



॥ सा विद्या या विमुक्तये ॥

# स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, नांदेड

'ज्ञानतीर्थ', विष्णुपुरी, नांदेड - ४३१ ६०६ (महाराष्ट्र राज्य) भारत

## SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

'Dnyanteerth', Vishnupuri, Nanded - 431 606 (Maharashtra State) INDIA

Established on 17th September, 1994, Recognized By the UGC U/s 2(f) and 12(B), NAAC Re-accredited with 'B++' grade

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शैक्षणिक वर्ष २०२३-२४ पासून राष्ट्रीय शैक्षणिक धोरणानुसार लागू केलेल्या विज्ञान व तंत्रज्ञान विद्याशाखेतील पदव्युत्तर प्रथम वर्षाच्या सुधारित (दुरूस्ती) अभ्यासक्रम बाबत.

### प रि प त्र क

संदर्भ:शै-१/एनईपी२०२०/S&T/अक्र/२०२३-२४/१३० दि.३०.०६.२०२३

या परिपत्रकान्वये सर्व संबंधितांना कळविण्यात येते की, संदर्भीय परिपत्रकान्वये दिनांक १६ जून २०२३ रोजी संपन्न झालेल्या बैठकीतील ऐनवेळचा विषय क्रमांक ०५/५६-२०२३ अन्वये मान्यता दिल्यानुसार विज्ञान व तंत्रज्ञान विद्याशाखे अंतर्गत राष्ट्रीय शैक्षणिक धोरणानुसार पदव्युत्तर प्रथम वर्षाचे अभ्यासक्रम २०२३-२४ पासून लागू करण्यात आलेले होते.

तथापि, वरील संदर्भीय परिपत्रकान्वये प्रकाशित केलेल्या अभ्यासक्रमामध्ये अभ्यासमंडळ अध्यक्षांनी किरकोळ दुरूस्ती करून अभ्यासक्रम सादर केला असून, सादर दुरूस्ती अभ्यासक्रम लागू करण्यास मा.अधिष्ठाता, विज्ञान व तंत्रज्ञान विद्याशाखा यांनी मान्यता दिली आहे. त्यानुसार खालील प्रमाणे दुरूस्ती केलेले अभ्यासक्रम लागू करण्यात येत आहे.

#### M.sc. Geography 1<sup>st</sup> Year (University Campus)

सदरील परिपत्रक व अभ्यासक्रम प्रस्तुत विद्यापीठाच्या [www.srtmun.ac.in](http://www.srtmun.ac.in) या संकेतस्थळावर उपलब्ध आहेत. तरी सदरील बाब ही सर्व संबंधितांच्या निदर्शनास आणून द्यावी, ही विनंती.

'ज्ञानतीर्थ' परिसर,  
विष्णुपुरी, नांदेड - ४३१ ६०६.

जा.क्र.शै-१/एनईपी/परिपत्रक/पीजी/२०२५-२६/274

दिनांक : ०९.१२.२०२५



  
सहा कुलसचिव

शैक्षणिक (१-अभ्यासमंडळे) विभाग

- प्रत : १) मा. कुलगुरू महोदयांचे कार्यालय, प्रस्तुत विद्यापीठ.  
२) मा. प्र. कुलगुरू महोदयांचे कार्यालय, प्रस्तुत विद्यापीठ.  
३) मा. आधिष्ठाता, विज्ञान व तंत्रज्ञान विद्याशाखा, प्रस्तुत विद्यापीठ.  
४) मा. संचालक, परीक्षा व मुल्यमापन मंडळ, प्रस्तुत विद्यापीठ.  
५) मा. प्राचार्य, सर्व संबंधित संलग्नित महाविद्यालये, प्रस्तुत विद्यापीठ.  
६) सिस्टीम एक्सपर्ट, शैक्षणिक विभाग, प्रस्तुत विद्यापीठ. यांना देवून कळविण्यात येते की, सादर परिपत्रक संकेतस्थळावर प्रसिध्द करण्यात यावे.



**Swami Ramanand Teerth Marathwada University**

**Nanded 431 606 Maharashtra**



**Structure and Syllabus of Two Years Multidisciplinary  
Degree Program with Multiple Entry and Exit Option**

**TWO YEAR MASTERS PROGRAMME**

**[M.Sc. Geography - First Year]**

**(60-40 Pattern)**

**Major in Geography (DSC)**

**(University Campus)**

**Under the Faculty of Science & Technology**

Effective from Academic Year 2025-2026

(As per NEP-2020)

## **Forward by the Dean, Faculty of Science & Technology**

### **From the Desk of the Dean:**

To meet the challenge of ensuring excellence in post graduate programme of Science & Technology education, the issue of quality needs to be addressed, debated and taken forward in a systematic manner. Accreditation is the principal means of quality assurance in higher education. The major emphasis of accreditation process is to measure the outcomes of the program that is being accredited. In line with this Faculty of Science & Technology of Swami Ramanand Teerth Marathwada University Nanded has taken a lead in incorporating philosophy of outcome-based education in the process of curriculum development.

Faculty of Science & Technology, Swami Ramanand Teerth Marathwada University Nanded, in one of its meetings unanimously resolved that, each Board of Studies shall prepare some Programme Educational Objectives (PEO's) and give freedom to affiliated Institutes to add few (PEO's) and course objectives and course outcomes to be clearly defined for each course, so that all faculty members in affiliated colleges understand the depth and approach of course to be taught, which will enhance learner's learning process. It was also resolved that, maximum senior faculty from colleges and experts from industry to be involved while revising the curriculum. We are happy to state that, each Board of studies has adhered to the resolutions passed by Faculty of Science & Technology, and developed curriculum accordingly. In addition to outcome-based education, semester-based credit and grading system is also introduced to ensure quality of education.

Semester based Credit and grading system enables a much-required shift in focus from teacher- centric to learner-centric education since the workload estimated is based on the investment of time in learning and not in teaching. It also focuses on continuous evaluation which will enhance the quality of education. Swami Ramanand Teerth Marathwada University Nanded has taken a lead in implementing the system through its affiliated Institutes and Faculty of Science & Technology has devised a transparent credit assignment policy and adopted ten points scale to grade learner's performance. Credit assignment for courses is based on 15 weeks teaching learning process, however content of courses is to be taught in 12-13 weeks and remaining 3-2 weeks to be utilized for revision, guest lectures, coverage of content beyond syllabus etc.

Credit and grading based system will be implemented for First Year of PG in Science & Technology from the academic year 2023-2024. Subsequently this system will be carried forward for Second Year of PG in Science & Technology in the academic year 2024-2025 and modified as per requirement respectively.

**Dr. M. K. Patil, I/C Dean, Faculty of Science & Technology,  
Swami Ramanand Teerth Marathwada University, Nanded**

## **From Desk of Chairman, Board of Studies of the Subject, Geography**

### **Preamble:**

Geography is the study of places on the Earth and their relationships with each other. Often the study of geography begins with one's home community and expands as a person gains greater experience. Thus, geography provides a conceptual link for children between home, school, and the world beyond.

Geography is one of the oldest earth sciences and its roots date back in the works of the early Greek scholars. The word 'geography' was first used by the Greek scholar Eratosthenes in the third century B.C. Geo "Earth" and Graphy "to describe" literal meaning of geography is to describe about the earth's surfaces. In other words, "Geography is largely the study of the interaction of all physical and human phenomena and landscapes created by such interactions." It is about how, why, and where human and natural activities occur and how these activities are interconnected.

Today the discipline is not only concerned with descriptions but also with analysis as well as prediction. Geographers study how people interact with the environment and with each other from place to place and they classify Earth into regions in order to draw generalizations about the complex world in which we live. Because it deals with where and how people live, geography is rich in material that relates to international understanding, multi-cultural concerns, and environmental education. The tools of geography help us understand places. To teach this subject at graduate and undergraduate level has become challenge for all the geography teachers due emerging new trends in this field. Geography helps student learn about the world knowing something about where places are and what they are like is important.

Geography contributes to international understanding the world's economies are increasingly linked into an international network of trade and exchange. If our competitors know more about us than we do about them, they have an advantage in serving our markets and negotiating trade agreements, and we are placed at a disadvantage in reaching their markets. Well - planned geography education at all grade levels will help to make us more aware of other countries and cultures and prepare our students to take their place in the world. Geography and citizenship Knowledge of geography helps us be better citizens. Through geography, we learn to locate important events. We can understand the relationship between geography and national or international policies and we can use geographical knowledge to make informed decisions regarding the best use of the nation's resources.

Finally, geographically informed students will be effective leaders for our country.

As the Chairman Board of Studies of the subject of Geography and Applied Geography, Swami Ramanand Teerth Marathwada University, Nanded happy to state here that the programme objectives have been finalized in the meeting of all the members Board of Studies.

- To meet need and Importance of Geography at the present time.
- To prepare the students to enhance their abilities to develop the innovative approach.
- To cultivate the life skills with the help of Geography.
- To enable the students for the better understanding of Geography.
- To generate the interest of students to contribute to expand their research skills.

Apart from the above objectives, the affiliated institute can add their own. As the Chairman of the Board of Studies, I strongly believe that, the framed syllabus will definitely meet the need of the students at present.

**Dr. A. A. Kalgapure, Chairman,**

Board of Studies of the subject of Geography and Applied Geography  
Swami Ramanand Teerth Marathwada University, Nanded.



**Swami Ramanand Teerth Marathwada University, Nanded**  
**Members of the Board of Studies in the subject of**  
**Geography and Applied Geography**  
**Under the Faculty of Science & Technology**

Sr. No.	Name of the Member	Designation	Address with E-mail ID	Contact No.
1	Dr. Apparao Annarao Kalgapure	Chairman	Shri. Havgiswami College, Udgir	9420215804
2	Dr. Avinash Sopanrao Kadam	Member	School of Earth Science (Campus) askadam505@gmail.com	9975834724
3	Dr. Parag Arun Khadke	Member	School of Earth Science (Campus) pakhadke@gmail.com	9028774190
4	Dr. Bhagwat Namdev Pastapure	Member	Indira Gandhi Sr. College, Cidco, Nanded	9403512340
5	Dr. Hanmant Dadarao Wagalgave	Member	Shivneri Mahavidyalaya, Shirur Anantpal	9673656114
6	Dr. Sadanand Hariba Gone	Member	Ujwal Gramin Mahavidyalaya, Ghonsi	9822145010
7	Dr. Bhagwan Prabhakarao Shendge	Member	B. Raghunath Mahavidyalaya, Parbhani	9158443555
8	Dr. Nitin Trimbakrao Deshmukh	Member	Mahatma Gandhi Mahavidyalaya, Ahmadpur	9423705446
9	Dr. Suresh Jyotiram Phule	Member	R. S. Mahavidyalaya, Latur (Autonomous)	9028666874
10	Dr. Vishnudas Ram Rathod	Member	Vasantrao Naik College, Vasarani, Nanded	9423139319
11	Dr. B. Shrinaesh	Member	Osmania University, Hyderabad	9849269355
12	Dr. Anand Vijaykumar Walankikar	Member	V. D. M. College, Degloor	9422185102
13	Dr. Rajeshwar Balaji Kotalwar	Member	Rajiv Gandhi Mahavidyalaya, Mudkhed	9404760581
<b>Invited Member</b>				
14	Dr. Rajaram Dnyanoba Davankar	Member	Dr. B. A. Mahavidyalaya, Latur	7350393163
15	Dr. Manjunath. P. Mankari	Member	Udyagiri Mahavidyalaya, Udgir	7588874988
<b>As per MUPA u/s 40(2) (d) (E) Invited Member</b>				
16	Khase Mahesh Trambak (UG students)	Member	Dayanand Arts College, Latur	
17	Shaikh Masira Sadad (PG students)	Member	Indira Gandhi Sr. College, Cidco Nanded	



**Swami Ramanand Teerth Marathwada University, Nanded**  
**Faculty of Science & Technology, Major in Geography (DSC): University Campus**  
**Credit Framework of Two-Year PG Program for the Faculty of Science & Technology**

Year & Level	Sem.	Major Subject		RM	OJT / FP	Research Project	Practical	Credits	Total Credit
		(DSC)	(DSE)						
1	2	3	4	5	6	7	8	9	10
1	1	SGEO-CT2401 Geomorphology (4 Cr) Theory  SGEO- CT2402 Population Geography (4 Cr) Theory  SGEO- CT2403 Biogeography (4 Cr) Theory	SGEO-ET2401 Cartography and Mapping (3 Cr) Theory SGEO-EP2401 Cartographic Techniques (1 Cr) Practical  OR SGEO-ET2402 Geography of India (3 Cr) Theory SGEO-EP2402 Interpretation of SOI Maps (1 Cr) Practical	SGEO-RM 2401 Research Methodology In Geography (3 Cr)	-----		SGEO-CP2401 Morphometric Analysis (1 Cr) Practical  SGEO- CP2402 Demographic Data (1 Cr) Practical  SGEO- CP2403 Biogeography (1 Cr) Practical	22	44
	2	SGEO- CT2451 Agriculture Geography (4 Cr) Theory  SGEO- CT2452 Economic Geography (4 Cr) Theory  SGEO- CT2453 Fundamentals of Remote Sensing (4 Cr) Theory	SGEO-ET2451 Soil Geography (3 Cr) Theory SGEO-EP2451 Soil Analysis (1 Cr) Practical  OR SGEO-ET2452 Geography of Maharashtra (3 Cr) Theory SGEO-EP2452 Landforms (1 Cr) Practical	-----	SGEO-OJ 2451 (3 Cr)		SGEO- CP2451 Practical in Agriculture Geography (1Cr) Practical  SGEO- CP2452 Practical in Economic Geography (1 Cr) Practical  SGEO- CP2453 Practical in Remote Sensing 1 Cr) Practical	22	

**Exit option: Exit Option with PG Diploma (after 2024-25)**



**Swami Ramanand Teerth Marathwada University, Nanded**  
**Faculty of Science & Technology, Major in Geography (DSC): University Campus**  
**Credit Framework of Two-Year PG Program for the Faculty of Science & Technology**

**Post Graduate First Year Programme of Semester I (Level 6.0): Teaching Scheme**

Subject / Course	Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
			Theory	Practical	Total	Theory	Practical
Major (DSC)	SGEO-CT2401	Geomorphology	04	--	04	04	--
	SGEO-CT2402	Population Geography	04	--	04	04	--
	SGEO-CT2403	Biogeography	04	--	04	04	--
Elective (DSE) (Select any one)	SGEO-ET2401	Cartography and Mapping	03	--	03	03	--
	SGEO-ET2402	Geography of India					
Research Methodology	SGEO-RM2401	Research Methodology in Geography	03	--	03	03	
DSC Practical	SGEO-CP2401	Morphometric Analysis	--	01	01	--	02
	SGEO-CP2402	Demographic Data	--	01	01	--	02
	SGEO-CP2403	Biogeography	--	01	01	--	02
DSE Practical (Select Concerned one)	SGEO-EP2401	Cartographic Techniques	--	01	01	--	02
	SGEO-EP2402	Interpretation of SOI Maps					
<b>Total Credits</b>			<b>18</b>	<b>04</b>	<b>22</b>	<b>14</b>	<b>08</b>



**Swami Ramanand Teerth Marathwada University, Nanded**  
**Faculty of Science & Technology, Major in Geography (DSC): University Campus**  
**Credit Framework of Two-Year PG Program for the Faculty of Science & Technology**  
**Post Graduate First Year Programme of Semester I (Level 6): Examination Scheme**  
 [40% Continuous Assessment (CA) and 60% End Semester Assessment (ESA)]

Subject / Course	Course Code	Course Name	Theory					Practical		Total Col (7+8) Col (9+10)
			Continuous Assessment (CA)			CA	ESA	CA	ESA	
			Class Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Major (DSC)	SGEO-CT2401	Geomorphology	20	12	8	40	60	--	--	100
	SGEO-CT2402	Population Geography	20	12	8	40	60	--	--	100
	SGEO-CT2403	Biogeography	20	12	8	40	60	--	--	100
Elective (DSE)	SGEO-ET2401	Cartography and Mapping	15	9	6	30	45	--	--	75
	SGEO-ET2402	Geography of India								
Research Methodology	SGEO-RM2401	Research Methodology in Geography	15	9	6	30	45	--	--	75
DSC Practical	SGEO-CP2401	Morphometric Analysis	--	--	--	--	--	10	15	25
	SGEO-CP2402	Demographic Data	--	--	--	--	--	10	15	25
	SGEO-CP2403	Biogeography	--	--	--	--	--	10	15	25
DSE Practical	SGEO-EP2401	Cartographic Techniques	--	--	--	--	--	10	15	25
	SGEO-EP2402	Interpretation of SOI Maps								



**Swami Ramanand Teerth Marathwada University, Nanded**  
**Faculty of Science & Technology, Major in Geography (DSC): University Campus**  
**Credit Framework of Two-Year PG Program for the Faculty of Science & Technology**

**Post Graduate First Year Programme of Semester II (Level 6.0): Teaching Scheme**

Subject / Course	Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
			Theory	Practical	Total	Theory	Practical
Major (DSC)	SGEO-CT2451	Agriculture Geography	04	--	04	04	--
	SGEO-CT2452	Economic Geography	04	--	04	04	--
	SGEO-CT2453	Fundamentals of Remote Sensing	04	--	04	04	--
Elective (DSE) (Select any One)	SGEO-ET2451	Soil Geography	03	--	03	03	--
	SGEO-ET2452	Geography of Maharashtra					
On Job Training (OJT)	SGEO-OJ2451	On Job Training (OJT)	03	--	03	03	
DSC Practical	SGEO-CP2451	Practical in Agriculture Geography	--	01	01	--	02
	SGEO-CP2452	Practical in Economic Geography	--	01	01	--	02
	SGEO-CP2453	Practical in Remote Sensing	--	01	01	--	02
DSE Practical (Select Concerned one)	SGEO-EP2451	Soil Analysis	--	01	01	--	02
	SGEO-EP2452	Landforms					
<b>Total Credits</b>			<b>18</b>	<b>04</b>	<b>22</b>	<b>14</b>	<b>08</b>



**Swami Ramanand Teerth Marathwada University, Nanded**  
**Faculty of Science & Technology, Major in Geography (DSC): University Campus**  
**Credit Framework of Two-Year PG Program for the Faculty of Science & Technology**

**Post Graduate First Year Programme of Semester II (Level 6): Examination Scheme**

[40% Continuous Assessment (CA) and 60% End Semester Assessment (ESA)]

Subject / Course	Course Code	Course Name	Theory					Practical		Total Col (7+8) Col (9+10)
			Continuous Assessment (CA)			CA	ESA	CA	ESA	
			Class Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Major (DSC)	SGEO-CT2451	Agriculture Geography	20	12	8	40	60	--	--	100
	SGEO-CT2452	Economic Geography	20	12	8	40	60	--	--	100
	SGEO-CT2453	Fundamentals of Remote Sensing	20	12	8	40	60	--	--	100
Elective (DSE)	SGEO-ET2451	Soil Geography	15	9	6	30	45	--	--	75
	SGEO-ET2452	Geography of Maharashtra								
OJT	SGEO-OJ2451	On Job Training (OJT)	Teacher mentor will assess (CA)			30	45	--	--	75
DSC Practical	SGEO-CP2451	Practical in Agriculture Geography	--	--	--	--	--	10	15	25
	SGEO-CP2452	Practical in Economic Geography	--	--	--	--	--	10	15	25
	SGEO-CP2453	Practical in Remote Sensing	--	--	--	--	--	10	15	25
DSE Practical	SGEO-EP2451	Soil Analysis	--	--	--	--	--	10	15	25
	SGEO-EP2452	Landforms								

## SGEO-CT2401 Geomorphology

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-CT2401	Geomorphology	04	--	04	04	--

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA			
		Classes Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total	CA	ESA	
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-CT2401	Geomorphology	20	12	8	40	60	--	--	100

### SGEO-CT2401 Geomorphology: Curriculum Details

#### Course Pre-requisite:

- The candidate should know the basic concepts from physical set-up, topographical & Morphometric changes and background of natural movements.
- The candidate should know the basics about the SOI maps.

#### Course Objectives:

The objectives of this paper are,

- To understand the basic concepts of physical Geography,
- To study the principles of geomorphology and fundamental theories about the Geomorphological movements.
- Its prime aim is to understand and be capable to observe and note the endogenic and exogenic forces their processes in the field studies.

#### Course Outcomes:

- After completion of the paper / course, the students will get capabilities and skills to correlate the natural cycles and manmade activities at primary level.
- In short, the candidate will assess the cause-n-effect relationships, which will be helpful for answering reasoning types of questions asked in competitive examinations.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
<b>1.0</b>	<b>1.1</b>	Geomorphology: Nature, Scope & Fundamental Concept	<b>15</b>
	<b>1.2</b>	Theory: Wegener's Continental Drift	
	<b>1.3</b>	Theory: Plate Tectonics	
	<b>1.4</b>	Theory: W. M. Davis's Concept of Geomorphic Cycle	
<b>2.0</b>	<b>2.1</b>	Endogenic Forces and Processes: Slow Movements (Compression/ Fold, Tension/ Faults)	<b>15</b>
	<b>2.2</b>	Endogenic Forces and Processes: Sudden Movements (Volcanism and Earthquakes)	
	<b>2.3</b>	Exogenic Forces & Processes: Weathering, Mass Movement	
	<b>2.4</b>	Exogenic Forces and Processes: Erosion & Deposition	
<b>3.0</b>	<b>3.1</b>	Land Forms: Associated with Coastal Processes	<b>15</b>
	<b>3.2</b>	Land Forms: Associated with Fluvial Processes	
	<b>3.3</b>	Land Forms: Associated with Glacial Processes	
	<b>3.4</b>	Land Forms: Associated with Arid Processes	
<b>4.0</b>	<b>4.1</b>	Relief Morphometry	<b>15</b>
	<b>4.2</b>	Types of Slopes	
	<b>4.3</b>	Geomorphology and Natural Cycles	
	<b>4.4</b>	Geomorphology and Human Activities	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>60</b>

### Text Books & Reference Books:

#### In English

- Thornbury, W. D. (1960): Principles of Geomorphology, John Wiley and Sons, New York.
- Chorley, R. J., Schumm, S. A. and Sugden, D. E. (1984): Geomorphology, Methuen, London.
- Savindra Singh (2002): Geomorphology, Prayag Pustak Bhawan, Allahabad
- Spark B. W. (1972): Geomorphology, Longman, New York
- Ollier, C. D. (1981) Tectonics and Landforms, Longman, London
- Strahler A. H and Strahler, A. N. (1992): Modern Physical Geography, John Wiley, New York
- Fairbridge, R. W. (1968): Encyclopedia of Geomorphology, Reinholdts, New York.

#### In Marathi

- Dhoble Shital and others (2017): Geomorphology, Nirali Prakashan, Pune
- Chaudhari Dr SR and Gavit (2015): Geomorphology, Prashant Publications, Jalgaon
- Karlekar Shrikant (2015): Physical Geography and Geomorphology, Daimand, Pune.
- Pathare and Gajhans (2015): Physical Geography, Vidya Books, Aurangabad.

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## SGEO-CT2402 Population Geography

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-CT2402	Population Geography	04	--	04	04	--

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA	CA	ES A	
		Class Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total			
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-CT2402	Population Geography	20	12	8	40	60	--	--	100

## SGEO-CT2402 Population Geography: Curriculum Details

### Course Pre-requisite:

- Basic knowledge about elements of population and physical, culture and social geographical factors.

### Course Objectives:

- The objectives of this course is to understand population growth, birth rate, death rate, crude birth rate, crude death rate, infant mortality rate, fertility, mortality, migration, age, sex ratio, age and sex pyramid, population density.

### Course Outcomes:

- After completion of the course, the students get capabilities and skills on population geographical techniques, concepts, model and theories related to population geography. Also understand the various factor are affected of the population growth and population problems.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
1.0	1.1	Nature, Scope, Subject Matter and Recent Trends	15
	1.2	Population Growth, Birth Rate & Crude Birth Rate	
	1.3	Crude Death rate, Infant mortality Rate, Fertility, Mortality	
	1.4	Migration, Age, Sex Ratio, Age & Sex Pyramid, Density	
2.0	2.1	Population Growth and Distribution: India	15
	2.2	Population Growth and Distribution: World	
	2.3	Influencing Factors: 1) Physical 2) Social	
	2.4	Influencing Factors: 1) Economic 2) Political	
3.0	3.1	Theory and Model: Basic Concept & Scope	15
	3.2	Theory and Model: Applications & Relevance	
	3.3	Malthus Theory of Population Growth	
	3.4	Demographic Transition Model	
4.0	4.1	Population as a Resource: Over, Optimum & Under	15
	4.2	Aspects: Size, Growth, Age, Education and Health	
	4.3	Population Resource Regions	
	4.4	Population Problems and Policies in India	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>60</b>

### Text Books & Reference Books:

- Barrett H.R. (1992): Population Geography, Oliver and Boyd Longman House, Harlow
- Bhende Asha & Kanitkar Tara (1975): principles of population Studies, Himalaya Publishing House, Bombay.
- Chandna, R.C. & Manjit S. Sidhu (1980): Introduction to Population Geography, Kalyani Publishers, New Delhi.
- Chandana, R.C. (1984): Geography of Population, Kalyani publisher, Ludhiana.
- Garnier, J.B. (1976): Geography of Population, Longman Group Ltd., London.
- Hausier, Philip M & Duncan (Eds.) (1959): The Study of Population, University Press, Chicago.
- Hussein, Majid (1999): Human Geography (2Ed.), Rawat Publications, Jaipur.
- Ravenstein, E (1889): The Laws of Migration, journal, Royal Statistical Society, 49, pp 241-305.
- Sinha V.C (1979): Dynamics of India's Population Growth, National Publishing House, New Delhi.
- Smith, T.L (1960): Fundamental of Population Studies, Lipineott, London.
- Zelinsky, W (1966): A Prologue of Population Geography, Prentice Hall Inc, M.J
- Sawant & Athawale A. S: Population Geography, Mehta Kolhapur.

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## SGEO-CT2403 Biogeography

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-CT2403	Biogeography	04	--	04	04	--

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA	CA	ESA	
		Classes Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total			
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-CT2403	Biogeography	20	12	8	40	60	--	--	100

### SGEO-CT2403 Biogeography: Curriculum Details

#### Course Pre-requisite:

- The candidate should know the basic concepts from physical and Environmental Geography.

#### Course Objectives:

- The objectives of this paper are, to understand the basic concepts of physical Geography and Environmental Geography, to study the principles of Plant, Soil, Water and Climatic evolution. Its prime aim is to understand and be capable to observe and note the ecological things and related changes on the earth.

#### Course Outcomes:

- After completion of the paper / course, the students will get capabilities and skills to correlate the natural – Environmental cycles and all kinds of activities at primary level. In short, the candidate will assess the cause-n-effect relationships, which will be helpful for answering reasoning types of questions asked in competitive examinations.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
<b>1.0</b>	<b>1.1</b>	Nature, Scope & Significance	<b>15</b>
	<b>1.2</b>	Elements of Biogeography: Reference to India	
	<b>1.3</b>	Plant Classification and Geography	
	<b>1.4</b>	Bioclimatic Frontiers	
<b>2.0</b>	<b>2.1</b>	Soil: Colour, Texture, Structure & Classification	<b>15</b>
	<b>2.2</b>	Forests: Need and Types	
	<b>2.3</b>	Deforestation and its Issues	
	<b>2.4</b>	Forestation & Social Forestry in India	
<b>3.0</b>	<b>3.1</b>	Environmental Control: on Plants	<b>15</b>
	<b>3.2</b>	Environmental Control: on Animals	
	<b>3.3</b>	Ecosystems (Major Types): Forms	
	<b>3.4</b>	Ecosystems (Major Types): Functions	
<b>4.0</b>	<b>4.1</b>	Conservation of Ecosystems: Need & Challenges	<b>15</b>
	<b>4.2</b>	Conservation of Ecosystems: Planning & Management	
	<b>4.3</b>	Ecological Balance: Need	
	<b>4.4</b>	Ecological Balance: Limitations	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>60</b>

### Text Books & Reference Books:

- Barry C., 1977, Biogeography – An ecological & evolutionary Approach, Oxford.
- Cole M.M., 1975, Recent developments in Biogeography, Longman, London.
- Darlington P.J. (1957): Zoogeography – Methew, New York.
- Joy T.V. (1997); Biogeography – study of plants in the ecosphere.
- Mathur H.S. (1986): Elements of Biogeography, Pointer Jaipur.
- Martin C. (1975): Plant Geography. Methuen, London.
- Muller P. (1986): Biogeography; Harper & Row, New York.
- New big in M.I. (1986): Plant & Animal Geography: Methuen, London.
- Pears N. (1985): Basic Biogeography, Longman, London.
- Watts, d. (1971): Principles of Biogeography, McMillan, London.
- Simms T. G.: Biogeography, Natural & Cultural, Arnold & Heinemann, London.

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## SGEO-ET2401 Cartography and Mapping

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-ET2401	Cartography and Mapping	03	--	03	03	--

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA	CA	ESA	
		Class Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total			
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-ET2401	Cartography and Mapping	15	09	6	30	45	--	--	75

## SGEO-ET2401 Cartography and Mapping: Curriculum Details

### Course Pre-requisite:

- The candidate should know the basic concepts from physical set-up, topographical changes and background of natural movements, which are the basics of maps. The candidate should be familiar to the basic concepts, types of maps, SOI Toposheet maps and given information about the topographical features.

### Course Objectives:

- The objectives of this paper are to understand the basic concepts of maps.

### Course Outcomes:

- After completion of the paper / course, the students will get capabilities and skills to prepare regular and digital maps.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
<b>1.0</b>	<b>1.1</b>	Types of Maps	<b>11</b>
	<b>1.2</b>	Map scales, types and conversions of scale	
	<b>1.3</b>	Symbolization, Enlargement and Reduction	
	<b>1.4</b>	Representation of statistical data on maps	
<b>2.0</b>	<b>2.1</b>	Introduction to SOI topographical maps	<b>11</b>
	<b>2.2</b>	SOI Toposheets: Indexing	
	<b>2.3</b>	SOI Toposheets: Signs & Symbols	
	<b>2.4</b>	SOI Toposheets: Contouring	
<b>3.0</b>	<b>3.1</b>	SOI Toposheets: Relief representation techniques	<b>11</b>
	<b>3.2</b>	SOI Toposheets: Identification of land forms	
	<b>3.3</b>	SOI Toposheets: Profiles	
	<b>3.4</b>	SOI Toposheets: LU LC changes	
<b>4.0</b>	<b>4.1</b>	SOI Toposheets: Reading	<b>12</b>
	<b>4.2</b>	SOI Toposheets: Interpretation	
	<b>4.3</b>	Available various types of maps	
	<b>4.4</b>	Digital Maps	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>45</b>

### Text Books & Reference Books:

- Monkhouse F.X.J. and Wilkinson H. R. (1971), Maps and Diagrams, London
- Ramamurthy, K. (1982): Map interpretation, Madras
- Petrie N. (1992), Analysis and Interpretation of Topographical Maps. Orient Longman Limited Calcutta
- Singh R. L. (1997), Elements of Practical Geography, Kalyan Publishing, New Delhi
- Meux A. H. (1960), Reading Topographical Maps. University of London Press Limited
- Jones P. A. (1968), Fieldwork in Geography. Longmans, Green and Company Limited
- Archer J. E and Dalton T. H. (1968), Fieldwork in Geography B.T. Batsford Limited London
- Wheeler K.S. Ed (1970), Geography in the field. Blond Educational, London
- Gupta, K. K. and Tyagi, V. C. (1992): Working with maps, Survey of India Publication, Dehradun.
- R.P. Mishra - Fundamentals of Cartography

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## SGEO-ET2402 Geography of India

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-ET2402	Geography of India	03	--	03	03	--

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA			
		Class Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total	CA	ESA	
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-ET2402	Geography of India	15	09	6	30	45	--	--	75

## SGEO-ET2402 Geography of India: Curriculum Details

### Course Pre-requisite:

- Basic knowledge about physical factors and map of India, and knowledge of 10<sup>th</sup> standard geography.
- The candidate should know the basic concepts of region with the perspective of Human Geography and India Socio-Cultural Set up with maps. He / She should know the importance of all manmade characteristics of the region or any administrative region in the demarcation of region and its entities with their balanced identity or unbalanced changes.

### Course Objectives:

- The objectives of this course are to understand physiography, climate, vegetation and soils of India.
- The objectives of this paper are to understand the basic concepts of Regional Geography with socio-cultural perspectives, mainly based on the economical and cultural activities of the region. The objectives of this course are to understand the population, Agriculture, Agro-based Industries, Mineral & Power resources and Transport and communication systems in India.

### Course Outcomes:

- After completion of the course, the students get capabilities to understand the physiography, climate, vegetation and soils of India.
- This paper is providing basic information about the human geographical set up of the state. The students will get knowledge and will acquire skills for comparative regional study and correlate the cause-n-effect relationships of all basic socio-economical, demographical and cultural aspects. The students will get capabilities to understand the Human and allied set up of India with geographical perspective.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
1.0	1.1	Physiography: Structure, Relief & Physiographic Divisions	11
	1.2	Natural Drainage System	
	1.3	Climate: Types & Climatic Regions	
	1.4	Climate and Agricultural Practices	
2.0	2.1	Natural Vegetation: Types & Regions	11
	2.2	Forests and Forest Products	
	2.3	Deforestation & Need of Conservation	
	2.4	Soil Types and Conservation	
3.0	3.1	Human Population: Distribution and Growth	11
	3.2	State-wise Rural and Urban Population	
	3.3	Urbanization: Problems and Prospects	
	3.4	Population: as a Problems & as a Resource	
4.0	4.1	Mineral & Power Resources: Iron, Mica, Manganese, Coal and Petroleum	12
	4.2	Major industries: Belts, Development and Problems	
	4.3	Industrial region of India	
	4.4	Transport Systems: Roads, Railways, Inland Waterways, Air Ways, Major ports & Sea Routes	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>45</b>

### Text Books & Reference Books:

- Sharma, T.C. & Coutinho: "Economic and Commercial Geography of India". Vikas Pub. House Delhi.
- Negi, B.S: "Economic & Commercial Geography India."Kedar Nath Ram Nath, N. Delhi.
- Mamoria, C.B. "Economic & Commercial Geography of India".
- Singh, Gopal: "Geography of India".
- Kuriyan. George: "India- A General Survey". National Bk. Trust.
- Stamp, L.D: "Geography of Asia".
- Spate, O.H.K.& Learmonth, A.T.A: "Geography of India & Pakistan".
- Robinson: "India- resources & their Development.
- Dobby, E.G.H: "Monsoon Asia.
- Tirtha Ranjit (1996): Geography of India, Rawat Jaipur.
- Tata McGraw Atlas: Socio Economic Atlas of India.
- Singh R. L.: Regional Geography of India.
- Majid Husain, 2015, Geography of India (Old edition), Publisher: McGraw Hill Education (August 15, 2015), ISBN-10: 9339220846, ISBN-13: 978-9339220846.
- Sanjeev Sanyal and Sowmya Rajendran, 2015, The Incredible History of India's Geography, Publisher: Penguin Books Limited; Latest edition (26 January 2015), ISBN-10: 9780143333661, ISBN-13: 978-0143333661.

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## SGEO-CP2401 Morphometric Analysis

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-CP2401	Morphometric Analysis	--	01	01	--	02

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA	CA	ESA	
		Classes Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total			
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-CP2401	Morphometric Analysis	--	--	--	--	--	10	15	25

## SGEO-CP2401 Morphometric Analysis: Curriculum Details

### Course Pre-requisite:

- The candidate should know the basic concepts from physical set-up, topographical & Morphometric changes and background of natural movements. The candidate should know the basics about the SOI maps. The candidate should have some conceptual understanding about the Physical Geography, Geomorphological Processes and mainly Morphometric changes.

### Course Objectives

- The objective of this paper is to understand and be capable to observe and note the endogenic and exogenic forces their processes in the field studies. In addition, the objectives of this practical paper are to understand the spatio-temporal changes in the morphological situation of the region and their effects on various aspects of the concerned topography. It is also aims to see the influencing factors of the same.

### Course Outcomes

- After completion of the paper / course, the students will get capabilities and skills to correlate the natural cycles and manmade activities at primary level. After completion of this practical paper, the student will assess the changes of any morphological aspects with proper scientific and statistic methods. He / she will draw a multi-applicable and suitable plan for the future changes.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
<b>1.0</b>	1.1	To understand the basics of Drainage Patterns	<b>7</b>
	1.2	To draw Dendritic & Parallel drainage pattern	
	1.3	To draw Rectangular & Trellis drainage	
	1.4	To draw Radial & Annular drainage pattern	
<b>2.0</b>	2.1	To understand Basics of Stream Ordering	<b>7</b>
	2.2	To apply Horton's Method of Stream Ordering	
	2.3	To apply Strahler's Method of Stream Ordering	
	2.4	To apply Streve's Method of Stream Ordering	
<b>3.0</b>	3.1	To measure basin length and width	<b>8</b>
	3.2	To measure Stream Length and Ratio	
	3.3	To calculate Drainage Density	
	3.4	To calculate Bifurcation Ratio	
<b>4.0</b>	4.1	To measure basin area	<b>8</b>
	4.2	To calculate stream frequency	
	4.3	To calculate total slope of the basin	
	4.4	To calculate total slope of the given stream	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>30</b>

### Text Books & Reference Books:

#### In English

- King, C. A.M (1966): Techniques in Geomorphology, Edward Arnold, London
- Monkhouse, F. J. and Wilkinson, H. R., (1976). Maps and Diagrams, Methuen & Co.
- Savindra Singh (2002): Geomorphology, Prayag Pustak Bhawan, Allahabad
- Miller, Austin (1953): The skin of the Earth, Methuen & Co. Ltd. London
- Thornbury, W. D. (1960): Principles of Geomorphology, John Wiley and Sons, New York.
- Chorley, R. J., Schumm, S. A. and Sugden, D. E. (1984): Geomorphology, Methuen, London.
- Savindra Singh (2002): Geomorphology, Prayag Pustak Bhawan, Allahabad
- Spark B. W. (1972): Geomorphology, Longman, New York
- Ollier, C. D. (1981) Tectonics and Landforms, Longman, London
- Strahler A. H and Strahler, A. N. (1992): Modern Physical Geography, John Wiley, New York
- Fairbridge, R. W. (1968): Encyclopedia of Geomorphology, Reinholdts, New York.

#### In Marathi

- Dhoble Shital and others (2017): Geomorphology (in Marathi), Nirali Prakashan, Pune
- Chaudhari Dr SR and Gavitt (2015): Geomorphology (in Marathi), Prashant Publications, Jalgaon
- Karlekar Shrikant (2015): Physical Geography and Geomorphology, (in Marathi), Daimand, Pune.
- Pathare and Gajhans (2015): Physical Geography (in Marathi), Vidya Books, Aurangabad.

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## SGEO-CP2402 Demographic Data

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-CP2402	Demographic Data	--	01	01	--	02

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA	CA	ESA	
		Class Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total			
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-CP2402	Demographic Data	--	--	--	--	--	10	15	25

## SGEO-CP2402 Demographic Data: Curriculum Details

### Course Pre-requisite:

- Basic knowledge of population distribution, density and population growth. The knowledge about graph and map preparation is required for this paper.

### Course Objectives:

- The objective of this course is to understand, calculation and construction of graphs and maps about population elements.

### Course Outcomes:

- After completion of the course the student, get capabilities and skills on population geographical techniques, calculations in population geography, construction of population graphs and diagrams and preparation of maps regarding population geography.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
<b>1.0</b>	<b>1.1</b>	To calculate: Density of Population	<b>7</b>
	<b>1.2</b>	To calculate: Sex Ratio	
	<b>1.3</b>	To calculate: Crude Birth and Death Rate	
	<b>1.4</b>	To calculate: Literacy Rate	
<b>2.0</b>	<b>2.1</b>	To calculate: Life Expectance Rate	<b>7</b>
	<b>2.2</b>	To calculate: Dependency Ratio	
	<b>2.3</b>	To calculate: Population growth rate	
	<b>2.4</b>	To calculate: Population projection	
<b>3.0</b>	<b>3.1</b>	To draw: Bar Graphs	<b>8</b>
	<b>3.2</b>	To draw: Line Graphs	
	<b>3.3</b>	To draw: Age-Sex Compound pyramid	
	<b>3.4</b>	To draw: Age-Sex Superimposed Pyramid	
<b>4.0</b>	<b>4.1</b>	To Preparation of Map: Population Density	<b>8</b>
	<b>4.2</b>	To Preparation of Map: Population Distribution	
	<b>4.3</b>	To Preparation of Map: Sex Ratio	
	<b>4.4</b>	To Preparation of Map: Population Literacy	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>30</b>

### Text Books & Reference Books:

- Lawrence, G.R.P. (1973): Cartographic methods, Methuen & Co. London.
- Mishra, R.P. (1982): Fundamentals of cartography, Prasaranga, University of Mysore.
- Monkhouse, F.J.R & Wilkinson, H.R: Maps & diagrams, Methuen & company, London.
- Raisz, Erwin: Principles of cartography, McGraw – hill Book Co., New York.
- Robinson A.H.& Sale R.D. Element of Cartography, John House & Sons Ltd., London.
- Singh R. L.: Elements of Practical Geography.
- Barrett H.R(1992): Population Geography, Oliver and Boyd Longman House, Harlow.
- Bhende Asha & Kanitkar Tara (1975): principles of population Studies, Himalaya Publishing House, Bombay
- Chandna, R.C. & Manjit S. Sidhu (1980): Introduction to Population Geography, Kalyani Publishers, New Delhi.
- Chandana, R.C. (1984): Geography of Population, Kalyani publisher, Ludhiana.

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## SGEO-CP2403 Biogeography

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-CP2403	Biogeography	--	01	01	--	02

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA	CA	ESA	
		Classes Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total			
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-CP2403	Biogeography	--	--	--	--	--	10	15	25

## SGEO-CP2401 Biogeography: Curriculum Details

### Course Pre-requisite:

- The candidate should know the basic concepts from physical and Environmental Geography.

### Course Objectives:

- The objectives of this paper are, to understand the basic concepts of physical Geography and Environmental Geography, to study the principles of Plant, Soil, Water and Climatic evolution. Its prime aim is to understand and be capable to observe and note the ecological things and related changes on the earth.

### Course Outcomes:

- After completion of the paper / course, the students will get capabilities and skills to correlate the natural – Environmental cycles and all kinds of activities at primary level. In short, the candidate will assess the cause-n-effect relationships, which will be helpful for answering reasoning types of questions asked in competitive examinations.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
1.0	1.1	To prepare a Map of Biogeographic realms of the world	7
	1.2	To prepare a Map of Biogeographic Regions of India	
	1.3	To draw a Map of Biogeographic Micro Regions of India	
	1.4	To classify Biogeographic regions of India	
2.0	2.1	To understand Soil: Colour, texture & Structure	7
	2.2	To prepare a maps of Indian Forest with various Types	
	2.3	To identify indigenous species from deforested regions	
	2.4	To prepare graphs related to Forest & Social forestry	
3.0	3.1	To measure an area for density of plant species.	8
	3.2	To calculate density of plant species.	
	3.3	To identify and calculate plant population	
	3.4	To estimate plant density and plant spacing heterogeneity	
4.0	4.1	To prepare a map of Maharashtra showing Soil Types	8
	4.2	To show graphically the Biogeographic Regions of state	
	4.3	To show Biogeographic Regions of Maharashtra with map	
	4.4	To classify Biogeographic regions of Maharashtra	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>30</b>

### Text Books & Reference Books:

- Barry C., 1977, Biogeography – An ecological & evolutionary Approach, Oxford.
- Cole M.M., 1975, Recent developments in Biogeography, Longman, London.
- Darlington P.J. (1957): Zoogeography – Methew, New York.
- Joy T.V. (1997); Biogeography – study of plants in the ecosphere.
- Mathur H.S. (1986): Elements of Biogeography, Pointer Jaipur.
- Martin C. (1975): Plant Geography. Methuen, London.
- Muller P. (1986): Biogeography; Harper & Row, New York.
- New big in M.I. (1986): Plant & Animal Geography: Methuen, London.
- Pears N. (1985): Basic Biogeography, Longman, London.
- Watts, d. (1971): Principles of Biogeography, McMillan, London.
- Simms T. G.: Biogeography, Natural & Cultural, Arnold & Heinemann, London.

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## SGEO-EP2401 Cartographic Techniques

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-EP2401	Cartographic Techniques	--	01	01	--	02

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA			
		Class Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total	CA	ESA	
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-EP2401	Cartographic Techniques	--	--	--	--	--	10	15	25

## SGEO-EP2401 Cartographic Techniques: Curriculum Details

### Course Pre-requisite:

- The candidate should know the basic concepts from physical set-up, topographical changes and background of natural movements, which are the basics of maps. The candidate should be familiar to the basic concepts, types of maps, SOI Toposheet maps and given information about the topographical features.

### Course Objectives:

- The objectives of this paper are to understand the basic concepts of maps.

### Course Outcomes:

- After completion of the paper / course, the students will get capabilities and skills to prepare regular and digital maps.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
<b>1.0</b>	<b>1.1</b>	To prepare a list of various Types of Maps	<b>7</b>
	<b>1.2</b>	To draw a Graphical Scale with conversion of RF	
	<b>1.3</b>	To convert British scale in to Metric Scale	
	<b>1.4</b>	To represent a statistical data on maps	
<b>2.0</b>	<b>2.1</b>	To draw a new map with enlargement technique	<b>7</b>
	<b>2.2</b>	To draw a new map with reduction technique	
	<b>2.3</b>	To note the marginal information of SOI Toposheets	
	<b>2.4</b>	To show Indexing of SOI Toposheets	
<b>3.0</b>	<b>3.1</b>	To draw Signs & Symbols of SOI Toposheets	<b>8</b>
	<b>3.2</b>	To prepare a Contour map from SOI Toposheets	
	<b>3.3</b>	To Identify of land forms from SOI Toposheet	
	<b>3.4</b>	To draw a Cross Profile	
<b>4.0</b>	<b>4.1</b>	To draw a Longitudinal Profile	<b>8</b>
	<b>4.2</b>	To identify LULC from SOI Toposheets	
	<b>4.3</b>	To read at least one SOI Toposheets	
	<b>4.4</b>	To interpretation at least one SOI Toposheets	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>30</b>

### Text Books & Reference Books:

- Monkhouse F.X.J. and Wilkinson H. R. (1971), Maps and Diagrams, London
- Ramamurthy, K. (1982): Map interpretation, Madras
- Petrie N. (1992), Analysis and Interpretation of Topographical Maps. Orient Longman Limited Calcutta
- Singh R. L. (1997), Elements of Practical Geography, Kalyan Publishing, New Delhi
- Meux A. H. (1960), Reading Topographical Maps. University of London Press Limited
- Jones P. A. (1968), Fieldwork in Geography. Longmans, Green and Company Limited
- Archer J. E and Dalton T. H. (1968), Fieldwork in Geography B.T. Batsford Limited London
- Wheeler K.S. Ed (1970), Geography in the field. Blond Educational, London.
- Gupta, K. K. and Tyagi, V. C. (1992): Working with maps, Survey of India Publication, Dehradun.
- R.P. Mishra - Fundamentals of Cartography.

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## SGEO-EP2402 Interpretation of SOI Maps

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-EP2402	Interpretation of SOI Maps	--	01	01	--	02

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA	CA	ESA	
		Class Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total			
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-EP2402	Interpretation of SOI Maps	--	--	--	--	--	10	15	25

### SGEO-EP2402 Interpretation of SOI Maps: Curriculum Details

#### Course Pre-requisite:

- Basic knowledge about elements of maps and construction of maps. The knowledge about physicals and cultural features is required for this paper.

#### Course Objectives:

- The objectives of this course are to understand, calculation, construction and interpretation of topographical maps.

#### Course Outcomes:

- After completion of the course the student, get capabilities and skills on construction and interpretation of topographical maps and identified the physical and cultural features of on the map.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
1.0	1.1	To Study of SOI Topographical 1:50,000 Series Maps	7
	1.2	To Study Indexing and conventional signs and symbols	
	1.3	To understand and use Grid references	
	1.4	To understand Location and Relief Aspects of the area	
2.0	2.1	To read the basics of SOI topographical Maps	7
	2.2	To note the Marginal Information of SOI Maps	
	2.3	To divide and draw the drainage basins	
	2.4	To identify and draw various patterns of Drainage	
3.0	3.1	To read and interpret the SOI toposheet: Relief Features	8
	3.2	To read and interpret the SOI toposheet: Drainage	
	3.3	To read and interpret the SOI toposheet: Vegetation Cover	
	3.4	To read and interpret the SOI toposheet: River Chanel	
4.0	4.1	To read and interpret the SOI toposheet: Rural Settlement	8
	4.2	To read and interpret the SOI toposheet: Urban Areas	
	4.3	To read and interpret the SOI toposheet: Road Network	
	4.4	To read and interpret the SOI toposheet: Cultural Aspects	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>30</b>

### Text Books & Reference Books:

- Monkhouse F.X.J. and Wilkinson H. R. (1971), Maps and Diagrams, London
- Ramamurthy, K. (1982): Map interpretation, Madras
- Petrie N. (1992), Analysis and Interpretation of Topographical Maps. Orient Longman Limited Calcutta
- Singh R. L. (1997), Elements of Practical Geography, Kalyan Publishing, New Delhi
- Meux A. H. (1960), Reading Topographical Maps. University of London Press Limited
- Jones P. A. (1968), Fieldwork in Geography. Longmans, Green and Company Limited
- Archer J. E and Dalton T. H. (1968), Fieldwork in Geography B.T. Batsford Limited London
- Wheeler K.S. Ed (1970), Geography in the field. Blond Educational, London.
- Gupta, K. K. and Tyagi, V. C. (1992): Working with maps, Survey of India Publication, Dehradun.

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## SGEO-CT2451 Agriculture Geography

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-CT2451	Agriculture Geography	04	--	04	04	--

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA	CA	ESA	
		Class Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total			
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-CT2451	Agriculture Geography	20	12	8	40	60	--	--	100

## SGEO-CT2451 Agriculture Geography: Curriculum Details

### Course Pre-requisite:

- The candidate should be familiar with the basic concepts from Agriculture Geography i.e. General Land-use, Agricultural Land-use, Cropping Pattern, Soil and Crop relationships etc.

### Course Objectives

- The objectives of this paper are, to understand the concepts from Physical and Human Geography, which will help to assess the cause-and-effect relationship between them, to study the principles of Agricultural Geography and fundamentals of the same. Its prime aim is to understand and be capable to observe and note the micro to macro levelled changes in agrarian practices.

### Course Outcomes

- After completion of the paper / course, the students will get capabilities and skills to correlate the natural cycles as well as manmade acts and agrarian development. In short, the candidate will assess the cause-and-effect relationships, which will be helpful for answering reasoning types of questions asked in competitive examinations.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
<b>1.0</b>	<b>1.1</b>	Nature, Scope, Significance & Approaches	<b>15</b>
	<b>1.2</b>	General and Agricultural Land use	
	<b>1.3</b>	Land use surveys	
	<b>1.4</b>	Land Classification	
<b>2.0</b>	<b>2.1</b>	Physical Determinants: Relief, Climate, Water, Soil, etc	<b>15</b>
	<b>2.2</b>	Land holding, marketing, transport etc	
	<b>2.3</b>	Irrigation and Mechanization	
	<b>2.4</b>	Crop Diversification & Combination	
<b>3.0</b>	<b>3.1</b>	Shifting Cultivation & Intensive Subsistent Farming	<b>15</b>
	<b>3.2</b>	Mixed Farming & Plantation	
	<b>3.3</b>	Commercial Farming	
	<b>3.4</b>	Agricultural Efficiency	
<b>4.0</b>	<b>4.1</b>	Characteristics of arid and semi-arid regions	<b>15</b>
	<b>4.2</b>	Droughts and Famines	
	<b>4.3</b>	Role of Irrigation and Dry Farming	
	<b>4.4</b>	Agricultural Regions of India	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>60</b>

### Text Books & Reference Books:

- Aiyer, A.K.Y.N. (1949) – Agricultural and Allied Arts in Vedic India.
- Grigg. D.G. (1974) – The Agricultural Systems of the world An Evolutionary Approach.
- Grigg. D.G. (1964) – An Introduction to Agricultural Geography Hutchinson & Co.Ltd.,
- Illbery, B.W. (1985) – Agricultural Geography, Social & Economic Analysis, Oxford University Press.
- Morgan. W.B. & S.C. Monton (1971) – Agricultural Geography Methuen, London.
- Randhawa, M.S. (1980) – A History of Agriculture in India Vols. I, II, III, IV ICAR, New Delhi.
- Singh. J. and Dhillon S.S. (1994) – Agricultural Geography. Tata McGraw Hill, Publishing Co. Ltd.
- Symons, Leslie (1970) – Agricultural Geography, G. Belt and Sons Ltd., London.
- Tarrent, J.R. (1970) – Agricultural Geography, David and Charles, Newton Abbot.

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## SGEO-CT2452 Economic Geography

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-CT2452	Economic Geography	04	--	04	04	--

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA			
		Class Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total	CA	ESA	
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-CT2452	Economic Geography	20	12	8	40	60	--	--	100

## SGEO-CT2452 Economic Geography: Curriculum Details

### Course Pre-requisite:

- Basic knowledge about economic activities, geographical factors and their relationship with economical activities and economical development leads to social development, and knowledge of 10<sup>th</sup> standard geography.

### Course Objectives:

- After completion of the course the student gets knowledge about the economical activities are related to geographical factors and various theories and models of economic developments. On successful completion of the module, students should be capable of explaining the principles of economic geography and their relation with development of the nation.

### Course Outcome:

- This course is useful in understanding about basics of economic geography. This will be useful for application of the principles of economics in geography. Knowledge of this course will be used for sustainable development.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
1.0	1.1	Nature, Scope, Recent Trends in Economic Geography	15
	1.2	Economic Processes: Production, Exchange & consumption	
	1.3	Classification of economic Activities & Characteristics	
	1.4	Location of Economic activities	
2.0	2.1	Classification of Resources	15
	2.2	Resources and Environment - Scarcity and Sustainability,	
	2.3	Conservation of resources	
	2.4	Classification of Industries & Location Theories	
3.0	3.1	Major Transport Routes -Land, Rail, Water and Air Routes	15
	3.2	Mode of transportation and transport cost	
	3.3	Accessibility and connectivity	
	3.4	Trade: National and International	
4.0	4.1	Measures of Economic Development	15
	4.2	Sustainable Development	
	4.3	Regional Disparity in Economic Development	
	4.4	Impact of Green Revolution, Privatization, Globalization	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>60</b>

### Text Books & Reference Books:

- Alexander J.W. (1976): Economic Geography. Prentice Hall of India. New Delhi.
- Hartshorne, T.A. and J.W. Alexander (1988) –Economic Geography, Prentice Hall.
- Berry, Conkling & Ray (1988): Economic Geography Prentice Hall of India New Jersey.
- Hurst Elliott (1986): Geography of Economic Behaviour. Unwin, London.
- Johnson R.J. & Taylor D.J. (1989): A world in crisis. Basil-Blackwell, Oxford.
- Losch (1954): Economics of Location. Yale University Press New York.
- Redcliff M. (1987): Development & the environmental crisis. Methuen. London.
- Sinha B.N. (1971): Industrial geography of India
- Watts H.D. (1987): Industrial Geography, Longman scientific and Technical New York.
- Haggett, Peter: Modern Synthesis in Geography.
- Robinson H & Bamford C. G. (1978): Geography of Transport, Macdonald & Evans USA.
- Jones & Darkenwald: Economic geography.
- Fairbridge, R. W. (1968): Encyclopedia of Geomorphology, Reinholdts, New York.

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## SGEO-CT2453 Fundaments of Remote Sensing

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-CT2453	Fundaments of Remote Sensing	04	--	04	04	--

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA			
		Class Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total	CA	ESA	
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-CT2453	Fundaments of Remote Sensing	20	12	8	40	60	--	--	100

## SGEO-CT2453 Fundaments of Remote Sensing: Curriculum Details

### Course Pre-requisite:

- Basic knowledge about 10 level physics and having the knowledge of geographical factors.

### Course Objectives:

- The objectives of this course is to develop the skill of the remote sensing and use of remote sensing in the geography

### Course Outcomes:

- After completion of the course, the students get capabilities and skills on remote sensing technology and application of the remote sensing in geography and map making.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
1.0	1.1	Introduction to Remote Sensing: Definition & History	15
	1.2	EMR & EMS; EMR interaction with Atmosphere and Earth	
	1.3	Types of Remote Sensing	
	1.4	Applications of Remote Sensing	
2.0	2.1	History of Aerial Photographs	15
	2.2	Fundamentals of Aerial Photography	
	2.3	Types of Aerial Photographs - Vertical & Oblique	
	2.4	Basic Geometric Characteristics- Scale, Overlap, Tilt,	
3.0	3.1	Distortion and Displacement of Aerial Photographs	15
	3.2	Advantages and Disadvantages of Aerial Photographs	
	3.3	Concepts: Reflection, Absorption, Transmission, Scattering	
	3.4	Concept of Signatures- Photo Interpretation Elements	
4.0	4.1	Types of Satellites - Sun-Synchronous and Geostationary	15
	4.2	Classification of Remote Sensors, Resolution - Spatial, Spectral, Radiometric, Temporal, Microwave Sensors, etc	
	4.3	Image Rectification and Restoration,	
	4.4	Image Enhancement, Image Manipulation, Filtering, Image Classification, Supervised and Unsupervised Classification	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>60</b>

### Text Books & Reference Books:

- Jensen, J.R. (2004): Remote sensing of the environment: An Earth Resource Perspective, Prentice Hall, Englewood Cliffs, N.J.
- Jones, C.B. (1997): Geographical Information Systems and Computer Cartography, Addison Wesley Longman Ltd. England.
- Kraak, M.J. and A. Brown (1996): Web Cartography: Developments and Prospects, Addison Wesley Longman Ltd, England.
- Monmonier, M.S. (1982): Computer Assisted Cartography: Principles and Prospects Prentice Hall, Inc. London.
- Jenson, J.R.: Introduction to Digital image processing, Prentice Hall, Englewood cliffs, N.J.
- Peuquet, D.J. & Marble, D.F.: Introductory Readings in Geographic information Systems Taylor & Francis, Washington, 1990
- P. A. Burrough and R. A. McDonnell, Principles of Geographical Information System, 2000, Oxford University Press.
- C.P. Lo and Albert K. W. Yeung, Concepts and Techniques of Geographic Information System, 2002 Prentice –Hall, India.
- George Joseph, Fundamentals of Remote Sensing, 2004, Universities Press Pvt. Ltd., Hyderabad.
- Lillesand T.M. and Kiefer R.W., 2002, Remote Sensing and Image Interpretation, John Wiley and Sons, New Delhi.

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## SGEO-ET2451 Soil Geography

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-ET2451	Soil Geography	03	--	<b>03</b>	03	--

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA			
		Class Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total	CA	ESA	
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-ET2451	Soil Geography	15	09	6	30	45	--	--	75

## SGEO-ET2451 Soil Geography: Curriculum Details

### Course Pre-requisite:

- The candidate should know the basic concepts of soil geography and agricultural geography. The candidate should have an experience to work in the field. He / she should know the rules and regulations of field work.

### Course Objectives:

- To understand the significance of soil geography in environmental studies and land management. To identify the relationships between soil and various natural systems, including ecosystems and climate. To recognize the role of soil in supporting human activities, agriculture, and ecosystem services. To familiarize with major soil classification systems. To assess the importance of soil conservation and sustainable land management practices.

### Course Outcomes:

- Apply theoretical knowledge and practical skills to analyze soil properties and classifications. Understand the role of soil in supporting ecosystems, human activities, and global sustainability. Evaluate the environmental impact of soil-related issues and propose conservation measures.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
<b>1.0</b>	<b>1.1</b>	Definition and Nature of Soil Geography	<b>11</b>
	<b>1.2</b>	Scope and Significance of Soil Geography	
	<b>1.3</b>	Soil as a Natural Resource	
	<b>1.4</b>	Factors of Soil Formation	
<b>2.0</b>	<b>2.1</b>	Soil Profile - Development & horizon	<b>11</b>
	<b>2.2</b>	Major Physical Properties of Soil	
	<b>2.3</b>	Major Chemical Properties of Soil	
	<b>2.4</b>	Biological properties of Soils	
<b>3.0</b>	<b>3.1</b>	Soil Classification System	<b>11</b>
	<b>3.2</b>	Land Capability Classification	
	<b>3.3</b>	Land Suitability Classification	
	<b>3.4</b>	Soil types of India	
<b>4.0</b>	<b>4.1</b>	Soil Degradation : Causes and Effect	<b>12</b>
	<b>4.2</b>	Need of Soil Conservation & various methods	
	<b>4.3</b>	Soil Conservation in India	
	<b>4.4</b>	Applications of New tools for Soil Conservation	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>45</b>

### Text Books & Reference Books:

- A.S. Gustafson, (2007): “Soils and Management” Published by Agrobios (India).
- Bennet, Hugh H.: Soil Conservation, McGraw Hill, New York.
- Biswas, T.D. and Mukherjee, S. K., Text book of Soil Science, Tata McGraw Hill, New Delhi.
- Bunting, A., Geography of Soil, Hutchinson, London.
- C. E. Miller, L.M. Turk, (2001): “Fundamental of soil Science” Biotech Books Delhi.
- Daji, J.A., Kadam, J.R. and Patil, N.D., A Textbook of Soil Science, Media Promoters and Publishers Pvt Ltd, Mumbai.
- Fitzpatrick, E.A., Soils, Their Formation, classifications and Distribution, ELBS/ Longman, London.
- Foth, H.D. and Schafer, J.W., Soil Geography and Land Use, John Wiley, New York.
- Joffe, J.S., ABC of Soil, Oxford Book Co., Kolkata.

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## SGEO-ET2452 Geography of Maharashtra

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-ET2452	Geography of Maharashtra	03	--	03	03	--

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA	CA	ESA	
		Class Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total			
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-ET2452	Geography of Maharashtra	15	09	6	30	45	--	--	75

## SGEO-ET2452 Geography of Maharashtra: Curriculum Details

### Course Pre-requisite:

- The candidate should know the basic concepts from Physical and Regional Geography. The candidate should be familiar with the natural set up and their relationships to each other. He / She should know the importance of physical features in demarcation of a region and regional entities.
- The candidate should know the basic concepts of region with the perspective of Human Geography. He / She should know the importance of all manmade characteristics of the region or any administrative region in the demarcation of a region and regional entities with their balanced identity or unbalanced changes.

### Course Objectives:

- The objectives of this paper are to understand the basic concepts of Physical Geography with Regional perspective and fundamental theories about the region and their characteristics. Its prime aim is to understand the physical features and their spatial characters in details.
- The objectives of this paper are to understand the basic concepts of Regional Geography with socio-cultural perspectives and fundamental theories about the region and their characteristics, mainly based on the economical and cultural activities of the region.

### Course Outcomes:

- This paper is providing basic information about the physical set up of the Region, i.e. Marathwada. The students will get knowledge and will acquire skills for comparative regional study and correlate the cause-n-effect relationships of all basic topography, morphometry and resources.
- This paper is providing basic information about the human geographical set up of the state. The students will get knowledge and will acquire skills for comparative regional study and correlate the cause-n-effect relationships of all basic socio-economical, demographical and cultural aspects.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
1.0	1.1	Location and Physiography of Maharashtra	11
	1.2	Main Rivers: Godavari, Krishna, Tapi	
	1.3	Soil: Types and Distribution	
	1.4	Vegetation Cover: Types and Distribution	
2.0	2.1	Major Climatic Types & Characteristics	11
	2.2	Distribution of Temperature and Rainfall	
	2.3	Water Resources: Major and Minor Projects	
	2.4	Mineral Resources: Resources and its Location	
3.0	3.1	Human Population: Growth & Distribution	11
	3.2	Sex Ratio, Literacy, Occupational Structure & Migration	
	3.3	Rural and Urban Settlement	
	3.4	Growth, Comparative Proportion and Trend of Urbanization	
4.0	4.1	Agriculture: Major Crops and Cropping Pattern	12
	4.2	Agriculture: Problems, Prospects & Influencing Factors	
	4.3	Industries: Major Industrial Belts / Pockets and Distribution	
	4.4	Industries: Problems and Prospects of Industrialization	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>45</b>

### Text Books & Reference Books:

- Gazetteer of Maharashtra, Govt of India.
- B. Arunchalm, Regional Geography of Maharashtra
- B.D. Nag Choudhary, "Introduction to Environment Management" Inter Print Mehata House, N. Delhi.
- Bruce Mitchell "Geography and resources analysis" John Willey and sons, New York.
- C.D. Deshpande, "Geography of Maharashtra" National Book Trust of India, New Delhi.
- Cutler L, Renwick H.L. Exploitation conservation and preservation: A Geographical perspective and natural resource use, Rowman and Allanhd, Towata.
- Govt. of Maharashtra "Economic development of Maharashtra", Economic Development Council.
- Dixit K.R., "Maharashtra in Maps"
- Deshpande, S.H. "Economy of Maharashtra"
- Annual Socio-Economic Abstracts, (1951 to 2011, all concern districts), Govt of Maharashtra.
- RBS, 2014, Visitors Guide India: Maharashtra, Publisher: Data And Expo India Pvt. Ltd.; Revised edition (2014), ISBN-10: 9380844093.
- Road Atlas Maharashtra (English), Samarth Udyog Prakashan.
- Prof. Sangle Shailaj, 2015, Paryatan Bhugol, Tourism Geography, Diamond Publication Pune.

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## SGEO-CP2451 Practical in Agriculture Geography

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-CP2451	Practical in Agriculture Geography	--	01	01	--	02

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA	CA	ESA	
		Classes Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total			
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-CP2451	Practical in Agriculture Geography	--	--	--	--	--	10	15	25

## SGEO-CP2451 Practical in Agriculture Geography: Curriculum Details

### Course Pre-requisite:

- The candidate should know the basic concepts from Agricultural Geography. The candidate should be able to solve the mathematical problems/ equations for calculating various types of index relating to agriculture.

### Course Objectives:

- The objectives of this paper are, to understand the basic concepts of Agricultural Geography, to study the principles and fundamental things of agricultural studies. Its prime aim is to understand and be capable to correlate the things with number of parameters related to agrarian studies.

### Course Outcomes:

- After completion of the paper / course, the students will get capabilities and skills to correlate and calculate values of parameters of agriculture with geo-scientific methods.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
<b>1.0</b>	<b>1.1</b>	To calculate: Ranks and prepare a ranking table of Crops	<b>7</b>
	<b>1.2</b>	To calculate: Crop Combination by Weaver's Technique	
	<b>1.3</b>	To calculate: Crop Intensity	
	<b>1.4</b>	To calculate: Agricultural Density	
<b>2.0</b>	<b>2.1</b>	To calculate: Caloric Density	<b>7</b>
	<b>2.2</b>	To calculate: Nutritional Density	
	<b>2.3</b>	To calculate: Economic Density	
	<b>2.4</b>	To calculate: Marginal Resource Density	
<b>3.0</b>	<b>3.1</b>	To calculate: Index of Agricultural Efficiency	<b>8</b>
	<b>3.2</b>	To calculate: Agricultural Productivity	
	<b>3.3</b>	To calculate: Index of Area under Crop	
	<b>3.4</b>	To calculate: Index of Net Area Sown	
<b>4.0</b>	<b>4.1</b>	To calculate: Index of Cropping Pattern	<b>8</b>
	<b>4.2</b>	To calculate: Index of Yield	
	<b>4.3</b>	To calculate: Index of Productivity per Hectare of Net Area	
	<b>4.4</b>	To calculate: Relative Yield index	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>30</b>

### Text Books & Reference Books:

- Aiyer, A.K.Y.N. (1949) – Agricultural and Allied Arts in Vedic India.
- Grigg. D.G. (1974) – The Agricultural Systems of the world An Evolutionary Approach.
- Grigg. D.G. (1964) – An Introduction to Agricultural Geography Hutchinson & Co.Ltd.,
- Illbery, B.W. (1985) – Agricultural Geography, Social & Economic Analysis, Oxford University Press.
- Morgan. W.B. & S.C. Monton (1971) – Agricultural Geography Methuen, London.
- Randhawa, M.S. (1980) – A History of Agriculture in India Vols. I, II, III, IV ICAR, New Delhi.
- Singh. J. and Dhillon S.S. (1994) – Agricultural Geography. Tata McGraw Hill, Publishing Co. Ltd.
- Symons, Leslie (1970) – Agricultural Geography, G. Belt and Sons Ltd., London.
- Tarrent, J.R. (1970) – Agricultural Geography, David and Charles, Newton Abbot.

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## SGEO-CP2452 Practical in Economic Geography

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-CP2452	Practical in Economic Geography	--	01	01	--	02

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA	CA	ESA	
		Classes Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total			
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-CP2452	Practical in Economic Geography	--	--	--	--	--	10	15	25

### SGEO-CP2452 Practical in Economic Geography: Curriculum Details

#### Course Pre-requisite:

- Practical knowledge about economic activities, geographical factors and their relationship with economical activities and economical development leads to social developments.

#### Course Objectives:

- The objectives of the course are to understand and develop the skill about economic activities of human and how geographical factors are responsible for different economic activities on the earth surface.

#### Course Outcomes:

- After completion of the course the student gets practical knowledge about the economical activities are related to geographical factors and various theories and models of economic developments.
- On successful completion of the module, students should be capable of representation economical geographical data with cartographic techniques and how to represent the data of economic activities.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
1.0	1.1	To understand Methods of Choropleth Maps	7
	1.2	To understand Methods of Dot Maps	
	1.3	To understand various Flow Line Charts	
	1.4	To understand Maps of Transport Flow	
2.0	2.1	To prepare Choropleth Maps	7
	2.2	To prepare Dot Maps	
	2.3	To draw a Flow Line Charts	
	2.4	To draw a Map showing Transport Flow	
3.0	3.1	To use a two-dimensional figure in Maps: Circle	8
	3.2	To use a two-dimensional figure in Maps: Divide Circle	
	3.3	To use a two-dimensional figure in Maps: Sphere	
	3.4	To use a three-dimensional figure in Maps: Cubes	
4.0	4.1	To apply Location quotient for analysis of Industry	8
	4.2	To apply Lorenze Curves and draw a figure	
	4.3	To apply Gini's Coefficient and draw a figure	
	4.4	To prepare a list of key points of industrial visit report	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>30</b>

### Text Books & Reference Books:

- Lawrence, G.R.P. (1973): Cartographic methods, Methuen & Co. London.
- Mishra, R.P. (1982): Fundamentals of cartography, Prasaranga, University of Mysore.
- Monkhouse, F.J.R & Wilkinson, H.R: Maps & diagrams, Methuen & company, London.
- Raisz, Erwin: Principles of cartography, McGraw – hill Book Co., New York.
- Robinson A.H. & Sale R.D. Element of Cartography, John House & Sons Ltd., London.
- Singh R. L. Elements of Practical Geography.

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## SGEO-CP2453 Practical in Remote Sensing

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-CP2453	Practical in Remote Sensing	--	01	01	--	02

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA	CA	ESA	
		Class Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total			
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-CP2453	Practical in Remote Sensing	--	--	--	--	--	10	15	25

### SGEO-CP2453 Practical in Remote Sensing: Curriculum Details

#### Course Pre-requisite:

- Basic knowledge about 10 level physics and having the knowledge of geographical factors.

#### Course Objectives:

- The objective of this course is to develop the skill of the remote sensing and use of remote sensing in the geography.

#### Course Outcomes:

- After completion of the course, the students get capabilities and skills on remote sensing and application of the remote sensing in geography and map making.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
1.0	1.1	Indexing of aerial photographs	7
	1.2	Introduction to vertical aerial photographs and its geometry	
	1.3	Introduction to stereoscopes: Stereoscopic Vision test	
	1.4	Introduction to stereoscopes: Orientation & Construction of 3-D model under Pocket stereoscope	
2.0	2.1	Introduction to stereoscopes: Orientation & Construction of 3-D model under Mirror Stereoscope	7
	2.2	Determination of scale: By establishing relationship between Photo distance and Ground distance	
	2.3	Determination of scale: By establishing relationship between Photo distance and Map distance	
	2.4	Determination of scale: By establishing relationship between Focal length and Flying height	
3.0	3.1	Determination of Scale of Vertical Aerial Photograph	8
	3.2	Calculation of Relief Displacement, Object height determination from relief Displacement	
	3.3	Introduction to Parallax Bar & Object Height Determination	
	3.4	Calculation of Photo coverage Area	
4.0	4.1	Visual Interpretation and Mapping of Aerial photographs	8
	4.2	Interpretation & Annotations of Satellite image	
	4.3	Visual interpretation of satellite image	
	4.4	Digital Image Processing: Techniques, Enhancement, Image classification: Supervised and unsupervised	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>30</b>

### Text Books & Reference Books:

- Agarwal, C.S. and Garg, P.K. 2000. Textbook of Remote Sensing in Natural Resources Monitoring and Management. New Delhi: Wheeler Publishing.
- Jensen, John R. 2000. Remote Sensing of the Environment – An Earth Resource Perspective. Pearson Education (First Indian Edition, 2003).
- Rampal, K.K. 1999. Handbook of Aerial Photography and Interpretation. New Delhi: Concept Publishing Company.
- Rampal, K.K. 1999. Handbook of Aerial Photography and Interpretation. New Delhi: Concept Publishing Company.
- Floyd, F. Sabins, Jr. (1986): Remote Sensing: Principles and Interpretation, W.H. Freeman, N.Y.
- M. Anjji Reddy (2015): Remote Sensing & Geographical information system, BS-Publication, Hyderabad

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## SGEO-EP2451 Soil Analysis

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-EP2451	Soil Analysis	--	01	01	--	02

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA	CA	ESA	
		Class Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total			
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-EP2451	Soil Analysis	--	--	--	--	--	10	15	25

## SGEO-EP2451 Soil Analysis: Curriculum Details

### Course Pre-requisite:

- The candidate should know the basic concepts of soil geography and agricultural geography. The candidate should have an experience to work in the field and laboratory. He / she should know the rules and regulations of field and laboratory work.

### Course Objectives:

- The objectives of this paper are, to understand the basic concepts of soil sciences and its relation with agricultural practices. The prime aim is to develop scientific approach to the students for studying the soil in the field and with the laboratory tests.

### Course Outcomes:

- The candidate will work in the field of agricultural geography with field and laboratory experiences, which will be purely science base. In the field research, he/ she will correlate the things of farm (crops) with the type of soil.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
1.0	1.1	To select the Farm / Agricultural Land for Soil Sample Collection.	7
	1.2	To collect the representative soil sample.	
	1.3	To understand the methods of processing and handling of soil sample in the laboratory.	
	1.4	To understand the type of Physical & Chemical Soil analysis methods.	
2.0	2.1	To understand the Analytical instruments.	7
	2.2	To Understand the Principles of pH and Conductivity Meter.	
	2.3	To determine soil pH of collected samples.	
	2.4	To determine the Electric Conductivity of soil.	
3.0	3.1	To determine the available Nitrogen and Phosphorous in Soil.	8
	3.2	To determine the available Potassium and Sulphur in Soil.	
	3.3	To determine the exchangeable Ca and Mg in Soil.	
	3.4	To determine the Bulk Density	
4.0	4.1	To estimate soil moisture (Direct / Gravimetric Method).	8
	4.2	To determine the Soil Organic Carbon.	
	4.3	To determine Grain Size of Soil by Wet Grain Size Sieve Analysis Method.	
	4.4	To determine Grain Size of Soil by Dry Grain Size Sieve Analysis Method.	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>30</b>

### Text Books & Reference Books:

- Soil Analysis: Handbook of Reference Methods, Published by Soil and Plant Analysis Council Inc.
- Robert W. Day, 2001, Soil Testing Manual: Procedures, Classification Data, and Sampling Practices, Publisher: McGraw-Hill Education, ISBN-10: 9780071363631, ISBN-13: 9780071363631, ASIN: 0071363637
- Susanta Kumar Pal, 2019, Methods of Soil and Plant Analysis, ISBN : 9789387973589
- Ashok Kumar V. Rajani, 2019, Comprehension Book of Soil Science Laboratory Analysis, ISBN : 9789387590724
- Ajit Kumar Kolay, 2017, Basic Concepts of Soil Science, Publisher: Newage publishers

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## SGEO-EP2452 Landforms

### Course Structure: Major (DSC) 1 – Teaching Scheme

Course Code	Course Name	Credits Assigned			Teaching Scheme (Hours / Week)	
		Theory	Practical	Total	Theory	Practical
SGEO-EP2452	Landforms	--	01	01	--	02

### Course Structure: Major (DSC) 1 – Assessment Scheme

Course Code	Course Name	Theory					Practical		Total Col (7+8) / Col (9+10)
		Continuous Assessment (CA)			CA	ESA	CA	ESA	
		Class Test	Assignment, Presentation, Viva, Quiz etc.	Attendance	Total	Total			
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SGEO-EP2452	Landforms	--	--	--	--	--	10	15	25

## SGEO-EP2452 Landforms of Maharashtra: Curriculum Details

### Course Pre-requisite:

- The candidate should know the basic concepts from physical set-up, topographical and changes in landforms and slope with background of natural movements. The candidate should know the basics about the SOI maps. The candidate should have some conceptual understanding about the Physical Geography, Geomorphological Processes and mainly landforms and slope.

### Course Objectives:

- The objective of this paper is to understand and be capable to observe and note the endogenic and exogenic forces their processes in the field studies. In addition, the objectives of this practical paper are to understand the spatio-temporal changes in the landforms and slope and their effects on various aspects of the concerned topography. It is also aims to see the influencing factors of the same.

### Course Outcomes:

- After completion of the paper / course, the students will get capabilities and skills to correlate the natural cycles and manmade activities at primary level. After completion of this practical paper, the student will assess the changes of any aspect of landforms and slope with proper scientific and statistic methods. He / she will draw a multi-applicable and suitable plan for the future changes.

## Curriculum Details (Four Modules with Units & Topics)

Module No.	Unit No.	Topic	Hours required to cover the contents
1.0	1.1	To use counters for relief representation of Hill	7
	1.2	To use counters for relief representation of Ridge	
	1.3	To use counters for relief representation of Saddle	
	1.4	To use counters for relief representation of Col	
2.0	2.1	To use counters for relief representation of Pass	7
	2.2	To use counters for relief representation of Spur	
	2.3	To use counters for relief representation of Plateau	
	2.4	To use counters for relief representation of Escarpment	
3.0	3.1	To use counters for relief representation of Cliff	8
	3.2	To use counters for relief representation of V-Shaped Valley	
	3.3	To use counters for relief representation of River Terraces	
	3.4	To draw a cross profile & a longitudinal profile	
4.0	4.1	To understand and draw a type of slope: Steep and Gentle	8
	4.2	To understand and draw a Concave and Convex Slope	
	4.3	To understand and draw a Uniform and Uneven Slope	
	4.4	To understand and draw a type of slope: Terraced	
<b>Total Hours (1 hour = 60 minutes)</b>			<b>30</b>

### Text Books & Reference Books:

#### In English

- King, C. A.M (1966): Techniques in Geomorphology, Edward Arnold, London
- Monkhouse, F. J. and Wilkinson, H. R., (1976). Maps and Diagrams, Methuen & Co.
- Savindra Singh (2002): Geomorphology, Prayag Pustak Bhawan, Allahabad
- Miller, Austin (1953): The skin of the Earth, Methuen & Co. Ltd. London
- Thornbury, W. D. (1960): Principles of Geomorphology, John Wiley and Sons, New York.
- Chorley, R. J., Schumm, S. A. and Sugden, D. E. (1984): Geomorphology, Methuen, London.
- Savindra Singh (2002): Geomorphology, Prayag Pustak Bhawan, Allahabad
- Spark B. W. (1972): Geomorphology, Longman, New York
- Ollier, C. D. (1981) Tectonics and Landforms, Longman, London
- Strahler A. H and Strahler, A. N. (1992): Modern Physical Geography, John Wiley, New York
- Fairbridge, R. W. (1968): Encyclopedia of Geomorphology, Reinholdts, New York.

#### In Marathi

- Dhoble Shital and others (2017): Geomorphology (in Marathi), Nirali Prakashan, Pune
- Chaudhari Dr SR and Gavit (2015): Geomorphology (in Marathi), Prashant Publications, Jalgaon
- Karlekar Shrikant (2015): Physical Geography and Geomorphology, (in Marathi), Daimand, Pune.
- Pathare and Gajhans (2015): Physical Geography (in Marathi), Vidya Books, Aurangabad.

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## Guidelines for Course Assessment:

### A. Continuous Assessment (CA) (40% of the Maximum Marks):

Sr. No.	Continuous Assessment Modes	For 4 credit Subject (Marks)	For 3 credit Subject (Marks)	For 2 credit Subject (Marks)
1	Class Test	20	15	10
2	Assignment, Presentation, Viva, Quiz, Open Book Test, etc	12	9	6
3	Attendance	8	6	4
Total		40	30	20

### B. End Semester Examination / Assessment (60% of the Maximum Marks):

Sr. No.	End Semester Assessment (ESA)	For 4 credit Subject (Marks)	For 3 credit Subject (Marks)	For 2 credit Subject (Marks)
1	Theory – Written Exam (Question Paper)	60	45	30

*(For illustration we have considered a paper of 04 credits, 100 marks and need to be modified depending upon credits of an individual paper)*

1. ESA Question paper will consists of 6 questions, each of 15 marks.
2. Students are required to solve a total of 4 Questions.
3. Question No.1 will be compulsory and shall be based on entire syllabus.
4. Students need to solve ANY THREE of the remaining Five Questions (Q.2 to Q.6) and shall be based on entire syllabus.

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