



Date :- 25/04/2025

NOTIFICATION

Sub :- CBCS Syllabi of B. Sc. in Geography (Sem. III & VI)

Ref. :- Decision of the Academic Council at its meeting held on 22/04/2025.

The Syllabi of B. Sc. in Geography (Third and Fourth Semesters) as per **NATIONAL EDUCATION POLICY – 2020 (2024 Pattern)** and approved by the Academic Council as referred above are hereby notified for implementation with effect from the academic year 2025-26.

Copy of the Syllabi Shall be downloaded from the College Website
(www.kcesmjcollege.in)

Sd/-
Chairman,
Board of Studies

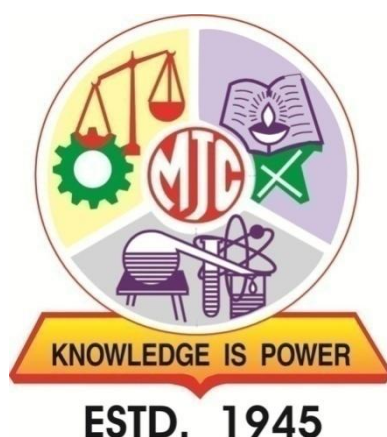
To :

- 1) The Head of the Dept., M. J. College, Jalgaon.
- 2) The office of the COE, M. J. College, Jalgaon.
- 3) The office of the Registrar, M. J. College, Jalgaon.

Knowledge is Power

Khandesh College Education Society's
Moolji Jaitha College, Jalgaon
An "Autonomous College"

Affiliated to
Kavayitri Bahinabai Chaudhari
North Maharashtra University, Jalgaon-425001



STRUCTURE AND SYLLABUS

B.Sc. Honours/Honours with Research (S.Y.B.Sc. Geography)

**Under Choice Based Credit System (CBCS)
and
as per NEP-2020 Guidelines**

[w.e.f. Academic Year: 2025-26]

Preface

Geography, as a subject, is an ancient discipline that explores the interactions between humans and their environment. Over the years, geography has evolved and incorporated various technological advancements, leading to significant developments in the field. One such noteworthy transformation has been the integration of Remote Sensing (RS), Geographic Information Systems (GIS), and Global Positioning System (GPS) technologies. These cutting-edge tools have revolutionized how geographers collect, analyze, and interpret spatial data, making geography an even more dynamic and relevant subject in contemporary times.

The Department of Geography at M. J. College (Autonomous), Jalgaon, is at the forefront of embracing these recent trends in geography. Through the courses offered, including B.A. Geography, B.Sc. Geography, M.A/M.Sc. Geography, and Ph.D., the department equips students with comprehensive knowledge and practical skills to navigate the complexities of modern geography. Additionally, the Certificate Course in Geoinformatics serves as a valuable platform for students to delve deeper into the applications of RS, GIS, and GPS technologies.

One of the standout characteristics of the Department is its team of expert and qualified faculties. These educators not only possess extensive academic knowledge but also have hands-on experience in utilizing geospatial technologies effectively. Their guidance empowers students to explore and understand the intricacies of geographical phenomena using the latest tools and methodologies. The Department boasts state-of-the-art facilities, including smart laboratories for practicals, a central library supplemented with a departmental library, and a well-equipped GIS computer lab with internet access. The availability of these resources ensures that students have ample opportunities to engage in hands-on learning and conduct research, contributing to a comprehensive understanding of geographic concepts. Moreover, the Department has been recognized as a research center for Ph.D. studies, encouraging scholarly pursuits in the realm of geography. This designation highlights the institution's commitment to pushing the boundaries of geographical knowledge and fostering innovative research in the field. The integration of technology in geography education is further augmented by the presence of smart classrooms and advanced geographical instruments. These resources enable interactive learning and support students in developing a deep appreciation for the spatial dimensions of various phenomena. In addition to academic excellence, the Department is devoted to providing specialized coaching for national-level exams such as NET/SET and competitive examinations. This emphasis on exam preparation equips students with the necessary skills to excel in their careers and become leading professionals in the field of geography. The collaboration with the Indian Institute of Remote Sensing (IIRS) as an Outreach Training Program center is a testament to the Department's commitment to keeping abreast of the latest advancements in geospatial technology. This association allows students and faculties to participate in training programs conducted by experts in the field, enhancing their knowledge and skills in RS, GIS, and GPS applications. Furthermore, the Department of Geography at M. J. College (Autonomous), Jalgaon, proudly boasts access to the best telescopes for sky watching. This unique feature provides students with an opportunity to explore celestial phenomena and their connections with the Earth, bridging the gap between the terrestrial and astronomical realms.

Finally, the Department's focus on career opportunities in geography ensures that graduates are well-prepared to enter various professional fields. The interdisciplinary nature of geography opens doors to careers in environmental management, urban planning, disaster management, cartography, geospatial analysis, and more. The versatility of geography as a subject makes it a rewarding and promising choice for students seeking diverse and impactful career paths. The Department of Geography at M. J. College (Autonomous), Jalgaon, stands as a vibrant and progressive hub for geography education. The integration of RS, GIS, and GPS technologies, coupled with expert faculty, modern facilities, and extensive research opportunities, equips students to become adept geographers, ready to address the pressing challenges of our ever-changing world.

Hence, Board of Studies in Geography in its meeting held on 22/03/2025 resolved to accept the revised syllabus for T. Y. B. Sc. (Geography) based on Choice Based Credit System (CBCS) of UGC, NEP-2020 and the Government of Maharashtra guidelines.

Program Outcomes (PO) for B.Sc. Program:

Program outcomes associated with a B.Sc. degree are as follows:

PO No.	PO
1	Graduates should have a comprehensive knowledge and understanding of the fundamental principles, theories, and concepts in their chosen field of study.
2	Graduates should possess the necessary technical skills and competencies related to their discipline, including laboratory techniques and data analysis.
3	Graduates should be able to identify, analyze, and solve complex problems using logical and critical thinking skills. They should be able to apply scientific methods and principles to investigate and find solutions.
4	Graduates should be proficient in effectively communicating scientific information, both orally and in writing.
5	Graduates should have a basic foundation in research methods and be capable of designing and conducting scientific investigations.
6	Graduates should be able to work effectively as part of a team, demonstrating the ability to collaborate with others, respect diverse perspectives, and contribute to group projects.
7	Graduates should recognize the importance of ongoing learning and professional development. They should be equipped with the skills and motivation to engage in continuous learning, adapt to new technologies and advancements in their field, and stay updated with current research.

Programme Specific Outcome (PSO) for B.Sc. Geography Honours/Honours with Research:

After completion of this program, students are expected to learn/understand the:

PSO No.	PSO
PSO1	Geographical terms, concepts, and theories and will be able to explain and find out the relation between geographical factors and processes.
PSO2	Develop and prepare various thematic maps and map reading skills.
PSO 3	How their life is related to different geographical factors such as environmental, economic, social, and cultural at the local and global scale. He/she will be able to evaluate factors such as environmental, economic, social, and cultural, with respect to spatial dimensions from a local to global scale.
PSO 4	Interpretation of thematic maps through visual and/or digital interpretation of topographic maps, weather maps, aerial photographs, and satellite images.
PSO 5	Remote sensing concepts, and techniques in various fields of earth and environment sciences.
PSO 6	Geographical distribution of the global human population and factors affecting human populations including human settlement and economic activities and transport networks. The students will be able to understand the impacts of human activities on the physical environment.

Multiple Entry and Multiple Exit options:

The multiple entry and exit options with the award of UG certificate/ UG diploma/ or three-year degree depending upon the number of credits secured;

Levels	Qualification Title	Credit Requirements		Semester	Year
		Minimum	Maximum		
4.5	UG Certificate	40	44	2	1
5.0	UG Diploma	80	88	4	2
5.5	Three Year Bachelor's Degree	120	132	6	3
6.0	Bachelor's Degree- Honours Or Bachelor's Degree- Honours with Research	160	176	8	4

Credit distribution structure for Three/ Four year Honors/ Honors with Research Degree Programme with Multiple Entry and Exit

F.Y. B.Sc.

Year (Level)	Sem	Subject-I (M-1)	Subject-II (M-2)	Subject-III (M-3)	Open Elective (OE)	VSC, SEC (VSEC)	AEC, VEC, IKS	CC, FP, CEP, OJT, RP	Cumulative Credits/Sem	Degree/ Cumulative Credit
I (4.5)	I	DSC-1(2T) DSC-2(2P)	DSC-1(2T) DSC-2(2P)	DSC-1(2T) DSC-2(2P)	OE-1(2T)	---	AEC-1(2T) (Eng) VEC-1(2T) (ES) IKS(2T)	CC-1(2T)	22	UG Certificate
	II	DSC-3(2T) DSC-4(2P)	DSC-3(2T) DSC-4(2P)	DSC-3(2T) DSC-4(2P)	OE-2(2T) OE-3(2P)	---	AEC-2(2T) (Eng) VEC-2(2T) (CI)	CC-2(2T)	22	
	Cum. Cr.	8	8	8	6	---	10	4	44	
Exit option: Award of UG Certificate with 44 credits and an additional 4 credits core NSOF course/ Internship OR Continue with Major and Minor.										

S.Y. B.Sc.

Year (Level)	Sem	Subject-I (M-1) Major*		Subject-II (M-2) Minor #	Subject-III (M-3)	Open Elective (OE)	VSC, SEC (VSEC)	AEC, VEC, IKS	CC, FP, CEP, OJT/Int/RP	Cumulative Credits/Sem	Degree/ Cumulative Credit
		Mandatory (DSC)	Elective (DSE)	(MIN)							
2 (5.0)	III	DSC-5(2T) DSC-6(2T) DSC-7(2P)	---	MIN-1(2T) MIN-2(2T) MIN-3(2P)	---	OE-4(2T)	SEC-1(2T)	AEC-3(2T) (MIL)	CC-3(2T) CEP(2)	22	UG Diploma
	IV	DSC-8(2T) DSC-9(2T) DSC-10(2P)	---	MIN-4(2T) MIN-5(2P)	---	OE-5(2T)	SEC-2(2T) SEC-2(2P)	AEC-4(2T) (MIL)	CC-4(2T) ⊗FP(2)	22	
	Cum . Cr.	12	---	10	---	4	6	4	8	44	
Exit option: Award of UG Diploma in Major and Minor with 88 credits and an additional 4 credits core NSOF course/ Internship OR Continue with Major & Minor.											

* Student must choose one subject as a Major subject out of M-1, M-2 and M-3 that he/she has chosen at First year

Student must choose one subject as a Minor subject out of M-1, M-2 and M-3 that he/she has chosen at First year (Minor must be other than Major)

⊗ OJT/Internship/CEP should be completed in the summer vacation after 4th semester

T.Y. B.Sc.

Year (Level)	Sem	Subject-I (M-1) Major		Subject-II (M-2) Minor	Subject-III (M-3)	Open Elective (OE)	VSC, SEC (VSEC)	AEC, VEC, IKS	CC, FP, CEP, OJT/Int/RP	Cumulative Credits/Sem	Degree/ Cumulative Credit
		Mandatory (DSC)	Elective (DSE)	(MIN)							
3 (5.5)	V	DSC-11(2T) DSC-12(2T) DSC-13(2T) DSC-14(2P) DSC-15(2P)	DSE-1A/B (2T) DSE-2A/B (2P)	---	---	---	VSC-1(2T) VSC-2(2P)	---	OJT/Int (4)	22	UG Degree
	VI	DSC-16(2T) DSC-17(2T) DSC-18(2T) DSC-19(2T) DSC-20(2T) IKS DSC-21(2P) DSC-22(2P)	DSE-3A/B (2T) DSE-4A/B (2P)	---	---	---	VSC-3(2T) VSC-4(2P)	---	---	22	
	Cum . Cr.	24	8	---	---	---	8	---	4	44	
		Exit option: Award of UG Degree in Major with 132 credits OR Continue with Major and Minor									

Fourth Year B.Sc. (Honours)

Year (Level)	Sem	Major Core Subjects		Research Methodology (RM)	VSC, SEC (VSEC)	OE	AEC, VEC, IKS	CC, FP, CEP, OJT/Int/RP	Cumulative Credits/Sem	Degree/ Cumulative Credit
IV (6.0)	VII	DSC-23(4T) DSC-24(4T) DSC-25(4T) DSC-26(2P)	DSE-5A/B (2T) DSE-6A/B (2P)	RM(4T)	---	---	---	---	22	UG Honours Degree
	VIII	DSC-27(4T) DSC-28(4T) DSC-29(4T) DSC-30(2P)	DSE-7A/B (2T) DSE-8A/B (2P)	---	---	---	---	OJT/Int (4)	22	
	Cum. Cr.	28	8	4	---	---	---	4	44	
Four Year UG Honors Degree in Major and Minor with 176 credits										

Fourth Year B.Sc. (Honours with Research)

Year (Level)	Sem	Major Core Subjects		Research Methodology (RM)	VSC, SEC (VSEC)	OE	AEC, VEC, IKS	CC, FP, CEP, OJT/Int/RP	Cumulative Credits/Sem	Degree/ Cumulative Credit
IV (6.0)	VII	DSC-23(4T) DSC-24(4T) DSC-26(2P)	DSE-5A/B (2T) DSE-6A/B (2P)	RM(4T)	---	---	---	RP(4)	22	UG Honours with Research Degree
	VIII	DSC-27(4T) DSC-28(4T) DSC-30(2P)	DSE-7A/B (2T) DSE-8A/B (2P)	---	---	---	---	RP(8)	22	
	Cum. Cr.	20	8	4	---	---	---	12	44	
Four Year UG Honours with Research Degree in Major and Minor with 176 credits										

Sem- Semester, **DSC-** Department Specific Course, **DSE-** Department Specific Elective, **OE/GE-** Open/Generic elective, **VSC-** Vocational Skill Course, **SEC-** Skill Enhancement Course, **VSEC-** Vocation and Skill Enhancement Course, **AEC-** Ability Enhancement Course, **IKS-** Indian Knowledge System, **VEC-** Value Education Course, **T-** Theory, **P-** Practical, **CC-** Co-curricular **RM-** Research Methodology, **OJT-** On Job Training, **FP-** Field Project, **Int-** Internship, **RP-** Research Project, **CEP-** Community Extension Programme, **ENG-** English, **CI-** Constitution of India, **MIL-** Modern Indian Language

- Number in bracket indicate credit
- The courses which do not have practical 'P' will be treated as theory 'T'
- If student select subject other than faculty in the subjects M-1, M-2 and M-3, then that subject will be treated as Minor subject, and cannot be selected as Major at second year

Details of S.Y. B.Sc. (Geography)

Course	Course Type	Course Code	Course Title	Credits	Teaching Hours/ Week			Marks			
					T	P	Total	Internal		External	
								T	P	T	P
Semester III, Level – 5.0											
DSC-5	DSC	GEO-DSC-231	Lithosphere	2	2	---	2	20	---	30	---
DSC-6	DSC	GEO-DSC-232	Atmosphere	2	2	---	2	20	---	30	---
DSC-7	DSC	GEO-DSC-233	Practical on Physical Geogrpahy	2	---	4	4	---	20	---	30
SEC-1	SEC	GEO-SEC-231	Geography of Transportation	2	2	---	2	20	---	30	---
CEP	CEP	GEO-CEP-231	Community Engagement Program	2	---	4	4	50	---	---	---
MIN-1	MIN	GEO-MIN-231	Geography of Maharashtra	2	2	---	2	20	---	30	---
MIN-2	MIN	GEO-MIN-232	Green Audit	2	2	---	2	20	---	30	---
MIN-3	MIN	GEO-MIN-233	Practical on Green Audit	2	---	4	4	---	20	---	30
OE-4	OE	GEO-OE-231	Air Pollution	2	2	---	2	20	---	30	---
Semester IV, Level – 5.0											
DSC-8	DSC	GEO-DSC-241	Fundamentals of Remote Sensing	2	2	---	2	20	---	30	---
DSC-9	DSC	GEO-DSC-242	Fundamentals of GIS	2	2	---	2	20	---	30	---
DSC-10	DSC	GEO-DSC-243	Practical on RS and GIS	2	---	4	4	---	20	---	30
SEC-2	SEC	GEO-SEC-241	Weather Forecasting	2	2	---	2	20	---	30	---
SEC-3	SEC	GEO-SEC-242	Practical on Weather Forecasting	2	---	4	4	---	20	---	30
FP	FP	GEO-FP-241	Field Project	2	---	4	4	50	---	---	---
MIN-4	MIN	GEO-MIN-241	Geography of Soil	2	2	---	2	20	---	30	---
MIN-5	MIN	GEO-MIN-242	Practical on Soil Geography	2	---	4	4	---	20	---	30
OE-5	OE	GEO-OE-241	Tourism Geography	2	2	---	2	20	---	30	---

Examination Pattern

Theory Question Paper Pattern:

- 30 (External) +20 (Internal) for 2 credits
 - External examination will be of 1½ hours duration
 - There shall be 3 questions: Q1 carrying 6 marks and Q2, Q3 carrying 12 marks each. The tentative pattern of question papers shall be as follows;
 - Q1 Attempt any 2 out of 3 sub-questions; each 3 marks
 - Q 2 and Q3 Attempt any 3 out of 4 sub-question; each 4 marks.

Rules of Continuous Internal Evaluation:

The Continuous Internal Evaluation for theory papers shall consist of two methods:

1. Continuous & Comprehensive Evaluation (CCE): CCE will carry a maximum of 30% weightage (30/15 marks) of the total marks for a course. Before the start of the academic session in each semester, the subject teacher should choose any three assessment methods from the following list, with each method carrying 10/5 marks:

- i. Individual Assignments
- ii. Seminars/Classroom Presentations/Quizzes
- iii. Group Discussions/Class Discussion/Group Assignments

- iv. Case studies/Case lets
- v. Participatory & Industry-Integrated Learning/Field visits
- vi. Practical activities/Problem Solving Exercises
- vii. Participation in Seminars/Academic Events/Symposia, etc.
- viii. Mini Projects/Capstone Projects
- ix. Book review/Article review/Article preparation
- x. Any other academic activity
- xi. Each chosen CCE method shall be based on a particular unit of the syllabus, ensuring that three units of the syllabus are mapped to the CCEs.

2. Internal Assessment Tests (IAT): IAT will carry a maximum of 10% weightage (10/5 marks) of the total marks for a course. IAT shall be conducted at the end of the semester and will assess the remaining unit of the syllabus that was not covered by the CCEs. The subject teacher is at liberty to decide which units are to be assessed using CCEs and which unit is to be assessed on the basis of IAT. The overall weightage of Continuous Internal Evaluation (CCE + IAT) shall be 40% of the total marks for the course. The remaining 60% of the marks shall be allocated to the semester-end examinations. The subject teachers are required to communicate the chosen CCE methods and the corresponding syllabus units to the students at the beginning of the semester to ensure clarity and proper preparation.

Practical Examination Credit 2: Pattern (30+20)

External Practical Examination (30 marks):

- Practical examination shall be conducted by the respective department at the end of the semester.
- Practical examination will be of 3 hours duration and shall be conducted as per schedule.
- Practical examination shall be conducted for 2 consecutive days for 2 hr/ day where incubation condition is required.
- There shall be 05 marks for journal and viva-voce. Certified journal is compulsory to appear for practical examination.

Internal Practical Examination (20 marks):

- Internal practical examination of 10 marks will be conducted by department as per schedule given.
- For internal practical examination student must produce the laboratory journal of practicals completed along with the completion certificate signed by the concerned teacher and the Head of the department.
- There shall be continuous assessment of 30 marks based on student performance throughout the semester. This assessment can include quizzes, group discussions, presentations and other activities assigned by the faculty during regular practicals. For details refer internal theory examination guidelines.
- Finally 40 (10+30) marks performance of student will be converted into 20 marks.

SEMESTER-III

S.Y. B.Sc. Geography (Major)
Semester-III
GEO-DSC-231: Lithosphere

Total Hours: 30

Credits: 2

Course Objectives	▪ To understand the structure, composition, and distribution of land and water on Earth. ▪ To explore the types, characteristics, and significance of rocks and minerals, along with key geological theories. ▪ To analyze the impact of slow and sudden movements on Earth's surface. ▪ To understand the processes of weathering and mass movement and their role in shaping Earth's surface.	
Course Outcomes	After successful completion of this course, students are expected to: ▪ Describe the Earth's interior structure and explain the distribution of oceans and continents. ▪ Understand the differentiate between various rock types and explain the Continental Drift and Plate Tectonics theories with their supporting evidence and criticisms. ▪ Explain the processes of folding and faulting, as well as the causes and effects of earthquakes and volcanoes. ▪ Identify different types of weathering and mass movements and explain their contributing factors.	
Unit	Contents	Hours
Unit I	Introduction to Lithosphere ▪ Definitions innig and concept ▪ Interior of the earth-structure and composition ▪ Salient features of distribution of oceans and Land	7
Unit II	Rocks ,Minerals and Theories ▪ Rocks and Minerals ▪ Definition ,Types , Characteristics ,Economics Importance continents ▪ Theories Regarding the present distribution of land & water ▪ Wegener's Continental Drift Theory-Description, Evidences & Criticism. ▪ Theory of Plate Tectonics Description & Criticism.	8
Unit III	Earth's Moments ▪ Slow moments, i) Diastrophic Forces – Eperiogenetic and Orogenetic Forces. a. Folds- Definitions, types and landforms associated with folds b. Faults- Definitions, types and landforms associated with faults ▪ Sudden moments - a. Earthquake- Definition, Causes, effects and preventive measures b. Volcano- Definition, Causes, effects and types	8
Unit IV	Weathering and Mass Movement ▪ Weathering: Definition, Factors, Types ▪ Mass Movement: Definition, Factors, Types	7
Study Resources	▪ Ahirrao, W.R., Alizad, S.S. and Dhapte, C.S., 1998. Morphology and Landscape, NiraliPrakashan, Pune ▪ Bloom, A.L., 1998. Geomorphology. A Systematic Analysis of Late Cenozoic Landforms.Pearson Education (Singapore) Pte. Ltd. ▪ Chaudhari S.R.,V.J.Patil&ArvindBadgujar (2014) : Physical Geography Prashant Publication, Jalgaon	

	▪ Chorley R. J. (ed.), 1972: Spatial Analysis in Geomorphology, Harper and Row. Christopher son, R.W. 2000, Geo-systems, Prentice Hall, INC. USA ▪ Hamblin, W.K., 1989. The Earth's Dynamic Systems, Macmillan Publishing Company, New York. ▪ Husain, M., 2001. Fundamentals of Physical Geography, Rawat Publication, Jaipur. ▪ Kale, V.S. and Gupta, A., 2001. Introduction to Geomorphology, Orient Longman, Calcutta. ▪ Monkhouse, F.J., 1996. Principles of Physical Geography, Hodder and Stoughton, London. ▪ S. N. Bharambe, S. V. Dhake, V. J. Patil, Physical Geography – Part 1 (Lithosphere), Prashant Publication, Jalgaon ▪ Strahler A. H., 2008: Modern Physical Geography(4 Edition), Wile 11. Singh, Savindra : Physical Geography (Eng./Hindi) ▪ Suryawanshi D.S., & Others, 2011. Geography (Lithosphere & Hydrosphere), Vrindapublication, Jalgaon ▪ Trewartha, G.T: Elements of Physical Geography) McGraw Hill	
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S.Y. B.Sc. Geography(Major)
Semester-III
GEO-DSC-232: Atmosphere

Total Hours: 30

Credits: 2

Course Objectives	▪ To understand the composition, structure, and characteristics of the atmosphere. ▪ To analyze the concept of insolation, solar constant, albedo, and temperature distribution. ▪ To explore the formation of pressure belts, wind systems, and their influencing factors. ▪ To understand the various atmospheric phenomena, forms of precipitation, and their significance in different fields.	
Course Outcomes	After successful completion of this course, students are expected to: ▪ Know the difference between weather and climate and explain the composition and structure of the atmosphere based on chemical and physical properties. ▪ Describe factors affecting insolation and temperature distribution at both vertical and horizontal levels. ▪ Understand the role of pressure belts in wind formation and classify different types of winds, including planetary, periodic, and monsoon winds. ▪ Understand the types of humidity, condensation, and precipitation, as well as analyze the practical applications of climatology in agriculture, settlement, health, trade, and transport.	
Unit	Contents	Hours
Unit I	Introduction to Atmosphere ▪ Definitions Meaning and Difference Climate & Weather ▪ Composition of Atmosphere i. Gases, ii. Water Vapor iii. Dust Particles) ▪ Structure of Atmosphere ○ On the basis of Chemical Composition ○ On the basis of physical properties	6
Unit II	Insolation & Temperature ▪ Meaning & Definition of Insolation, Solar Constant and albedo of the Earth ▪ Distribution of Isolation- Factors Affecting the Distribution of Insolation ▪ Distribution of Temperature. I. Vertical Distribution II. Horizontal Distribution	8
Unit III	Atmospheric Pressure & Winds ▪ Atmospheric Pressure i. Formation of Pressure Belts ii. Shifting of Pressure Belts and their Effect ▪ Winds ○ Factors Affecting on Winds Pressure Gradient, Coriolis Force, Frictional Force ○ Classification of Winds - Planetary Winds- Definition & Types, Periodical Winds: land & Sea Breezes), Monsoon Winds – Concept & Types	8

Unit IV	Atmospheric phenomena & Applications of Climatology ▪ Definition & Types of Humidity – Absolute, Specific and Relative Humidity ▪ Forms of Condensation: Fog, Dew, Frost, Clouds & Precipitation ▪ Forms of Precipitation: (Rain, Drizzle, Snow, Sleet.) ▪ Types of Rainfall – Convectional, Orographic / Relief, Cyclonic or Frontal ▪ Applications of Climatology in the field of – Agriculture, Settlement, Health, Trade & Transport	8
Study Resources	▪ Aguado, E. and Burt, J.E. (2001): Understanding Weather and Climate, Printice Hall, Upper Saddal River, New Jersey. ▪ Barry, R.G. & Chorly, R.J.(1995) : Atmosphere, Weather and Climate, Routledge, London And New York. ▪ Das, P.K.(1968): Monsoon, National Book Trust, New Delhi. ▪ Lal, D.S. (1986): Climatology, Chaitany Book Trust, New Delhi. ▪ Lal, D.S. (2009): Climatology and Oceanography, ShardaPustakBhavan, Allahabad ▪ Millar A. et.al. (1983): Elements of Meteorology, Merrill, Columbus ▪ Siddharth, K. (2001): Atmosphere, Weather and Climate, Kisaliya Publications Pvt. Ltd., New Delhi. ▪ Singh Savindra (2005): Climatology, PrayagPustakBhawan, Allahabad. ▪ Stringer E.T.(1982) : Foundation of Climatology, Surjeet publications, Delhi. ▪ Trewartha, G.T. (1980): An Introduction to Weather and Climate, McGraw Hill, New York.	

S.Y. B.Sc. Geography (Major)
Semester-III
GEO-DSC-233: Practical on Physical Geography

Total Hours: 60

Credits: 2

Course Objectives	▪ To introduce the students with basic knowledge of techniques in physical geography. ▪ To know the importance role of physical geography in applied research.. ▪ To introduce the various methods of representation of relief. ▪ To acquaint the students with climograph and windrose	
Course Outcomes	After successful completion of this course, students are expected to: ▪ Understand the fundamentals of methods of relief representation. ▪ Understand various relief profiles and their construction. ▪ Understand the basic concepts in climatology. ▪ Understandthe climatic data and its interpretation techniques.	
Sr. No.	Contents	Hours
1	Introduction to Relief Representation.	4
2	Qualitative Methods of Relief Representation: Hachures, Hill shading, Color shading or tinting.	4
3	Quantitative Methods of Relief Representation: Spot Height, Bench Mark, Triangulation Method, Contours, Form lines.	4
4	Representation of slope by contours: Gentle and steep slope, Even and uneven slope, Concave and convex slope.	4
5	Representation of landforms by contours: Conical hill, Cliff , V shaped valley,	4
6	Representation of landforms by contours: Ridge, Plateau, Pass.	4
7	Introduction to Relief profile.	4
8	Methods of relief Profile- longitudinal profile.	4
9	Methods of relief Profile- Cross profile.	4
10	Methods of relief Profile- Superimposed profile	4
11	Methods of relief Profile- Composite profile	4
12	Introduction to Climograph, Simple and Compound wind rose.	4
13	Representation of Climatic Data – Climograph	4
14	Representation of Climatic Data – Simple wind rose.	4
15	Representation of Climatic Data – Compound wind rose.	4
Study Resources	▪ Crone, G. R. (1966) , “ Maps and Their Makers”, 3rd Edition, Hutchinson, London. ▪ Goudie A.S. and et.al (1990): (Edt) “Geomorphological Techniques”, Routledge, London. ▪ Kanetkar, T. P. and Kulkarni S. V. (2014), “ Surveying and Leveling”, Pune Vidyarthi Prakashan, Pune. ▪ King, C. A.M (1966): “Techniques in Geomorphology”, Edward Arnold, London. ▪ Lutgens, Frederic K. & Tarbuck, Edward J. (2010): “The Atmosphere: An Introduction to Meteorology”, Prentice Hall, New Jersey. ▪ Miller, Austin (1953): “The skin of the Earth”, Methuen & Co. Ltd. London	

	▪ Monkhouse, F. J. and Wilkinson, H. R., (1976): “Maps and Diagrams”, Methuen & Co. ▪ Rashid, S. M., Ishtiaq M. (1974) : “ Practical Geography”, Jawahar Publishers and Distributors, New Delhi. ▪ Robinson A., Sale R. , Morrison J. (1978) : “ Elements of Cartography”, John Wiley and Sons, U.S.A., ▪ Sarkar Ashis (1997) : “ Practical Geography: A Systematic Approach”, Orient BlackSwan. ▪ Singh R. L. & Rana P. B. Singh (2005) : “ Elements of Practical Geography”, Kalyani Publisher, New Delhi. ▪ Singh R. L. (1979): “Elements of Practical Geography”, KalyaniPublisher,New Delhi. ▪ Tamaskar, B. G. (1974): “Geographical Interpretation of Indian Topographical Maps”, Orient Logman.	
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S.Y. B.Sc. Geography (Major)
Semester-III
GEO-SEC-231: Geography of Transportation

Total Hours: 30

Credits: 2

Course Objectives	▪ To understand the meaning, scope, and significance of transportation geography. ▪ To explore the geographical factors and concepts influencing transportation development.. ▪ To study various modes of transportation and their economic significance. ▪ To examine transport networks and their connectivity using graph theory.	
Course Outcomes	After successful completion of this course, students are expected to: ▪ Know the role of transportation as a tertiary activity and analyze its importance in geographic studies. ▪ Assess how physical, cultural, and government policies impact transportation networks and measure different types of distances. ▪ Compare different transportation modes, analyze their role in regional development, and understand their impact on world trade. ▪ Analyze transport network structures, measure connectivity, and assess centrality using relevant indices.	
Unit	Contents	Hours
Unit I	Introduction to Transportation Geography ▪ Meaning, Characteristics and Scope of Transportation Geography. ▪ Transportation as Tertiary activity ▪ Approaches of Transportation Geography ▪ Importance of Transportation Geography	7
Unit II	Elements of Transportation ▪ Geographical Factors affecting the Development of transportation: Physical –Cultural –Government policy in development of transportation. ▪ Concepts of distance : point to point distance and distance in a group of points; measures of distance.	7
Unit III	Mode of Transportation ▪ Land - Road, Railway ▪ Air ways and Pipelines ▪ Water Ways: World's major Inland Waterways and Sea Routes ▪ Distribution and Economic significance of Transportation in India and world. ▪ Role of Technology in the Development of Transportation and Regional Development – Transportation and World trade.	8
Unit IV	Types of transport network ▪ Graph Theory: Concept, types and elements. ▪ Connectivity of transport network: Concept, types and indices ▪ Centrality within a transport network: Concept and index of measure.	8
Study Resources	▪ Hagget, P. et al, 1977, Locational Analysis in Human Geography, Edward Arnold, London. ▪ Haggett, P. and R. J. Chorley, 1968 :Network Analysis in Geography, Arnold, London ▪ Hurst, M. E. E., Transportation Geography1974: Comments and	

	Readings, McGraw Hill, New York, ▪ Hussain, M. et al, Transport Geography: Perspective in Economic Geography Series, Anmol Publications Pvt. Ltd., New Delhi ▪ Raza, Moonis and Y. P. Agrawal, 1985:Transport Geography of India, Concept Publishing Company, New Delhi ▪ Robinson, H. and C. G. 1978:Bamford, Geography of Transportation, McDonald and Evans, London, ▪ Taaffe, E. J. and H. L. 1973:Gauthier, Geography of Transportation, Prentice Hall Inc., New Jersey ▪ Ullman, E. L. 1957 24, American Commodity Flow, University of Washington Press,. ▪ White H. P. and M. L. Senior, 1983:Transport Geography, Longman, London, ▪ H. M. Saxena: Transport Geography Rawat Publications. ▪ Moonis Raza & Yash Aggarwal: Transport Geography of India ▪ Concept Publicationing Company, New Delhi. ▪ H & Bamford C. G.: Geography of transport Robinson ▪ Macdonald and Evans ▪ Feulks R. W. Lan Allen1973: Principals of Transport. ▪ Majid hussain (1999) Human Geography, Rawat, Jaipur	
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S.Y.B.Sc. Geography (Major)
Semester-III
GEO-CEP-231: Community Engagement Program

Total Hours: 60

Credits: 2

In alignment with the National Education Policy (NEP) 2020, Moolji Jaitha College (Autonomous), Jalgaon is introducing the Community Engagement Program at the undergraduate level. The NEP 2020 emphasizes holistic development, inclusivity, and integrating vocational education with academic learning, aiming to nurture socially responsible individuals. Inspired by NEP 2020, the Community Engagement Program aim to produce knowledgeable, compassionate, and proactive graduates, contributing to a more just, equitable, and sustainable society. This course fosters a strong connection between education and socioeconomic problems of real-world. Students will learn about the challenges faced by vulnerable households and appreciate local wisdom and lifestyles.

Objectives

- To engage students in activities that promote emotional, social, and intellectual growth, fostering a well-rounded approach to personal and academic development.
- To provide hands-on experiences that complement classroom learning, enabling students to apply their knowledge in socioeconomic problems of real-world.
- To instill a sense of responsibility towards the community by encouraging students to actively participate in social and environmental initiatives, appreciate rural culture, lifestyle, and wisdom.

Outcomes

After completing this course, students will be able to

- Understand rural and/or urban culture, ethos, and socioeconomic realities.
- Develop a sense of empathy with the local community while appreciating the significant contributions of local communities to society and the economy.
- Learn to value the local community wisdom and identify opportunities for contributing to the community's socioeconomic improvements.

Activities

- Conduct workshops and interactive sessions on emotional intelligence and social skills.
- Organize debates, discussions, and intellectual challenges that stimulate critical thinking and socioeconomic problem-solving using concern subject.
- Organize field visits where students can work on real-world problems, such as environmental conservation, rural and/or urban planning, or community health.
- Organize internships or service-learning opportunities with local businesses, NGOs, or government agencies.
- Facilitate project-based learning activities that require students to use their academic knowledge to develop solutions to community issues.
- Engage students in community service activities that address local social and environmental issues.
- Organize cultural exchange programs or field trips to rural areas to foster an appreciation of rural culture and wisdom.
- Facilitate collaborative projects involving students, educators, and community members to develop solutions for local challenges, promoting teamwork and collective problem-solving.
- Conduct educational sessions on the status of various agricultural and development programs and the challenges faced by vulnerable households, ensuring inclusivity and accessibility for all students.

S. No.	Module Title	Module Content	Assignment submission	Teaching/ Learning Methodology
1	Appreciation of Rural Society	Rural lifestyle, rural society, caste and gender relations, rural values with respect to community, nature and resources, elaboration of “soul of India lies in villages’, rural infrastructure.	Prepare a map (physical, visual or digital) of the village you visited and write an essay about inter-family relations in that village.	– Classroom discussions – Field visit – Assignment
2	Understanding rural and local economy and livelihood	Agriculture, farming, land ownership, water management, animal husbandry, non-farm livelihoods and artisans, rural entrepreneurs, rural markets, migrant labour.	Describe your analysis of the rural house hold economy, its challenges and possible pathways to address. Circular economy and migration patterns.	– Field visit – Group discussions in class – Assignment
3	Rural and local Institutions	Traditional rural and community organisations, Self-help Groups, Panchayati raj institutions (Gram Sabha, Gram Panchayat, Standing Committees), Nagarpalikas and municipalities, local civil society, local administration.	How effectively are Panchayati Raj and Urban Local Bodies (ULBs) institutions functioning in the village? What would you suggest to improve their effectiveness? Present a case study (written or audio-visual).	– Classroom – Field visit – Group presentation of assignment
4	Rural and National Development Programmes	History of rural development and current national programmes in India: Sarva Shiksha Abhiyan, Beti Bachao, Beti Padhao, Ayushman Bharat, Swachh Bharat, PM Awaas Yojana, Skill India, Gram Panchayat Decentralised Planning, National Rural Livelihood Mission (NRLM), Mahatma Gandhi National Rural Employment Guarantee Act 2005 (MGNREGA), SHRAM, Jal Jeevan Mission, Scheme of Fund for Regeneration of Traditional Industries (SFURTI), Atma Nirbhar Bharat, etc.	Describe the benefits received and challenges faced in the delivery of one of these programmes in the local community; give suggestions about improving the implementation of the programme for the poor. Special focus on the urban informal sector and migrant households.	– Classroom – Each student selects one program for field visit – Written assignment

Note: The modules are suggestive in nature and students can opt any one activity for community engagement program and field project based on topic appropriate to their regional community context.

Some additional suggestive themes for field-based / community engagement activities are listed below:

- Management curriculum may include aspects of micro-financing in a rural context;
- Chemistry syllabus can have a component of conducting water and soil analysis in surrounding field areas;
- Political science syllabus could include a mapping of local rural governance institutions and their functioning.
- Environment education will include areas such as climate change, pollution, waste management, sanitation, conservation of biological diversity, management of biological resources and biodiversity, forest and wildlife conservation, and sustainable development and living
- Understanding panchayats and constitutional mandate of local governance
- Panchayat administration, Gram Sabha, Mahila Sabha, Gram Panchayat Development Plan (GPDP), local planning of basic services.
- Micro-finance, SHGs, system of savings and credit for local business, linkages to banks, financial inclusion.
- Rural – entrepreneurship, opportunities for small business in local communities, access to financial and technical inputs to new entrepreneurs.
- Renewable energy, access to household and community level solar and bio-mass systems for sustainable energy use.
- Participatory Monitoring and evaluation of socio-economic development programmes, and cost-benefit analysis of project proposals.
- Migrant workers' livelihood security and social services.
- Hygiene and sanitation, improving health and personal behaviours, locally manageable decentralised systems and awareness against stubble burning.
- Water conservation, traditional practices of storage and harvesting, new systems of distribution and maintenance.
- Women's empowerment, gender inequality at home, community and public spaces, safety of girls and women, access to skills, credit and work opportunities.
- Child security, safety and good parenting, nutrition and health, learning and training for child care.
- Rural Marketing, market research, designing opportunities for rural artisans and crafts, and new products based on demand assessment.
- Community Based Research in Rural Settings, undertaking research that values local knowledge, systematises local practices and tools for replication and scale-up.
- Peri-urban development of informal settlements, mapping and enumeration, design of local solutions.

Assessment:

- Readings from related literature including e-content and reflections from field visits should be maintained by each student in the form of Field Diary (20 Marks)
- Submission of assignments based on modules assignment submission (details mentioned above) (20 Marks)
- Oral/ Group discussion/ Presentation (10 Marks)

S.Y. B.Sc. Geography (Minor)
Semester-III
GEO-MIN-231: Geography of Maharashtra

Total Hours: 30

Credits: 2

Course Objectives	▪ To understand Maharashtra's geography, administrative divisions, and neighboring States. ▪ To acquaint the student with basic information of physical aspects of Maharashtra State. ▪ To know the climatic condition of Maharashtra State. ▪ To acquaint the student with the resources available in Maharashtra	
Course Outcomes	After successful completion of this course, students are expected to: ▪ Know how Maharashtra's geographical and administrative landscape distributed ▪ Familiar with physical perspective of Maharashtra. ▪ Familiarize with the atmospheric characteristics of the Maharashtra State. ▪ Enhance his knowledge for doing research on Maharashtra's problem and futuristic development plan for Maharashtra	
Unit	Contents	Hours
Unit I	Introduction ▪ Geographical Personality of Maharashtra ▪ Historical Background ▪ Location, Extend and Boundaries ▪ Administrative Division ▪ Geological setup	6
Unit II	Physiography and Drainage ▪ Major physiographic Division of Maharashtra- Konkan Maharashtra Plateau Western Ghats Other Hilly Ranges ▪ Major Rivers of Maharashtra and their tributaries East flowing Rivers West flowing Rivers	8
Unit III	Climate, Soil and Natural Vegetation of Maharashtra ▪ Climate of Maharashtra ▪ Soils ▪ Natural Vegetation ▪ Wildlife Sanctuaries ▪ Types and Problems of Agriculture	8
Unit IV	Minerals, Resource and Industries ▪ Introduction ▪ Production and Distribution of Minerals Iron ore	8

	Bauxite Cole - Industries Cotton Textile Sugar - Tourism	
Study Resources	C. D. Deshpande: Geography of Maharashtra Dr. S. M. Bhamare 2013: Geography of Maharashtra, Prashant Publication, Jalgaon. Jaymala Diddee, S. R. Jog, V. S. Kale, V. S. Datye: Geography of Maharashtra K. R. Dixit: Maharashtra in Maps - Savadi and Keche: Maharashtra R. L. Sing 2012: India: A Regional Geography, National Geographical Society of India Santosh Dasthane: Maharashtra. (Marathi Medium) Subhash Chandra Sarang: Maharashtra Bhugol, Vidya Prakashan, Nagpur. (Marathi Medium) Dr. Jaykumar Magar Maharashtra Bhugol. (Marathi Medium) Dr. S. D. Bhaise, Dr. D. A. Mhaski: Maharashtra Bhugol, Atharva Publication, Jalgaon (Marathi Medium) Government of India.1965.: The Gazetteer of India, Vol. I & II, Publication Division, New Delhi. Census of India 2011: Government of India: Sharma, and Coutinho,1998: Economic and Commercial Geography of India. Vikas Publishing House, India, Negi, B. S.: Economic and Commercial Geography of India, Kedarnath Ram nath, New Delhi. Tirtha, Ranjit. 2002: Geography of India, Rawat, Jaipur. Tata McGraw Atlas: Socio Economic Atlas of India. Majid Hussain 2014: Geography of India, McGraw Hill Education (India) Private education, New Delhi.	

S.Y. B.Sc. Geography (Minor)
Semester-III
GEO-MIN-232: Green Audit

Total Hours: 30

Credits: 2

Course Objectives	▪ Understand green audit's importance for environmental sustainability. ▪ Learn the process of planning, conducting, and following up on green audits. ▪ Comprehend the integration of green audit within Environmental Management Systems (EMS) and relevant standards. ▪ Develop communication and reporting skills for effectively conveying green audit findings.	
Course Outcomes	After successful completion of this course, students are expected to: ▪ Understand the significance of green audit in organizational sustainability. ▪ Students will be able to perform green audits by collecting, analyzing, and reporting data. ▪ Students will acquire the green audit principles within EMS. ▪ Students will develop green audit results effectively to stakeholders and integrate them into CSR reporting.	
Unit	Contents	Hours
Unit I	Introduction to Green Audit ▪ Understanding the concept of green audit ▪ Importance of green audit for organizations ▪ Overview of environmental sustainability and its relevance to green audit ▪ Environmental regulations and standards ▪ Key stakeholders and their roles in green audit ▪ Methods and tools used in green audit ▪ Case studies illustrating the benefits of green audit	6
Unit II	Green Audit Process ▪ Planning phase of green audit ○ Identifying audit objectives and scope ○ Developing an audit plan ○ Establishing audit criteria ▪ Conducting the audit ○ Collecting and analyzing relevant data ○ Evaluating environmental performance ○ Identifying non-compliance and areas for improvement ○ Reporting and documenting audit findings ▪ Follow-up phase of green audit ○ Corrective actions and continuous improvement ○ Monitoring and verification of improvements ▪ Communication of audit results to stakeholders	8
Unit III	Environmental Management Systems (EMS) and Green Audit ▪ Overview of Environmental Management Systems (EMS) ▪ Integration of green audit within an EMS framework ▪ ISO 14001:2015 standard and its relevance to green audit	8

	▪ Auditing environmental management systems ▪ Identifying environmental aspects and impacts ▪ Evaluating compliance with legal and regulatory requirements ▪ Evaluating the effectiveness of environmental management programs	
Unit IV	Reporting and Communication in Green Audit ▪ Reporting requirements for green audit ▪ Green audit report structure and content ▪ Communication strategies for audit findings ▪ Engaging stakeholders in green audit results ▪ Internal and external communication channels ▪ Sustainability reporting frameworks ▪ Integrating green audit results into corporate social responsibility (CSR) reporting	8
Study Resources	▪ Environmental Protection Agency. (2020). Introduction to Environmental Auditing. Retrieved from https://www.epa.gov/compliance/introduction-environmental-auditing ▪ CDP. (2021). CDP Reporting Guidance: How to disclose your climate, water, and deforestation impacts. Retrieved from https://www.cdp.net/en/guidance/guidance-for-disclosing ▪ Darnall, N., Ji, H., & Potoski, M. (2019). The growing demand for corporate sustainability: Drivers and consequences. <i>Journal of Management Studies</i>, 56(1), 50-79. ▪ Global Reporting Initiative. (2018). Sustainability Reporting Standards: The global standard for sustainability reporting. Retrieved from https://www.globalreporting.org/standards/ ▪ Gurnani, H., & Allam, R. (2019). Green audit: an overview of concepts and practices. <i>Journal of Cleaner Production</i>, 234, 356-369. ▪ International for Standardization. (2015). ISO 14001:2015 Environmental management systems - Requirements with guidance for use. Geneva, Switzerland: ISO. ▪ Kazemi, A., & Gharneh, N. G. (2017). Environmental Audit: Concepts, Types, Benefits, and Challenges. <i>Procedia Engineering</i>, 180, 1597-1606. ▪ Schaltegger, S., Burritt, R., & Petersen, H. (2017). An Introduction to Corporate Environmental Management: Striving for Sustainability. London, UK: Routledge. ▪ Stentoft, J., & Eskildsen, J. K. (2019). Green Auditing in Supply Chains: A systematic literature review. <i>International Journal of Operations & Production Management</i>, 39(5), 643-674. ▪ Welford, R. (2013). Corporate Environmental Management 3: Towards Sustainable Development. London, UK: Routledge.	

S.Y. B.Sc. Geography (Minor)
Semester-III
GEO-MIN-233: Practical on Green Audit

Total Hours: 60

Credits: 2

Course Objectives	- Acquire practical skills in conducting green audits and reporting environmental data. - Familiarize with green audit tools and software for efficient auditing processes. - Develop the ability to implement corrective actions for environmental improvements during on-site audits. - Enhance communication skills for effectively presenting green audit results to stakeholders	
Course Outcomes	After successful completion of this course, students are expected to: - Demonstrate proficiency in conducting green audits and accurately reporting environmental data. - Utilize green audit tools and software to streamline auditing processes. - Implement corrective actions to drive sustainable environmental practices based on audit findings. - Communicate green audit results effectively to stakeholders through professional presentations.	
Sr. No.	Contents	Hours
1	Introduction to practical sessions and safety guidelines Need and Goals of Green Audit	4
2	Familiarization with green audit tools and software	4
3	Conducting a preliminary environmental assessment of a selected organization	4
4	Developing an audit plan, including objectives, scope, and criteria	6
5	Data collection techniques and methods for evaluating environmental performance	6
6	Analyzing and interpreting collected data for identifying non-compliance and areas for improvement	6
7	Documentation and reporting of audit findings	6
8	Practice in conducting on-site audits and interacting with auditees	6
9	Implementation of corrective actions and monitoring of improvements	6
10	Presentation of green audit results to stakeholders	6
11	Case studies and group exercises for real-world application of green audit principles	6
Study Resources	International Organization for Standardization. (2015). ISO 19011:2018 Guidelines for auditing management systems. Geneva, Switzerland: ISO. - Environmental Protection Agency. (2020). Environmental Auditing: Basic Principles and Practices. Retrieved from https://www.epa.gov/compliance/environmental-auditing-basic-principles-and-practices - United States Department of Labor. (2021). Safety and Health	

	Topics: Audit. Retrieved from https://www.osha.gov/a-z-index/audit ▪ Institute of Environmental Management and Assessment (IEMA). (2018). EIA Practical Guide: A guide to environmental impact assessment in the UK and abroad (4th ed.). Rugby, UK: IEMA. ▪ Burritt, R. L., & Schaltegger, S. (2014): Sustainable management accounting: Understanding the role of information in the pursuit of sustainable development. Routledge. ▪ Green Soft Technology. (n.d.). GreenData Manager Software. Retrieved from https://www.greensofttech.com/ ▪ Environmental Resources Management (ERM). (n.d.). Environmental Auditing Software. Retrieved from https://www.erm.com/en/services/sustainability-solutions/environmental-auditing/ ▪ U.S. Environmental Protection Agency. (2021). ECHO: Enforcement and Compliance History Online. Retrieved from https://echo.epa.gov/ ▪ Gomez, F., & Marimon, F. (2013): Practical Environmental Audit. Springer. ▪ Environmental Audit Committee. (2020): Corporate governance and audit reform: Government response to the committee's Seventh Report of Session 2019.	
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S.Y. B.Sc. Geography (Open Elective)
Semester-III
GEO-OE-231: Air Pollution

Total Hours: 30

Credits: 2

Course Objectives	▪ To understand the definition, sources, and types of air pollution. ▪ To analyze the causes and effects of air pollution on health and the environment. ▪ To explore mitigation strategies, regulations, and technological solutions. ▪ To study case studies, global efforts, and future trends in air pollution control.	
Course Outcomes	After successful completion of this course, students are expected to: ▪ Understand the key concepts, sources, and impacts of air pollution. ▪ Assess health and environmental effects of major pollutants. ▪ Evaluate air pollution control measures and policies. ▪ Analyze case studies and propose sustainable solutions.	
Unit	Contents	Hours
Unit I	Introduction to Air Pollution ▪ Definition and scope of air pollution ▪ Sources of air pollution: natural and anthropogenic ▪ Major air pollutants: particulate matter, carbon monoxide, sulfur dioxide, nitrogen oxides, ozone, etc. ▪ Health and environmental impacts of air pollution	8
Unit II	Types and Causes of Air Pollution ▪ Different types of air pollution: outdoor and indoor ▪ Industrial pollution and emissions from power plants ▪ Vehicle emissions and transportation-related pollution ▪ Agricultural practices and air pollution ▪ Household pollution and its sources	6
Unit III	Impacts and Mitigation of Air Pollution ▪ Health effects of air pollution on humans: respiratory diseases, cardiovascular issues, etc. ▪ Environmental impacts: ecosystem degradation, acid rain, ozone depletion, etc. ▪ Air pollution control measures: legislation and regulations ▪ Technological solutions for reducing emissions ▪ Renewable energy alternatives and their role in mitigating air pollution ▪ Personal and community-level actions to reduce air pollution	8
Unit IV	Case Studies and Future Perspectives ▪ Case studies of significant air pollution incidents and their consequences ▪ Urban air pollution and its unique challenges ▪ International efforts and agreements to combat air pollution ▪ Emerging technologies and innovations for air pollution control ▪ The importance of public awareness and education in addressing air pollution ▪ Future trends and prospects in air pollution management	8

Study Resources	▪ Seinfeld, J. H., & Pandis, S. N. (2016). Atmospheric chemistry and physics: From air pollution to climate change (3rd ed.). Wiley. ▪ Jacobson, M. Z. (2012). Atmospheric pollution: History, science, and regulation. Cambridge University Press. ▪ Harrison, R. M., & Hester, R. E. (Eds.). (2013). Air pollution: Sources, impacts and controls. Royal Society of Chemistry. ▪ Dockery, D. W., & Pope, C. A. (Eds.). (2018). Air pollution and health (2nd ed.). Elsevier. ▪ Rao, S. T., & Rao, S. T. (2014). Air pollution. CRC Press. ▪ Fitzgerald, J. W. (2014). Air pollution and forest decline: Lessons learned from 30 years of research. Springer. ▪ Vallero, D. A. (2014). Fundamentals of air pollution (5th ed.). Academic Press. ▪ Kampa, M., & Castanas, E. (Eds.). (2013). Human exposure to pollutants via dermal absorption and inhalation. Springer. ▪ Goudie, A. S. (2014). The human impact on the natural environment: Past, present, and future (7th ed.). Wiley. ▪ Stohl, A. (2013). Atmospheric transport and chemistry in the anthropocene. Springer.	
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SEMESTER-IV

S.Y. B.Sc. Geography (Major)
Semester-IV
GEO-DSC-241: Fundamentals of Remote Sensing

Total Hours: 30

Credits: 2

Course Objectives	▪ To understand the fundamental and significance of remote sensing. ▪ To study the fundamentals of EMR its behavior and the key radiation laws governing energy emission. ▪ To analyze how EMR interacts with the atmosphere and Earth's surface ▪ To classify different types of remote sensing, platforms, and sensors, and understand the geometric characteristics of aerial and satellite imagery.	
Course Outcomes	After successful completion of this course, students are expected to: ▪ Understand the principles of remote sensing and identify different Earth observation satellites and their applications. ▪ Understand the EMR properties, apply radiation laws, and explain their relevance in remote sensing technology. ▪ Evaluate how different surfaces and atmospheric conditions affect remote sensing data quality and interpretation. ▪ Understand the remote sensing techniques, assess sensor-platform combinations, and interpret geometric properties of aerial photographs.	
Unit	Contents	Hours
Unit I	Principles Remote Sensing ▪ Concept ▪ Definition and scope of remote sensing ▪ History and Development ▪ Stages of Remote Sensing ▪ Overview of Earth observation satellites	7
Unit II	EMR & Laws of Radiation ▪ Electromagnetic Radiation ▪ Theories of EMR ○ Concept of Blackbody ○ Laws of Radiation: Planck's law, Wien's Law, Stefan Boltzmann law, Kirchhoff's Law	7
Unit III	EMR Wave Interaction with Atmosphere and Earth's Surface ▪ EMR interaction with Atmosphere- ○ Scattering ○ Absorption ○ Reflection ▪ EMR Interaction with Earth's Surface ○ Features- Reflection ○ Emission ▪ Transmission	8

Unit IV	Type of remote Sensing & Basic Geometric Characteristics ▪ Type of remote Sensing ○ Types of Platform ○ Types of Sensors ○ Cameras and Satellite Orbits ▪ Geometric Characteristics Aerial photographs ○ Projection ○ Tilt ○ Swing ○ Scale • Resolution	8
Study Resources	Marathi Medium - ▪ Dr. Shrikant Karlekar 2007: “BhougolicMahiti Pranali" Diamond Publication Pune. ▪ Dr. Shrikant Karlekar 2007: “Dursavedan" Diamond Publication Pune. ▪ Dr. D. S. Suryawanshi 2018: “Geoinformatics” Prashant Publications, Jalgaon. ▪ Dr. D. S. Suryawanshi and Dr. S. C. Ahire 2019: Geoinformatics, Prashant Publication, Jalgaon English Medium - ▪ Bhatta, Basudeb 2011: Remote Sensing and GIS, Oxford University Press, New Delhi. ▪ Jensen, J.R. 2000: Remote Sensing of the Environment: An Earth resource Perspective. Prentice Hall. ▪ Joseph George, 2003: Fundamentals of remote sensing. Universities Press ▪ Lillesand, T.M., and Kieffer, R.M., 1987: Remote Sensing and Image Interpretation, John Wiley. ▪ Sabbins, F.F., 1985: Remote sensing Principles and interpretation. W.H. Freeman & company ▪ American society for Photogrammetry and Remote Sensing, 1999, Remote Sensing for the Earth Sciences, Manual of Remote Sensing, 3rd ed., vol. 3, Wiley, New York.	

S.Y. B.Sc. Biochemistry (Major)
Semester-IV
GEO-DSC-242: Fundamentals of GIS

Total Hours: 30

Credits: 2

Course Objectives	▪ To understand the fundamental concepts, components, and significance of GIS. ▪ To explore different spatial data models used in GIS. ▪ To understand the role of database management systems (DBMS) in GIS. ▪ To examine emerging trends and real-world applications of GIS.	
Course Outcomes	After successful completion of this course, students are expected to: ▪ Understand the basics of GIS, its historical development, and its key components. ▪ Understand the raster and vector data models and discuss their advantages and disadvantages its uses in application. ▪ Describe different types of database models and their functions in GIS. ▪ Analyze its applications across various fields.	
Unit	Contents	Hours
Unit I	Introduction of GIS ▪ Introduction, Meaning and Definitions ▪ Basics of GIS ▪ Components ▪ GIS Tasks ▪ Importance of GIS Historical Background & Development of GIS	6
Unit II	Spatial Data Model ▪ Introduction ▪ Stages of GIS Data Modeling ▪ Raster Data Models ○ Field Based Raster Model ○ Simple Raster Arrays ○ Hierarchical Raster Structures ○ Types of Raster GIS Models ▪ Vector Data Model ○ Object based vector data model ○ Field based vector model ▪ Raster versus vector ▪ Advantages and disadvantages raster and vector models	8
Unit III	Attribute Data Management Introduction ▪ Concept of Database and DBMS ▪ Advantages of DBMS ▪ Functions of DBMS ▪ File and Data Access ▪ Database Models ○ Hierarchical Database Models ○ Network Systems ○ Relational Database Models	8

Unit IV	Modern Trends in GIS and Applications ▪ Introduction ▪ Local to global concept in GIS ▪ Increase in dimensions in GIS ▪ Development of common techniques in GIS ▪ Integration of GIS and Remote Sending Applications of GIS in different fields ▪ Introduction ▪ Local to global concept in GIS ▪ Increase in dimensions in GIS ▪ Development of common techniques in GIS ▪ Integration of GIS and Remote Sending ▪ Applications of GIS in different fields	8
Study Resources	▪ BasudebBhatta. (2011): Remote Sensing and GIS, 2nd ed., Oxford University Press. ▪ C. P. Lo & Albert K. W. Yeung (2002) Concepts and techniques of Geographic Information System, Prentice Hall, India. ▪ Chanda B. Dattaa D., Mujumdar : Digital Image Processing and Analysis, Prentice- Hall of India 2001. ▪ Demers M. N. (2008): Fundamentals of Geographic Information Systems 2nd ed., John Wiley & Sons. ▪ Michael F. Goodchild (2002): Introduction to Geographic Information System and Science, John Wiley & Sons. ▪ Kang- Tsung Chang (2002): Introduction to Geographical Information System, McGraw Hill. ▪ P. A. Burrough& R.A. McDonnell (2000): Principles of Geographical Information System, Oxford University Press. ▪ Roy P. S. (2000): Geographical Information Science Vol. I, IIRS. ▪ Dr.ShrikantKarlekar(2015): BhaugolikMahitiPranali (GIS) (Marathi), Diamond Publications. ▪ डॉ.डी.एस्.सूर्यवंशी, डॉ .व्ही .जे .पाटीलदूरसंवेदनआणिभौगोलिकमाहितीप्रणालीप्रशांतपब्लिकेशन	

S.Y. B.Sc. Geography (Major)
Semester-IV
GEO-DSC-243: Practical on RS and GIS

Total Hours: 60

Credits: 2

Course Objectives	▪ To learn the basics of aerial photography. ▪ To study interpretation techniques of aerial photographs. ▪ To understand the basics of satellite imagery. ▪ To study the elements of satellite imagery interpretation.	
Course Outcomes	After successful completion of this course, students are expected to: ▪ Understand the fundamentals of aerial photography. ▪ Able or well known interpretation techniques to aerial photographs. ▪ Recognize various types of satellite images and their applications. ▪ Develop skills in interpreting satellite imagery and topographical fenomono.	
Sr. No.	Contents	Hours
1	Definition and Concept, History, significance of Aerial Photographs	4
2	Importance of Aerial photograph, Types of Aerial photographs	4
	Geometric calculations	
3	Calculation Photo Scale and Focal length	4
4	Calculation of Flying Height and Height from object	4
5	Calculation of flight line and overlap region	4
6	Stereoscopic Coverage ▪ Pocket stereoscope ▪ Mirror stereoscope	4
7	Elements of Aerial Photo Interpretation	4
8	Visual Interpretation of single image Physical (Each two)	4
9	Visual Interpretation of single image cultural (Each two)	4
10	Visual Interpretation of pairs image Physical (Each two)	4
11	Visual Interpretation of pairs image cultural (Each two)	4
12	Study of satellite image, Basic information and reference system of satellite image	4
13	spectral reflectance curves	4
	Visual interpretation of satellite images	
14	Interpretation of different resolution IRS satellite images – LISS III	4
15	Interpretation of different resolution IRS satellite images –PAN and WIFS	4
Study Resources	▪ Backman, H.O and Brady, N.C1960.: The Nature and Properties of Soils, McMillan New York. ▪ Bennet, Hugh H.: Soil Conservation, McGraw Hill, New York . ▪ Bunting, B.T. 1973.: The Geography of Soils, Hutchinson, London ▪ Clarke G.R. 1957: Study of the Soil in the Field, Oxford University Press, Oxford. ▪ Foth H.D. and Turk, L.M. ,1972: Fundamentals of Soil science, John Wiley, New York. ▪ Govinda Rajan, S.V. and GopalaRao, H.G. 1978: Studies on Soils of India Vikas, New Delhi,.	

	▪ Ghosh R. K. and Swain S. 1993: Practical Agricultural Engineering Vol. I &II.,NayaPrakash, Calcutta. ▪ Raychoudhuri, S.P.: Soils of India, ICAR, New Delhi,1958. ▪ Russell, Sir Edward J. 1961: Soil Conditions and Plant Growth, Wiley, New York, ▪ Suresh R.1997: Soil & Water Conservation Engineering Standard Publishers & Distributors.	
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S.Y. B.Sc. Geography (Major)
Semester-IV
GEO-SEC-241: Weather Forecasting

Total Hours: 30

Credits: 2

Course Objectives	▪ To understand the basic concepts and structure of the atmosphere. ▪ To learn about global and local weather systems and their classifications. ▪ To study climate change, its causes, and environmental impacts. ▪ To acquire knowledge of weather forecasting methods and the use of weather maps.	
Course Outcomes	After successful completion of this course, students are expected to: ▪ Understand structure, composition, and variations within the atmosphere. ▪ Identify and classify different weather systems and phenomena. ▪ Analyze climate change factors and their environmental consequences. ▪ Apply weather forecasting techniques & interpret weather maps effectively.	
Unit	Contents	Hours
Unit I	Introduction To Atmosphere ▪ Elementary idea of atmosphere ▪ physical structure and composition ▪ compositional layering of the atmosphere ▪ variation of pressure and temperature with height air temperature and atmospheric pressure ▪ Measuring The Weather: ○ Wind; forces, units, speed, direction, humidity, clouds and rainfall.	8
Unit II	Weather Systems ▪ Global wind systems air masses and fronts: classifications jet streams; ▪ Local Thunder storms tropical cyclones: classification tornadoes; hurricanes	6
Unit III	Climate And Climate Change ▪ Climate: its classification; causes of climate change; global warming and its outcomes; ▪ Air pollution; aerosols, ozone depletion, acid rain, environmental issues related to climate.	8
Unit IV	Basics of Weather Forecasting ▪ Weather forecasting: analysis and its historical background ▪ Need of measuring weather, types of weather forecasting ▪ Weather forecasting methods, criteria of choosing weather station ▪ Basics of choosing site and exposure; satellites observations in weather forecasting ▪ Weathermaps: uncertainty and predictability, probability forecasts.	8
Study Resources	▪ I.C. Joshi, 3rd edition 2014: Aviation Meteorology, Himalayan Books ▪ The weather Observers Hand book, Stephen Burt, 2012, Cambridge University Press. ▪ S.R. Ghadekar, 2001: Meteorology, Agromet Publishers, Nagpur. ▪ S.R. Ghadekar, 2005: Text Book of Agrometeorology, Agromet Publishers, Nagpur. ▪ Chpraman & Hall 1924: Charls Franklin Brooks, Why the weather, London. ▪ John G. Harvey, 1995: Atmosphere and Ocean, The Artemis Press	

S.Y. B.Sc. Geography (Major)
Semester-IV
GEO-SEC-242: Practical on Weather Forecasting

Total Hours: 60

Credits: 2

Course Objectives	▪ Identify and measure key weather variables using tools like thermometers, hygrometers, and anemometers. ▪ Classify cloud types and predict weather based on their characteristics. ▪ Collect and analyze weather data to understand local weather patterns and changes. ▪ Conduct simple weather experiments to develop practical forecasting skills.	
Course Outcomes	After successful completion of this course, students are expected to: ▪ Ability to measure and interpret weather variables such as temperature, humidity, and wind speed. ▪ Skill in identifying cloud types and predicting weather based on observations. ▪ Proficiency in collecting and analyzing weather data for forecasting purposes. ▪ Hands-on experience in conducting weather experiments to understand meteorological phenomena.	
Sr. No.	Contents	Hours
1	Measure air temperature using a thermometer to understand daily variations.	4
2	Track humidity levels with a hygrometer to assess moisture in the air.	4
3	Record wind speed with an anemometer to identify gust patterns.	4
4	Classify cloud types to predict weather based on appearance.	4
5	Measure rainfall with a rain gauge to determine precipitation amounts.	4
6	Observe pressure changes with a barometer to detect weather system shifts.	4
7	Analyze satellite images to observe cloud cover and predict weather events.	4
8	Study dew formation by placing a cold surface outside to measure condensation.	4
9	Simulate a sea breeze using a heat source to demonstrate wind movement over land and water.	4
10	Track daily temperature variations at different times to observe temperature trends.	4
11	Measure soil moisture to understand its effect on local weather conditions.	4
12	Create a simple barometer using water in a tube to measure atmospheric pressure.	4
13	Track the direction of the wind with a wind vane to identify prevailing wind patterns.	4
14	Observe cloud movement to understand wind patterns at different	4

	altitudes.	
15	Monitor frost formation by leaving objects outdoors to observe freezing conditions.	4
Study Resources	▪ Indian Meteorological Department (IMD) ▪ Indian Institute of Tropical Meteorology (IITM) ▪ National Institute of Oceanography (NIO) ▪ Indian National Remote Sensing Centre (INRSC) ▪ "Meteorology: An Introduction to the Wonders of the Weather" by Joseph M. Moran ▪ "Weather For Dummies" by John D. Cox ▪ "The Weather Book: An Easy-to-Understand Guide to the USA's Weather" by Jack Williams	

S.Y. B.Sc. Geography (Major)
Semester-IV
GEO-FP-241: Field Project

Total Hours: 60

Credits: 2

Preamble

In alignment with the National Education Policy (NEP) 2020, Moolji Jaitha College (Autonomous), Jalgaon is introducing the Field Project at the undergraduate level. The NEP 2020 emphasizes holistic development, inclusivity, and integrating vocational education with academic learning, aiming to nurture socially responsible individuals. This course fosters a strong connection between education and real-world applications. These initiatives aim to bridge the gap between theoretical knowledge and practical experience, helping students develop critical thinking, problem-solving skills, and a sense of civic responsibility.

Objectives

- To provide students with practical exposure in rural and urban socioeconomic context.
- To develop students abilities to apply subject knowledge to address real world problems
- To foster critical thinking and innovative approaches to solve socioeconomic issues.

Outcomes

After completing this course, students will be able to

- Participate actively in filed projects that benefit local communities and promote sustainable development practices.
- Analyse the socio economic data using appropriate methods showcasing improved problem-solving skills, technical proficiency.
- Demonstrate the ability to apply theoretical knowledge to real-world situations effectively and exhibit communication skills.

Course structure

The course is divided in to four probable phases

I] Orientation and preparation

- Introduce to the course, objectives and expectation
- Overview of socioeconomic development issues in rural and urban context
- Training on working methodology and data collection techniques
- Review existing literature related to topic to understand the background and context.

II] Work plan and Field visit

- Visit the potential sites to get a sense of the environment and logistical requirements.
- Create a detailed project plan outlining the steps, timeline, resources needed, and roles of team members.
- Obtain necessary approvals (Ethical/ local authorities/organizations/communities)
- Gather materials and resources (recording devices, cameras, notebooks and supplies)
- Conduct Preliminary Survey, choose appropriate methods for data collection and analysis (e.g., surveys, interviews, observations).

III] Data collection and analysis

- Pilot test to identify issues with data collection.
- Collect data systematically, ensuring consistency and accuracy.
- Keep detailed records of all data (field notes, recordings, photographs etc)
- Organize and analyse the data (manual/ software)

IV] Interpretation and Reporting

- Interpret your findings in the context to objectives.
- Write and submit a comprehensive report detailing your methodology, findings, analysis, and conclusions. (Include visuals - charts, graphs, and photographs).
- Prepare a presentation to share findings with peers/ instructors/ community.

Assessment

- Field work participation, field note book, team work etc. (10 Marks)
- Data Collection and Analysis (15 Marks)
- Field project report (15 Marks)
- Presentation of Findings (10 Marks)

S.Y. B.Sc. Geography (Minor)
Semester-IV
GEO-MIN-241: Geography of Soil

Total Hours: 30

Credits: 2

Course Objectives	▪ To understand the definition, nature, and scope of soil geography. ▪ To learn the processes and factors of soil formation and the concept of soil profile. ▪ To identify the physical and chemical properties of soil and classify different soil types. ▪ To know the causes and effects of soil degradation and methods of soil conservation.	
Course Outcomes	After successful completion of this course, students are expected to: ▪ Gain knowledge of the fundamentals and approaches of soil geography. ▪ Analyze the processes and factors influencing soil formation and profiles. ▪ Differentiate soil properties and apply soil classification systems. ▪ Evaluate soil erosion, degradation issues, and implement conservation techniques.	
Unit	Contents	Hours
Unit I	Introduction ▪ Definition of Soil Geography. ▪ Nature & Scope of Soil Geography. ▪ Approaches to the Study of Soil Geography. ○ Pedagogical Approach. ○ Edapological Approach.	6
Unit II	Soil Formation & Soil Profile ▪ Processes of Soil Formation ○ Weathering & Pedogenesis Processes ○ Carbonation ○ Humification ○ Laterisation ○ Calcification ○ Podzolisation ▪ Factors Responsible for Soil Formation ○ Parent Rock ○ Precipitation ○ Temperature ○ Biological Factors: Plants, Animals & Micro Organisms ○ Soil Profile: Meaning & Concept. Temperature ○ Biological Factors: Plants, Animals & Micro Organisms ▪ Soil Profile: Meaning & Concept.	8
Unit III	Soil Properties and Classification ▪ Soil Physical Properties ○ Soil Structure ○ Soil Texture ○ Soil Colour	8

	○ Soil Moisture ○ Soil Temperature ▪ Chemical Properties of Soil ○ Soil pH ○ Soil Solution ▪ Indian Soil Classification.	
Unit IV	Soil Degradation & Conservation ▪ Soil Erosion: Meaning, Causes and Effects ▪ Soil Degradation: Soil Salinization ▪ Soil Conservation: Meaning & Methods of Soil Conservation.	8
Study Resources	▪ Miller A.A., Turk L.M. & Forth, Fundamentals of Soil Science ▪ (Nikhil) K.D. Kolkatta, Soil Geography, SarkarHimanshu ▪ Daji J.A. ; Tata Mc Grow Hill, A Text Book of Soil Science, Mumbai 8 ▪ Biswas T.D.&Mukharji, Tata Mc Grow Hill, A text book of Soil Science, Mumbai ▪ James G. Cruikshant ; Newtone Abbot Devon, Soil Geography ▪ Buntice B.T, Soil Geography ▪ Hutchinson, London, Bunting: Geography of Soils ▪ Rode A. A. , Soil science ▪ Briggs David, Soils, Butterworth, London ▪ Birkland P., Weathering Pedology and Geo-morphological Research	

S.Y. B.Sc. Geography (Minor)
Semester-IV
GEO-MIN-242: Practical on Soil Geography

Total Hours: 60

Credits: 2

Course Objectives	▪ To understand the concept and methods of soil sampling. ▪ To learn techniques for determining soil texture, moisture, bulk density, and specific gravity. ▪ To investigate soil chemical properties such as pH, calcium, and nutrient content. ▪ To study the soil analysis in agriculture for crops like cotton, maize, wheat and sugarcane.	
Course Outcomes	After successful completion of this course, students are expected to: ▪ Gain skill in various soil sampling techniques. ▪ Accurately measure soil physical properties and analyze soil grain size. ▪ Evaluate chemical properties of soil and their implications for soil health. ▪ Implement soil analysis results to optimize agricultural practices for specific crops.	
Sr. No.	Contents	Hours
1	Concept of Soil and soil Sampling	4
2	Type and Methods of Soil Sampling	4
3	Sampling By Using Soil Augur	4
4	Sampling By Core Tubes	4
5	Collection and handling of Soil Sample before analysis	4
6	Determination of Soil Texture and Soil Moisture	4
7	Determination of Bulk Density and Specific Gravity	4
8	Determination of Percentage Porosity	4
9	Determination of organic matter	4
10	Mechanical Analysis of Soil Grain size analysis	4
11	Preparation of soil triangle and it's analysis	4
12	Determination of water percolation	4
13	Determination of Chemical Properties: PH, Nitrogen, Phosphorous, Calcium	4
14	Application in Agriculture for Following Crops Cotton, Maize	4
15	Application in Agriculture for Following Crops Wheat, Sugarcane	4
Study Resources	▪ Backman, H.O and Brady, N.C. 1960.: The Nature and Properties of Soils, McMillan New York, ▪ Bennet, Hugh H.: Soil Conservation, McGraw Hill, New York . ▪ Bunting, B.T.: The Geography of Soils, Hutchinson, London, 1973. ▪ Clarke G.R. 1957: Study of the Soil in the Field, Oxford University Press, Oxford. ▪ Foth H.D. and Turk, L.M. 1972: Fundamentals of Soil science, John	

	Wiley, New York. ▪ GovindaRajan, S.V. and GopalaRao, H.G.: Studies on Soils of India Vikas, New Delhi, 1978. ▪ Ghosh R. K. and Swain S. 1993: Practical Agricultural Engineering Vol. I &II.,NayaPrakash, Calcutta. ▪ Raychoudhuri, S.P. 1958: Soils of India, ICAR, New Delhi. ▪ Russell, Sir Edward J. 1961: Soil Conditions and Plant Growth, Wiley, New York. ▪ Suresh R1997: Soil & Water Conservation Engineering Standard Publishers & Distributors.	
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S.Y. B.Sc. Geography (Open Elective)
Semester-IV
GEO-OE-241: Tourism Geography

Total Hours: 30

Credits: 2

Course Objectives	▪ To understand the fundamental concepts, scope, and importance of geography in tourism. To know the role of geography in tourism. ▪ To explore different types and classifications of tourism along with emerging tourism trends. ▪ To study tourism infrastructure and key tourist destinations in India. ▪ To examine the economic, socio-cultural, and environmental impacts of tourism.	
Course Outcomes	After successful completion of this course, students are expected to: ▪ Students will be able to explain the role of geography in tourism and analyze recent trends in tourism geography. ▪ Students will be able to classify tourism based on various criteria and describe modern tourism concepts in eco-tourism and adventure tourism. ▪ Analyze the significance of different tourist regions in India, including the Himalayas, deserts, coastal areas, and religious sites. ▪ Students will be able to assess the positive and negative impacts of tourism and understand the importance of sustainable tourism development.	
Unit	Contents	Hours
Unit I	Introduction of Tourism Geography ▪ Meaning and Definition of the Tourism tourist ▪ Importance of Geography in Tourism ▪ Nature and Scope ▪ Importance of tourism ▪ Role of Geography in tourism ▪ Recent Trends in Tourism Geography	8
Unit II	Classification and Recent Concepts of Tourism ▪ Types of Tourism ▪ Classification on the basis of Nationality, Time of travel, Number of tourists, Purpose, Mode of transportation & Season ▪ Recent Concepts of Tourism ○ Agro-tourism ○ Eco-tourism ○ Adventure tourism	8
Unit III	Tourism in India ▪ Basic Tourism infrastructure ▪ Case study of Himalaya - (General introduction of the Himalayas & other ranges, hill station & their tourism significance) ▪ Desert-Jaisalmer ▪ Coastal - Goa ▪ Religious Tourism Concept, Definition and Significance ○ Hinduism: -- Four Dham's (Badrinath, Rameshwaram, Puri and Dwarka), Varanasi, Mathura Vrindavan, Haridwar,	8

	Vaishno Devi, Shirdi, Bodh Gaya, Sanchi and Tirupati) ▪ E-Tourism: Introduction, Definition, Significance, DBMS, Functions & Components of E-Tourism	
Unit IV	Impact of Tourism ▪ Economy ▪ Socio-cultural aspects ▪ Environment ▪ Sustainable Development of Tourism	6
Study Resources	▪ Bhatia, A.K. (1991): International Tourism Fundamentals and Practices, Sterling Publishers Pvt. Ltd., New Delhi-110016 ▪ Bhatia, A.K.: Tourism Development, Sterling Publishers Pvt. Ltd., New Delhi-110016 ▪ Burkart and Medlik -Tourism, Past, Present and Future Heinemann, ELBS. (1981) ▪ Cooper, Fletcher,1993: Tourism, Principles and practices, Pitman. Publishing, ▪ Geetanjali (2010): Tourism Policy and Planning, ABD Publishers, Jaipur ▪ Kaul: Dynamics of Tourism, Sterling Publishers Pvt. Ltd., New Delhi-110016 ▪ Mill and Morrison (1992): The Tourism system an Introductory Text, Prentice Hall ▪ P.S. Gill: Dynamics of Tourism (4 Vols) Anmol Publication. New Delhi, ▪ Wagh S.A.&SonawaneS.B. (2016): ParyatanBhugol, AtharvaPrakashan, Jalgaon	