



# गोंय विद्यापीठ

ताळगांव पठार

गोंय - ४०३ २०६

फोन: +९१-८६६९६०९०४८



(Accredited by NAAC)

# Goa University

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GU/Acad –PG/BoS -NEP/2023/102/20

Date: 16.06.2023

## CIRCULAR

The University has decided to implement the UGC Curriculum and Credit Framework for the Undergraduate Programme (CCFUP) of **Bachelor of Arts in Geography/Bachelor of Arts in Geography (Honours)** under the National Education Policy (NEP) 2020 from the Academic Year 2023-2024 onwards.

The approved Syllabus of Semesters I and II of the **Bachelor of Arts in Geography/Bachelor of Arts in Geography (Honours)** Programme is attached.

Principals of Affiliated Colleges offering the **Bachelor of Arts in Geography/Bachelor of Arts in Geography (Honours)** Programme are requested to take note of the above and bring the contents of this Circular to the notice of all concerned.

(Ashwin Lawande)  
Assistant Registrar – Academic-PG

To,

1. The Principals of Affiliated Colleges offering the Bachelor of Arts in Geography /Bachelor of Arts in Geography (Honours) Programme.

Copy to:

1. The Director, Directorate of Higher Education, Govt. of Goa
2. The Dean, D.D. Kosambi School of Social Science and Behavioural Studies, Goa University.
3. The Vice-Deans, D.D. Kosambi School of Social Science and Behavioural Studies, Goa University.
4. The Chairperson, BoS in Geography.
5. The Controller of Examinations, Goa University.
6. The Assistant Registrar, UG Examinations, Goa University.
7. Directorate of Internal Quality Assurance, Goa University for uploading the Syllabus on the University website.

**Goa University**  
**Programme Structure for Semester I to VIII Bachelor of Arts in Geography**

Semester	Major -Core	Minor	MC	AEC	SEC	I	D	VAC	Total Credits	Exit
I	GOG-100: Foundations in Geography & Digital Geography (Theory) (3) (Practical)(1)	GOG-111 Geography of Sustainable Development(4) OR GOG-112: Geography of Climate Change(4)	GOG-131: Astronomical Geography(3)		GOG-141: Elements of Environmental Impact Assessment (EIA) (1T+2P)					
II		GOG-113: Disaster Management Methods and Techniques(4) OR GOG-114: Fundamentals of Tourism Geography(4)	GOG-132: Major World Environments(3)		GOG-142: Introduction to the Principles and Practices of Land Use Planning and Management(1T+2P)					GOG-161: Summer Internship (4)
III	GOG-200 Theory: Principles Geomorphology(3) GOG-200 Practical: Practicals in Geomorphology(1) GOG-201: Physical	GOG-211: Physical Landscape of Goa(4) OR GOG-212: Tribal Geography(4)	GOG-231Theory : Google Earth: Bring the World inside the Classroom(2) GOG-231Practical : Google Earth: Bring the World inside the Classroom(1)		GOG-241:Principles and Practices of Composting(1T+2P)					

	<b>Landscape of India(4)</b>								
<b>IV</b>	<b>GOG-202 Theory: Principles of Climatology(3)</b> <b>GOG-202 Practical: Practicals in Climatology(1)</b>  <b>GOG-203: Geography of Resources(4)</b>  <b>GOG-204 Theory: Economic Geography(3)</b> <b>GOG-204 Practical: Practicals in Economic Geography(1)</b>  <b>GOG-205: Economic Geography of India(2)</b>	<b>GOG-221: Travel and Tourism Operations in Geography (Vocational)(4)</b>							<b>GOG-162: Summer Internship (4)</b>
<b>V</b>	<b>GOG-300 Theory: Principles of Population Geography(3)</b> <b>GOG-300 Practical:</b>	<b>GOG-321: Application of Travel and Tourism Geography Skills (Vocational)(4)</b>							

	<p><b>Practicals in Population Geography(1)</b></p> <p><b>GOG-301 Theory: Principles of Remote Sensing(3)</b>  <b>GOG-301 Practical: Practical in Remote Sensing(1)</b></p> <p><b>GOG-302: Statistical Methods in Geography(4)</b></p> <p><b>GOG-303: Geopolitical Geography(2)</b></p>								
<b>VI</b>	<p><b>GOG-304 Theory: Fundamentals of Geographical Information System(3)</b></p> <p><b>GOG-304 Practical: Practical in Geographical Information System(1)</b></p>	<p><b>GOG-322: Application of Field Study &amp; Survey Techniques in Geography (Vocational)(4)</b></p>							

	<p><b>GOG-305: Geography of Environment and Development(4)</b></p> <p><b>GOG-306: Medical Geography(4)</b></p> <p><b>GOG-307: Project(4)</b></p>								
VII	<p><b>GOG-400: Analytical Techniques in Geography(4)</b></p> <p><b>GOG-401: Development of Geographic Thought in Ancient India(4)</b></p> <p><b>GOG-402 Theory: Watershed Development in Geography(3)</b></p> <p><b>GOG-402 Practical: Watershed Development in</b></p>	<p><b>GOG-411: Economic Landscape of Goa(4)</b> OR <b>GOG-412: Spatial Analysis(4)</b> OR <b>GOG-413: Behavioral Geography(4)</b></p>							

	<b>Geography(1)</b>  <b>GOG-403: Research Methodology *(4)</b>								
<b>VIII</b>	<b>GOG-404: Geography of Coast(4)</b>  <b>GOG-405 Theory: Quantitative Geography (3)</b> <b>GOG-405 Practical: Practicals in Quantitative Geography(1)</b>  <b>GOG-406: Geography of Rural Settlement (4)</b>  <b>GOG-407: Geography of Urban Settlement(4)</b>	<b>GOG-414: Indigenous Geography (4)</b> <b>OR</b> <b>GOG-415: Feminist Geography (4)</b>							

\*\* RM Course is compulsory for Honours with Research and optional for Honours students.

**Name of the Programme: Bachelor of Arts in Geography**

**Course Code: GOG-100**

**Title of the Course: Foundations in Geography**

**Number of Credits: 3**

**Effective from AY: 2023-24**

Pre-requisites for the Course:	Nil
Course Objectives:	Foundations in Geography is an introductory course that provide students with a comprehensive understanding of the discipline of Geography, its fundamental concepts and principles. This course aims to develop students' spatial thinking skills and geographic literacy by introducing them to the basic concepts of geographic analysis.
Content:	<b>Introduction:</b> <ul style="list-style-type: none"><li>● Introduction &amp; Definitions of Geography;</li><li>● Geography: Whether Science or Social Science;</li><li>● The Changing Nature of Geography;</li><li>● Divisions of Geography and Branches of Geography and its relations with other disciplines;</li><li>● Geography and Nationalism;</li><li>● Evolution of Geography from classical times to modern period;</li><li>● Career Prospects in Geography;</li></ul> 15 Hours
	<b>Geographical Concepts and Approaches:</b> <ul style="list-style-type: none"><li>● Geography as Inter-disciplinary, Intra-disciplinary and Multi-disciplinary Science;</li><li>● Contemporary Approaches in Geography: Area, Spatial, Locational &amp; Geographic Systems Analysis;</li><li>● Five Themes of Geography;</li><li>● Four Traditions of Geography: Spatial or Locational Tradition, Area Studies or Regional Tradition, Man-Land Tradition, Earth Science Tradition;</li></ul> 15 Hours
	<b>Earth and it's spatial relation:</b> <ul style="list-style-type: none"><li>● The Universe;</li><li>● Galaxies and Solar system;</li><li>● Origin of the Earth;</li><li>● Geological Time Scale</li><li>● Earth as a planet and celestial positions its shape and size;</li><li>● Rotation and revolution of Earth;</li><li>● Lunar and Solar Eclipses and their types</li><li>● Positions on Map and Globe, Geographical coordinates and its characteristics,</li><li>● World time zones, standard and local time</li></ul> 15 Hours
Pedagogy:	Lectures, Group Discussions, Student Seminars, Presentations, Case Studies, Assignments, Blended learning, Gamification, Problem-solving approach through logic, Experiential learning, Discussion-based teaching, Brainstorming, Fieldwork and outdoor learning, Flipped classroom pedagogy, Art Integrated Learning, Cutting Edge, and Cooperative Learning Strategies.
References/ Readings:	<ul style="list-style-type: none"><li>▪ Blij, H. J. de, &amp; Muller, P. O. (2010). Geography: Realms, Regions, and Concepts. John Wiley &amp; Sons.</li><li>▪ Clifford, N., Cope, M., &amp; Gillespie, T. W. (2016). Key Concepts in Geography. Sage.</li></ul>

	<ul style="list-style-type: none"> <li>▪ Das Gupta and Kapoor. (2004) Principles of Physical geography. S. Chand, New Delhi</li> <li>▪ D. K. (2017). Geography: A Visual Encyclopaedia. DK.</li> <li>▪ Dikshit R.D. (2000) Geographical Thought - A Contextual History of Ideas, P. Hall of India Pvt.</li> <li>▪ Fouberg, E. H., Murphy, A. B., &amp; Blij, H. J. de. (2016). Human Geography: People, Place, and Culture. John Wiley &amp; Sons.</li> <li>▪ Getis, A., Bjelland, M., Getis, V. A., &amp; Fellmann, J. D. (2015). Introduction to Geography. McGraw-Hill Education.</li> <li>▪ Goh Cheng Leong: Certificate Physical and Human Geography, Oxford University Press, New Delhi.</li> <li>▪ Harvey, David. (1969). Explanation in Geography. Edward Arnold.</li> <li>▪ Harvey, David. (1972). Explanation in Geography, Edward - Arnold, London.</li> <li>▪ Hussain, Majid (1984): Evolution of Geographical Thought, Rawat Publications, Jaipur.</li> <li>▪ Knox, P. L., &amp; Marston, S. A. (2019). Human Geography: Places and Regions in Global Context. Pearson Education.</li> <li>▪ Lunn, J. (2017). Geography: A Beginner's Guide. One world Publications.</li> <li>▪ Matthews, J. A., &amp; Herbert, D. T. (2015). Geography: A Very Short Introduction. Oxford University Press.</li> <li>▪ McKnight, T. L., &amp; Hess, D. (2013). Physical Geography: A Landscape Appreciation. Prentice Hall.</li> <li>▪ Perpillou A (1977). Human Geography, Longman Press, London.</li> <li>▪ Rubenstein, J. M. (2017). The Cultural Landscape: An Introduction to Human Geography. Pearson Education.</li> <li>▪ Savindra Singh (2015). Environmental Geography, Pravalika Publication, Allahabad</li> <li>▪ Strahler, A., &amp; Strahler, A. H. (2016). Introduction to Physical Geography. John Wiley &amp; Sons.</li> <li>▪ Waugh, D. (2011). Geography: An Integrated Approach. Nelson Thornes.</li> </ul>
Course Outcomes:	<p>By the end of this course, students will be able to:</p> <ul style="list-style-type: none"> <li>● <b>Analyse</b> the historical roots of geography and its basic concepts.</li> <li>● <b>Identify</b> the inter-disciplinary, intra-disciplinary, and multi-disciplinary nature of Geography</li> <li>● <b>Apply</b> the five themes of geography to analyse real-world issues and events.</li> <li>● <b>Examine</b> the evolution of Geography from ancient to modern times and the contemporary approaches in Geography.</li> <li>● <b>Understand</b> the Earth and its spatial relations to Universe, galaxies, solar system, and the positions of celestial bodies</li> <li>● <b>Evaluate</b> the geological time scale and its significance in the study of the Earth's history and evolution.</li> </ul>



**Name of the Programme: Bachelor of Arts in Geography****Course Code: GOG-100****Title of the Course: Digital Cartography (Practical)****Number of Credits: 1****Effective from AY: 2023-24**

Pre-requisites for the Course:	Nil	
Course Objectives:	The main objective of this course is to equip students with technical knowledge and computer skills necessary to pursue a career in the field of Geospatial Technology.	
Content:	Introduction to Digital Cartography: Definition, concepts of cartography. Nature and Scope, History and development of Cartography, Characteristics of Map. Categories of maps. Methods of mapping, relief maps, thematic maps. Trends in Cartography.	15 Hours
	Application of Computer Cartography: Hardware and software for computer cartography; Representation of geospatial data using Open Source Office Management Software or MS Excel: Column charts, Bar charts, Line charts, Pie charts, Scatter charts, Area charts, Stock charts, Radar charts, Bubble charts, Heat maps, Waterfall charts and Treemaps. <b>Note:</b> 1. Each student is required to complete a minimum of two exercises from the above list and maintain journal both hard as well as soft copy. 2. In case there are insufficient computers available in the Geography lab, the practical sessions may be conducted in the IT lab or any other designated location within the respective college. 3. For lab sessions, students are permitted to use their own laptops.	15 Hours
Pedagogy:	Lectures, Presentations, Assignments, Blended learning, Gamification, Problem-solving approach through logic, Experiential learning, Discussion-based teaching, Brainstorming, Cooperative Learning Strategies and Flipped classroom.	
References/ Readings:	<ul style="list-style-type: none"><li>▪ Monmonier, M.S. (1982): Computer Assisted Cartography: Principles and Prospects, Prentice Hall.</li><li>▪ Robinson, H. et al (1995): Elements of Cartography, 6th Edition, John Wiley &amp; Sons, New York.</li><li>▪ Monkhouse, F.J.R. &amp; Wilkinson H.R.(2000):Maps and Diagrams, Methuen &amp;Co. London.</li><li>▪ Raise, Erwin (1962): Principles of Cartography, McGraw-Hill, New York.</li><li>▪ Cromley, R.G.(1992): Digital Cartography, Prentice-Hall, New York.</li><li>▪ Dent, B.D.(1999): Cartography- Thematic Map Design, 5th Edition, WCB Mc Grew Hill, Boston.</li><li>▪ Rampal, K.K.(1993): Mapping and Compilation, Concept Publishing Co. New Delhi.</li><li>▪ Slocum, T.A.et al.(2008): Thematic Cartography and Geovisualization , 3rd Edition, Prentice Hall.</li></ul>	

	<ul style="list-style-type: none"> <li>▪ Mishra, R.P. (1973): Fundamentals of Cartography, Prasaranga, University of Mysore.</li> <li>▪ Kraak M.J.and Ormeling.F (2004): Cartography: Visualization of Spatial Data, Pearson Edu.pvt Ltd. (Singapore) Inelian Branch, New Delhi.</li> <li>▪ Sarkar, A (2009): Practical Geography: A Systematic Approach, Orient Longman, Kolkatta.</li> </ul>
Course Outcomes:	<ul style="list-style-type: none"> <li>● <b>Understand</b> the fundamental concepts and principles of digital cartography.</li> <li>● <b>Demonstrate</b> proficiency in using hardware and software for computer cartography.</li> <li>● <b>Develop</b> the ability to represent geospatial data using various techniques such as histograms, bar graphs, line graphs, scatter diagrams, pie diagrams, trend lines etc.</li> <li>● <b>Analyse</b> and interpret geospatial data using appropriate techniques.</li> <li>● <b>Apply</b> the knowledge and skills gained in the course to real-world problems in cartography and geospatial analysis.</li> <li>● <b>Demonstrate</b> effective communication skills in reporting and presenting geospatial data using digital cartography techniques.</li> </ul>

### Instructions

1. Every candidate shall complete the laboratory course prescribed by the University entering all the experiment exercises in the laboratory journal, which shall be produced at the time of Practical Examination along with a Certificate signed both by the Course Teacher and the Head of the Department of Geography of the concerned college to the effect that he/she has completed the prescribed course in a satisfactory manner.
  2. The total workload for this course is 30 hours, which corresponds to 1 credit. Each lab session is scheduled for a duration of 2 hours and cannot be divided into two 1-hour sessions.
  3. There are a total of 15 laboratory sessions scheduled, with a total duration of 30 hours.
  4. Each batch will comprise of 20 students.
  5. The practical examination will be of 2 hours duration and will carry 25 marks.
  6. The assessment for the practical examination also includes a total of 2.5 marks for the journal and 2.5 marks for the Viva Voce examination.
  7. The practical examination is scheduled to be conducted at the end of the semester in either the Geography Laboratory or a designated location exclusively assigned for the purpose.
  8. In the event of University Examination, the University shall appoint the Internal Examiner (Course Teacher) and External Examiner (Geography faculty from any other College).
  9. In case of a College Examination, Principal of the respective College shall appoint both the Internal Examiner (Course Teacher) and External Examiner (any other faculty of the Department).
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**Name of the Programme: Bachelor of Arts in Geography****Course Code: GOG-111****Title of the Course: Geography of Sustainable Development****Number of Credits: 4****Effective from AY: 2023-24**

Pre-requisites for the Course:	Nil	
Course Objectives:	This course provides an overview of sustainable development from a geographical perspective. It covers key concepts and themes in sustainable development, such as economic growth, environmental protection, social equity, and political governance. The course also examines the challenges and opportunities of sustainable development in different regions and countries, and the role of geography in promoting sustainable development.	
Content:	Introduction to Sustainable Development <ul style="list-style-type: none"> <li>● Definition and history of sustainable development</li> <li>● Key principles and concepts of sustainable development</li> <li>● Sustainability challenges and opportunities</li> <li>● The Millennium Development Goals</li> <li>● Sustainable Development Goals: National Strategies and International Experiences</li> </ul>	15 Hours
	Geography and Sustainable Development <ul style="list-style-type: none"> <li>● Geographical perspectives on sustainable development</li> <li>● Spatial analysis and sustainable development</li> <li>● Regional and local approaches to sustainable development</li> </ul>	15 Hours
	Economic Dimension of Sustainable Development <ul style="list-style-type: none"> <li>● Economic growth and development</li> <li>● Sustainable economic models and strategies</li> <li>● Globalization and sustainable development</li> </ul> Environmental Dimension of Sustainable Development <ul style="list-style-type: none"> <li>● Environmental protection and conservation</li> <li>● Natural resource management and sustainability</li> <li>● Climate change and sustainable development</li> </ul>	15 Hours
	Social Dimension of Sustainable Development <ul style="list-style-type: none"> <li>● Social equity and justice</li> <li>● Poverty and inequality</li> <li>● Health, education, and human development</li> </ul> Political Dimension of Sustainable Development <ul style="list-style-type: none"> <li>● Governance and institutions</li> <li>● Participatory democracy and citizen engagement</li> <li>● International cooperation and sustainable development</li> </ul>	15 Hours
Pedagogy:	Lectures, Group Discussions, Student Seminars, Presentations, Case Studies, Assignments, Blended learning, Gamification, Problem-solving approach through logic, Experiential learning, Discussion-based teaching, Brainstorming, Fieldwork and outdoor learning, Flipped classroom pedagogy, Art Integrated Learning, Cutting Edge, and Cooperative Learning Strategies.	
References/ Readings:	<ul style="list-style-type: none"> <li>▪ Agyeman, Julian, Robert D. Bullard and Bob Evans (Eds.) (2003) Just Sustainabilities: Development in an Unequal World. London: Earthscan. (Introduction and conclusion.).</li> </ul>	

	<ul style="list-style-type: none"> <li>▪ Ayers, Jessica and David Dodman (2010) "Climate change adaptation and development I: the state of the debate". Progress in Development Studies 10 (2): 161-168.</li> <li>▪ Baker, Susan (2006) Sustainable Development. Milton Park, Abingdon, Oxon; New York, N.Y.: Routledge. (Chapter 2, "The concept of sustainable development").</li> <li>▪ Biermann, F., &amp; Pattberg, P. (Eds.). (2012). Global environmental governance reconsidered. MIT Press.</li> <li>▪ Brosius, Peter (1997) "Endangered forest, endangered people: Environmentalist representations of indigenous knowledge", Human Ecology 25: 47-69.</li> <li>▪ Lohman, Larry (2003) "Re-imagining the population debate". Corner House Briefing 28.</li> <li>▪ Martínez-Alier, Joan et al (2010) "Sustainable de-growth: Mapping the context, criticisms and future prospects of an emergent paradigm" Ecological Economics 69: 1741-1747.</li> <li>▪ Merchant, Carolyn (Ed.) (1994) Ecology. Atlantic Highlands, N.J: Humanities Press. (Introduction, pp 1-25.)</li> <li>▪ Osorio, Leonardo et al (2005) "Debates on sustainable development: towards a holistic view of reality". Environment, Development and Sustainability 7: 501-518.</li> <li>▪ Robbins, Paul (2004) Political Ecology: A Critical Introduction. Blackwell Publishing</li> <li>▪ Sachs, J. (2015). The age of sustainable development. Columbia University Press.</li> <li>▪ United Nations Development Programme. (2019). Human Development Report 2019: Beyond income, beyond averages, beyond today: Inequalities in human development in the 21st century. UNDP.</li> </ul>
Course Outcomes:	<p>By the end of this course, students will be able to:</p> <ul style="list-style-type: none"> <li>● <b>Understand</b> the concept and principles of sustainable development</li> <li>● <b>Analyze</b> the economic, environmental, and social dimensions of sustainable development</li> <li>● <b>Examine</b> the role of geography in sustainable development</li> <li>● <b>Evaluate</b> the challenges and opportunities of sustainable development in different regions and countries</li> <li>● <b>Develop</b> critical thinking and analytical skills to address sustainability issues</li> </ul>

**Name of the Programme: Bachelor of Arts in Geography**

**Course Code: GOG-112**

**Title of the Course: Geography of Climate Change**

**Number of Credits: 4**

**Effective from AY: 2023-24**

Pre-requisites for the Course:	Nil	
Course Objectives:	This is an introductory course in Geography of Climate Change which is designed <ul style="list-style-type: none"><li>● To introduce students to the nature and scope of climate change and its implications for the Earth's systems.</li><li>● To examine the scientific evidence for climate change and the causes and consequences of this phenomenon.</li><li>● To explore the geography of climate change, including its impacts on biogeography, oceanography, atmospheric sciences, and earth system sciences.</li><li>● To evaluate strategies for mitigating and adapting to climate change, including the role of science and technology, economic and political considerations, and international frameworks and agreements.</li><li>● To analyze case studies of climate change impacts and responses, including the social and economic implications of climate change.</li></ul>	
Content:	Introduction to Climate Change <ul style="list-style-type: none"><li>● Definition, nature and scope of climate change</li><li>● Historical perspective of climate change</li><li>● The evidence of climate change</li><li>● Causes and consequences of climate change</li></ul>	15 Hours
	Climate Change and the Earth's System <ul style="list-style-type: none"><li>● The carbon cycle and the climate system</li><li>● The greenhouse effect and global warming</li><li>● The impacts of climate change on land, water and the atmosphere</li><li>● The role of human activities in climate change</li></ul>	15 Hours
	Mitigation and Adaptation <ul style="list-style-type: none"><li>● Strategies for mitigating climate change</li><li>● Approaches to adaptation to climate change</li><li>● The role of science and technology in mitigation and adaptation</li><li>● Economic and political considerations in mitigation and adaptation</li></ul>	15 Hours
	International Frameworks and Agreements <ul style="list-style-type: none"><li>● United Nations Framework Convention on Climate Change (UNFCCC)</li><li>● Intergovernmental Panel on Climate Change (IPCC)</li><li>● Kyoto Protocol</li><li>● Paris Agreement</li></ul>	15 Hours
Pedagogy:	Lectures, Group Discussions, Student Seminars, Presentations, Case Studies, Assignments, Blended learning, Gamification, Problem-solving approach through logic, Experiential learning, Discussion-based teaching, Brainstorming, Fieldwork and outdoor learning, Flipped classroom pedagogy, Art Integrated Learning, Cutting Edge, and Cooperative Learning Strategies.	

References/ Readings:	<ul style="list-style-type: none"> <li>▪ Intergovernmental Panel on Climate Change. (2014). <i>Climate Change 2014: Impacts, Adaptation, and Vulnerability</i>. Cambridge University Press.</li> <li>▪ Hulme, M. (2009). <i>Why We Disagree About Climate Change: Understanding Controversy, Inaction, and Opportunity</i>. Cambridge University Press.</li> <li>▪ Schneider, S. H. (2009). <i>Science as a Contact Sport: Inside the Battle to Save Earth's Climate</i>. National Geographic Books.</li> <li>▪ Gore, A. (2009). <i>Our Choice: A Plan to Solve the Climate Crisis</i>. Rodale Books.</li> <li>▪ Stern, N. (2007). <i>The Economics of Climate Change: The Stern Review</i>. Cambridge University Press.</li> <li>▪ UNFCCC. (2015). <i>Adoption of the Paris Agreement</i>. United Nations Framework Convention on Climate Change.</li> <li>▪ WMO. (2019). <i>State of the Global Climate 2018</i>. World Meteorological Organization.</li> <li>▪ IPCC. (2018). <i>Global Warming of 1.5°C: Summary for Policymakers</i>. Intergovernmental Panel on Climate Change.</li> <li>▪ Wilbanks, T. J., et al. (2014). <i>Climate Change and Infrastructure, Urban Systems, and Vulnerabilities: Technical Report for the U.S. Department of Energy in Support of the National Climate Assessment</i>. U.S. Department of Energy.</li> <li>▪ IPCC. (2014). <i>Climate Change 2014: Mitigation of Climate Change</i>. Intergovernmental Panel on Climate Change.</li> </ul>
Course Outcomes:	<p>By the end of this course, students will be able to:</p> <ul style="list-style-type: none"> <li>● <b>Explain</b> the nature and scope of climate change and its historical context.</li> <li>● <b>Identify</b> the scientific evidence for climate change and the causes and consequences of this phenomenon.</li> <li>● <b>Analyze</b> the impacts of climate change on land, water, and the atmosphere.</li> <li>● <b>Evaluate</b> strategies for mitigating and adapting to climate change, including the role of science and technology, economic and political considerations, and international frameworks and agreements.</li> <li>● <b>Apply</b> geographic principles and concepts to analyze case studies of climate change impacts and responses, and to assess the social and economic implications of climate change.</li> </ul>

**Name of the Programme: Bachelor of Arts in Geography****Course Code: GOG-131****Title of the Course: Astronomical Geography****Number of Credits: 3****Effective from AY: 2023-24**

Pre-requisites for the Course:	Nil
Course Objectives:	Astronomical Geography is an introductory course that provides a comprehensive overview of the science of astronomy in relation to Geography. The course covers the historical development of astronomy, celestial coordinates and time, the electromagnetic spectrum, imaging and spectroscopy, the Solar System, stars and stellar evolution, galaxies and cosmology, as well as special topics such as exoplanets, dark matter, dark energy and gravitational waves. Throughout the course, students will have opportunities to engage in hands-on activities and observations of the night sky.
Content:	<p>Introduction to Astronomy</p> <ul style="list-style-type: none"><li>● What is astronomy?</li><li>● Relationship of Astronomy with Geography</li><li>● Historical development of astronomy with relation to Geography</li></ul> <p>The Solar System</p> <ul style="list-style-type: none"><li>● The Sun and its properties</li><li>● The planets and their properties</li></ul> <p>Dwarf planets, asteroids, comets and constellations</p> <p>15 Hours</p>
	<p>Stars and Stellar Evolution</p> <ul style="list-style-type: none"><li>● Types of stars</li></ul> <p>Stellar properties and life cycle Star clusters and their properties</p> <p>Galaxies and Cosmology</p> <ul style="list-style-type: none"><li>● Types of galaxies</li><li>● Formation and evolution of galaxies</li><li>● The Big Bang and the expanding universe</li><li>● Exoplanets and the search for life</li><li>● Dark matter and dark energy</li></ul> <p>15 Hours</p>
	<p>Introduction to the night sky Celestial coordinates and time</p> <p>Observing the Sky:</p> <ul style="list-style-type: none"><li>● The naked eye and telescopes during Summer and Winter seasons</li><li>● Field Diary on Sky Observations</li></ul> <p>15 Hours</p>
Pedagogy:	Lectures, Group Discussions, Student Seminars, Presentations, Case Studies, Assignments, Blended learning, Gamification, Problem-solving approach through logic, Experiential learning, Discussion-based teaching, Brainstorming, Fieldwork and outdoor learning, Flipped classroom pedagogy, Art Integrated Learning, Cutting Edge, and Cooperative Learning Strategies.
References/ Readings:	<ul style="list-style-type: none"><li>▪ Hawking, Stephen. A Brief History of Time. Bantam Books, 1998.</li><li>▪ Sagan, Carl. Cosmos. Random House, 1980.</li><li>▪ Greene, Brian. The Elegant Universe. Vintage Books, 2000.</li><li>▪ Rey, H.A. The Stars: A New Way to See Them. Houghton Mifflin, 1976.</li><li>▪ Tyson, Neil deGrasse. Astrophysics for People in a Hurry. W.W. Norton &amp; Company, 2017.</li></ul>

	<ul style="list-style-type: none"> <li>▪ Greene, Brian. The Fabric of the Cosmos. Vintage Books, 2004.</li> <li>▪ Kuhn, Thomas S. The Structure of Scientific Revolutions. University of Chicago Press, 1962.</li> <li>▪ Tyson, Neil deGrasse. Death by Black Hole: And Other Cosmic Quandaries. W.W. Norton &amp; Company, 2007.</li> <li>▪ Kaku, Michio. The Physics of the Impossible. Doubleday, 2008.</li> <li>▪ Hawking, Stephen. The Universe in a Nutshell. Bantam Books, 2001.</li> </ul> <p>Online Resources:</p> <ul style="list-style-type: none"> <li>▪ NASA. "Astronomy Picture of the Day." NASA, <a href="https://apod.nasa.gov/apod/astropix.html">https://apod.nasa.gov/apod/astropix.html</a>.</li> <li>▪ Sky &amp; Telescope Magazine. Sky &amp; Telescope Magazine, <a href="https://skyandtelescope.org/">https://skyandtelescope.org/</a>.</li> <li>▪ Space.com. Space.com, <a href="https://www.space.com/">https://www.space.com/</a>.</li> <li>▪ Astronomy Magazine. Astronomy Magazine, <a href="https://astronomy.com/">https://astronomy.com/</a>.</li> <li>▪ Hubble Space Telescope. Hubble Space Telescope, <a href="https://www.spacetelescope.org/">https://www.spacetelescope.org/</a>.</li> <li>▪ European Space Agency. European Space Agency, <a href="https://www.esa.int/">https://www.esa.int/</a>.</li> <li>▪ American Astronomical Society. American Astronomical Society, <a href="https://aas.org/">https://aas.org/</a>.</li> <li>▪ The Virtual Telescope Project. The Virtual Telescope Project, <a href="https://www.virtualtelescope.eu/">https://www.virtualtelescope.eu/</a>.</li> <li>▪ Stellarium. Stellarium, <a href="https://stellarium.org/">https://stellarium.org/</a>.</li> <li>▪ Slooh. Slooh, <a href="https://www.slooh.com/">https://www.slooh.com/</a>.</li> </ul>
Course Outcomes:	<p>By the end of the course, students will be able to:</p> <ul style="list-style-type: none"> <li>● Define and describe fundamental concepts in astronomy such as celestial coordinates, electromagnetic spectrum, types of stars, types of galaxies, and the Big Bang theory</li> <li>● Identify and observe celestial objects and events, including planets, stars, and constellations</li> <li>● Explain the properties and behavior of objects in our Solar System, including the Sun, planets, asteroids, and comets</li> <li>● Describe the life cycle of stars, their properties and classification, and the role of star clusters in the evolution of the universe</li> <li>● Explain the formation, evolution, and properties of galaxies, and their role in the structure of the universe</li> <li>● Discuss the methods and findings of exoplanet research and the search for life beyond our Solar System</li> <li>● Understand the role of dark matter, dark energy, and gravitational waves in our understanding of the universe.</li> </ul>



**Name of the Programme: Bachelor of Arts in Geography**

**Course Code: GOG-141**

**Title of the Course: Elements of Environmental Impact Assessment (EIA)**

**Number of Credits: 1+2=3**

**Effective from AY: 2023-24**

Prerequisites for the course:	Nil	
Objectives:	The course provides an introduction to Environmental Impact Assessment (EIA) processes and procedures. It covers the principles and concepts of EIA, including the identification of potential environmental impacts, the evaluation of their significance, and the formulation of mitigation measures.	
Contents:	<b>Introduction to Environmental Impact Assessment</b> <ul style="list-style-type: none"><li>● Definition, principles, and objectives of EIA</li><li>● Types of EIA (screening, scoping, baseline study, impact assessment, mitigation, monitoring, and auditing)</li><li>● International frameworks and conventions (e.g., NEPA, SEA, EIA Directive, Aarhus Convention)</li></ul> EIA Process <ul style="list-style-type: none"><li>● The EIA process and its stages (initiation, screening, scoping, impact assessment, mitigation, review, and decision-making)</li><li>● Key stakeholders and their roles (proponent, government agencies, public, NGOs, experts) Examples of EIA process in different sectors (e.g., energy, mining, infrastructure)</li></ul> Legal and Institutional Frameworks <ul style="list-style-type: none"><li>● National and international laws and regulations governing EIA</li></ul>	15 Hours
	<b>Practical Component 1:</b> <ul style="list-style-type: none"><li>● Quality assessment of soil using field kit: pH and Organic Carbon and interpretation of the data.</li><li>● Interpretation of air quality using data from Goa Pollution Control Board</li><li>● Preparation of the report</li></ul>	30 Hours
	<b>Practical Component 2:</b> <ul style="list-style-type: none"><li>● Preparation of questionnaire for perception survey on environmental problems.</li><li>● Preparation of check-list for Environmental Impact Assessment of an urban / industrial project</li><li>● Survey to be carried out of any urban or industrial project.</li><li>● Tabulation of the data</li><li>● Structure and contents of an EIA report</li><li>● Preparation of the report</li><li>● Review and assessment of an EIA report</li></ul>	30 Hours
Pedagogy:	Lectures, Group Discussions, Student Seminars, Presentations, Case Studies, Assignments, Blended learning, Gamification, Problem-solving approach through logic, Experiential learning, Discussion-based teaching, Brainstorming, Fieldwork and outdoor learning, Flipped classroom pedagogy, Art	

	Integrated Learning, Cutting Edge, and Cooperative Learning Strategies.	
References/Readings	<ul style="list-style-type: none"> <li>▪ Anjaneyulu, Y., &amp; Reddy, K. R. K. (2017). Environmental impact assessment: Methodologies and applications. Discovery Publishing House.</li> <li>▪ Canter, L. W. (2017). Environmental impact assessment (4th ed.). CRC Press.</li> <li>▪ Glasson, J., Therivel, R., &amp; Chadwick, A. (2012). Introduction to environmental impact assessment (4th ed.). Routledge.</li> <li>▪ Krishnamurthy, C. V. (2015). Environmental impact assessment: Principles and procedures. SAGE Publications India.</li> <li>▪ Lee, N., Colley, M., &amp; Dale, P. (2006). Environmental assessment in practice. Routledge.</li> <li>▪ Pandey, G. N., &amp; Sharma, B. K. (2012). Environmental impact assessment in India. TERI Press.</li> <li>▪ Petts, J. (2017). Handbook of environmental impact assessment (2nd ed.). Wiley-Blackwell.</li> <li>▪ Rajagopalan, R. (2004). Environmental impact assessment: A guide to best professional practices. Oxford University Press.</li> <li>▪ Ross, S., &amp; Morrison-Saunders, A. (2014). Environmental impact assessment and sustainability assessment: Towards a unified approach. Edward Elgar Publishing.</li> <li>▪ Wood, C. (2003). Environmental impact assessment: a comparative review (2nd ed.). Prentice Hall.</li> <li>▪ Zafar, S. M. (2005). Environmental impact assessment: Theory and practice. A. P. H. Publishing Corporation.</li> </ul>	
<ul style="list-style-type: none"> <li>● Course Outcomes:</li> </ul>	<p>Upon completion of the course, students will be able to:</p> <ul style="list-style-type: none"> <li>● <b>Understand</b> the principles and concepts of EIA</li> <li>● <b>Identify</b> and evaluate potential environmental impacts</li> <li>● <b>Understand</b> the legal and institutional frameworks governing EIA</li> <li>● <b>Apply</b> EIA methodologies to real-world projects</li> </ul>	

### Assessment and Evaluation of the Course:

The practical component (2 credit) of 50 marks will be assessed in the following manner:

#### Intra Semester Assessment:

ISA shall have 10 marks.

#### Semester End Assessment:

- Maintenance of Practical Record/Journal: 5 marks
- Report Submission : 10 Marks
- Viva Voce Examination: 5 marks
- Written examination based on the practical syllabus: 20 marks

**Name of the Programme: Bachelor of Arts in Geography**

**Course Code: GOG-113**

**Title of the Course: Application of Disaster Risk Reduction and Mitigation**

**Number of Credits: 4**

**Effective from AY: 2023-24**

Pre-requisites for the Course:	Nil	
Course Objectives:	The main objective of this paper is to orient the students to apply the fundamental knowledge of disaster risk reduction, management and mitigation in a geographical perspective. It is to develop preparedness amongst the students as the catalyst in the Society.	
Content:	Fundamentals of Application of Disaster Risk Reduction and Mitigation: Understanding the Threat, Mental Preparedness, Logistics, Coordination, Warning Signals, Communication Disaster Mitigation in Geography	15 Hours
	Climate Change: Understanding Climate Change; Green House Gases and Global Warming; Global Climatic Assessment- IPCC	15 Hours
	Impact of Climate Change: Agriculture and Water; Flora and Fauna; Human Health Adaptation and Mitigation: Global Initiatives with Particular Reference to South Asia. National Action Plan on Climate Change; Local Institutions (Urban Local Bodies, Panchayats)	15 Hours
	Working with the Local Disaster Management Committee in assessing local disasters. Participation in Disaster Drill or Mock Drill: National Disaster Relief Force (NDRF)/ State Disaster Relief Force (SDRF)/ Emergency and Fire Extinguishing Services/Local Taluka Authorities. Preparing a Disaster Management Plan for College/Village/Panchayat/Taluka, or any other place with the help of Emergency and Fire Extinguishing Services or in-house expertise	15 Hour
Pedagogy:	Lectures, Group Discussions, Student Seminars, Presentations, Case Studies, Assignments, Blended learning, Gamification, Problem-solving approach through logic, Experiential learning, Discussion-based teaching, Brainstorming, Fieldwork and outdoor learning, Flipped classroom pedagogy, Art Integrated Learning, Cutting Edge, and Cooperative Learning Strategies.	
References/ Readings:	<ul style="list-style-type: none"><li>▪ Government of India. (1997) Vulnerability Atlas of India. New Delhi, Building Materials &amp; Technology Promotion Council, Ministry of Urban Development, Government of India.</li><li>▪ IPCC (2014) Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.</li></ul>	

	<ul style="list-style-type: none"> <li>▪ Kapur, A. (2010) Vulnerable India: A Geographical Study of Disasters, Sage Publication, New Delhi.</li> <li>▪ Modh, S. (2010) Managing Natural Disaster: Hydrological, Marine and Geological Disasters, Macmillan, Delhi.</li> <li>▪ Singh, R.B. (2005) Risk Assessment and Vulnerability Analysis, IGNOU, New Delhi. Chapter 1, 2 and 3</li> <li>▪ Singh, R. B. (ed.), (2006) Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, New Delhi.</li> <li>▪ Sinha, A. (2001). Disaster Management: Lessons Drawn and Strategies for Future, New United Press, New Delhi.</li> <li>▪ Stoltman, J.P. et al. (2004) International Perspectives on Natural Disasters, Kluwer Academic Publications. Dordrecht.</li> <li>▪ Singh Jagbir (2007) “Disaster Management Future Challenges and Oppurtunities”, 2007. Publisher- I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India (www.ikbooks.com).</li> </ul>
Course Outcomes:	<p>Upon completing this course, students will be able to:</p> <ul style="list-style-type: none"> <li>● <b>Understand</b> the threats posed by natural and human-induced disasters, and the importance of disaster risk reduction and mitigation.</li> <li>● <b>Develop</b> mental preparedness for disasters, and understand the importance of logistics, coordination, and warning signals in disaster management.</li> <li>● <b>Analyze</b> the impact of climate change on agriculture, water, flora, and fauna, and human health.</li> <li>● <b>Understand</b> the concepts of adaptation and mitigation in the context of global initiatives, with particular reference to South Asia.</li> <li>● <b>Analyze</b> the National Action Plan on Climate Change, and the role of local institutions such as urban local bodies and panchayats in disaster risk reduction and mitigation.</li> <li>● <b>Apply</b> their knowledge and skills to prepare a mini project report based on a field-based case study of a disaster, and develop a preparedness plan for their respective college or locality.</li> </ul> <p>Overall, the course will equip students with the knowledge and skills to understand the threats posed by disasters and climate change, and to develop effective strategies for disaster risk reduction and mitigation.</p>

**Name of the Programme: Bachelor of Arts in Geography**

**Course Code: GOG-114**

**Title of the Course: Fundamentals of Tourism Geography**

**Number of Credits: 4**

**Effective from AY: 2023-24**

Pre-requisites for the Course:	Nil
Course Objectives:	This course provides an overview of tourism geography, including the history of tourism, tourist behavior, tourism planning and development, and the impacts of tourism on destinations. Students will explore the geography of different types of tourism, such as ecotourism, cultural tourism, adventure tourism, and beach tourism. The course will also cover issues related to sustainable tourism, such as ecotourism certification, sustainable tourism planning, and community-based tourism.
Content:	<p>Introduction to Tourism Geography</p> <ul style="list-style-type: none"><li>● Definition of tourism geography</li><li>● Significance of tourism geography</li><li>● Historical development of tourism</li><li>● Tourist behaviour</li></ul> <p>15 Hours</p>
	<p>Geography of Different Types of Tourism</p> <ul style="list-style-type: none"><li>● Ecotourism</li><li>● Cultural tourism</li><li>● Adventure tourism</li><li>● Beach tourism</li><li>● Community-based tourism</li><li>● Medical Tourism</li><li>● Pilgrimage Tourism</li></ul> <p>15 Hours</p>
	<p>Impacts of Tourism on Destinations</p> <ul style="list-style-type: none"><li>● Economic impacts</li><li>● Social impacts</li><li>● Cultural impacts</li><li>● Environmental impacts</li></ul> <p>15 Hours</p>
	<p>Tourism Planning and Development</p> <ul style="list-style-type: none"><li>● Tourism planning process</li><li>● Sustainable tourism planning</li><li>● Stakeholder analysis</li><li>● Sustainable tourism development</li><li>● Ecotourism certification</li><li>● Field Visit and Report (within the State)</li></ul> <p>15 Hours</p>
Pedagogy:	Lectures, Group Discussions, Student Seminars, Presentations, Case Studies, Assignments, Blended learning, Gamification, Problem-solving approach through logic, Experiential learning, Discussion-based teaching, Brainstorming, Fieldwork and outdoor learning, Flipped classroom pedagogy, Art Integrated Learning, Cutting Edge, and Cooperative Learning Strategies.
References/ Readings:	<ul style="list-style-type: none"><li>▪ Buckley, R. (2012). Sustainable Tourism: Research and Reality. Annals of Tourism Research, 39(2), 528-546.</li></ul>

	<ul style="list-style-type: none"> <li>▪ Hall, C. M., &amp; Page, S. J. (2014). <i>The Geography of Tourism and Recreation: Environment, Place, and Space</i>. Routledge.</li> <li>▪ Holden, A. (2013). <i>Environment and Tourism</i>. Routledge.</li> <li>▪ Lew, A. A., &amp; Cheer, J. M. (1999). <i>Tourism in world cities: Theoretical perspectives (Vol. 2)</i>. Psychology Press.</li> <li>▪ Page, S. J., &amp; Connell, J. (2014). <i>Tourism: A modern synthesis</i>. Cengage Learning.</li> <li>▪ Ritchie, J. R. B., &amp; Crouch, G. I. (2003). <i>The competitive destination: A sustainable tourism perspective</i>. CABI.</li> <li>▪ Ryan, C. (2017). <i>Tourism and Leisure: Local Communities and Sustainable Futures</i>. Channel View Publications.</li> <li>▪ Tribe, J. (2017). <i>The economics of recreation, leisure and tourism</i>. Routledge.</li> <li>▪ UNWTO. (2019). <i>UNWTO World Tourism Barometer, Volume 17, January 2019</i>. United Nations World Tourism Organization.</li> <li>▪ Weaver, D. B., &amp; Lawton, L. J. (2014). <i>Tourism Management</i>. John Wiley &amp; Sons.</li> <li>▪ Weaver, D. B. (2011). <i>Sustainable tourism: Theory and practice</i>. Channel View Publications.</li> <li>▪ Williams, A. M., &amp; Hall, C. M. (2002). <i>Tourism and migration: New relationships between production and consumption</i>. Ashgate Publishing, Ltd.</li> </ul>
<p>Course Outcomes:</p>	<p>Upon completing this course, students will be able to:</p> <ul style="list-style-type: none"> <li>● To introduce students to the concept of tourism geography and its significance in the study of tourism.</li> <li>● To provide an overview of the history of tourism and tourist behavior.</li> <li>● To explore the geography of different types of tourism, such as ecotourism, cultural tourism, adventure tourism, and beach tourism.</li> <li>● To understand the process of tourism planning and development, including the role of stakeholders and the challenges of sustainable tourism.</li> <li>● To analyze the impacts of tourism on destinations, including economic, social, cultural, and environmental impacts.</li> <li>● To examine issues related to sustainable tourism, such as ecotourism certification, sustainable tourism planning, and community-based tourism.</li> </ul>

**Name of the Programme: Bachelor of Arts in Geography**

**Course Code: GOG-132**

**Title of the Course: Major World Environments**

**Number of Credits: 3**

**Effective from AY: 2023-24**

Pre-requisites for the Course:	Nil
Course Objectives:	This course explores the major terrestrial environments around the world. Students will examine the physical and biological characteristics of each environment, the adaptations of organisms to these environments, and the human impact on these environments. The course also covers conservation strategies and policies aimed at mitigating human impact on these environments.
Content:	<p>Introduction to Terrestrial Environments</p> <ul style="list-style-type: none"><li>● Overview of terrestrial environments</li><li>● Physical and biological characteristics of terrestrial environments</li><li>● Ecosystem services provided by terrestrial environments</li></ul> <p>Equatorial Region Monsoon Region Tropical Grasslands Region (Savannas) With reference to</p> <ul style="list-style-type: none"><li>● Geographical Location and Conditions</li><li>● Physical and biological characteristics</li><li>● Adaptations of organisms to equatorial regions</li><li>● Human impact on the Region</li></ul> <p>15 Hours</p>
	<p>Temperate Grasslands Region (Prairies) Arctic Region Hot Desert Region Mediterranean Region With reference to</p> <ul style="list-style-type: none"><li>● Geographical Location and Conditions</li><li>● Physical and biological characteristics</li><li>● Adaptations of organisms to equatorial regions</li><li>● Human impact on the Region</li></ul> <p>15 Hours</p>
	<p>Conservation Strategies</p> <ul style="list-style-type: none"><li>● Principles of conservation</li><li>● Strategies for sustainable management of natural resources</li><li>● Contemporary Environmental Issues</li></ul> <p>Global environmental change</p> <p>15 Hours</p>
Pedagogy:	Lectures, Group Discussions, Student Seminars, Presentations, Case Studies, Assignments, Blended learning, Gamification, Problem-solving approach through logic, Experiential learning, Discussion-based teaching, Brainstorming, Fieldwork and outdoor learning, Flipped classroom pedagogy, Art Integrated Learning, Cutting Edge, and Cooperative Learning Strategies.

References/ Readings:	<ul style="list-style-type: none"> <li>▪ Bodenhamer, D. J., Corrigan, J., &amp; Harris, T. M. (Eds.). (2010). The spatial humanities: GIS and the future of humanities scholarship. Indiana University Press.</li> <li>▪ Chapman, J. L. (2014). Biomes and ecosystems: An encyclopedia. Greenwood Publishing Group.</li> <li>▪ Cloke, P., Crang, P., &amp; Goodwin, M. (2014). Introducing Human Geographies. Routledge.</li> <li>▪ Cohen, S., &amp; Huffman, M. (2019). The Fundamentals of Human Geography: A Pre-Reader. Routledge.</li> <li>▪ Daniels, P., Bradshaw, M., Shaw, D., &amp; Sidaway, J. (2016). An Introduction to Human Geography. Pearson.</li> <li>▪ de Blij, H. J., Murphy, A. B., &amp; Fouberg, E. H. (2018). World geography: People, places, and global issues. Wiley.</li> <li>▪ Flint, C., &amp; Taylor, P. J. (2019). Political Geography: An Introduction. Sage</li> <li>▪ Goh Cheng Leong (1995). Certificate Physical and Human Geography, Oxford University Press.</li> <li>▪ Hopkins, T. K., &amp; Campbell, J. R. (2016). World regional geography. Cengage Learning.</li> <li>▪ Johnston, R. J., &amp; Sidaway, J. D. (2017). Geography since the Second World War: An international survey. Routledge.</li> <li>▪ Intergovernmental Panel on Climate Change (IPCC) reports.</li> <li>▪ Kitchin, R., &amp; Thrift, N. (2017). International Encyclopedia of Human Geography. Elsevier.</li> <li>▪ Khullar D.R. (2016). Physical, Human and Economic Geography, Accesses Publication</li> <li>▪ Marston, S. A., Knox, P. L., &amp; Liverman, D. M. (2018). World regions in global context: Peoples, places, and environments. Pearson.</li> <li>▪ Millennium Ecosystem Assessment (2005). Ecosystems and Human Well-being: Synthesis. Island Press.</li> <li>▪ Woodward, S. L., &amp; Smith, B. M. (2016). Major World Environments. John Wiley &amp; Sons.</li> </ul>
Course Outcomes:	<p>Upon completion of this course, students will be able to:</p> <ul style="list-style-type: none"> <li>● <b>Describe</b> the physical and biological characteristics of major terrestrial environments, including equatorial, tropical grasslands, temperate grasslands, arctic, hot desert, Mediterranean, and other regions.</li> <li>● <b>Understand</b> the adaptations of organisms to different environments and how they affect ecological processes.</li> <li>● <b>Analyze</b> the impact of human activities on these environments, including land use changes, pollution, and climate change.</li> <li>● <b>Evaluate</b> conservation strategies and policies aimed at mitigating human impact on these environments.</li> <li>● <b>Apply</b> critical thinking and problem-solving skills to contemporary environmental issues.</li> </ul>



**Name of the Programme: Bachelor of Arts in Geography****Course Code: GOG-142****Title of the Course: Introduction to the Principles and Practices of Land Use Planning and Management****Number of Credits: 1+2=3****Effective from AY: 2023-24**

Prerequisites for the course:	Nil	
Objectives:	This course is an introduction to the principles and practices of land use planning and management. The course provides an overview of the land use planning process, including goal and objective setting, analysis of alternatives, and selection of appropriate land use strategies. The course also covers the tools and techniques used in land use planning, such as mapping and GIS, zoning, and land use regulations.	
Contents:	<p>Introduction to Land Use Planning and Management</p> <ul style="list-style-type: none"> <li>● Overview of the course</li> <li>● Definition of land use planning and management</li> <li>● Historical and contemporary perspectives on land use</li> </ul> <p>Factors Influencing Land Use</p> <ul style="list-style-type: none"> <li>● Social, economic, environmental, and political considerations</li> <li>● Land use patterns and trends</li> </ul> <p>Land Use Planning Process</p> <ul style="list-style-type: none"> <li>● Goals and objectives</li> <li>● Analysis of alternatives</li> <li>● Selection of appropriate land use strategies</li> </ul> <p>Land Use Planning Tools and Techniques</p> <ul style="list-style-type: none"> <li>● Mapping and GIS</li> <li>● Zoning and land use regulations</li> </ul>	15 Hours
	<p>Exercises using Q-GIS or any other Open Source Software for Land Use Planning and Management:</p> <p>Creating a land use map: Use Q-GIS or any other Open Source Software to create a land use map of a specific area. Collect data on the various land use types in the area and classify them accordingly. Use different colors to represent each land use type and create a map legend.</p> <p>Overlay analysis: Conduct an overlay analysis using Q-GIS or any other Open Source Software to identify areas of conflict between land uses. For example, overlaying a map of wetlands with a map of proposed development areas to identify areas of potential environmental impact.</p> <p>Suitability analysis: Use Q-GIS or any other Open Source Software to conduct a suitability analysis for a specific land use, such as agriculture. Identify factors that contribute to suitability, such as</p>	30 Hours

	soil type, slope, and water availability. Use a weighted overlay analysis to produce a suitability map.	
	<p>Exercises using Q-GIS or any other Open Source Software for Land Use Planning and Management:</p> <p>Land use change analysis: Use Q-GIS or any other Open Source Software to analyze changes in land use over time. Compare land use maps from different periods and identify trends and patterns in land use change. Use the results to inform land use planning and management decisions.</p> <p>Zoning map creation: Use Q-GIS or any other Open Source Software to create a zoning map for a specific area. Identify different zones based on land use and create a map legend to represent each zone. Use the map to inform land use planning and management decisions.</p> <p>Select a place of your choice and employ the aforementioned exercises using Q-GIS or any other open-source software. Generate a report based on your findings and submit.</p>	30 Hours
Pedagogy:	Lectures, Group Discussions, Student Seminars, Presentations, Case Studies, Assignments, Blended learning, Gamification, Problem-solving approach through logic, Experiential learning, Discussion-based teaching, Brainstorming, Fieldwork and outdoor learning, Flipped classroom pedagogy, Art Integrated Learning, Cutting Edge, and Cooperative Learning Strategies and Computer Assisted Teaching.	
References/Readings	<ul style="list-style-type: none"> <li>▪ Burchell, R. W., &amp; Listokin, D. (2013). The practice of local government planning. International City/County Management Association.</li> <li>▪ Cervero, R., &amp; Kockelman, K. (1997). Travel demand and the 3Ds: Density, diversity, and design. Transportation Research Part D: Transport and Environment, 2(3), 199-219.</li> <li>▪ Kadian K. S. and P. C. Pande (2017). Land Use Planning and Management: Theory, Principles and Practice. New Delhi: PHI Learning Private Limited.</li> <li>▪ Kumar Mahesh (2015). Land Use Planning and Sustainable Development. New Delhi: Sage Publications India.</li> <li>▪ Rajagopal M. R. and S. Suresh Kumar (2016). Land Use Planning and Management: An Overview. Chennai: Springer India.</li> <li>▪ Singh Avadhesh Kumar and Sudhir Kumar Singh (2018). Land Use Planning and Management. New Delhi: Concept Publishing Company.</li> <li>▪ Sharma Sanjay (2019). Land Use Planning: Emerging Land Use Issues and Challenges. New Delhi: Atlantic Publishers and Distributors.</li> <li>▪ Steiner, F. R., &amp; Greene, M. (2015). Planning and urban design standards. John Wiley &amp; Sons.</li> </ul>	
Course Outcomes:	By the end of this course, students will be able to:	

	<ul style="list-style-type: none"> <li>● <b>Understand</b> the basic principles and practices of land use planning and management</li> <li>● <b>Identify</b> the various factors that influence land use, including social, economic, environmental, and political considerations</li> <li>● <b>Analyze</b> the basic land use planning process, including the identification of goals and objectives, the analysis of alternatives, and the selection of appropriate land use strategies</li> <li>● <b>Apply</b> basic land use planning tools and techniques, such as mapping and GIS, zoning, and land use regulations</li> </ul>	
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### Assessment and Evaluation of the Course:

The practical component (2 credit) of 50 marks will be assessed in the following manner:

#### Intra Semester Assessment:

ISA shall have 10 marks.

#### Semester End Assessment:

- Maintenance of Practical Record/Journal: 5 marks
- Report Submission : 10 Marks
- Viva Voce Examination: 5 marks
- Written examination based on the practical syllabus: 20 marks

### Multiple Exit at Second Semester after completing 4 credit Internship with UG Certificate

The Geography program offers exit options for students after Semester II. Students who choose to exit the program after Semester II will be required to complete an internship during the summer vacation for 4 credits.

The internship program is designed to provide students with practical experience in the field of Geography and to prepare them for the challenges of the professional world. Through the internship, students will have the opportunity to develop professional skills such as communication, teamwork, problem solving, and decision-making.

The internship program is an essential component of the curriculum for students who wish to exit the program after Semester II. It is a valuable opportunity for students to gain practical experience, build professional networks, and enhance their employability. The program is also an opportunity for students to apply the theoretical knowledge they have gained in a real-world setting, and to gain a deeper understanding of the practical challenges and opportunities in the field of Geography.

The faculty will provide students with guidance and support throughout the internship program, and will assist them in identifying suitable organizations and projects. Once the internship is completed, the candidate must submit a Certificate of Completion from the organization, Internship Report, and give a presentation to the guiding teacher. The guiding teacher will evaluate the internship report and presentation for 4 credits.