



# **Tuljaram Chaturchand College, Baramati**

*Autonomous College*

**Two Year Degree Program in Geography**

**(Faculty of Science & Technology)**

Syllabus for

M.A./M.Sc. (Geography) Part-I Sem. I

**For Tuljaram Chaturchand College, Baramati**

**Choice Based Credit System Syllabus**

**To be implemented from Academic Year 2019-2020**

**Title of the Course: M.A. /M.Sc. (Geography)****Introduction:**

Tuljaram Chaturchand College has decided to change the syllabi of various faculties from June,2022. Taking into consideration the rapid changes in science and technology and new approaches in different areas of Geography and related subjects, Board of Studies in Geography of Tuljaram Chaturchand College, Baramati - Pune has prepared the syllabus of M.Sc./M. A. Semester - I and Geography course under the Choice Based Credit System (CBCS). The model curriculum as developed by U.G.C. is used as a guideline for the present syllabi.

A Master degree in geography will provide you the knowledge and skills you need to begin a variety of rewarding careers. Geographers work as urban planners, GIS technicians and analysts, disaster preparedness planners, teachers, environmental scientists, remote sensing analysts, transportation planners, demographers, hydrologists and in a variety of other areas. Students who complete Master degree in Geography, courses will examine the spatial organization of physical features and human activities at a variety of spatial scales from local to global. Students will be able to locate features on the surface of the earth, explain why they are located where they are, and describe how places are similar and/or different. Students will also examine human interactions with the environment and describe how physical and cultural landscapes change through time. Students completing physical geography courses will be able to describe the processes that drive earth's climate, create landforms, and govern the distribution of plants and animals. Students completing human geography will analyze and describe cultural phenomenon such as population, development, agriculture, language, and religion.

. Aims and Objectives of the new curriculum:

- i) To maintain updated curriculum.
- ii) To take care of fast development in the knowledge of Geography.
- iii) To enhance the quality and standards of Geography Education.
- iv) To provide a broad common frame work, for exchange, mobility and free dialogue across the Indian Geography and associated community.
- v) To create and aptitude for Geography in those students who show a promise for higher studies and creative work in Geography.

To create confidence in others, for equipping themselves with that part of Geography which is needed for various branches of Sciences or Humanities which they have aptitude for higher studies and original work.

**Programme outcomes (Pos) M.A.:**

PO1	<p><b>Research-Related Skills and Scientific temper:</b></p> <p>Infer scientific literature, build a sense of enquiry and be able to formulate, test, analyse, interpret and establish hypothesis and research questions; and to identify and consult relevant sources to find answers. Able to plan and write a research paper/project while emphasizing on academics and research ethics, scientific conduct and creating awareness about intellectual property rights and issues of plagiarism.</p>
PO2	<p><b>Effective Citizenship and Ethics:</b></p> <p>Demonstrate empathetic social concern and equity centred national development and act with an informed awareness of moral and ethical issues and commit to professional ethics and responsibility</p>
PO3	<p><b>Social competence and communication skills:</b></p> <p>Demonstrate ability to accommodate the views of others and present their own opinions and complex ideas, in written or oral form, in a clear and concise manner in group settings. Exhibit thoughts and ideas effectively in writing and orally; communicate with others using appropriate media, build effective interactive and presenting skills to meet global competencies. Elicit views of others, present complex information in a clear and concise and help reach conclusion in group settings.</p>
PO4	<p><b>Disciplinary Knowledge:</b> Demonstrate comprehensive knowledge and a strong theoretical grounding in their area of work.</p>
PO5	<p><b>Personal and professional competence:</b></p> <p>Perform independently and also collaboratively as a part of a team to meet defined objectives and carry out work across interdisciplinary fields. Execute interpersonal relationships, self-motivation and adaptability skills and commit to professional ethics.</p>

PO6	<p><b>Self-directed and Life-long Course:</b></p> <p>Demonstrate attitudes of being a life-long learner who passionately pursues self determined goals in the broadest context of socio-technological changes. Acquire the ability to engage in independent and life-long Course in the broadest context of socio technological changes.</p>
PO7	<p><b>Environment and Sustainability:</b></p> <p>Understand the impact of the scientific solutions in societal and environmental contexts and demonstrate the knowledge of and need for sustainable development.</p>
PO8	<p><b>Critical Thinking and Problem solving:</b></p> <p>Identify problems by closely examining the situations around them and think holistically about the phenomena and generate viable solutions to these problems. Exhibit the skill of critical thinking and understand scientific texts and place scientific statements and themes in contexts and also evaluate them in terms of generic conventions. Identify the problem by observing the situation closely, take actions and apply lateral thinking and analytical skills to design the solutions.</p>

# Tuljaram Chaturchand College, Baramati

*Autonomous College*

## Board of Studies in Geography

From 2019-20 To 2021-22

Sr. No.	Name of Member	Designation
1.	<b>Dr. Asaram S. Jadhav</b> Head & Assistant Professor, Department of Geography, T. C. College, Baramati.	Chairman
2.	<b>Dr. Arun S. Magar,</b> Assistant Professor, Department of Geography, T. C. College, Baramati	Internal Member
3.	<b>Mr. V. H. Madane</b> Assistant Professor, Department of Geography, T. C. College, Baramati	Internal Member
4.	<b>Mr. Vinayak D. Chavan</b> Assistant Professor, Department of Geography, T. C. College, Baramati	Internal Member
5.	<b>Mr. Prashant A. Shinde</b> Assistant Professor, Department of Geography, T. C. College, Baramati	Internal Member
6.	<b>Ms. Nayan D. Zagade</b> Assistant Professor, Department of Geography, T. C. College, Baramati	Internal Member
7.	<b>Dr. Amit Dhorade</b> Professor, Department of Geography, Savitribai Phule Pune University, Pune.	External Member Vice-Chancellor Nominee
8.	<b>Dr. Avinash Kadam</b> Associate Professor, Department of Earth Science, Sant Gadagebaba University, Nanded	External Member from other University
9.	<b>Dr. T. P. Shinde</b> Head & Associate Professor, Dept. of Geography, Mudhoji College, Phaltan	External Member from other University
10.	<b>Dr. Ramesh Nanware</b> President, Geo- Solution PVT. LTD. Pune	Industrialist
11.	<b>Dr. Jawahar L. Chaudhari</b> Associate Professor, Department of Geography, M. S. Kakade College, Someshwarnagar, Baramati.	Meritorious Alumni

**Semester – I**

<b>Sr. No.</b>	<b>Course Code</b>	<b>Core Compulsory Theory Paper (CCTP)</b>	<b>Choice Based Optional Paper (CBOP)</b>	<b>Core Compulsory Practical Paper (CCPP)</b>	<b>Credit</b>
1	GEO-4101	Principles of Geomorphology	-	-	04
2	GEO-4102	Principles of Climatology	-	-	04
3	GEO-4103	Principles of Economic Geography	-	-	04
4	GEO-4104	Principles of Population and Settlement Geography	-	-	04
5	GEO-4105	-	-	Practical in Physical an Geography	04
6	GEO-4106	-	-	Practical in Human Geography	04
				<b>Total Credits</b>	<b>24</b>

## Semester – II

Sr. No.	Course Code	Core Compulsory Theory Paper (CCTP)	Choice Based Optional Paper (CBOP)	Theory / Practical	Credit	Core Compulsory Practical Paper (CCPP)	Credit	
1	GEO- 4211	Geoinformatics - I					04	
<b>One of the following according to specialization from CCTP</b>								
2	GEO-4201	Coastal Geomorphology	-	-	04	-	04	
	GEO-4204	Population Geography	-	-	04	-		
<b>One of the following according to specialization from CCTP</b>								
3	GEO-4202	Fluvial Geomorphology	-	-	04	-	04	
	GEO-4205	Geography of Rural Settlements	-	-	04	-		
<b>Optional Paper ( CBOP ) ( 1 Theory + 1 Practical )</b>								
4		Give 4	GEO-4212	Geography of Disaster Management	04		04	
			GEO-4213	Practical in Surveying	04		04	
<b>Core Compulsory Practical Paper (CCPP)</b>								
5						GEO-4214	Practical of Statistical Techniques for Geography	04
<b>Total Credits of Semester - II</b>							<b>24</b>	



**Semester – III**

<b>Course Code</b>	<b>Core Compulsory Theory Paper (CCTP)</b>	<b>Choice Based Optional Paper (CBOP)</b>	<b>Theory / Practical</b>	<b>Credit</b>	<b>Core Compulsory Practical Paper (CCPP)</b>	<b>Credit</b>
GEO-5311	Geoinformatics-II	-	-	04	-	04
GEO-5312	Geographical Thoughts	-	-	04	-	04
<b>One of the following according to specialization from CCTP</b>						
GEO-5301	Tropical Geomorphology	-	-	04	-	04
GEO-5304	Urban Geography	-	-	04	-	04
<b>Choice Based Optional Paper (CBOP) ( 1Theory + 1Practical )</b>						
		GEO-5313	Practical in Geoinformatics	04	-	04
		GEO-5314	Watershed Management	04	-	04
<b>One of the following according to specialization from CCPP</b>						
				GEO-5302	Practical in Geomorphology	04
				GEO-5305	Practical in Population and Settlement Geography	04
<b>Total Credits of Semester -III</b>						<b>24</b>

## Semester – IV

	<b>Core Compulsory Theory Paper (CCTP)</b>	<b>Choice Based Optional Paper (CBOP)</b>	<b>Theory / Practical</b>	<b>Credit</b>	<b>Core Compulsory Practical Paper (CCPP)</b>	<b>Credit</b>
GEO-5401	Geography of India	-	-	-	-	04
GEO-5402	Oceanography	-	-	-	-	04
GEO-5403	Biogeography	-	-	-	-	04
<b>Choice Based Optional Paper (CBOP) ( 1Theory + 1Practical )</b>						
		GEO-5411	Geography of Soils	04		08
		GEO-5412	Geostatistics	04		
		GEO-5413	Political Geography	04		
		GEO-5414	Regional Planning	04		
		GEO-5415	Tourism Geography	04		
		GEO-5416	Social Geography	02		
		GEO-5417	Interpretation of Topographical Maps & Village Survey / Project work	04		
<b>Core Compulsory Practical Paper (CCPP)</b>						
				GEO-5406	Dissertation / Research Project	04
<b>Total Credits of Semester - IV</b>						<b>24</b>

## Mandatory 12 additional/ add-on credits for Post Graduate Programmes

### Note:

1. 6 credits from Group - 1 are compulsory
2. Choose minimum 6 credits from Group - 2 to Group - 7

Group-1	Human Rights Awareness Course (Semester-I):		02 credit
	Cyber Security Awareness Course (Semester-I)		02 credit
	Cyber Security Awareness Course (Semester-II)		02 credit
Group-2 Skill Component Courses	1. Subject Related Certificate Course (Sem. II)		02 credits
	2. Subject Related skill development courses (Sem. III)		02 credits
	3. Subject Related skill development courses (Sem. IV)		02 credits
Group-3	(a)	Representation in Sports at University Level	02 credits
	(b)	Representation in Sports at State Level / National level	02 credits
	(c)	Representation in Sports at International (overseas) Level	04 credits
Group-4	(a)	Selection in AVISHKAR at University Level	02 credits
Group-5	(a)	Research paper publication at National level	02 credits
	(b)	Research paper publication at International (overseas) level	02 credits
Group-6	(a)	Participation in Summer School/ Internship programme / Short term course (not less than 2 weeks duration)	02 credits
Group-7	(a)	Participation in cultural and co curricular activities/ extracurricular activities/competitions at University level / State Level	02 credit
	(b)	Participation in cultural and cocurricular activities / extracurricular activities/ competitions at International (overseas) level	02 credits

**Note : 1) One Credit = 15 Lectures.**

**2) The Project should be initiated at on the onset of III Semester and submitted during IV**

**Semester.**

**3) FY/SY --> 4 Lectures per week.**

**4) Theory paper be covered with 70% actual teaching (3 actual lectures per week) and 30%**

**Component (1 lecture per week) of self-study should be further evaluated through Group**

**Discussion / Seminar / Open Book Test / MCQ / Essay writing / Assignment etc.**

**M.A./M.Sc. Geography, Syllabus for Semester I****Subject: Principles of Geomorphology****Subject Code: GEO-4101****No. of Credits: 04**  
-----**Course Objectives:**

1. To describe the concept of drainage basin and stream network.
2. To understand the basic laws and models of the fluvial process.
3. To discuss characteristics of drainage basin hydrology.
4. To apply quantitative methods to measure and assess fluvial processes and landforms.
5. To analyze the role of fluvial processes in shaping landscapes.
6. To explain the factors influencing the formation and evolution of river channels.
7. To identify the flow types and measure the velocity of the river flow.

**Course Outcomes:**

After the completion of the course, Students will be able to understand the current issues in Human geography. Specifically Human geography focused on population and agriculture.

1. Accurately describe the concept of a drainage basin and stream network, including their Component and interconnectedness.
2. Demonstrate a comprehensive understanding of the basic laws and models of fluvial Processes, enabling them to explain and apply them to real-world scenarios.
3. Discuss the characteristics of drainage basin hydrology, including aspects such as Precipitation runoff, and stream flow patterns.
4. Identify different flow types within a river system.
5. Analyze the role of fluvial process.
6. Explain in detail the factors influencing the formation and evolution of river channels.
7. Utilizing appropriate measurement techniques and tools.

**Semester-I****GEO-4101: Principles of Geomorphology**

No. of credits-04 No. of lectures- 60

<b>Unit No.</b>	<b>Unit Name</b>	<b>Lectures</b>
1	<b>Introduction to Geomorphology</b> 1.1 Definitions, Nature and Scope of 1.2 Geomorphology 1.3 History of Geomorphology 1.4 Basic concepts in Geomorphology 1.5 Branches of Geomorphology 1.6 Hierarchy of spatial and temporal scales in 1.7 Geomorphology 1.8 Geologic timescale	6
2	<b>Geomorphology and Tectonics</b> 2.1 Internal structure of the Earth: Layers based on physical and chemical properties 2.2 Seismic waves and types Wegener's Continental Drift Theory 2.3 Theory of Plate Tectonics and associated landforms 2.4 Holmes Convectional Current Theory 2.5 Gravity and Isostasy 2.6 Paleomagnetism 2.7 Folds: Types and landforms 2.8 Faults: Types and landforms	8
3	<b>Weathering and Mass Movement Processes Weathering:</b> 3.1 Types and related landforms 3.2 Mass Movement: Types of mass movement	6
4	<b>Hill slopes</b> 4.1 Hill slope processes and forms 4.2 Models of hill slope evolution	8
5	<b>Fluvial Processes and Landforms</b>	8

	<p>5.1 Genetic classification of streams</p> <p>5.2 Playfair' slaw</p> <p>5.3 River and stream, drainage basin and drainage network patterns</p> <p>5.4 River processes: erosion, transportation and deposition</p> <p>5.5Fluvial landforms: erosional and depositional</p> <p>Davisian Cycle of Erosion</p>	
6	<p><b>Glacial Processes and Landforms</b></p> <p>6.1 Glacial system: Types of glaciers</p> <p>6.2 Glacial processes: erosion, transportation and deposition</p> <p>6.3 Glacial landforms: erosional and depositional</p>	8
7	<p><b>Coastal Processes and Landforms</b></p> <p>7.1 Sea waves, currents and tides</p> <p>7.2 Coastal processes: erosion, transportation and deposition</p> <p>7.3 Coastal landforms: erosional and depositional</p>	8
8	<p><b>Aeolian Processes and Landforms</b></p> <p>8.1 Aeolian environment</p> <p>8.2 Wind processes: erosion, transportation and deposition</p> <p>8.3 Aeolian landforms: erosional and depositional</p> <p>8.4 Work of water in desert and landforms</p>	8

**Reference Books:**

- **Bloom, A.L. (2012):** Geomorphology- A Systematic Analysis of Late Cenozoic Landforms, Prentice-Hall of India, New Delhi
- **Chorley, R.J., Schumm, S. A. and Sugden, D. E. (1984):** Geomorphology, Methuen, London.
- **Gregory, K.J. and Goudie, A.S. (2014):** The SAGE Handbook of Geomorphology, SAGE, London.
- **Christiansen E.H. and Hamblin, W.K. (2008):** The Earths dynamic systems Macmillan, New York and Collier Macmillan London.
- **Holmes, (1944):** Principles of Physical Geology, Thomas Nelson and Sons Ltd, London.
- **Huggett, R.J. (2008):** Fundamentals of Geomorphology, Routledge, London and New York.
- **Goudie A.S. (2004):** Encyclopedia of Geomorphology, Routledge, London and New York.
- **Kale, V.S. (2014):** Landscapes and Landforms of India, Springer, London/New York.
- **Kale, V.S. and Gupta, A. (2010):** Introduction to Geomorphology, Universities Press, Hyderabad
- **Migon, P. (2010):** Geomorphological Landscapes of the World, Springer, London/New York.
- **Ollier, C.D. (1981):** Tectonics and Landforms, Longman, London.
- **Singh, S. (2011):** Geomorphology, Prayag Pustak Bhawan, Allahabad.
- **Siddhartha, K. (2001):** The Earth's dynamic surface, Kisalaya, Delhi.
- **Spark, B.W. (1972):** Geomorphology, Longman, New York.
- **Steers, A. (1958):** The Unstable Earth, Methuen, London.
- **Strahler, A.H. and Strahler, A.N. (1992):** Modern Physical Geography, John Wiley, New York.

## Choice Based Credit System Syllabus (2019 Pattern)

**Mapping of Program Outcomes with Course Outcomes****Class:** M.A./MSc. Geography I**Subject:** Geography**Course:** Principles of Geomorphology**Course Code:** GEO 4101**Weightage:** 1= Weak or low relation, 2= Moderate or partial relation, 3= Strong or direct relation

Course Outcomes	Program Outcomes (POs)							
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1				3				
CO 2		2						
CO 3				3				
CO 4				2				
CO 5		2				2	2	
CO 6						2		
CO 7						2		

**Justification for the mapping****PO 2: Effective Citizenship and Ethics:**

CO2- A comprehensive understanding of fluvial processes empowers citizens to make informed decisions, promote sustainable practices, and advocate for ethical policies that safeguard water resources and the broader environment. This knowledge is essential for effective citizenship and contributing to a more sustainable and ethically responsible society.

CO5- The role of fluvial processes in effective citizenship and ethics is centered around informed decision-making, responsible behaviors, and active participation in the protection and sustainable management of river systems. By understanding and respecting fluvial dynamics, citizens contribute to a more resilient, sustainable, and ethically conscious society.

**PO4: Disciplinary Knowledge:**

CO1- The concept of a drainage basin and its interconnected components is fundamental to disciplines such as hydrology, geography, environmental science, and civil engineering. It provides a framework for understanding water movement, managing water resources, and making informed decisions about land use and environmental conservation.



CO3-Understanding the characteristics of drainage basin hydrology, including precipitation, runoff, and stream flow patterns, is essential for various disciplines such as hydrology, meteorology, civil engineering, and environmental science. This knowledge contributes to effective water resource management, flood prediction, and the sustainable development of watersheds.

CO4- Understanding these different flow types within a river system is crucial for disciplines such as hydrology, ecology, geology, civil engineering, and environmental science. This knowledge contributes to effective water resource management, sustainable river basin planning, and the preservation of aquatic ecosystems.

**PO 6: Self-directed and life-long Course:**

CO5-The role of fluvial processes in self-directed and lifelong Course is instrumental in fostering interdisciplinary knowledge, critical thinking, problem-solving skills, adaptability, and an appreciation for the environment. Individuals who engage in continuous Course about fluvial systems are better equipped to navigate a world shaped by complex interactions between human activities and natural processes.

CO6- Studying the factors influencing the formation and evolution of river channels is not only intellectually stimulating but also empowers individuals to become lifelong learners with a deep appreciation for Earth's dynamic processes and the interconnectedness of natural systems.

CO7- Utilizing measurement techniques and tools is not only instrumental in acquiring specific knowledge within a discipline but also in developing a range of transferable skills. These skills, acquired through self-directed and lifelong Course, empower individuals to navigate a dynamic and ever-changing world, fostering adaptability, critical thinking, and continuous personal and professional growth.

**PO7: Environment and Sustainability:**

CO7- Fluvial processes is central to environmental sustainability. Understanding and managing these processes contribute to responsible land use, the protection of ecosystems, and the sustainable use of water resources. By incorporating this knowledge into

environmental policies and practices, communities can strive to achieve a balance between human needs and the preservation of natural systems, ensuring the long-term health and resilience of river ecosystems and the broader environment.

**M.A./M.Sc. Geography, Syllabus for Semester I****Subject: Principles of Climatology****Subject Code: GEO-4102****No. of Credits: 04**  
-----**Course Objectives:**

1. To make student well aware of the basic concept of climatology.
2. To understand the theories of evolution of earth and atmosphere.
3. To understand the laws of radiation and interaction with atmosphere.
4. To understand composition and structure of atmosphere.
5. To recognize factors affecting solar radiation and temperature.
6. To study global wind circulation and wind pattern.
7. To understand the types of air masses and fronts.

**Course Outcomes:**

After the completion of the course, Students will be able to understand the current issues in Human geography. Specifically Human geography focused on population and agriculture.

1. Understand the various concepts of climatology.
2. Understand how the atmosphere and earth evolved over a time.
3. Aware about the laws of radiation and how solar radiation does interacts with atmosphere.
4. Understand by which component atmosphere are composed and different layers of atmosphere.
5. Understand which factor affects the solar radiation distribution on earth surface.
6. Understand the global wind circulation and wind pattern.
7. Identify ideal sources region of air masses and front and weather conditions associated with fronts.

**Semester-I****GEO-4101: Principles of Climatology**

No. of credits-04 No. of lectures- 60

<b>Unit No.</b>	<b>Unit Name</b>	<b>Lectures</b>
1	Introduction to Climatology 1.1 Meteorology and Climatology 1.2 Nature and Scope of Climatology 1.3 Development of Climatology 1.4 Tropical Climatology	06
2	Earth's Atmosphere 2.1 Evolution 2.2 Structure and composition of atmosphere 2.3 The ozone layer depletion 2.4 Aurora -types	08
3	In solution 3.1 Solar and terrestrial radiation 3.2 Electromagnetic spectrum 3.3 Factors affecting in solution 3.4 Latitudinal and seasonal variation 3.5 Effect of atmosphere 3.6 Greenhouse effect 3.7 Heat budget 3.8 Mechanisms of heat transfer	10
4	Temperature 4.1 Heat and temperature 4.2 Temperature measurements and controls 4.3 Lapse rate 4.4 Temperature inversion 4.5 Types of inversion	06
5	Atmospheric Pressure and Winds Pressure measurement and distribution Factors affecting distribution of pressure Wind observation and measurement	12

	<p>Factors affecting wind</p> <p>Geostrophic wind and Gradient wind</p> <p>Models of general circulation of the atmosphere</p> <p>Eddy theory</p> <p>Local winds</p> <p>Jet stream</p> <p>Cyclones and Anticyclones</p>	
6	<p>Atmospheric Moisture</p> <p>Atmospheric moisture</p> <p>Hydrologic cycle</p> <p>Evaporation and condensation</p> <p>Forms of condensation</p> <p>Precipitation</p> <p>Types of precipitation</p> <p>Measurement of humidity</p>	06
7	<p>Atmospheric Stability</p> <p>Lapse Rate: normal, environmental, dry adiabatic lapse rate and wet adiabatic lapse rate</p> <p>Stable and unstable air</p> <p>Absolute stability</p> <p>Absolute instability</p> <p>Conditional instability</p>	06
8	<p>Air Masses and Fronts</p> <p>Introduction to air masses and fronts</p> <p>Types of air masses</p> <p>Types of fronts</p>	06

**Reference Books:**

- **Critchfield, H.J. (Rep. 2010):** General Climatology. Prentice Hall, New Delhi.
- **Lal, D.S. (1998):** 'Climatology', Chaitanya Publishing House, Allahabad.
- **Lutgens, Frederic K. & Tarbuck, Edward J. (2010):** 'The Atmosphere: An Introduction to Meteorology', Pearson Prentice Hall, New Jersey.
- **Oliver, John E. & Hidore, John J. (2003):** Climatology: An Atmospheric Science, Pearson Education, Delhi
- **Savindra Singh (2005):** Climatology, Prayag Pustak Bhawan, Allahabad.
- Trewartha: Introduction to Weather and Climate.
- **More, Pagar, Thorat (2014):** (Marathi), Elements of Climatology & Oceanography, Atharv Publication, Pune

## Choice Based Credit System Syllabus (2019 Pattern)

**Mapping of Program Outcomes with Course Outcomes****Class:** M.A./MSc. Geography I**Subject:** Geography**Course:** Principles of Climatology**Course Code:** GEO 4102**Weightage:** 1= Weak or low relation, 2= Moderate or partial relation, 3= Strong or direct relation

Program Outcomes (POs)								
Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1				2			2	
CO 2							3	
CO 3							2	2
CO 4				3				
CO 5							3	
CO 6				2			2	
CO 7					2			

**Justification for the mapping****PO4: Disciplinary Knowledge:**

CO1- Comprehensive understanding of climatology concepts is highly useful for disciplinary knowledge across a range of fields. It informs decision-making processes, guides sustainable practices, and contributes to addressing the complex challenges associated with climate variability and change.

CO4- Comprehensive understanding of the composition and layers of the atmosphere is essential for various disciplines. It forms the basis for studying weather patterns, climate dynamics, environmental interactions, space exploration, and more, contributing to a holistic understanding of Earth's atmospheric system.

CO6- Knowledge of global wind circulation and wind patterns is a cornerstone for various scientific disciplines. It provides insights into atmospheric dynamics, climate variability, and the interconnectedness of Earth's systems, contributing to advancements in weather forecasting, climate science, environmental management, and the sustainable use of natural resources.

**PO5: Personal and professional competence:**

CO7- Identifying the ideal source regions of air masses and understanding the weather conditions associated with fronts is essential for critical thinking and problem-solving in meteorology and related disciplines. This knowledge informs weather forecasting, emergency response planning, infrastructure design, and various aspects of environmental management, contributing to informed decision-making and the development of effective solutions to weather-related challenges.

**PO7: Environment and Sustainability:**

CO1- A deep understanding of climatology concepts is essential for critical thinking and problem-solving in diverse fields. It enables individuals to analyze complex environmental challenges, evaluate scientific information, and develop practical solutions to address the impacts of climate variability and change.

CO2-Comprehending the Earth's evolution, particularly the changes in its atmosphere, is a cornerstone for critical thinking and problem-solving in addressing contemporary global challenges, encouraging sustainable practices, and fostering advancements across multiple disciplines.

CO3-The laws of radiation and solar radiation's interaction with the atmosphere is fundamental for critical thinking and problem-solving across various fields, from climate science and renewable energy to urban planning, agriculture, health, and beyond. It forms the basis for addressing challenges and creating innovative solutions in a wide array of disciplines.



CO5-Understanding the factors affecting solar radiation distribution empowers critical thinkers to address challenges related to energy, climate, agriculture, construction, and policy-making by considering these influences and devising innovative solutions.

CO6-Comprehending global wind circulation and wind patterns empowers critical thinkers to address challenges in weather prediction, climate modeling, renewable energy, aviation, agriculture, disaster management, urban planning, and various other fields. It provides a foundation for problem-solving and innovation by leveraging the insights derived from these wind dynamics.

**PO7: Critical thinking and problem solving:**

CO3- The laws of radiation and how solar radiation interacts with the atmosphere, critical thinkers can address challenges related to climate change, renewable energy, weather forecasting, environmental impact, health, technology, and design. It serves as a foundation for problem-solving and innovation in diverse fields, facilitating the development of sustainable solutions and informed decision-making.

**M.A./M.Sc. Geography, Syllabus for Semester I****Subject: Principles of Economic Geography****Subject Code: GEO-4103****No. of Credits: 04**

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**Course Objectives:**

1. To make students well aware of the basic concepts of economic geography.
2. To understand theories related to economic geography.
3. To acquaint the knowledge of types labours.
4. To understand economic sector available in India.
5. To recognize factors affecting location of industries.
6. To study major types of industries in India.
7. To understand the types and factors affecting agriculture and recognize the problems of Indian agriculture.

**Course Outcomes:**

After the completion of the course, Students will be able to understand the current issues in Human geography. Specifically Human geography focused on population and agriculture.

1. Demonstrate an understanding of the asset, cost, benefit, analysis, tax, policy, impacts and other economic aspects.
2. Understand the demand of population and availability of raw material.
3. Aware about the labor types, cost, importance and role also in industrial zone.
4. Understand the value of land it proper use.
5. Aware about factors affecting on transport and role of transport in economy of the nation.
6. Recognize factors affecting location of industries.
7. Identify major types of industries in India.

**Semester I****Course: GEO-4103: Principles of Economic Geography****No. of Credits: 04****No. of Periods: 60**

<b>Topic No.</b>	<b>Topic</b>	<b>Sub topics</b>	<b>No. of Periods</b>
1	Introduction to Economic Geography	i. Definition, nature and scope ii. Approaches: traditional and modern iii. Recent trends in Economic Geography	06
2	Economic Activity	i. Definition and classification of economic activities ii. Factors of location of economic activities: physical, social, economic and technical iii. Location of economic activities: Weber's and Von Thunen's model	10
3	Resources	i. Definition and classification of resources ii. Significance of natural and human resources in economic development iii. Importance of non-conventional energy resources for sustainable development	08

4	Economic Development	<ul style="list-style-type: none"> <li>i. Definition and concept of economic development</li> <li>ii. Measures of economic development</li> <li>iii. Classification of countries on the basis of economic development</li> <li>iv. Rostow's and Myrdal's model</li> </ul>	08
5	Transport and Communication	<ul style="list-style-type: none"> <li>i. Various modes of transport</li> <li>ii. Geographical factors and transportation</li> <li>iii. Various means of communication</li> <li>iv. Role of transport and communication in economy</li> </ul>	06
6	Trade	<ul style="list-style-type: none"> <li>i. Definition and types of trade</li> <li>ii. Factors affecting on international trade</li> <li>iii. Problems and prospects of international trade with reference to India</li> <li>iv. E-commerce</li> </ul>	06
7	Economic Development in India	<ul style="list-style-type: none"> <li>i. Pre-and post-independence economic development in India</li> <li>ii. Green revolution in India</li> <li>iii. Need of new green revolution in India</li> <li>iv. Regional disparities in India</li> <li>v. Impact of globalization and privatization on economic development</li> </ul>	06
8	Contemporary Issues	<ul style="list-style-type: none"> <li>i. Regional disparities in Maharashtra</li> <li>ii. Role of IT industry in economic development in Maharashtra</li> <li>iii. A case study of one local agro-based industry: Economic analysis, problems and prospects (Sugar factory/ winery/ agro-tourist centre etc.)</li> </ul>	10

**Reference Books:**

- **Alexander, J.W. (1977):** Economic Geography, Prentice Hall of India Pvt. Ltd. ,New.
- **Chorley, R.J. and Haggett, P. (1970):** Socio Economic Models in Geography, Concept publishing Company Pvt. Ltd., New Delhi.
- **Garnier, B.J. and Delobez, A. (1979):** Geography of Marketing ,Longman.
- **Hartshorne, T.A. and Alexander, J.W. (2010):** Economic Geography, PHI Course, New Delhi
- **KananChatterjee (2015):** Basics of Economic Geography.
- **Knox, P., Agnew, J. and McCarthy, L. (2008):** The Geography of the World Economy, Hodder Arnold, London.
- **Lloyd, P. and Dicken, B. (1972):** Location in Space: A Theoretical Approach to Economic Geography, Harper and Row, New York Methuen.
- **Mitra, A. (2002):** Resource Studies, Sreedhar publishers, Kolkata.
- **Patil, S.G., Suryawanshi, R.S., Pacharne, S. and Choudhar, A.H. (2014):** Economic Geography, Atharav Prakashan, Pune.
- **Ray, P.K. (1997):** Economic Geography, New Central Book Agency (P) Ltd., Calcutta
- **Saxena, H.M. (2013):** Economic Geography, Rawat publication, Jaipur.
- **Siddhartha, K. (2000):** Economic Geography: Theories, Process and Patterns, Kisalaya Publications, New Delhi
- **Smith, D.M. (1971):** Industrial Location: An Economic Geographical Analysis, John Wiley and Sons, New York
- **Pagar, Thorat & More (2015):** Agriculture Geography, (Marathi), Atharv Publication, Pune
- **More J. (2014):** Geography & Agriculture for MPSC Examination, (Marathi), Atharv Publication, Pune

**Mapping of Program Outcomes with Course Outcomes****Class:** M.A./MSc. Geography I**Subject:** Geography**Course:** Principles of Economic Geography**Course Code:** GEO 4103**Weightage:** 1= Weak or low relation, 2= Moderate or partial relation, 3= Strong or direct relation

Program Outcomes (POs)								
Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1				2	3			
CO 2		2						
CO 3		2	3					
CO 4						2		
CO 5			3					
CO 6							2	
CO 7				2				

**Justification for the mapping****PO 2: Effective Citizenship and Ethics:**

CO2- By understanding the demand of the population and the availability of raw materials, individuals can actively participate in ethical decision-making, advocate for sustainable practices, and contribute to a more equitable and environmentally responsible society. It fosters a sense of global citizenship, encouraging actions that prioritize the well-being of both current and future generations.

CO3- Being aware of these factors and advocating for fair labor practices is part of effective citizenship. Citizens can contribute to ethical industrial practices by supporting companies that prioritize fair labor conditions, promoting transparency, and advocating for policies that protect workers' rights. Additionally, participating in discussions about labor practices and staying informed about industry standards can contribute to a more ethical and responsible industrial landscape.

**PO 3: Social competence and communication skills:**

CO3- Being aware of labor-related aspects in industrial zones enhances social competence by promoting empathy, cultural awareness, and collaboration. It also improves communication skills. An understanding of labor dynamics in industrial zones enhances social competence by fostering effective communication, promoting collaboration, and encouraging advocacy for ethical practices. These skills are valuable in a

professional context and contribute to building strong relationships within and beyond the workplace.

CO5- A well-developed and efficient transportation system is integral to a nation's economic prosperity, and it also plays a crucial role in enhancing social competence and communication skills by connecting people and facilitating the exchange of ideas and resources.

**PO 4: Disciplinary Knowledge:**

CO1-Understanding these economic aspects in transportation is critical for making informed decisions, ensuring sustainable development, and addressing societal needs. It also highlights the interconnected nature of disciplines and the importance of a holistic approach to solving transportation challenges.

Co7- By delving into the specifics of these industries, scholars, students, and professionals can gain a holistic view of India's economy, its global connections, and the intricate dynamics shaping various sectors.

**PO5: Personal and professional competence:**

CO1- Competence in these economic aspects empowers individuals to make informed decisions, adapt to changes, manage resources effectively, and navigate both personal and professional landscapes with greater confidence and success.

**PO6: Self-directed and Life-long Course:**

CO4- Course about the value of land and its proper use enables individuals to make informed decisions about investments, lifestyle choices, environmental conservation efforts, and community development. It fosters a deeper understanding of the intersection between economics, ecology, and human activities, empowering self-directed learners to engage with their surroundings more meaningfully and sustainably.

**PO7: Environment and Sustainability:**

CO6- By comprehending these factors, policymakers, urban planners, and industry stakeholders can make informed decisions that promote industrial locations and practices aligned with environmental sustainability goals. This includes encouraging the adoption of cleaner technologies, promoting resource efficiency, reducing pollution, and minimizing the ecological footprint of industrial activities.

**M.A./M.Sc. Geography, Syllabus for Semester I****Subject:** Principles of population and settlement geography**Subject Code:** GEO-4104**No. of Credits:** 04**Course Objectives:**

1. To acquaint the students with various dimensions of population geography, and its challenges.
2. To notify the students about different structures and characteristics of population.
3. To make the students aware of the need and importance of population and policies.
4. This course gives an idea to collect the population data.
5. To aware knowledge about distribution of population in different region.
6. To aware knowledge about various types and structure of settlement.
7. To give information about growth and population density of different region of the world.

**Course Outcomes:**

After the completion of the course, Students will be able to understand the current issues in Human geography. Specifically Human geography focused on population and agriculture.

1. Aware the basic principles and concepts in population geography.
2. Apply demographic concepts and population theories to explain past and present population characteristics.
3. Evaluate the use of demographic concepts and population theories to understand contemporary socio-economic issues and current affairs.
4. Realize the world-wide distribution of population.
5. Knows the various theories in population geography.
6. Recognize factors affecting on settlement and population distribution.
7. Identify major types and pattern of settlements.



**Semester I****Course: GEO- 4104: Principles of Population and Settlements Geography****No. of Credits: 04****No. of Periods: 60**

<b>Topic No.</b>	<b>Topic</b>	<b>Sub topics</b>	<b>No. of Periods</b>
1	Introduction to Population and Settlement Geography	i. Definition, Nature and scope of Population Geography ii. Development of Population Geography as discipline iii. Approaches to the study of population Geography iv. Definition, subject matter and scope of Settlement Geography v. Development of Settlement Geography vi. Approaches: genetic, spatial and ecological	08
2	Population Distribution	i. Population distribution and factors affecting distribution of population ii. Density: definition and types iii. Factors affecting density of population iv. Population density in India v. Urbanization: definition and stages vi. Trend and level of urbanization in India	08
3	Population Growth and trend	i. Concept of population growth ii. Component of population growth (Fertility, Mortality, and Migration) iii. Theory of Demographic Transition iv. Malthus Theory v. Population growth and trend in India vi. Migration: concept of migrant and migration, immigration and emigration	08

4	Population Structure and Characteristics	<ul style="list-style-type: none"> <li>i. Age and sex structure</li> <li>ii. Concept of aging of populations,</li> <li>iii. Dependency ratio</li> <li>iv. Sex Ratio: definition and affecting factors of sex ratio</li> <li>v. Sex ration in India</li> <li>vi. Population Composition: religious, linguistics, ethnic, marital and educational</li> <li>vii. Literacy: definition and measures of literacy</li> <li>viii. Literacy in India</li> </ul>	06
5	Fertility and Mortality	<ul style="list-style-type: none"> <li>i. Concepts: fertility, fecundity, sterility, cohort</li> <li>ii. Crude birth rate, Total fertility rate</li> <li>iii. Concept of baby boom</li> <li>iv. Concepts: mortality and morbidity</li> <li>v. Death rate and its measures</li> <li>vi. Level and trends of mortality in India</li> </ul>	06
6	Human Settlement	<ul style="list-style-type: none"> <li>i. Classification: urban and rural</li> <li>ii. Rural-urban dichotomy</li> <li>iii. Site and situation aspect in settlement</li> <li>iv. Types: compact, semi-compact, hamleted and dispersed</li> <li>v. Patterns of settlement</li> </ul>	08
7	Rural Settlements	<ul style="list-style-type: none"> <li>i. Definition, classification of villages</li> <li>ii. Size and spacing of villages</li> <li>iii. Nearest neighbor analysis</li> <li>iv. Concepts of dispersion and nucleation</li> <li>v. Factors affecting dispersion and nucleation</li> </ul>	08
8	Urban Settlements	<ul style="list-style-type: none"> <li>i. Concept: urban place, urban agglomeration, urban sprawl</li> <li>ii. Urban settlement hierarchy</li> <li>iii. Urban-rural fringe</li> <li>iv. Rank-size rule</li> <li>v. Central Business District(CBD)</li> </ul>	08

**Reference Books:**

- **Bhende, A. and Kanitkar, T. (2011):** Principles of Population Studies, Himalaya Publishing House, Bombay.
- **Beaujeu, G. J. (1966):** Geography of Population, Longman Group Ltd.
- **Chandna, R.C. (Rep.2010):** Geography of Population, Concepts, Determinants and Patterns, Kalyani Publishers, New Delhi.
- **Clark, J. I. (1973):** Population Geography, Pergamon Press Ltd., Oxford.
- **Clark, J.I. (1984):** Geography and Population: Approaches and Applications, Pergamon Press Ltd., Oxford.
- **Hudson, (1970):** Geography of Settlement, Macdonald & Evans Ltd., London.
- **Khullar, D. R. (2011):** India A Comprehensive Geography, Kalyani Publication, New Delhi.
- **Michel Chisholm (1973):** Studies in Human Geography, London.
- **Mishra, R.S. (1975):** Economics of Growth and Development, Somaiya Publication Pvt. Ltd.

## Choice Based Credit System Syllabus (2019 Pattern)

**Mapping of Program Outcomes with Course Outcomes****Class:** M.A./MSc. Geography I**Subject:** Geography**Course:** Principles of population and settlement Geography**Course Code:** GEO 4104**Weightage:** 1= Weak or low relation, 2= Moderate or partial relation, 3= Strong or direct relation

<b>Program Outcomes (POs)</b>								
<b>Course Outcomes</b>	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1				2				
CO 2					3			
CO 3			3					
CO 4					2			
CO 5						2		
CO 6			3					
CO 7						2		

**Justification for the mapping****PO3: Social competence and communication skill:**

CO3- A strong foundation in demographic concepts and population theories enhances social competence by providing a deeper understanding of societal issues, fostering better communication skills across diverse audiences, and enabling more informed and empathetic engagement with contemporary socio-economic challenges.

CO6- Understanding these factors, individuals can engage in more informed and empathetic discussions, communicate effectively about social, economic, and environmental issues related to settlement patterns, and contribute meaningfully to discussions on urban development, community empowerment, and equitable resource distribution.

**PO4: Disciplinary Knowledge:**

CO1- By grasping these basic principles and concepts in population geography, scholars, researchers, policymakers, and students gain a comprehensive understanding of how human populations are distributed, how they evolve over time, and how these patterns shape societies, economies, and the environment. This interdisciplinary knowledge aids in addressing societal challenges, planning for sustainable development, and formulating effective policies to meet the needs of diverse populations.

**PO5: Personal and professional competence:**

CO2- By applying demographic concepts and population theories to explain past and present population characteristics, individuals gain insights that empower them to make informed decisions, predict trends, understand societal changes, and develop strategies that align with demographic realities in both personal and professional spheres.

CO4- Understanding the worldwide distribution of population is invaluable for personal growth, professional development, decision-making, and fostering a more globally aware and culturally sensitive approach to various aspects of life and work.

**PO6: Self-directed and Life-long Course:**

CO5- Course various theories in population geography fosters a range of skills and attributes that are valuable for self-directed and lifelong Course. It promotes critical thinking, interdisciplinary understanding, problem-solving, adaptability, and continual engagement with knowledge, enhancing personal and professional growth.

CO7- Comprehending the major types and patterns of settlements enriches self-directed and lifelong Course by providing a multifaceted understanding of historical, cultural, geographical, social, and environmental aspects. It encourages a deeper exploration of societal dynamics and contributes to personal and professional growth.

**M.A./M.Sc. Geography, Syllabus for Semester I****Subject:** Practical in physical Geography**Subject Code:** GEO-4105**No. of Credits:** 04**Course Objectives:**

1. Develop a comprehensive understanding of the Earth's physical features, including landforms, climate, vegetation, and natural resources.
2. Gain insights into the processes that govern weather and climate patterns.
3. To make the students aware of the need and importance of drainage network.
4. To aware knowledge about the various relief features.
5. To aware knowledge about various methods are used in to develop drainage network.
6. To aware knowledge about atmospheric circulation, precipitation, and temperature variations.
7. Develop proficiency in reading and interpreting various types of relief analysis.

**Course Outcomes:**

After the completion of the course, Students will be able to understand the current issues in Human geography. Specifically Human geography focused on population and agriculture.

1. Aware the basic concept of drainage basin and its classification.
2. Students will conduct weather and climate observations in the field.
3. Student will classify the climate by various method.
4. Realize the world-wide distribution of climate and drainage network.
5. Knows the various types of drainage in worldwide distribution.
6. Recognize factors affecting on drainage network.
7. Identify major types and pattern of drainage basin.

**Semester I****Course: GEO-4105: Practical in Physical Geography****No. of Credits: 04****No. of Periods: 60**

<b>Topic No.</b>	<b>Topic</b>	<b>Sub topics</b>	<b>Periods (3 hours)</b>
		<b>A Geomorphology</b>	
1	Drainage Network	Stream ordering and Bifurcation ratio i. Strahler's method ii. Horton's method	02
2	Drainage Basin Relief Analysis	Relief analysis (for a 3 to 5 order drainage basin; based on grid method) i. Absolute relief map ii. Relative relief map iii. Hypsometric analysis iv. Basin cross profiles v. Block diagram (multiple section)	03
		<b>B Climatology</b>	
3	Climatic Element Diagrams	i. Climatograph ii. Climograph iii. Simple wind rose iv. Hythergraph v. Water Budget	03
4	Climatic Classification	i. Koppen's classification	02

**Reference Books:**

Asis Sarkar (2015): Practical Geography, A Systematic Approach, Orient Black Swan  
 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  
 Strahler: Physical Geography  
 ROBINSON Elements of Cartography 6/e Rep.

## Choice Based Credit System Syllabus (2019 Pattern)

**Mapping of Program Outcomes with Course Outcomes****Class:** M.A./MSc. Geography I**Subject:** Geography**Course:** Practical in physical Geography**Course Code:** GEO 4105**Weightage:** 1= Weak or low relation, 2= Moderate or partial relation, 3= Strong or direct relation

Program Outcomes (POs)								
Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1				2				
CO 2						3		
CO 3				3		2		
CO 4			2					
CO 5				2				
CO 6			2	2				
CO 7						2		

**Justification for the mapping****PO3: Social competence and communication skill:**

CO4- knowledge about the worldwide distribution of climate and drainage networks enhances social competence by fostering empathy, improving communication skills across diverse groups, and enabling informed discussions and collaborations on global environmental issues.

CO6- Awareness of the factors influencing drainage networks contributes to social competence and communication skills by empowering individuals to engage in informed discussions, advocate for sustainable practices, collaborate effectively with communities, and address environmental challenges in a holistic manner.



**PO4: Disciplinary Knowledge:**

CO1- Understanding of the basic concept and classification of drainage basins is essential across disciplines. It forms the foundation for studying landscapes, managing water resources, preserving ecosystems, planning infrastructure, and formulating policies that ensure sustainable development and environmental conservation.

CO3- Climate classification is a fundamental tool that provides a framework for understanding, studying, and making informed decisions across various disciplines. It serves as a basis for research, planning, and implementing strategies that consider the diverse environmental conditions experienced across the globe.

CO5- Awareness of the various types of drainage systems is invaluable across disciplines. It contributes to understanding landscape formation, managing water resources, planning infrastructure, assessing environmental impacts, and making informed decisions in diverse fields that interact with the natural environment.

CO6- knowledge of the factors affecting drainage networks is fundamental across disciplines. It facilitates understanding landscape processes, predicting water flow, managing natural resources, planning infrastructure sustainably, assessing environmental impacts, and making informed decisions related to land use and water management.

**PO6: Self-directed and Life-long Course:**

CO2- Conducting weather and climate observations in the field is a powerful tool for self-directed and lifelong Course. It empowers students to explore, think critically, develop skills, and foster a genuine interest in understanding the natural world.

CO3- Course about climate classification methods promotes self-directed and lifelong Course by nurturing critical thinking, data interpretation skills, environmental awareness, interdisciplinary connections, and a passion for exploring and understanding the complexities of climates worldwide.

CO7- exploring the major types and patterns of drainage basins promotes self-directed and lifelong Course by fostering critical thinking, interdisciplinary connections, spatial visualization skills, problem-solving abilities, and an enduring curiosity to understand the complex geological processes shaping our world.

**M.A./M.Sc. Geography, Syllabus for Semester I****Subject: Practical in Human Geography****Subject Code: GEO-4106****No. of Credits: 04**

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**Course Objectives:**

1. To enable the students to use various techniques of calculating rates.
2. To acquaint the students with crop combination methods.
3. To familiar the students' different theories related to human geography.
4. To make awareness about dependency ratio and growth of population.
5. To intimate gender scenario of different countries.
6. To make knowledge about future population and age structure of different countries.
7. To make knowledge about nucleation and dispersion of settlement.

**Course Outcomes:**

After the completion of the course, Students will be able to understand the current issues in Human geography. Specifically Human geography focused on population and agriculture.

1. Students can understand calculation techniques of growth rates.
2. Student can able to calculate rates and apply to various state of India.
3. Study in crop combination to give knowledge of society.
4. Students can able to apply various theories in human geography to their society.
5. Students understood the dynamics of population and its role in population policies
6. Student can understand about population structure and characteristics of different countries.
7. Student can understand population growth of different countries, they can also predict future population setting of the country.

<b>A Economic Geography</b>			
1	Crop Combination and Crop Diversification	i. Weaver's method ii. Jasbir Singh	02
2	Measures of Network Structure	i. Ratiomeasure ii. Alpha, beta, gamma, etc. iii. Associated number, cyclomatic number	01
<b>B Population and Settlement Geography</b>			
3	Population Indices and Projection	i. Age-sex pyramid ii. Infant mortality rate iii. Population growth rate iv. Population projection	02
4	Measures of Nucleation and Dispersion	i. Rank size rule ii. Nearest neighbor analysis iii. Calculation of centrality	03

**Sub topics****Periods  
(3 hours)**

5	Field Visit and Report Writing	i. One day study tour or long tour of geographical interest places anywhere in the country and excursion report
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**Reference Books:**

- **Carter, H. (1977):** The study of Urban Geography, Edward Arnold, London.
- **Hans, R. (1978):** Fundamentals of Demography, Surjeet, Delhi.
- **Hudson F.S. (1976):** Geography of Settlements, Estover, Macdonald & Evans, England.
- **Liendsor, J.M. (1997):** Techniques in Human Geography, Routledge.
- **Lloyd, P. and Dicken, B. (1972):** Location in Space - A theoretical approach to economic geography, Harper and Row, New York.
- **Michael, E. and Hurse, E. (1974):** Transportation Geography, McGraw-Hill, New York.
- **Pollard, A.H. and Farhat Yusu, (1974):** Demographic Techniques, Rushcutters Bay, N.S.W., Pergamon Press, Australia.
- **Singh, J. and Dhillon, (1984):** Agricultural Geography, Tata McGraw-Hill Publishing Company Limited, New Delhi.
- **Yeats, M.H. (1974):** An Introduction to Quantitative Analysis in Human Geography, McGraw-Hill, New York

Choice Based Credit System Syllabus (2019 Pattern)

**Mapping of Program Outcomes with Course Outcomes**

**Class:** M.A./MS.c Geography I

**Subject:** Geography

**Course:** Practical in Human Geography

**Course Code:** GEO 4106

**Weightage:** 1= Weak or low relation, 2= Moderate or partial relation, 3= Strong or direct relation

<b>Program Outcomes (POs)</b>								
<b>Course Outcomes</b>	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1			2	2				
CO 2						2		
CO 3			3					
CO 4			3			2		
CO 5				2	2			
CO 6			3					
CO 7			2			2		

**Justification for the mapping**

**PO3: Social competence and communication skill:**

CO1- proficiency in growth rate calculations goes beyond numerical skills; it cultivates the ability to comprehend, analyze, and communicate data effectively. This skill set enhances social competence by enabling individuals to engage in informed discussions, advocate for evidence-based decisions, and contribute meaningfully to various societal and interdisciplinary conversations.

CO3- By studying crop combinations, individuals develop a holistic understanding of the interplay between agriculture, society, economy, and the environment. This knowledge enhances social competence by fostering empathy, promoting informed discussions, and enabling effective communication on issues related to agriculture, food systems, and societal well-being.

CO4-Applying theories from human geography to society enhances social competence by fostering critical analysis, interdisciplinary understanding, cultural sensitivity, effective communication, a global perspective, community engagement, problem-solving abilities, and empathy. These skills are invaluable in navigating and contributing to a complex and diverse society.

CO6- Understanding population structure and characteristics across different countries enhances social competence by promoting cultural sensitivity, global perspective, effective communication, empathy, analytical skills, community engagement, informed decision-making, and active participation in societal issues. These skills are crucial for fostering inclusive and respectful interactions in diverse communities and global settings.

CO7- Understanding and predicting population growth in different countries enhance social competence by promoting cultural sensitivity, global awareness, effective communication, critical thinking, community engagement, informed decision-making, and fostering empathy and social responsibility. These skills are crucial for engaging constructively in discussions and addressing societal challenges in an increasingly diverse and dynamic world.

**PO4: Disciplinary Knowledge:**

CO1- Understanding growth rate calculations provides a foundational skill set applicable across various disciplines. It enables individuals to analyze trends, make informed decisions, and contribute meaningfully to fields that rely on data interpretation, forecasting, and planning.

CO5- By comprehending population dynamics and their role in shaping policies, individuals gain a multidisciplinary understanding that spans various fields. This knowledge allows for informed decision-making, strategic planning, and the development of effective policies that cater to the evolving needs of societies, economies, and environments.

**PO5: Personal and professional competence:**

CO5-Understanding population dynamics enhances personal and professional competence by enabling informed decision-making, fostering adaptability, strengthening leadership skills, promoting cultural competence, enhancing problem-solving abilities, guiding ethical considerations, and fostering a mindset of continuous Course and adaptation. These competencies are invaluable across various professions and contribute to personal growth and professional success.

**PO6: Self-directed and Life-long Course:**

CO2- The ability to calculate rates and apply them to various states in India fosters self-directed and lifelong Course by promoting data analysis skills, regional understanding, research exploration, statistical proficiency, critical thinking, policy awareness, interdisciplinary Course, and a global outlook. These skills are instrumental in navigating and understanding the complexities of a diverse and dynamic society.

CO4- Applying theories in human geography to understand society promotes self-directed and lifelong Course by fostering critical analysis, interdisciplinary understanding, cultural sensitivity, research exploration, problem-solving skills, personal reflection, communication abilities, and a commitment to continuous Course. These skills are vital for navigating a complex and diverse world and contributing meaningfully to society.

CO7- Understanding population growth and predicting future settings facilitates self-directed and lifelong Course by promoting data analysis skills, understanding demographic trends, fostering research exploration, applying statistical techniques, critical thinking, policy awareness, global perspectives, and personal decision-making based on anticipated demographic changes. These skills are crucial for navigating a rapidly changing world and making informed choices across various facets of life.