

Shree Warana Vibhag Shikshan Mandal's
WARANA UNIVERSITY,
WARANANAGAR

(A State Public University Established under Section 3 (6) of MPUA, 2016)



Established: 2025

Structure & Syllabus For
Bachelor of Arts-B. A. in Geography
UNDER
Faculty of Science and Technology
B. A. Part - II (Semester - III and IV)

(As Per National Education Policy – 2020)

With Effect from Academic Year 2026-27 Onwards

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Abbreviations:

POs	Program Outcomes
PSOs	Program Specific Outcomes
COs	Course Outcomes
DSC	Discipline Specific Core
DSE	Discipline Specific Elective
GE	Generic Elective
OE	Open Elective
VSC	Vocational Skill Course
SEC	Skill Enhancement Course
IKS	Indian Knowledge System
AEC	Ability Enhancement Course
VEC	Value Education Course
OJT	On Job Training (Internship)
FP	Field project
CEP	Community engagement project
CC	Co-curricular Courses
RM	Research Methodology
RP	Research Project
MJ	Major Course
MN	Minor Course

1. Preamble

The study of changing relationship between man and environment is the core of Geography. It unfolds the variation in the human lifestyle on the earth surface along with the natural elements. The syllabi in view of NEP 2020 for second year of degree consist of Environmental Geography, Basics of Map Making, Resource Geography, Physical Geography of Maharashtra, Quantitative Techniques, Cultural Geography. NEP 2020 provided platforms to employment-oriented applications of geographical knowledge and skills. The emerging technology and tools transformed the nature curriculum including artificial intelligence (AI) to analyze and resolve the different issues human especially dealing with natural disaster and environmental changes.

2. General Objectives

- i. To acquainted the environmental changes and technological inventions to contribute and co-operate as an ecofriendly citizen.
- ii. To be a rational about natural and human resources, present scenario and conservation of resources.
- iii. To apply knowledge through case studies, analyzing geographical incidents, fostering problem-solving skills with a focus on local and India
- iv. To develop expertise of modern tools and techniques to applied in administrative and research domain.

3. Programme Outcomes (POs)

- i. To Understand Knowledge in the field of languages and Social Sciences.
- ii. To develop the personality of student with global skills.
- iii. To be multi-tasking, honest, cultured and good citizen with national proud.
- iv. To improve Communication and soft skills.

4. Programm Specific Outcomes (PSOs)

Program Specific Outcomes for B. A. Geography	
The students who successfully complete this programme will be ...	
PSO:1	Able to realize importance of land, water, climate in the development of human life.
PSO:2	Able to understand the available natural resources and its application.
PSO:3	Able to find out the correlation and interactions between man and environment.
PSO:4	Able to realize the environmental problems such as pollution, global warming, Ozone depletion etc.
PSO:5	Able to invent the remedies about social, economic, environmental problems through critical thinking.
PSO:6	Aware about the geographical locations and its role in strategic planning.
PSO:7	Able to handle the new tools and techniques about the map making, area measuring, identification of objects etc.

5. Duration

The Bachelor of Arts in **Geography** Programme shall be a Full Time Course of 3/4 Years – 6/8 Semesters Duration with 22 Credits Per Semester. (Total Credits = 132/176)

6. Eligibility

The candidate who has qualified or acquired minimum credits at first year of degree or completed Undergraduate Certificate course in B. A. is eligible for admission for this course. The criteria for admission are as per the rules and regulations set from time to time by concerned HEIs, university, government and other relevant statutory authorities.

7. Medium

The medium of instruction shall be **Marathi**. The students will have An Option to Write Answer-Scripts in English or Marathi.

8. Examination Pattern

The pattern of examination will be Semester End Examination with Internal Assessment/Evaluation.

NOTE: Separate passing is mandatory for both, Semester End Examination and Internal Evaluation/Assessment. (Annexure -I)

9. MEME Instructions:

In alignment with the National Education Policy (NEP) 2020, the Bachelor of Arts (B. A.) program adopts the Multiple Entry and Multiple Exit (ME-ME) framework. This flexible structure is designed to provide students with academic mobility, skill development, and lifelong learning opportunities. Through ME-ME framework, the program enables students to enter and exit at different stages with appropriate certifications. Information regarding different entry and exit options available to students and respective mandatory number of credits to be earned by the students are provided in the table below.

Year	Stage of exit	Type of Award	Mandatory Credits to be earned	Minimum credits to be earned
1	After successful completion of One Year	Undergraduate Certificate in Bachelor of Arts	44	40
2	After successful completion of Two Year	Undergraduate Diploma in Bachelor of Arts	88	80
3	After successful completion of Three Year	Bachelor of Bachelor of Arts Degree	132	120

Re-entry provision: Students leaving after an undergraduate certificate or undergraduate diploma may re-enter the program within 5 years by earning required credits through Academic Bank of Credits.

10. General Guidelines for the selection of subjects

1. In first year, student has to choose three DCS subjects from the basket for faculty of Humanities. (Semester wise baskets of the structure of programme)
2. At the start of second year, out of these 3 DSC subjects, he/she has to opt one subject as Major subject and one as Minor subject. The remaining DSC subject will be dropped.
3. Student cannot select a subject as major or minor other than the subjects taken in first year.
4. OE is to be chosen compulsorily from faculty other than that of the major. (B. A. students needs to select OE from faculty of Science and Technology or Commerce and management)
5. SEC is to be selected from the basket of Skill courses approved by the university.
6. IKS (Generic) will be provided by the university separately.

7. C-C, Co-Curricular Activities will be listed by university and communicated separately.
8. CEP- Guidelines for Community Engagement Programmers are provided each BoS.
9. VEC- The functioning of Value Education Course is organized by university.

11. Structure of Programme (Annexure I)

Second Year Bachelor of Arts (B.A. – II) (UG- Diploma) in Geography

Year	B. A. – II
Semester	III & IV
Level	5.0
Total Credits	22 + 22 = 44
Degree Awarded	UG (44 Credits in Total)

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

Course Category		Course Name	Course Code	Credit
DSC-Major –III	Mandatory	Environmental Geography and Introduction of AI		4
DSC-Major –IV		Basic of Map Making and AI Tools (Practical)		4
DSC-Minor-I		Resource Geography		4
IDC/MDC/ GEC/OE	OE	Geography of Rural Development		2
VSC/SEC	VSC	Soil Analysis (Practical)		2
	SEC	Geo-statistics and Data Visualization (Practical)		2
AEC/VEC/IKS	AEC	--		2
	IKS	Water Management in Ancient India		2
	VEC	--		--
	CC	--		--
Credits for B.A./B.A. B.Ed. – II SEM - III				22

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

Course Category		Course Name	Course Code	Credit
DSC-Major –V	Mandatory	Physical Geography and Mineral Resources of Maharashtra		4
DSC-Major –VI		Quantitative Techniques in		4

		Geography and AI Tools		
DSC-Minor-II		Cultural Geography		4
IDC/MDC/ GEC/OE	OE	Agro-based Rural Development and Planning		2
VSC/SEC	VSC	Water Survey and Mapping (Practical)		2
	SEC	Land Record (Practical)		2
AEC/VEC/IKS	AEC	--		2
	IKS	--		--
	VEC	--		2
	CC	--		--
Credits for B. A. – II SEM - IV				22

12. Course Code Table - Geography

A - I) B.A. – II: SEMESTER

COURSE CATEGORY		COURSE NAME	COURSE CODE	CRE DITS
Major III	MJ-III	Environmental Geography	2602UAGEMJ301	4
Major IV	MJ-IV	Basics of Map Making and AI Tools (Practical)	2602UAGEMJ302	4
Monir-I	MN-I	Resource Geography	2602UAGEMN301	4
OE	OE	--	--	2
VSC/ SEC	VSC	Soil Analysis (Practical)	2602UAGEVS301	2
	SEC	Geo-Statistical and Data Visualization (Practical)	2602UAGESE301	2
AEC/ VAC/ IKS	AEC	--	--	2
	VEC	--	--	--
	IKS	Water Management in Ancient India	2602UAGEIK301	2
		Total Credits		22

A -2) B.A. – II: SEMESTER - II

COURSE CATEGORY		COURSE NAME	COURSE CODE	CRE DITS
Major V	MJ-V	Physical Geography and Mineral Resources of Maharashtra	2602UAGEMJ401	4
Major VI	MJ-VI	Quantitative Techniques and AI Tools (Practical)	2602UAGEMJ402	4
Monir-I	MN-I	Culture Geography	2602UAGEMN401	4
OE	OE	--	--	2
VSC/ SEC	VSC	Water Survey and Mapping (Practical)	2602UAGEVS401	2
	SEC	Land Record (Practical)	2602UAGESE401	2
AEC/ VAC/ IKS	AEC	--	--	2
	VEC	--	--	2
	IKS	--		
		Total Credits		22

13. Determination of CGPA, Grading and Declaration of result

University has adopted 10-point Grading System as follows:

- In each semester, marks obtained in each course (Paper) are converted to grade points: o If the total marks of course are 100 and passing criteria is 40%, then use the following Table for the conversion.

1. Gradation Chart:

Marks Obtained	Numerical Grade (Grade Point)		CGPA	Letter Grade
Absent	0 (zero)		-	Ab: Absent
0 – 39	0 to 4		0.0 – 4.99	F: Fail
40 – 49	5		5.00 – 5.49	C: Average
50 – 59	6		5.50 – 6.49	B: Above Average
60 – 69	7		6.50 – 7.49	B+: Good
70 – 79	8		7.50 – 8.49	A: Very Good
80 – 89	9		8.50 – 9.49	A+: Excellent
90 – 100	10		9.50 – 10.0	O: Outstanding

Note:

1. Marks obtained ≥ 0.5 shall be rounded off to next higher digit.
2. The SGPA & CGPA shall be rounded off to 2 decimal points.
3. Marks obtained in 50 marks or 200 marks paper shall be converted to 100 marks.

2. Cumulative Grade Point Average (**CGPA**)

$$\text{CGPA} = \frac{\sum(\text{Total credits of a semester} \times \text{SGPA of respective semester}) \text{ of all semesters}}{\sum(\text{Total course credits}) \text{ of all semesters}}$$

Calculation of SGPA & CGPA

1. Semester Grade Point Average (**SGPA**)

$$\text{SGPA} = \frac{\sum(\text{Course credits} \times \text{Grade points obtained}) \text{ of a semester}}{\sum(\text{Course credits}) \text{ of respective semester}}$$

14. NATURE OF QUESTION PAPER AND SCHEME OF MARKING:

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

For 4 Credits 60:40

FOR FOUR CREDITS: End Semester Examination Total Marks: 60		
Question No. 1: Multiple choice questions (10 MCQs) (01 marks each)	(10X1)	10 Marks
Question No. 2: Short Notes (Any Four out of Six)	(5X4)	20 Marks
Question No. 3: Short Questions (Any Four out of Six)	(5X4)	20 Marks
Question No. 4: Answer the following (Any one out of Two)	(10X1)	10 Marks

For 2 Credits 30:20

FOR TWO CREDITS: End Semester Examination Total Marks: 30		
Question No. 1: Multiple choice questions (05 MCQs) (01 marks each)	(5X1)	05 Marks
Question No. 2: Short Notes (Any Two out of Four)	(5X2)	10 Marks
Question No. 3: Short Questions (Any Two out of Four)	(5X2)	10 Marks
Question No. 4: Answer the following (Any one out of Two)	(5X1)	05 Marks

NOTE: As per Language and Social Science Pattern

15. Internal Evaluation Scheme

As per university rules

Level	Semester	Programme	Marks	
			4 Credit	2 Credit
4.5 B.Sc. I	I and II	1) Home Assignment	10	5
		2) Class Assignment (Tutorial Type)	10	5
		3) Quiz	10	5
		4) Mid-Term Test	10	5

16. Duration of Examination

- | | | | |
|------|---------------------------------------|-----------|---------|
| i. | Duration of Examination for | 60 marks- | 2 Hours |
| ii. | Duration of Examination for | 30 marks- | 1 Hours |
| iii. | Duration of Practical Examination for | 50 marks- | 2 Hours |

Warana University, Warananagar

B. A. – II, Geography

Semester III

Major III: Environmental Geography and AI Tools as per NEP 2020

Name of the Programme	:	B. A. (Geography)
Class	:	B. A. – II
Year Implementation	:	Revised Syllabus will be implemented from June 2026 onwards
Semester	:	III
Name of Vertical Group	:	Major - III and Minor - I
Course Code	:	2602UAGEMJ301
Course Title	:	Environmental Geography and AI Tools
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
Eligibility of Admission	:	As per eligibility criteria prescribed by the Warana University
Examination Pattern	:	60:40 As per Warana University rules and regulations

• **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.

- **General 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/papers concerned.

B. A. -II

Sr. No.	Subject/ Course & Credit	Theory Teaching Hours per week				Examination Scheme (Marks)		
		L	T	P	Total	Theory	Internal	Total (Semester)
1	Environmental Geography and AI Tools	04	--	--	04	60	40	100

Major- III-Environmental Geography and AI Tools

Modules: Environmental Geography and AI Tools				
Module No.	Module Name	Sub-module	No. of hours	Credit
1	Introduction to Environmental Geography	Definition Nature and scope of Environmental Geography Types of Environment Importance of Environmental Geography 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	Environment Pollution and Artificial Intelligence	4.1 Introduction of Artificial Intelligence 4.2 Solid Waste Management and AI Tools 4.3 Air Pollution and AI Tools 4.4 Water Pollution and AI Tools	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
- Odum E.P. et al. 2005, Fundamentals of Ecology, Ceneage Learning, India
3. Sharma P.D.2015, Ecology and Environment, Rastogi Publications, Meerut
4. Kormondy, Edward J, 2012, Concept of Ecology, PHI Learning Pvt. Ltd, New Delhi
5. Singh R.B.(Eds) 2009, Biogeography and Biodiversity, Rawat Publications, Jaipur
6. Singh S, Prayag, 1997, Environment Geography, Pustak Bhawan, Allahabad
7. Chandana R.C.2002, Environmental Geography, Kalyani Publication, Ludhiana
8. Goudie A, 2001, The Nature of The Environment, Blackwell, Oxford
9. Gholap T. N., 2000, Environment Science, Nishikant Publications, Pune. (Marathi)
Diamond Publishing, Pune. (Marathi)

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B.A. II, Geography, Semester III

Major IV: Basics of Map Making and AI Tools (Practical) as per NEP 2025

Name of the Programme	:	B. A. (Geography)
Class	:	B. A. – II
Year of Implementation	:	Revised Syllabus will be implemented from June 2026 onwards.
Semester	:	III
Name of Vertical Group	:	Major – IV
Course Code	:	2602UAGEMJ302
Course Title	:	Basic of Map Making and AI Tools (Practical) – IV
Total Credit	:	04
Workload	:	04 credit (4 X 30 Hours = 120 Hours in Semester
Duration	:	The course shall be a full time course
Medium of Instruction	:	Marathi
Eligibility of Admission	:	As per eligibility criteria prescribed by the Warana University
Examination Pattern	:	100 practical exam and as per Warana University rules and regulations

• **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.

• **General 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 the 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/papers concerned.

B. A. -II

Sr. No.	Subject/ Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
1	Basic of Map Making and AI Tools	L	T	P	Total	Theory	Term Work	Total (Semester)
		08	--	08	08	100	--	100

Major-IV, Basics of Map Making and AI Tools

Modules: Basics of Map Making and AI Tools				
Module No.	Module Name	Sub-module	No. of hours	Credit
1	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 types of maps c) Draw a sketch of local area with key elements labelled	30 (20)	1
2	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,	30 (20)	1

		Time and Distance scales for different RF values		
3	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
4	Map Design and AI Tools	4.1 Principles of Map Design and Layout 4.2 Mobile Mapping Apps Practical Exercises: a) Bettermaps.ai b) Google May Maps c) Create a map of a local area using Google Earth d) Canva Map Maker	30 (20)	1
5	Journal and Viva Voce		20	

• **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/>

Warana University, Warananagar

B.A. – II, Semester III

Minor I: Resource Geography (Geography) as per NEP 2025

Name of the Programme	:	B. A. (Geography)
Class	:	B. A. – II
Semester	:	III
Name of Vertical Group	:	Minor I
Course Code	:	2602UAGEMN301
Course Title	:	Resource Geography
Total Credit	:	04
Workload	:	04 credit X 15 Hours = 60 Hours in Semester
Duration	:	Semester
Medium of Instruction	:	Marathi
Eligibility of Admission	:	As per eligibility criteria prescribed by the Warana University
Examination Pattern	:	60:40 eligibility criteria prescribed by the University
Nature of Question Paper	:	As per Warana University rules and regulations

• **Preamble:**

Resource Geography is one of the important branches of human-environment interaction studies. It focuses on the spatial distribution, utilization, and management of natural and human resources. At present the world is facing unprecedented environmental and developmental challenges. In order to ensure sustainability and equity it is very essential to understand resource dynamics.

This syllabus is designed to introduce students to the fundamental concepts and scope of Resource Geography. It offers a solid foundation in the classification, significance, and geographic approach to studying resources. This syllabus explores major resource types through highlighting their spatial patterns, utilization, and associated challenges.

Recognizing the urgent need for sustainability, this syllabus equips students with knowledge of conservation techniques and the principles of balanced resource use. It emphasizes practical strategies such as rainwater harvesting, afforestation, and community-based management systems like Joint Forest Management. To bridge theory with practice, this syllabus focuses on resource planning in the Indian context, highlighting national strategies and successful grassroots initiatives. By exploring programs such as Jal Shakti Abhiyan, PM-KUSUM, and the Soil Health Card Scheme.

The course aims to foster analytical thinking, environmental responsibility, and policy awareness among students, preparing them to contribute to sustainable development and resource governance.

- **General Objectives of the Course:**

1. To impart foundational knowledge of Resource Geography by explaining its meaning, nature, classification, and importance. (Remembering & Understanding)
2. To develop analytical skills for understanding the distribution, utilization, and associated problems of key resources such as water, forest, land, and human. (Analyzing)
3. To promote awareness and critical thinking about sustainable resource development and conservation techniques, including practical approaches like watershed management and afforestation. (Evaluating)
4. To encourage students to plan and suggest innovative strategies for resource planning in India by studying government programs and community-based models like Hiware Bazar and ZBNF. (Creating)

- **General Outcomes:**

After completing this course, students will be able to:

1. CO1 (Remembering & Understanding): Define Resource Geography and explain its scope, classification, and importance.
2. CO2 (Applying): Illustrate and interpret the patterns of distribution, utilization, and issues. associated with water, forest, land, and human resources.
3. CO3 (Analysing & Evaluating): Analyse conservation techniques and assess the effectiveness of sustainable development practices like JFM, rainwater harvesting, and ZBNF.
4. CO4 (Creating): Propose integrated resource planning solutions based on Indian models (e.g., Hiware Bazar) to achieve sustainable development goals

- **Scheme of Teaching and Examination:**

The scheme of teaching and examination should be given as applicable to the course/ papers concerned.

B. A. – II

Sr. No.	Subject/ Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
1	Resource Geography - 4	L	T	P	Total	Theory	Internal	Total (Semester)
		04	04	--	04	60	40	100

Minor- I, Modules: Resource Geography

Modules: Resource Geography				
Module	Module	Sub-module	No. of	Credit

No.	Name		hours	
1	Introduction to Resource Geography	1.1 Meaning and Definition of Resource Geography 1.2 Nature and Scope of Resource Geography 1.3 Classification of Resources 1.4 Importance of Resource Geography	15	01
2	Major Resources	2.1 Water : Distribution, Utilization and Problems 2.2 Forest : Types, Utilization and Problems 2.3 Land Resources – Land Cover and Land Use Patterns and Degradation 2.4 Human : Distribution and Problems	15	01
3	Sustainable Resource Development	3.1 Concept of Sustainable Resource Development 3.2 Water Conservation Techniques – Rainwater Harvesting & Watershed Management 3.3 Forest Conservation Strategies – Afforestation & Joint Forest Management (JFM) 3.4 Sustainable Human Resource Development	15	01
4	Resource Planning in India	4.1 Need for Sustainable Resource Planning in India 4.2 Strategies – Jal Shakti Abhiyan, National Afforestation Programme & PM-KUSUM 4.3 Practices – Water Budgeting (Hiware Bazar Model) & Social Forestry 4.4 Agricultural and Natural Resource Management Organic Farming : Zero Budget Natural Farming (ZBNF) & Soil Health Card Program	15	01

• **Suggested Readings:**

1. Guha, J.L. & Chattarjee, P. (2001). Economic and Resource Geography. Calcutta: MacDonald & Co.
2. Zimmermann, E.W. (1951). World Resources and Industries. Harper & Row Publishers.
3. Cutter, S.L. et al. (2002). Explaining Differences in Vulnerability to Environmental Hazards. Social Science Quarterly.
4. Miller, G.T. (2004). Sustaining the Earth: An Integrated Approach. Thomson Brooks/Cole.
5. Singh, R.L. (1976). Readings in Resource Geography. Varanasi: Kalyani Publishers.
6. Blaikie, P., & Brookfield, H. (1987). Land Degradation and Society. Methuen.

7. United Nations Development Programme (UNDP) - Reports on Sustainable Development Goals (SDGs).
8. Government of India Publications Reports from Ministry of Environment, Forest and Climate Change (MoEFCC) and NITI Aayog.
9. Majid Husain (2012). Environment and Ecology: Biodiversity, Climate Change and Disaster Management. McGraw Hill.
10. Savindra Singh - Environmental Geography. Prayag Pustak Bhawan.
11. डॉ. विठ्ठल घारपुरे साधनसंपत्ती भूगोल, पिंपाळपुरे अँड कं. पब्लिशर्स, नागपूर,
12. डॉ. शशिकांत गोरे संपत्ती भूगोल, नंदिनी पब्लिकेशन, पुणे.
13. प्रा. भालचंद्र देशमुख संपत्ती व पर्यावरण भूगोल, विजय पब्लिकेशन, औरंगाबाद,
14. प्रा. वसंत नलावडे संपत्ती भूगोलाचे मूलतत्त्व, डायमंड पब्लिकेशन, पुणे.
15. प्रा. रमेश जाधव मानव व नैसर्गिक संपत्ती भूगोल, पॉप्युलर प्रकाशन, मुंबई
16. प्रा. विजय पाटील संपत्ती व पर्यावरणीय नियोजन, जे. जे. पब्लिकेशन, कोल्हापूर.
17. भारत सरकार जलशक्ती अभियान, वनीकरण योजना, मृदा आरोग्य पत्रिका यासंबंधी अहवाल (सरकारी प्रकाशने व संकेतस्थळे).

Warana University, Warananagar

B.A. – II, Geography, Semester IV

Major V: Physical Geography and Mineral Resources of Maharashtra as per NEP 2025 (2.0)

Name of the Programme	:	B. A. (Geography)
Class	:	B. A. – II
Semester	:	IV
Year of Implementation	:	Revised Syllabus will be implemented from June 2026 onwards.
Name of Vertical Group	:	Major – V and Minor – II
Course Code	:	2602UAGEMJ401
Course Title	:	Physical Geography and Mineral Resources 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 Warana University
Examination Pattern	:	60:40 and as per Warana University rules and regulations.

• **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.

• **General Objectives of the Course:**

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.

• **General 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/papers concerned.

B. A. - II

Sr. No.	Subject/ Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
1	Physical Geography and Mineral Resources of Maharashtra -4	L	T	P	Total	Theory	Internal	Total (Semester)
		04	04	--	04	60	40	100

Major V- Physical Geography and Mineral Resources Maharashtra

Modules: Physical Geography and Mineral Resources 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	15	01
2	Physiographic and Climate of Maharashtra	2.1 Theories of Physiographic formation of Maharashtra. 2.2 Physiographic division : Kokan Western Ghats, Maharashtra Plateau 2.3 Seasons of Maharashtra Types and characteristics 2.4 Trewartha's Climatic of Maharashtra.	15	01
3	Rivers and Minerals in Maharashtra	3.1 East Flowing river system in Maharashtra 3.2 West Flowing river system in Maharashtra 3.3 Mineral Resource: iron Ore 3.4 Mineral Resource: Bauxite		

4	Soil and Forest Resources in Maharashtra and AI Tools	4.1 Types and Distribution of soil in Maharashtra 4.2 Soil degradation and reclamation measure in Maharashtra 4.3 Types and distribution of forest in Maharashtra 4.4 Deforestation and conservation in Maharashtra	15	01
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• **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.

Warana University, Warananagar

B.A. – II, Geography, Semester IV

Major VI: Quantitative Techniques and AI Tools in Geography (Practical) as per NEP 2025 (2.0)

Name of the Programme	:	B. A. (Geography)
Class	:	B. A. – II
Year of Implementation	:	Revised Syllabus will be implemented from June 2026 onwards.
Semester	:	IV
Name of Vertical Group	:	Major – VI
Course Code	:	2602UAGEMJ402
Course Title	:	Quantitative Techniques and AI Tools in Geography
Total Credit	:	04
Workload	:	04 credit (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 Warana University
Examination Pattern	:	Practical for 100 Marks and as per Warana University rules and regulations.

• **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.

• **General 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 prepare 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/papers concerned.

B. A. II

Sr. No.	Subject/ Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
1	Quantitative Techniques and AI Tools in Geography-4	L	T	P	Total	Theory	Term Work	Total (Semester)
		08	--	08	08	100	--	100

Major- VI, Quantitative Techniques in Geography and AI Tools

Modules: Quantitative Techniques in Geography and AI Tools				
Module No.	Module Name	Sub-module	No. of hours	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	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) Kendal's Method of Agricultural productivity b) Weaver's Method of Crop Combination c) Bhatia's Method of Crop Concentration	30 (20)	01

		d) Gibbs and Martin's Methods of Crop Diversification		
4	Water and Water Pollution and AI Tools	4.1 MiniSASS 4.2 RDMAI (River Deep Mountain) 4.3 SWAT (Soil and Water Assessment Tool) 4.4 Aircognizer 4.5 Accuweather	30 (20)	01
5	Journal and Viva Voce			

• **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. अहिराव करंजखेळे प्रात्यक्षिक भूगोल, सुदर्शन पब्लिकेशन, नाशिक
7. कुंभार अर्जुन: प्रात्यक्षिक भूगोल, सुमेरू पब्लिकेशन, मुंबई.
8. श्रीकांत कार्लेकर : प्रात्यक्षिक भूगोल, डायमंड प्रकाशन, पुणे.

Warana University, Warananagar

B.A. -Part II, Semester IV

Major II: Cultural Geography (Geography) as per NEP 2020

Name of the Programme	:	B. A. (Geography)
Class	:	B. A. – I
Semester	:	IV
Name of Vertical Group	:	Minor II
Course Code	:	2602UAGEMN401
Course Title	:	Cultural Geography
Total Credit	:	04
Workload	:	04 credit X 15 Hours = 60 Hours in Semester
Duration	:	Semester
Medium of Instruction	:	Marathi
Eligibility of Admission	:	As per eligibility criteria prescribed by the University
Examination Pattern	:	60:40 and as per Warana University rules and regulations.
Nature of Question Paper	:	As per Warana University rules and regulations

• **Preamble:**

Cultural Geography is a key branch of human geography that studies how culture shapes and interacts with geographical spaces. This course introduces the nature, scope, and importance of cultural geography, focusing on elements like language, religion, ethnicity, and race. It explores cultural landscapes, rural-urban patterns, and the diffusion of culture across regions. Special attention is given to India's cultural diversity, heritage, and festivals, highlighting their role in regional identity and tourism. The course encourages students to think critically about the link between culture, space, and the environment.

• **General Objectives of the Course:**

1. Understand

- To enable students to understand the fundamental concepts, nature, and scope of cultural geography and its relevance in studying human-environment relationships.

2. Analyze

- To help students analyze the components of culture such as language, religion, ethnicity, and race, and their spatial expression.

3. Evaluate

- To evaluate the processes of cultural diffusion, regionalism, and the impact of culture on rural and urban landscapes globally and in India.

4. Apply

- To apply cultural geographic knowledge to interpret India's diverse cultural heritage, religious pluralism, and their influence on tourism and regional identity.

- **General Outcomes:**

After completing this course, students will be able to:

1. Define and explain the core concepts of cultural geography, including the man-environment relationship and the scope of the field. (Bloom's Level: Remember, Understand).
2. Identify and interpret the spatial distribution and cultural significance of elements like language, religion, ethnicity, and race. (Bloom's Level: Understand, Analyze).
3. Assess cultural diffusion processes and distinguish between various cultural landscapes and regions of the world. (Bloom's Level: Analyze, Evaluate).
4. Examine and reflect on India's cultural diversity, heritage, festivals, and their importance in cultural tourism and national identity. (Bloom's Level: Apply, Evaluate)

- **Scheme of Teaching and Examination:**

The scheme of teaching and examination should be given as applicable to the course/papers concerned.

B. A. II

Sr. No.	Subject/ Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
1	Cultural Geography – 4	L	T	P	Total	Theory	Internal	Total (Semester)
		04	04	--	04	60	40	100

Minor- II, Cultural Geography

Modules: <u>Cultural Geography</u>				
Module No.	Module Name	Sub-module	No. of hours	Credit
1	Foundations of Cultural Geography	1.1 Meaning and Definition 1.2 Nature and Scope Cultural Geography 1.3 Approaches of Cultural Geography 1.4 Relevance and importance of Cultural Geography in globalized world	15	1
2	Core Components of Cultural	2.1 Language and Dialects : Geographical Distribution and Cultural Role 2.2 Religion Major Types, Regional Spread and Geographical Impact 2.3 Ethnicity and Ethnic Groups : Concept and Identify 2.4 Race Concept, Characteristics and Spatial Distribution	15	1
3	Patterns and Processes of Cultural Landscapes	3.1 Concept and Evolution of Cultural Landscape	15	1

		3.2 Rural and Urban cultural Patterns 3.3 Cultural Regions of the world : Typology and Examples 3.4 Cultural Diffusion and Hearths : Theories and Examples		
4	Regional Cultural Patterns of India	4.1 Linguistic Regionalism 4.2 Religions Diversity and Communal Harmony 4.3 Tribal Cultural Patterns : Case Students of Naga and Bhill 4.4 Major Fairs and Festivals : Cultural Significance and Distribution	15	1

• **Suggested Readings:**

1. Jackson, Peter (1989). Maps of Meaning: An Introduction to Cultural Geography. Routledge.
2. Fellmann, J. D., Getis, A., & Getis, J. (2007). Human Geography: Landscapes of Human Activities. McGraw-Hill.
3. Jordan, Terry G., Domosh, Mona, Rowntree, Lester (2006). The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman.
4. Husain, Majid (2021). Human Geography. Rawat Publications, Jaipur. Revised 6th Edition.
5. Knox, Paul L., & Marston, Sallie A. (2013). Places and Regions in Global Context: Human Geography. Pearson Education.
6. Norton, William (2008). Human Geography. Oxford University Press.
7. Mitchell, Don (2000). Cultural Geography: A Critical Introduction. Blackwell Publishing.
8. Singh, R. L. (1993). India: A Regional Geography. National Geographical Society of India, Varanasi.
9. De Blij, Harm J., & Murphy, Alexander B. (2003). Human Geography: Culture, Society, and Space. Wiley.
10. Social Geography Ahmad, Aijazuddin (1999), Rawat Publications.
11. Cultural Geography - Fred, E. D. & Lawrence, M. (Date unspecified), Thomas Y. Crowell Co; reprinted by Rawat.
12. Cultural Geography Jackson, P.; David, D.; Atkinson, D., Rawat Publications.
13. Models in Geography - Majid Husain(2025).
14. Geography of Settlements - R.Y. Singh.
15. Bharat Ka Bhugol (Geography of India) - H.M., Rahul & Pooja Saxena.

Warana University, Warananagar

B.A. – II, Geography, Semester III

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

Name of the Programme	:	B. A. (Geography)
Class	:	B. A. – II
Year of Implementation	:	Revised Syllabus will be implemented from June 2026 onwards.
Semester	:	III
Name of Vertical Group	:	VSC
Course Code	:	2602UAGEVS301
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
Eligibility of Admission	:	As per eligibility criteria prescribed by the University
Examination Pattern	:	Practical for 50 Marks and as per Warana University rules and regulations

• **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.

• **General 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 applying 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/ papers concerned.

B. A. II

Sr. No.	Subject/ Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Practical	Term Work	Total (Semester)
1	Soil Analysis – 2		--	4	04	50	--	50

VSC-I, Soil Analysis

Modules: Soil Analysis				
Module No.	Module Name	Sub-module	No. of hours	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 Soil	30 (20)	01

		2.2 Importance of Chemical Properties of Soils in Relations to Crops Practical Exercise : Chemical Analysis of Soil a) pH b) Electric conductivity c) Nitrogen (N) d) Phosphorus (P) e) Potassium (K)		
3	Journal & Viva Voce		(10)	

• **Suggested Readings:**

1. Backman, H.O and Brady, N.C.(1960.) The Nature and Properties of Soils, Mc Millan New York.
2. Bennet, Hugh H.: Soil Conservation, McGraw Hill, New York.
3. 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. Mathur Neeru, (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; Harpenden, 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.

Warana University, Warananagar

B.A. -II, Geography, Semester III

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

Name of the Programme	:	B. A. (Geography)
Class	:	B. A. – II
Year of Implementation	:	Revised Syllabus will be implemented from June 2026 onwards.
Semester	:	III
Name of Vertical Group	:	SEC
Course Code	:	2602UAGESE401
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 and as per Warana University rules and regulations

• **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:**

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.

• **General 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/papers concerned.

B. A. - II

Sr. No.	Subject/ Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
1	Geo-statistics and Data Visualization - 2	L	T	P	Total	Practical	Term Work	Total (Semester)
			--	04	04	50	--	50

SEC- III, Geo-statistics and Data Visualization

Modules: Geo-statistics and Data Visualization				
Module No.	Module Name	Sub-module	No. of hours	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 Exercise : 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)	

• **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 Pres.
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

Warana University, Warananagar

B. A. – II, Geography, Semester IV

VSC- II: Water Survey and Mapping (Practical) as per NEP 2025

Name of the Programme	:	B. A. (Geography)
Class	:	B. A. – II
Year of Implementation	:	Revised Syllabus will be implemented from June 2026 onwards.
Semester	:	IV
Name of Vertical Group	:	VSC
Course Code	:	2602UAGEMVS401
Course Title	:	Water Survey and Mapping (Practical)
Total Credit	:	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 eligibility criteria prescribed by the University
Examination Pattern	:	Practical for 50 Marks and as per Warana University rules and regulations

• **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.

• **General 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/papers concerned.

B. A. II

Sr. No.	Subject/ Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
1	Water Survey and Mapping (Practical)-2	L	T	P	Total	Practical	Term Work	Total (Semester)
			--	04	04	50	--	50

VSC II- Water Survey and Mapping (Practical)

Modules: Water Survey and Mapping (Practical)				
Module No.	Module Name	Sub-module	No. of hours	Credit
1	Water Survey and Mapping	1.1 Introduction and types of water resources 1.2 Local Water Demand : Population, Agricultural 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
2	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
3		Journal & Viva Voce	(10)	

• **Suggested Readings:**

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.

Warana University, Warananagar

B.A. - II Geography, Semester IV

SEC-IV, Land Records (Practical) as per NEP 2025

Name of the Programme	:	B. A. (Geography)
Class	:	B. A. – II
Year of Implementation	:	Revised Syllabus will be implemented from June 2026 onwards.
Semester	:	IV
Name of Vertical Group	:	SEC
Course Code	:	2602UAGESE401
Course Title	:	Land Records (Practical)
Total Credit	:	02
Workload	:	02 credit (2 X 30 Hours = 60 Hours)
Duration	:	The course shall be a full time course
Medium of Instruction	:	Marathi
Eligibility of Admission	:	As per eligibility criteria prescribed by the University
Examination Pattern	:	Practical for 50 Marks and as per Warana University rules and regulations

• **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.

• **General 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/papers concerned.

B. A. II

Sr. No.	Subject/ Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Theory	Term Work	Total (Semester)
1	Land Records (Practical)– 2	--	--	2	04	50	--	50

SEC- IV, Land Records (Practical)

Modules: Land Records (Practical)				
Module No.	Module Name	Sub-module	No. of hours	Credit
1.	Concept development and Interpretation of Land Record	1.1 Concept of Land Record 1.2 Needs & importance of Land Record 1.3 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)	

• **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 Auriyantaliya 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://globalgpsystems.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>

Warana University, Warananagar

B. A. – II, Geography, Semester III

IKS: Water Management System in Ancient India as per NEP 2025

Name of the Programme	:	B. A. (Geography)
Class	:	B. A. – II
Year of Implementation	:	Revised Syllabus will be implemented from June 2026 onwards.
Semester	:	III
Name of Vertical Group	:	IKS
Course Code	:	2602UAGEIK301
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	:	30: 20 and as per Warana University rules and regulations

• **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.

• **General Objectives of the Course:**

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.

• **General 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/ papers concerned.

B. A. - II

Sr. No.	Subject/ Course & Credit	Theory Teaching Hours per week				Examination scheme (Marks)		
		L	T	P	Total	Theory	Term Work	Total (Semester)
1	Water Management Systems in Ancient India – 2	02	--	--	02	30	20	50

IKS- Water Management Systems in Ancient India

Modules: Water Management Systems in Ancient India					
Module No.	Module Name	Sub-module		No. of hours	Credit
1.	Introduction Water Management Systems in Ancient India	1.1	Meaning of Water Management	15	01
		1.2	Historical Context of Water Management		
		1.3	Water Sources in Ancient India		
		1.4	Importance of traditional knowledge in sustainable water management		
2	Traditional Water Harvesting Methods and Irrigation Systems	a.	Traditional water harvesting techniques (e.g. Johads, Baolis, Tankas)	15	01
		b.	Traditional irrigation Systems		
		c.	Cultural and environmental significance of these systems		
		d.	Case of traditional water system.		

- **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](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. URAR, Retrieved from <https://ijrar.org/papers/1URAR19D6145.pdf>.

(Annexure-I)

WARANA UNIVERSITY, WARANANAGAR

NEP-2020 (2.0): Credit Framework for UG (BA) Programmes under Faculty of HUMANITIES

SEM (Level)	COURSES			OE	VSC/ SEC	AEC/ VEC / IKS	OJT/FP/CEP/ CC/RP	Total Credits	Degree/Cum. Cr. MEME
	Course-1	Course-2	Course-3						
SEM I (4.5)	DSC-I (4)	DSC-I (4)	DSC-I (4)	OE-1 (2)	SEC-I (2)	AEC - ENG - I (2) IKS Generic (2)	CC (2)	22	UG Certificates 44
SEM II (4.5)	DSC-II (4)	DSC-II (4)	DSC-II (4)	OE-2 (2)	SEC-II (2)	AEC - ENG - II (2) VEC - DEC (2)	CEP (2)	22	
Credits	4+4=8	4+4=8	4+4=8	2+2=4	2+2=4	4+4=8	2+2=4	44	Exit Option: 4 credit Skill/NSQF/Internship
	MAJOR		MINOR						
	MAJOR	ELECTIVE							
SEM III (5.0)	MAJOR -III (4) MAJOR -IV (4)	-	MINOR- (4)	OE-3 (2)	VSC- I (2) SEC III (02)	AEC - ENG - III (2) IKS Specific (2)	-	22	UG Diploma 88
SEM IV (5.0)	MAJOR -V (4) MAJOR -VI (4)	-	MINOR- (4)	OE-4 (2)	VSC- II (2) SEC IV (02)	AEC - ENG - IV (2) VEC - EVS (2)	-	22	
Credits	8+8=16		4+4=8	2+2=4	4+4=8	4+4=8	-	44	Exit Option: 4 credit Skill/NSQF/Internship

SEM V (5.5)	MAJOR -VII (4) MAJOR -VIII (4) MAJOR -IX (2)	MAJOR-EL-1 (4)	MINOR- (4)	OE-5 (2)	-	-	FP - (02)	22	UG Degree 132
SEM VI (5.5)	MAJOR -X (4) MAJOR -XI (4) MAJOR -XII (2)	MAJOR-EL-1I (4)	MINOR- (4)	-	-	-	OJT - (04)	22	
Credits	10+10=20	4+4=08	4+4=08	2+0=2	-	-	2+4=6	44	
Total Credits	8+16+20+8+8		8+8+8	4+4+2	4+8	8+8	4+6		

