualization tools to address real-world geographical challenges and contribute to decision-making processes.
4. The students would be able to integrate statistical analysis with cartographic tools to address complex geographical problems.

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 –II

Sr. No.	Subjects/Papers	Practical Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Practical	Term Work	Total (Semester)
1	Geo-statistics and Data Visualization	04	---	04	04	50	---	50

Scheme of Examination:

- The examination shall be conducted at the end of each Semester.
- The Practical paper shall carry 50 marks.
- The evaluation of the performance of the student in practical papers shall be on the basis of semester practical examination of 50 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 / program)

Nature of Question Paper and Scheme of Marking:

(As per rules & regulation of Shivaji University)

Modules: Geo-statistics and Data Visualization (Practical)				
Module No.	Module Name	Sub-module	No. of hours & Marks	Credit
1	Basics of Geo-Statistics and Data Analysis	1.1 Introduction to Data: Meaning, Definition, Types and Importance of Data 1.2 Methods of Data Collection: Observation, Interview, Schedule & Questionnaire Practical Exercises: a) Array the Data b) Frequency Distribution c) Measures of Central Tendency (Mean, Median & Mode) d) Measures of Dispersion (Mean Deviation, Standard Deviation) e) Co-efficient of Correlation (Karl Person's Method)	30 (20)	01
2	Data Visualization	2.1 Meaning of Data Visualization 2.2 Methods of Data Visualization Practical Exercises: a) Construction of Histograms b) Construction of Polygraph c) Construction of Ogive Curve d) Moving Average (3 & 5 years) e) Construction of Scattered Diagram	30 (20)	01
3	Journal & Viva Voce		(10)	

Note :

1. Figures in the bracket indicate weightage of marks to concern module.
2. Use of stencils, log tables, computer and calculator is allowed.
3. Journal should be completed and duly certified by practical in-charge and Head of the Department.

Suggested Readings

1. Bhattacharya, B. (2020). Statistics for beginners. Amazon Digital Services LLC - KDP Print.
2. Hammond, R., & McCullagh, P. (1991). Quantitative Techniques in Geography. Clarendon Press.
3. Heywood, I., Cornelius, S., & Carver, S. (2006). An Introduction to Geographical Information Systems. Pearson.
4. Monkhouse, F.J., & Wilkinson, H.R. (1964). Maps and Diagrams. Methuen.
5. Provost, F., & Fawcett, T. (2013). Data science for business: What you need to know about data mining and data-analytic thinking. O'Reilly Media.
6. Sarkar, A. (2015). Practical Geography: A Systematic Approach. Orient BlackSwan.
7. Singh, R.L. (1979). Elements of Practical Geography. Kalyani Publishers.
8. Walpole, R. E., Myers, R. H., Myers, S. L., & Ye, K. E. (2016). Probability and statistics for engineers and scientists (9th ed.), Pearson.
9. कुंभार अर्जुन (1994) 'प्रात्यक्षिक भूगोल', सुमेरु प्रकाशन, पुणे

Shivaji University, Kolhapur

B. A. / B. A. B. Ed. Part – II

Geography

Semester IV

VSC II: Water Survey and Mapping (Practical)

Name of the Programme	:	B. A. / B. A. B. Ed. (Geography)
Class	:	B. A. / B. A. B. Ed. Part – II
Year of Implementation	:	Revised Syllabus will be implemented from June, 2025 onwards.
Semester	:	IV
Name of the vertical Group	:	VSC
Course Code	:	BAU0325VSP322D02
Course Title	:	Water Survey and Mapping (Practical)
Total Credits	:	02
Workload	:	2 credit (2*30 Hours = 60 Hours)
Duration	:	The course shall be a full time course
Medium of Instruction	:	Marathi/English
Eligibility of Admission	:	As per the criteria prescribed by the University
Examination Pattern	:	Practical for 50 Marks, The pattern of examination will be Semester End Examination with Assessment/Evaluation.

Preamble

This syllabus on Water Survey and Mapping aims to provide students with an in-depth understanding of water resources, their management, and the challenges associated with water scarcity, pollution, and quality. It covers both theoretical knowledge and practical skills, focusing on water resource assessment, pollution mapping, and effective solutions such as rainwater harvesting. Through practical exercises and case studies, students will gain hands-on experience in water resource management, which will be crucial in addressing the growing global concerns of water sustainability. The course encourages the development of analytical skills required to assess water quality and manage resources in local and regional contexts.

General Objectives of the Course

1. To understand the different types of water resources and their distribution.
2. To explore the causes, effects, and mitigation strategies related to water pollution.
3. To learn practical methods of surveying and mapping water resources and pollution sources.

4. To study water scarcity, rainwater harvesting techniques, and assess water quality through practical analysis.

Course Outcomes

1. Water Resources Knowledge: Students will describe different types of water resources and their significance locally and globally.
2. Practical Survey Skills: Students will gain hands-on experience in water surveys, mapping sources, and pollution identification using Google Earth and mobile apps.
3. Water Harvesting Techniques: Students will apply their knowledge for rainwater harvesting to overcome on water scarcity.
4. Water Analysis Techniques: The students will get practical knowledge of water

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 –II

Sr. No.	Subject/Course	Practical Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Practical	Term Work	Total (Semester)
1	Water Survey and Mapping	04	---	04	04	50	---	50

Scheme of Examination:

- The examination shall be conducted at the end of each Semester.
- The Practical paper shall carry 50 marks.
- The evaluation of the performance of the student in practical papers shall be on the basis of semester practical examination of 50 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 / program)

Nature of Question Paper and Scheme of Marking:

(As per rules & regulation of Shivaji University)

Modules: Water Survey and Mapping				
Module No.		Sub-module	No. of hours & Marks	No of Credits
I	Water Survey and Mapping	1.1 Introduction and types of water resources 1.2 Local Water Demand: Population, Agriculture and Industry Practical Exercises: 1. Public Perception of Water: a) Availability b) Accessibility c) Adequacy d) Quality 2. Water Utilization Survey of Local Area 3. Water source mapping by Google Earth / Mobile 4. Mapping of Water Pollution Sources	30 (20)	01
II	Water Resource Management	2.1 Water Scarcity – Concept, Causes, and effects 2.2 Rainwater harvesting – Concept and its types Practical Exercises: 1. Water Recharge: Well and Bore Well 2. Measurement of Rooftop Water Harvesting 3. Water Scarcity Index 4. Water Pollution Index 5. Water Analysis: pH, EC and TDS	30 (20)	01
III		Journal & Viva Voce	(10)	

Note :

- Figures in the bracket indicate weightage of marks to concern module.
- Use of stencils, log tables, computer and calculator is allowed.

2. Journal should be completed and duly certified by practical in-charge and Head of the Department.

Suggested Reading:

1. Agarwal, V. K. (2014). *Water pollution: Causes, effects and control* (3rd ed.). APH Publishing.
2. American Water Works Association. (2011). *Water quality and treatment: A handbook on drinking water* (6th ed.). McGraw-Hill.
3. Biswas, A. K., & Mishra, S. K. (2013). *Water quality monitoring and management*. Springer.
4. Bureau of Indian Standards. (2012). *IS 10500: 2012 – Drinking water specification*. Bureau of Indian Standards.
5. Central Pollution Control Board. (2020). *National water quality monitoring program (NWQMP) annual report*. Central Pollution Control Board.
6. Central Pollution Control Board. (2021). *Annual water quality report*. Central Pollution Control Board.
7. Dara, S. S. (2015). *Environmental chemistry of water*. S. Chand Publishing.
8. Government of India. (1974). *Water (Prevention and Control of Pollution) Act*. Government of India.
9. Ministry of Jal Shakti, Government of India. (2020). *Water quality status in India*. Government of India.
10. World Health Organization. (2017). *Guidelines for drinking-water quality* (4th ed.). World Health Organization.

Shivaji University, Kolhapur
B. A. / B. A. B. Ed Part- II
Geography
Semester IV

SEC IV: Land Records (Practical) as per NEP 2020

Name of the programme	:	B. A. / B. A. B. Ed. (Geography)
Class	:	B. A. / B. A. B. Ed. II
Year of Implementation	:	Revised Syllabus will be implemented from June, 2025 onwards.
Semester	:	IV
Name of Vertical Group	:	SEC
Course Code	:	BAU0325SEP322D04
Course Title	:	Land Records (Practical)
Total Credit	:	02
Workload	:	02 Credit (2 X 30 Hours = 60 hours) in semester
Duration	:	The course shall be a full time course
Medium of instruction	:	Marathi / English
Eligibility of Admission	:	As per eligibility criteria prescribed by the University
Examination Pattern	:	Practical for 50 Marks, The pattern of examination will be Semester End Examination with Assessment / Evaluation.

Preamble:

The study of land records and land mapping is crucial for effective land resource management and administration. Accurate land records underpin property management, legal clarity and dispute resolution. This study explores the fundamental concepts and significance of maintaining accurate land records and utility of essential documents like the 7/12 extract and property card. It examines the implications of land occupancy highlighting the rights and responsibilities of different land occupants. Traditional manual survey techniques employed by the Revenue Department are reviewed, noting their accuracy, challenges and limitations. The study also delves into digital advancements in land records management, assessing the process and benefits of obtaining 7/12 extracts online, the effectiveness of digital tools in agricultural land and Non Agricultural Land (NA) management and the practical applications of GPS-based area calculations. Additionally, it investigates the features and functionalities of the Maha Bhulekh Mahabhumi land record app and Apli Chawdi app which enhances public access to land information and streamlines administrative processes.

General Objectives of the Course:

1. To comprehend the fundamental concepts and significance accurate land records.

2. To understand proper interpretation of different land record.
3. To study the open sources various softwares and portals related to land record.
4. To extract online land record from different online sources.

Course Outcomes:

1. The students will attentive about fundamental concepts and significance accurate land records.
2. The students will capable for proper interpretation of different land record.
3. The student got detailed knowledge of the open sources various softwares and portals related to land record.
4. The students will be extract online land record from different online sources.

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 –II

Sr. No.	Subjects/Course	Practical Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Practical	Term Work	Total (Semester)
1	Land Record and Mobile Mapping	04	---	04	04	50	---	50

Scheme of Examination:

- The examination shall be conducted at the end of each Semester.
- The Practical paper shall carry 50 marks.
- The evaluation of the performance of the student in practical papers shall be on the basis of semester practical examination of 50 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 / program)

Nature of Question Paper and Scheme of Marking:

(As per rules & regulation of Shivaji University)

Modules: Land Records (Practical)				
Module No	Module Name	Sub- module	No. of hours & Marks	Credit
1	Concept, development and Interpretation of Land Record	1.1 Concept of Land Record 1.2 Needs & importance of Land Record 1.3 Historical development of Land Record 1.4 Types of Records Practical Exercise: a) 7/12 & Khate Utara b) Pherphar Utara c) Phalani Nakasha & Tippani Nakasha d) Jamabandi Nakasha (Interpretation of above Land Record)	30 (20)	01
2	Digital Procurement and Mobile Mapping	1.1 Online Extraction of Land Record and Introduction of Softwares Practical Exercise: 1. Registration of Crops in E- Peek Pahani 2. Portal for Land Record Services: a. 7/12 b. 8 A c. Pherphar d. Property Card and E-records e. Mahabhunakasha f. E- Chawadi / Apali Chawadi g. E-Mojani	15 (20)	01
3	Journal & Viva Voce		(10)	

Note :

1. Figures in the bracket indicate weightage of marks to concern module.
2. Use of stencils, log tables, computer and calculator is allowed.
2. Journal should be completed and duly certified by practical in-charge and Head of the Department.

Suggested Readings:

1. Bhandarkar S. and Lakhani S. (2024): Land Laws in Maharashtra, Legal Mind Publication, Nagpur, Maharashtra.
2. Kraak M. and Ormeling F. (2003): Cartography: Visualization of Geospatial Data, CRC Press, New York

3. R Subramanian (2018): Surveying And Levelling, Chaukhamba Auriyantiya Publisher, Darya Ganj, Delhi
4. Shukla N. (2024): Landlord and Tenant Paperback, Kamal Publisher, New Delhi
The Maharashtra Land Revenue Manual, Volume 1 (1973): Maharashtra (India).
Committee for Unification of Revenue Accounts, Procedure, Manual, etc
5. <https://globalgpssystems.com/gnss/how-to-survey-your-own-property-with-gps-a-step-by-step-guide/>
6. <https://bhulekhmahabhumi.com/aapli-chawadi/>
7. <https://cdn.s3waas.gov.in/s3642e92efb79421734881b53e1e1b18b6/uploads/2021/09/2021090277.pdf>
8. <https://bhulekh.mahabhumi.gov.in/>
9. <https://digitalsatbara.mahabhumi.gov.in/aaplichawdi>

Shivaji University, Kolhapur
B. A. / B. A. B. Ed. II
Geography
Semester III
IKS: Water Management Systems in Ancient 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.-II
Year of Implementation	:	Revised Syllabus will be implemented from June, 2025 onwards.
Semester	:	III
Name of Vertical Group	:	IKS
Course Code	:	BAU0325IKL322C01
Course Title	:	Water Management Systems in Ancient India
Total Credit	:	02
Workload	:	02 credit X 15 Hours = 30 hours in semester
Duration	:	The course shall be a full time course
Medium of instruction	:	Marathi / English
Eligibility of Admission	:	As per eligibility criteria prescribed by the University
Examination Pattern	:	40:10, The pattern of examination will be Semester End Examination with Internal Assessment/Evaluation.

Preamble:

Water management has been a critical aspect of sustainable development since ancient times. India, with its rich heritage, has developed various ingenious water management systems that are still relevant today. This course delves into the traditional water management practices in India, highlighting the importance of indigenous knowledge systems (IKS) and their contributions to sustainable water management. By exploring both historical and contemporary perspectives, students will gain a comprehensive understanding of how traditional practices can inform and enhance modern water management strategies.

Course Objectives:

1. To explore the concept, historical context, and importance of traditional water management systems in ancient India.
2. To understand and analyze various traditional water harvesting and irrigation techniques, and their cultural and environmental significance.

Course Outcomes:

By the end of the syllabus, Students will be able to:

1. Explain the historical context and significance of traditional water management systems in ancient India, recognizing the value of indigenous knowledge.
2. Identify and describe traditional water harvesting and irrigation techniques, and assess their cultural and environmental significance through case studies.

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 –II

Sr. No.	Subjects/Course	Theory Teaching Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Theory	Term Work	Total (Semester)
1	Water Management Systems in Ancient India	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 40marks.
- 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.

Internal evaluation should be based on Home Assignment/Unit Test/Case Study / Group Discussion

Modules: Water Management Systems in Ancient India				
Module No.	Module Name	Sub-module	No. of hours	Credit
I	Introduction to Water Management Systems in Ancient India	1.1 Meaning of water management 1.2. Historical Context of Water Management 1.3. Water Sources in Ancient India 1.4 Importance of traditional knowledge in sustainable water management	15	01
II	Traditional Water Harvesting Methods and Irrigation Systems	2.1. Traditional water harvesting techniques (e.g., Johads, Baolis, Tankas) 2.2 Traditional irrigation Systems 2.3 Cultural and environmental significance of these systems 2.4 Case studies of traditional water systems	15	01

Suggested Readings:

1. Danino, M. (n.d.). Water management in ancient India. INFLIBNET Centre. Retrieved from <https://ebooks.inflibnet.ac.in/icp02/chapter/water-management-in-ancient-india/>
2. Tamrakar, P. C. (2024). Ancient water management planning, tradition and techniques of India: An overview. International Journal of Architectural Heritage, 7(1), 59-63. Retrieved from https://journalspub.com/wp-content/uploads/2024/06/59-63-Ancient_Water_Management_Planning.pdf
3. Kumar Swamy, D. M. (n.d.), Water Management Systems of Ancient Indian Empires, IJRAR, Retrieved form <https://ijrar.org/papers/IJRAR19D6145.pdf>