

PROGRAMME PROJECT REPORT (PPR)

MASTER OF SCIENCE IN GEOGRAPHY Distance Mode: Semester Pattern



**Department of Geography
School of Sciences
TAMIL NADU OPEN UNIVERSITY
577, Anna Salai, Saidapet, Chennai – 600 015**

Geography Board of Studies

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PROGRAMME PROJECT REPORT (PPR)

1. Programme's Mission & Objectives:

The Master of Science (Geography) program is intended to address the issues of students to ace the fundamental and essential standards of Physical Geography and Human Geography. Geography is the field of science devoted to the investigation of the grounds, highlights, occupants, and occasions of the earth and the planets. Students can build up their explanatory abilities through great involvement in the Geography Lab where you can learn spatial innovation by using spatial technology. The fundamental way of thinking of our main goal will connect the advanced separation and actualize 'anywhere, anytime' learning conditions. Considering this, the Tamil Nadu Open University has begun its Geography program at the postgraduate level from the AY 2021 onwards.

The primary goals of the Program are

1. The educational program is focused on comprehension and explaining ecological and feasible improvement issues. This is frequently an essential connection between the Naturals and Social sciences.
2. By making a psychological guide of network, region or domain, nation and world, students can comprehend the "where" of spots and occasions and relate them to the living scene climate.
3. This course will be wont to comprehend the reliance of the planet and to turn into a much better worldwide resident.
4. Engaging people with the logical abilities expected to search out business and improve their lives.
5. Giving chances to intrigued students to enter University and study past the age, work and seat limits.

2. Relevance of the Programme with HEI's Mission and Goals:

The geography curriculum is provided to spot human-environment and natural-social interactions and global environmental issues and to satisfy the present needs of scholars. This programme aims to make equality in education by providing opportunities for rural people those who is finding difficult to access higher education. It uses Spatial Technologies to extract geographic information and make awareness, communication and responsibility for the environment. Thus, students completing this program are going to be able to:

- Appreciate the world because of the Homeland of mankind, and supply insights for Intelligent Management Decisions on the way to use the planet's resources.
- Understand Geography's way of watching the planet through space and Scale
- The central principle of Geography is, "location matters" to know the varied processes and events. In fact, Geography's specialising in location provides a crossroads with other departments check out the processes, and events of treatment in isolation.
- Geographers specialise in "real world" relationships and dependencies among events and processes
- Analysis of eco-social dynamics associated with act with the physical environment, human and social dynamics, linking ecological dynamics and economics with physical systems; Social and political systems;
- Conduct spatial representation using visual, verbal, mathematical, digital, and cognitive approaches. Natural labs for exploring the complex relationships of places, processes, and events.

3. Nature of prospective target group of Learners:

Master of Science (Geography) Programme is supposed for college students who have completed 10 +2 +3 patterns from any University recognized by Indian Government and persons who are

already employed with regardless of their age. It also targets the agriculture population to succeed in their dream of getting an education for those who have been denied the opportunity due to the unavailability of a limited number of seats in the regular university system.

The target group may the has following.

- Passed out any Undergraduate degree students intending education
- Remote village intending Learners
- Those who cannot attend a full-time program thanks to constraints.
- Working Professionals
- Government Officials
- Home Makers, and a category having of the low level of income, minorities, etc.

4. Appropriateness of Programme to be conducted in Open and Distance Learning mode to acquire specific skills and competence:

Master of Science (Geography) Programme a great deal of degree inside the Teaching, Research field, Planning additionally inside the application field of Geographical information framework, Remote Sensing and Global Navigation Satellite System. The information is conferred through SLM and enhanced by addresses, contact classes and practical counselling classes through on the online and offline. The program includes an all-around organized arrangement of self-learning material tweaked to student's ability and fitness. The course is balanced to survey the student's advancement through checks including tasks and individual tests. The venture works, paper and Practical counselling classes are planned at standard stages which can build the experience of the students.

Instructional Design:

The Department of Geography has designed its curriculum and Self Learning materials, other resources and feedback system which are duly scrutinized and approved by the BOS and Academic Council. The most Objective of M.Sc Geography Programme will enable the students to know the essential knowledge of matter and make them relevant to society. The degree of Master of Science in Geography is 2 years (four Semester) and the medium of instruction is English. The Faculty Members are available within the Department of Geography in the School of Sciences. The faculties approved as Academic Counsellors of TNOU at Learner Support Centres will also be used for delivering the Programme in Geography.

Credits systems suggested as per UGC-ODL Regulations-2020 are assigned to the Bachelor of Science in Geography Programme. The entire number of credits assigned for the Programme is 88. Learning Material through Print-media named Self-Learning Material (SLM) is developed with the approach of self-explanatory, self-contained, self-motivating and self-evaluating adhering to UGC guideline. The Self Learning Materials within the sort of print, e-content, and audio/video materials, wherever required, have also been developed for the Programme.

There are three significant segments of this program is Theory, Practical and the Project. The theory part of the Programme is delivered through the Learner Support Centres (LSCs) that are affiliated Arts and Science colleges within the State of Tamil Nadu. Practical counselling classes are compulsory to finish the course and counselling classes are handled by the in-house faculty of TNOU in the main Campus and at selected LSCs from everywhere in Tamil Nadu. Manual and datasheets for the practical exercises are provided as and when required. Also, 50% of practical counselling classes will be conducted through a virtual lab.

The project is a substantial and comprehensive investigation of a challenging topic in the subject area of a geography. It is an important opportunity for an MSc student to apply the new understanding and advanced skills gained in their program to a significant and advanced practical problem. It is primarily evaluated by a keynote, which describes the entire purpose of their MSc program from its aim and objectives through its methodology, requirements analysis, summary evaluation and results. When they do the MSc Project with the prior permission of the course coordinator, the students are supervised by a qualified educator who specializes in the course.

7. Procedure for Admissions, Curriculum Transaction and Evaluation:

Centralized admission process is conducted through an online mode. Admission fees are also collected through online payment gateway service, and dedicated bank challan to assure better transparency in the monetary transaction.

7.1 Eligibility : Any Degree.

7.2 Fee : Rs. 10,000/Year & Registration Processing fee.

7.3 Financial Assistance: SC/ST Scholarship available as per the norms of the State Government of Tamil Nadu. Complete fee waiver for the Physically challenged/ differently abled persons.

7.4 Policy of Programme delivery: The tutorial Calendar for the Programme is going to be available for the learners to trace down the chronological events/ happenings. The Counselling schedule for both theory and Practical are going to be uploaded within the TNOU website and therefore, the same is going to be intimated to the scholars through SMS.

7.5 Evaluation System: Examination to master's degree Programme in Geography is meant to take care of the quality of ordinary. Theory and Practical are going to be conducted by the University, and through the identified Examination Centers and 50% of Practical classes are going to be conducted through the virtual lab. For the Assignment, students could also be permitted to write with the assistance of books/materials for every Course, which can be evaluated by the Evaluators engaged by the University.

7.6 Assignment: 1 assignment for two credits been to be prepared by the learners. E.g., If a Course is of Credit 3, then 2 Assignments are to be written by the learner to fulfil the continual assessment criteria. The assignment carries 30% of weightage of marks, consists of Long Answer Questions (1000 words) for every Course.

7.7 Model Assignment Question Pattern

Assignment – 1 Max: 15 marks

Answer any *one* of the questions not exceeding 1000 words

1. Question
2. Question
3. Question

Assignment - 2 Max: 15 marks

Answer any *one* of the questions not exceeding 1000 words

1. Question
2. Question
3. Question

7.8 Theory Examination:

Students are normally allowed to seem for theory examination by completing Practical and Assignments. The Term -End Examination shall Carry 70 marks and has Section: A and B are going to be of duration 3 hours.

TERM END QUESTION PAPER PATTERN

Time: 3 Hours

Maximum Marks: 70

PART - A (5 x 5 = 25 marks)

Answer any Five questions out of Eight Questions in 300 words All questions carry equal marks

1. From Unit -I
2. From Unit -II
3. From Unit -III

4. From Unit -IV
5. From Unit -V
6. From anyunit
7. From anyunit
8. From anyunit

PART - B (3 x 15 = 45 marks)

Answer any Three questions out of Five Questions in 1000 words.
All questions carry equal marks.

9. From Unit -I
10. From Unit -II
11. From Unit -III
12. From Unit -IV
13. From Unit -V

Passing Minimum: The Passing minimum is 50 percent in the External Theory, Practical and Project for successful completion of each Course.

Continuous Internal Assessment (CIA)		Term End Examination (TEE)		Overall Aggregated Marks	Maximum Marks
Minimum Pass Mark	Maximum Mark	Minimum Pass Mark	Maximum Mark	CIA + TEE	
13	30	32	70	50	100

Classification of Successful Candidate: Candidates who pass all the courses, and who secure 60 per cent and above within the aggregate of marks are going to be placed within the first-class. Those securing 50 per cent and above but below 60 per cent within the aggregate are going to be placed within Second Class.

Requirement of the Laboratory Support and Library Resources:

The Programme is going to be offered through the Learner Support Centre (LSC) maintained by Tamil Nadu Open University. The LSC has the specified infrastructural facilities to conduct the Counselling for the scholars who wish to clear their doubts. There will be a total of two Practical (one per Year) at the postgraduate level in Geography. A well-equipped Library is out there within the University Headquarters with about 24,000 books and a a lot of research journals. The Learners Support Centre through which the Master's Degree Programme is to be offered is additionally equipped will a full-fledged library, having books and journals associated with Geography.

5. Cost Estimate of the Programme and the Provisions:

S.No.	Details	Amount in Rs.
1	Programme development and launching cost(Expenditure)	-7626200
2	Programme Fee charged for 3years per student (Income)	20000

3	Examination Fee charged for 3 years (Income) per student	6000
4	Examination expenses per student for 3 years per student (Expenditure)	-12000

6. Quality Assurance Mechanism and Expected Programme Outcomes:

The standard of the Master's Degree Programme in Geography is maintained by adopting the curriculum suggested by the UGC and TANSICHE. As per UGC DEB guidelines, the 16 core courses and 4 elective courses are included within the Programme. The Curriculum of Master's Degree Programme in Geography was approved by the Board of Studies persisted 19th, June 2020. As a neighborhood of the Quality assurance, the curriculum for the Programme is going to be updated once in three years. Necessary steps are going to be taken to get feedback from the scholars and therefore, the Academic Counsellors who are a part of the Programme for effective delivery of the Programme.

The learning outcomes to M.Sc. Geography Programme:

- Understanding of basic concepts in geography.
- Coherent and systematic knowledge within the field of geology to affect current problems, and their solutions.
- Ability to read and understand maps and topographic sheets to ascertain different aspects of the place.
- Develop the power to critically evaluate the vast chain of spatial features at different time scales from global to local level.
- Recognition of skill development within geographical Studies as a part of career opportunities in various fields like teaching, research and administration.

ALLOCATION OF COURSES AND CREDITS: SEMESTER PATTERN

Course	Code	Semester 1	Credits	CIA	TEE	Total
Core 01	MGEOS_11	Processes of Geomorphology	4	30	70	100
Core 02	MGEOS_12	Climatology and Hydrology	4	30	70	100
Core 03	MGEOS_13	Environmental Geography	4	30	70	100
Core 04	MGEOS_14	Advanced Cartography	4	30	70	100
Elective 01	MGEOSE_11	Climate Change Vulnerability and Adaptation	4	30	70	100
			20			500
		Semester 2				
Core 05	MGEOS_21	Agricultural Geography	4	30	70	100
Core 06	MGEOS_22	Urban Geography	4	30	70	100
Core 07	MGEOS_23	Remote Sensing	4	30	70	100
Core 08	MGEOS_P1	Practical: Mapping Techniques – I	6	30	70	100
Elective 02	MGEOSE_21	Quantitative Techniques in Geography	4	30	70	100
			22	20		500
		Semester 3				
Core 09	MGEOS_31	Geographical Thought	4	30	70	100
Core 10	MGEOS_32	Regional Planning	4	30	70	100
Core 11	MGEOS_33	Geography of Resources	4	30	70	100
Core 12	MGEOS_34	Geographical Information System	4	30	70	100
Elective 03	MGEOSE_31	Watershed Management	4	30	70	100
			20			500
		Semester 4				
Core 13	MGEOS_41	Geography of India	4	30	70	100
Core 14	MGEOS_42	Political Geography	4	30	70	100
Core 15	MGEOS_P2	Practical: Mapping Techniques – II	6	30	70	100
Core 16	MGEOS_P3	Project	8	30	70	100
Elective 04	MGEOSE_41	Environmental Impact Assessment	4	30	70	100
		Total	26			500
		Grant Total	88			2000

M.Sc. GEOGRAPHY SYLLABUS DETAILS



TAMIL NADU OPEN UNIVERSITY
DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCIENCES
CHENNAI – 15

M.Sc. GEOGRAPHY- FIRST YEAR: I SEMESTER (DISTANCE MODE)

COURSE TITLE	:	Processes of Geomorphology
COURSE CODE	:	MGEOS_11
COURSE CREDIT	:	4 Credits

COURSE OBJECTIVES

While studying the **Processes of Geomorphology**, the student shall be able to:

- CO1 Familiarize the students with the need for understanding of geomorphology with reference to certain fundamental concepts.
 - CO2 Categorize the Endogenic Process of geomorphology for landscape evolution
 - CO3 Categorize the Exogenic Process of geomorphology for landscape evolution.
 - CO4 Sort out Exogenic processes of geomorphology for landforms
 - CO5 Application of geomorphology to societal requirements and quality of environment
-

COURSE OUTCOMES

After completion of the **Processes of Geomorphology**, the student will be able to:

- CLO1 Accepting of geomorphology with reference to certain fundamental concepts.
 - CLO2 Categorizing the Endogenic Process of geomorphology for landscape evolution
 - CLO3 Categorizing the Exogenic Process of geomorphology for landscape evolution.
 - CLO4 Differentiating agents of gradation of geomorphology for different landforms
 - CLO5 Relevance of geomorphology to societal requirements and quality of environment
-

Syllabus Details

Block 1 Scope of Geomorphologic Processes

1. Nature, scope and concept of Geomorphology
2. Approaches to Geomorphologic Studies
3. Geological structures and landforms

Block 2 Earth Movement

4. Epeirogeny and orogenic earth movements
5. Forces of crustal instability, Isostasy and Plate tectonics
6. Seismicity, Vulcanicity and Orogenic structures

Block 3: Exogenic Processes

7. Concept of gradation, Agents and processes of gradation,
8. Causes, types and classification of weathering, mass movement
9. Slope evolution, down wearing, parallel retreat and slope replacement models.

Block 4: Geomorphologic Processes

10. Fluvial Landforms
11. Glacial Landforms
12. Aeolian Landforms
13. Coastal and Karst landforms

Block 4 Applications

14. Geomorphology in Mineral Exploration
15. Dams and River regulation
16. Coastal Geomorphology, Coastal Zone Management.

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2. MajidHussain. ed., (1994). Geomorphology, Perspective in Physical Geography series, Anmol Publications Pvt. Ltd., New Delhi.
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4. Pitty, A.F., (1982). The Nature of Geomorphology, Methuen and Co. Ltd., London.
5. Rice, R.J., (1986). Fundamentals of Geomorphology, Longman, London.
6. Small, R.J., (1978). The Study of Landforms: A Text book of Geomorphology, Cambridge University Press, New York.
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- <https://open.umn.edu/opentextbooks/textbooks/926>
- <https://www.geographynotes.com/geomorphology/7-major-geomorphic-theories-of-landform-development/686>



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M.Sc. GEOGRAPHY- FIRST YEAR: I SEMESTER (DISTANCE MODE)

COURSE TITLE	:	Climatology and Hydrology
COURSE CODE	:	MGEOS_12
COURSE CREDIT	:	4 Credits

COURSE OBJECTIVES

While studying the **Climatology and Hydrology**, the student shall be able to:

- CO1 Recognize the concept of climatology and its relation to Metrology
 - CO2 Appreciate the atmospheric circulations and events
 - CO3 Recognize the Meteorological Hazards and Disasters
 - CO4 Bring out the concepts of Hydrology and Ground water movement.
 - CO5 Enumerate the Occurrence and Movements, Conservation
-

COURSE OUTCOMES

After completion of the **Oceanography and Hydrology**, the student will be able to:

- CLO1 Recognizing the concept of climatology and its relation to Metrology
 - CLO2 Appreciating the atmospheric circulations and events
 - CLO3 Recognizing the Meteorological Hazards and Disasters
 - CLO4 Revealing the concepts of Hydrology and Ground water movement.
 - CLO5 Appreciating the Occurrence and Movements, Conservation of Ground water
-

Syllabus Details

Block 1: Introduction to Climatology

1. Introduction to Climatology and its relation to Meteorology and Atmospheric Sciences
2. Structure and Composition of the Atmosphere
3. Insolation, Heat Budget of Earth
4. Temperature, Pressure Belts and Major Wind Systems
5. Clouds and Precipitation

Block 2: Atmospheric Circulation

6. Atmospheric Circulation: Air-masses, Fronts and Upper air circulation
7. Cyclones and Anti-cyclones: Tropical and Temperate
8. El Nino, La Nina and Southern Oscillations, Corals reefs: Types and Advantages

Block 3: Meteorological Hazards and Disasters

9. Cyclones, Thunderstorms, Tornadoes, Hailstorms, Heat and Cold waves, Drought and Cloudburst, Glacial Lake Outburst (GLOF)
10. Climate Change: Green House Gases, Ozone Depletion, Global Warming
11. Climatic Change – Evidences, Causes and consequences

Block 4: Hydrological cycle

12. Hydrological cycle, sub-cycles and its Elements, Quality and Physio-Chemical characteristics
13. Precipitation, Evaporation, Infiltration, Run-off

Block 5: Ground water

14. Occurrence and Movements, Conservation: Groundwater Recharge, Rain Water Harvesting
15. Water Balance and its significance, Pollution and its effects
16. Human impact on hydrological system and water resources

References

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4. Menon, P.A. (1989), Our Weather, National Book Trust, New Delhi.
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2. <https://www.ux1.eiu.edu/~cfjps/1400/circulation.html>
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M.Sc. GEOGRAPHY- FIRST YEAR: I SEMESTER (DISTANCE MODE)

COURSE TITLE	:	Environmental Geography
COURSE CODE	:	MGEOS_13
COURSE CREDIT	:	4 Credits

COURSE OBJECTIVES

While studying the **Environmental Geography**, the student shall be able to:

- CO1 Adaptation of Man, and his environment
 - CO2 Introduce the concept of interaction between living and non-living organisms.
 - CO3 Create awareness about the environmental hazards and disasters.
 - CO4 Familiar about the environmental policies adapted by the Government.
-

COURSE OUTCOMES

After completion of the **Environmental Geography**, the student will be able to:

- CLO1 Relationship between the Man, and the surrounding environment
 - CLO2 Introducing the concept of interaction between living and non-living organisms.
 - CLO3 Creating awareness about the environmental hazards and disasters.
 - CLO4 Familiarizing about the environmental policies adapted by the Government.
-

Syllabus Details

Block 1: Nature and Scope

1. Nature and scope of Environmental Studies and Role of Geography
2. Man, and environment relationship
3. Determinism, Possibilism and Neo determinism
4. Marxian view on environment

Block 2: Concept of Ecosystem

5. Components: Ecosystem (Geographic Classification) and Human Ecology
6. Functions: Trophic Levels, Energy Flows
7. Cycles (geo-chemical, carbon, nitrogen and oxygen)
8. Food Chain, Food Web and Ecological Pyramid

Block 3: Environmental Hazards and Disasters

9. Environmental Ethics and Deep Ecology,
10. Global Warming, Urban Heat Island
11. Atmospheric Pollution
12. Water Pollution
13. Land Degradation

Block 4: Environmental Policies

14. National Programmes and Policies: Legal Framework, Environmental Policy and International Treaties
15. International Programmes and Policies -Brundtland Commission, Kyoto Protocol and Agenda 21.
16. Sustainable Development Goals and Paris Agreement.

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1. Principles of Environmental Science: Inquiry and Application – Cunningham, W.P. and Cunningham, M.N., Tata McGraw Hill Publishing Company, Ltd. 2004.
2. Essentials of Environmental Studies – Joseph, Kurina, Nagendran, P., Pearson Education, 2004
3. Environmental Challenges of the 21st century – Radha,S, Dankhyan, A.S. Deep and Deep Publications Pvt.Ltd. New Delhi, 2002.
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6. Man and the changing environment – Frank, Holt Reinhart 1975
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4. <https://unece.org/environment-policy>



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M.Sc. GEOGRAPHY- FIRST YEAR: I SEMESTER (DISTANCE MODE)

COURSE TITLE : **Advanced Cartography**

COURSE CODE : **MGEOS_14**

COURSE CREDIT : **4 Credits**

COURSE OBJECTIVES

While studying the **Advanced Cartography**, the student shall be able to:

- CO1 Introduce the theories and techniques in modern map-making concepts
 - CO2 Develop practical skills in preparing and drafting of thematic maps
 - CO3 Develop practical skills in preparing new map design techniques
 - CO4** Applications of internet mapping, mobile mapping and geo visualization
-

COURSE OUTCOMES

After completion of the **Advanced Cartography**, the student will be able to:

- CLO1 Introduce the theories and techniques in modern map-making concepts
 - CLO2 Develop practical skills in preparing and drafting of thematic maps
 - CLO3 Develop practical skills in preparing new map design techniques
 - CLO4** Applications of internet mapping, mobile mapping and geo visualization
-

Syllabus Details

Block 1: Basic of Maps

1. Scale and Generalization
2. Statistical Mapping (Enumeration, Normalization, Classification)
3. Map Projections

Block 2: Design and Layout

4. Visual Hierarchy and Layout
5. Symbolization and the Visual Variables
6. Color Theory and Typography
7. Design and Aesthetics

Block 3: Map Design Techniques

8. Map Production and Management
9. Map Icon Design and Flow Maps
10. Cartograms
11. Terrain Representation
12. Spatiotemporal Representation

Block 4: Applications

13. Multivariate Mapping
14. Web Mapping
15. Mobile Maps and Responsive Design
16. Geo-visualization

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1. Robinson, A.H. et al. (1995) Elements of Cartography, John Wiley & Sons, U.S.A
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DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCIENCES
CHENNAI – 15

M.Sc. GEOGRAPHY- FIRST YEAR: I SEMESTER (DISTANCE MODE)

COURSE TITLE	:	Climate Change Vulnerability and Adaptation
COURSE CODE	:	MGEOSE_11
COURSE CREDIT	:	4 Credits

COURSE OBJECTIVES

While studying the **Climate Change Vulnerability and Adaptation**, the student shall be able to:

- CO1 Appreciate the foundational concepts of climate change and its impacts.
 - CO2 Assess the human and environmental vulnerability to climate change.
 - CO3 Assess the impact of climate change.
 - CO4 Assess the methods of vulnerability assessment.
 - CO5 Find various adaptations and mitigation for reducing the impacts of climate change and national action plan.
-

COURSE OUTCOMES

After completion of the **Climate Change Vulnerability and Adaptation**, the student will be able to:

- CLO1 Appreciating the foundational concepts of climate change and its impacts.
 - CLO2 Assess the Physical, Economic and Social vulnerability to climate change.
 - CLO3 Assess the impact of climate change on agriculture, water, flora and fauna, human health and coastal degradation.
 - CLO4 Assess the methods of vulnerability assessments, information sources and output.
 - CLO5 Find various adaptation and mitigation for reducing the impacts of climate change and Global, regional, national and local level.
-

Syllabus Details

Block 1: Climate Change:

1. Understanding Climate Change
2. Greenhouse Gases and Global Warming
3. Global Climatic Assessment- IPCC

Block 2: Climate Change and Vulnerability

4. Physical Vulnerability
5. Economic Vulnerability
6. Social Vulnerability

Block 3: Impact of Climate Change

7. Agriculture and Water
8. Flora and Fauna
9. Human Health

10. Coastal degradation

Block 4: Vulnerability Assessments

11. Methods of Vulnerability Assessments

12. Information sources and Output

Block 5: Adaptation and Mitigation

13. Global Initiatives with Particular Reference to South Asia

14. National Action Plan on Climate Change

15. Local Institutions (Urban Local Bodies, Panchayats)

References:

1. 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. IPCC (2007): Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. OECD (2008): Climate Change Mitigation: “What do we do?” (Organisation and Economic Co-operation and Development).
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3. Singh, M., Singh, R.B., and Hassan, M.I., (Eds.) (2014): Climate change and biodiversity, Proceedings of IGU Rohtak Conference, Volume 1. Advances in Geographical and Environmental Studies, Springer
4. Singh, R.B., Mal, Suraj, and Huggel, Christian (2018): Climate Change, Extreme Events and Disaster Risk Reduction, Springer, Switzerland, pages 309.
5. UNEP (2007): Global Environment Outlook: GEO4: Environment for Development, United Nations Environment Programme.

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1. https://www.ipcc.ch/site/assets/uploads/2018/03/ar4_wg2_full_report.pdf
2. <https://unfccc.int/resource/docs/publications/impacts.pdf>
3. <https://www.fao.org/3/i5188e/I5188E.pdf>



TAMIL NADU OPEN UNIVERSITY
DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCIENCES
CHENNAI – 15

M.Sc. GEOGRAPHY- FIRST YEAR: II SEMESTER (DISTANCE MODE)

COURSE TITLE	:	Agricultural Geography
COURSE CODE	:	MGEOS_21
COURSE CREDIT	:	4 Credits

COURSE OBJECTIVES

While studying the **Agricultural Geography**, the student shall be able to:

- CO1 Elucidate the nature, scope and significance of Agricultural Geography.
 - CO2 Reveal the Determinants of agricultural land use
 - CO3 Identify theories and Land use studies.
 - CO4 Familiarizes the Land Capability classification and Land Use Planning, Cropping Pattern
 - CO5 Elucidate Agricultural Productivity and various Methods
-

COURSE OUTCOMES

After completion of the **Agricultural Geography**, the student will be able to:

- CLO1 Elucidate the nature, scope and significance of Agricultural Geography.
 - CLO2 Reveal the Determinants of agricultural land use
 - CLO3 Identify theories and Land use studies.
 - CLO4 Familiarizes the Land Capability classification and Land Use Planning, Cropping Pattern
 - CLO5 Elucidate Agricultural Productivity and various Methods
-

Syllabus Details

Block 1: Nature, scope and significance of Agricultural Geography

1. Nature, scope and significance of Agricultural Geography
2. Approaches to the study of Agricultural geography
3. Elements of agriculture

Block:2: Determinants of agricultural land use

4. Physical factors and Economic factors
5. Social factors, Institutional and technological determinants
6. Agricultural Revolution: Green, Blue, White and Pink

Block: 3 Theories and Land use studies

7. Von Thune's theory of agricultural location and its recent modifications
8. Application of Von Thune's theory to the present-day location of agricultural activities

Block: 4 Land use studies

9. Land capability classification and Land Use Planning, Cropping Pattern
 10. Role of Remote Sensing in Land Use Studies.
 11. Agricultural regions of India and Tamil Nadu.
-

Block 4: Agricultural Productivity and Methods

12. Regional variations in Agricultural Productivity,
13. Methods of delineating crop combination regions (Weaver's Method)
14. Methods of delineating crop combination regions (Doi and Rafiullah)
15. Crop diversification (Bhatia's method),

References

1. Hussain, M. (2014) Systematic Agricultural Geography, Rawat Publications, Jaipur.
2. Shafi, M. (2006) Agricultural Geography, Doring Kindersley India Pvt. Ltd., New Delhi.
3. Venugopal, S (2014) Agricultural Geography, Arise Publication and Distribution, New Delhi.
4. Sivasubramaniyan, K (2014) Irrigated agriculture in Tamilnadu, Simres Publications, Chennai, Bangalore.

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5. <http://www.yourarticlelibrary.com/geography/whittleseys-classification-of-agricultural-regions/> (Whittleseys Classification of World Agricultural System)
6. <http://www.nrcs.usda.gov/detail/soils/use/worldsoils/> (Soil)
7. <https://En.Wikipedia.Org/Wiki/Category:Agricultural-Organizations> (World Agricultural Organizations)



TAMIL NADU OPEN UNIVERSITY
DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCIENCES
CHENNAI – 15

M.Sc. GEOGRAPHY- FIRST YEAR: II SEMESTER (DISTANCE MODE)

COURSE TITLE	:	Urban Geography
COURSE CODE	:	MGEOS_22
COURSE CREDIT	:	4 Credits

COURSE OBJECTIVES

While studying the **Urban Geography**, the student shall be able to:

- CO1 Provide an overview Nature, scope and development of urban geography
 - CO2 Knowledge in the Composition and CBD of cities
 - CO3 Analyse the different urban land use models
 - CO4** Identify the urban demarcation
 - CO5 Analyze Urban Problems and Planning
-

COURSE OUTCOMES

After completion of the **Urban Geography**, the student will be able to:

- CLO1 Providing an overview Nature, scope and development of urban geography
 - CLO2 Knowledge in the Composition and Central Business District of cities
 - CLO3 Analysing the different urban land use models
 - CLO4** Identify the urban demarcation
 - CLO5 Analyzing the Urban Problems and Sustainable of City and Smart City Project in India
-

Syllabus Details

Block 1: Nature and scope of Urban Geography

1. Nature, scope and development of urban geography
2. Factors affecting urban growth
3. World urbanization and Urbanization in India

Block 2: Composition and CBD

4. Demographic Composition & Population Features of Cities
5. Central business district and its Delimitation

Block 3: Models

6. Urban land use models – Burgess and Hoyt
7. Urban land use models - Harris and Ullman
8. Functional classification of cities

Block 4: Urban Demarcation

9. Urban sprawl
10. City region in India
11. Umland demarcation

12. Urban hierarchy

Block 5: Urban Problems and Planning

13. Rank size rule

14. Central Place theory

15. Urban problems: Slums, Transport, Solid waste management, water supply and Pollution

16. Urban Planning, Sustainable of City and Smart City Project in India.

References

1. Northam R.M (1975) Urban Geography, John Wiley Sons, New York.
2. Carter.H. (1972) the study of Urban Geography, Edward Arnold, London.
3. Paul L. Knox and Linda McCarthy (2011), Urbanization: An Introduction to UrbanGeography. Englewood Cliffs, NJ: Prentice Hall, 3rd edition.
4. MisraR.P&K.V.Sundaram(1971) Regional planning and Development, University of Mysore.
5. David Kaplan, James O. Wheeler, and Steven Holloway, (2014) Urban Geography, 3rd edition.
6. Mohammed Ishar Hasan (2014) Population geography, Rawat Publications.
7. UrvijaShanker (2014) Population pattern and urban development, Rajesh publications.

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8. <https://www.e-education.psu.edu/emsc100tsb/node/143>
9. <https://www.wiley.com/enus/General+%26+Introductory+Geography/Urban+Geography-c-GE23>



TAMIL NADU OPEN UNIVERSITY
DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCIENCES
CHENNAI – 15

M.Sc. GEOGRAPHY- FIRST YEAR: II SEMESTER (DISTANCE MODE)

COURSE TITLE : Remote Sensing
COURSE CODE : MGEOS_23
COURSE CREDIT : 4 Credits

COURSE OBJECTIVES

While studying Remote Sensing, the student shall be able to:

- CO1 Appreciate the basic components of Remote Sensing
 - CO2 Identify the different digital image processing
 - CO3 Enumerate various image classification techniques
 - CO4 Recognize the various classification and image interpretation methods
 - CO5 Identify with the Indian Remote Sensing applications in Geosciences and Disaster management
-

COURSE OUTCOMES

After completion of the Remote Sensing, the student will be able to:

- CLO1 Appreciating the basic components of Remote Sensing such as EMR, Atmospheric and Earth surface interaction, sensors, orbit and platforms.
 - CLO2 Identify the different digital image processing like Image Rectification and correction, Image enhancement and Image restoration
 - CLO3 Enumerate various image classification techniques such as supervised, unsupervised, and object-oriented analysis.
 - CLO4 Recognize the various image interpretation techniques.
 - CLO5 Identify with the Indian Remote Sensing applications in Geosciences
-

Syllabus Details

Block 1: Basics of Remote Sensing

1. Introduction to Remote Sensing: EMR, Atmospheric and Earth surface interaction
2. Development of Remote Sensing- Brief History
3. Earth Observation Sensors and Platforms
4. Satellites Characteristics: Orbits and Swaths and resolution

Block 2: Digital Image Processing

5. Image Rectification and correction
 6. Image enhancement
 7. Image restoration
 8. Image analysis
-

Block 3: Image Classification

9. Supervised Classification
10. Unsupervised Classification
11. Object-Based Image Analysis (OBIA)

Block 4: Image Interpretation

12. Aerial Photo Interpretation
13. Visual Image Interpretation

Block 5: Remote Sensing Applications

14. Remote Sensing application Water Resources
15. Remote Sensing application in Disaster Management
16. Remote Sensing application in Land Use Planning

References

1. Barrett E.C., Curtis L.F., 1992. Fundamentals of Remote Sensing and Air Photo Interpretation, Mcmillan, New York,
2. Church, V.A., 1983. American Society of Photogrammetry: Manual of Remote Sensing. ASP, Falls
3. Compbell J., 1989. Introduction to Remote Sensing, Guilford, New York.
4. Curran, Paul J., 1985. Principles of Remote Sensing, Longman, London,
5. Hord R.M., 1989. Digital Image Processing of Remotely Sensed Data, Academic, New York.
6. Luder D., 1959. Aerial Photography Interpretation: Principles and Application, McGraw Hill, New York,
7. Pratt W.K., 1978. Digital Image Processing. Wiley, New York.
8. Rao D.P., (eds.), 1998. Remote Sensing for Earth Resources, Association of Exploration Geophysicist, Hyderabad,
9. Thomas M., Lillesand, Ralph, Kefer, W., 1994. Remote Sensing and Image Interpretation, John Wiley & sons, New York.

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TAMIL NADU OPEN UNIVERSITY
DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCIENCES
CHENNAI – 15

M.Sc. GEOGRAPHY- FIRST YEAR: II SEMESTER (DISTANCE MODE)

COURSE TITLE	:	Practical: Mapping Techniques 1
COURSE CODE	:	MGEOS_P1
COURSE CREDIT	:	6 Credits

COURSE OBJECTIVES

While studying Mapping **Techniques 1**, the student shall be able to:

- CO1** Knowledge of principles and techniques of traditional methods of mapping the earth's surface features
 - CO2** Practice the principles and techniques of traditional method of mapping climatic features
 - CO3** Practice the way of representation of Terrain, drainage and climatic data.
 - CO4** Hands on training in morphometric analysis.
 - CO5** Hands on training with Weather chart and topographic map interpretation.
-

COURSE OUTCOMES

After completion of the **Mapping Techniques 1**, the student will be able to:

- CLO1** Knowledge of principles and techniques of traditional methods of mapping the earth's surface features
 - CLO2** Practice the principles and techniques of traditional method of mapping climatic features
 - CLO3** Practice the way of representation of Terrain, drainage and climatic data.
 - CLO4** Hands on training in morphometric analysis.
 - CLO5** Hands on training with Weather chart and topographic map interpretation.
-

Syllabus Details

Block 1: Profiles

1. Serial Profile
2. Superimposed Profile
3. Projected Profile
4. Composite Profile

Block 2: Slope Analysis

5. Wentworth's Method
6. Smith's Method
7. Relative Relief
8. Absolute relief
9. Dissection Index
10. Altimetric Frequency Curve
11. Hypsometric Curve

Block 3: Morphometric Analysis

12. Stream Ordering
13. Bifurcation Ratio
14. Drainage Density
15. Miller's Circulatory Ratio

Block 4: Climatic Data Analysis

16. Climograph – Foster's
17. Climatograph
18. Rainfall Dispersion Diagram
19. Wind Rose Diagram

Block 5: Map Interpretation

20. Weather Map Symbols
21. Weather Map Interpretation
22. Topographic Sign and Symbols
23. Interpretation of Topographic Maps

References

1. Monkhouse, F.J., and Wilkinson, H.R. (1976): Maps and Diagrams, Methuen & Co., London.
2. Worthington, B.D.R. and Robert Gent (1975): Techniques in Map Analysis, Ebenzer Baylis and Sons, USA.
3. Anson, R.W. (Ed.) (1984) Basic Cartography for Students and Technicians, Volume 2, International Cartographic Association, Elsevier Applied Science Publishers, London.
4. Dorling, D. and David Fairbairn (1997), Mapping: Map of representing the world, Addison Wesley Longman Ltd., U.K.
5. Lawrence, G.R.P. (1971). Cartographic Methods, Methuen & Co., Canada
6. Kang-tsung Chang (2002) Introduction to Geographical Information Systems, Tata McGraw-Hill Publishing Company Limited, New Delhi.

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9. <http://www.esri.com/>



TAMIL NADU OPEN UNIVERSITY
DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCIENCES
CHENNAI – 15

M.Sc. GEOGRAPHY- FIRST YEAR: II SEMESTER (DISTANCE MODE)

COURSE TITLE	:	Quantitative Techniques in Geography
COURSE CODE	:	MGEOSE_22
COURSE CREDIT	:	4 Credits

COURSE OBJECTIVES

While studying the **Quantitative Techniques in Geography**, the student shall be able to:

- CO1 Introduce basic statistical methods and procedures to the students
 - CO2 Introduce Probability and Sampling methods to handle the spatial data
 - CO3 Train the students to know the Testing Hypotheses and Significance Testing
 - CO4 Indicate the assumptions, limitations and interpretation of these procedures and results
 - CO5 Train the students to handle these statistics in analysing the geographical problems.
-

COURSE OUTCOMES

After completion of the **Quantitative Techniques in Geography**, the student will be able to:

- CLO1 Training the students with basic statistical methods and procedures to the students
 - CLO2 Introducing Probability and Sampling methods to handle the spatial data
 - CLO3 Training the students to know the Testing Hypotheses and Significance Testing
 - CLO4 Indicating the assumptions, limitations and interpretation of these procedures and results
 - CLO5 Training the students to handle these statistics in analysing the geographical problems.
-

Syllabus Details

Block 1: Statistical Methods in Geography

1. Introduction to Spatial Analysis
2. Measurement Levels and Spatial Data
3. Measures of Central Tendency and Dispersion

Block2: Probability and Sampling

4. Elementary Probability Theory
5. Random Variables and Probability Distributions
6. Important Sampling Process and Types of Samples

Block 3: Testing Hypotheses and Significance Testing

7. Point, Interval Estimation, Key Steps in Testing Hypotheses
8. PROB-VALUE Method of Hypothesis Testing
9. Two Samples: The t Test, Analysis of Variance (ANOVA)
10. The Use of Non-parametric Tools in Spatial Analysis

Block 4: Correlation and Regression

11. Introduction to Correlation Analysis: Product Moment Correlation,

12. Non-Parametric Correlation,
13. Areal Association and Spatial Autocorrelation

Block 5: Regression Analysis:

14. Simple Linear Model, Estimation Procedures and Spatial Interpretations of Residual Analyses, Technical and Methodological Issues
15. Multiple Regression Models in Spatial Context and Non-linear Models:
16. Trend Surface Analyses

References:

1. David M. Smith (1975), Patterns in Human Geography, Penguin, Harmons worth.
2. David U (1981), Introductory Spatial Analysis, Methuen, London.
3. Ebdon, D. (1983), Statistics in Geography: A Practical Approach, Blackwell, London.
4. Gregory, S. (1978), Statistical Methods and the Geographer (4th Edition), Longman,
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6. Gupta, S.P. (2010), Statistical Methods, Sultan Chand and Sons, Latest Edition.

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1. <https://www.slideshare.net/mehermanoj/statistical-methods-in-geography>
2. <https://www.youtube.com/watch?v=wpUoXQ62Xz8>
3. <https://www.youtube.com/watch?v=0Yz1ELgIxZA>



TAMIL NADU OPEN UNIVERSITY
DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCIENCES
CHENNAI – 15

M.Sc. GEOGRAPHY- SECOND YEAR: III SEMESTER (DISTANCE MODE)

COURSE TITLE : **Geographical Thought**
COURSE CODE : **MGEOS_31**
COURSE CREDIT : **4 Credits**

COURSE OBJECTIVES

While studying Geographical **Thought**, the student shall be able to:

- CO1 Enumerate the history and philosophy of geography and sub-disciplines
 - CO2 Recognizing the four Traditions in Geography
 - CO3 Make out the contributors and the evolution of geography through time
 - CO4** Realize contemporary research in human and physical geography
-

COURSE OUTCOMES

After completion of the **Geographical Thought**, the student will be able to:

- CLO1 Enumerating the history and philosophy of geography and sub-disciplines
 - CLO2 Recognize the Determinism Vs Possibilism in Geography
 - CLO3 Make out the contributors from America, British, German, France and Indian for the evolution of geography
 - CLO4** Realizing contemporary research in human and physical geography
-

Syllabus Details

Block 1: The Field of Geography:

1. Nature, Branches and Approaches
2. Development of Geographical Thought: Classical period- Medieval period
3. Greeks, Roman and Arab.
4. Impacts of exploration and discoveries in geographical development.

Block 2: Four Traditions in Geography:

5. Man – Land. Area studies, Spatial and Earth sciences
6. Dualism in Geographical Studies: Determinism Vs Possibilism
7. Physical Vs Human – Systematic Vs Regional
8. Ideographic Vs Nomothetic - Quantitative Vs Qualitative, Visual Vs Digital.

Block 3: Major Geographical Thoughts:

9. America – Davis – Bowman – Hortshone,
10. British: Mackinder, Herbertson, Roxby.
11. German: Humbolt, Ritter, Penck.
12. France: Vidal de la Blache, Jean Brunches
13. Indian Geographers

Block 4: Quantitative Revolution and Resent trends

14. Theories and models in geography- Interpretation, Description and Explanation
15. System approach and analysis- Inductive and deductive approaches
16. Paradigms in Geography –Geography and Sustainable development Goals (SDG)
17. Geoinformatics-Online resources – future of geography and geographers

References

1. Freeman. R (1970): Hundred year of Geography, Hutchinson. London.
2. Hartshorne, Richard (1939): Nature of Geography, USA: Association of American Geographers.
3. Hartshorne, Richard (1959): Perspectives on the Nature of Geography, USA: Association of American Geographers. • Harvey, David (1969): Explanation in Geography, London: Arnold.
4. Hussain. M (2015): Evolution of Geographical Thought, Rawat Publications
5. SudeeptaAdhikari (2015): Fundamentals of Geographical Thought, Orient blackswan private limited
6. Wayne, Davis K.D. (1972) Conceptual Revolution in Geography, University of London press, London.

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1. <https://old.amu.ac.in/emp/studym/100005662.pdf>
2. https://www.sscollegejehanabad.org/study-material/546617990Determinism%20vs%20Possibilism-Geographical%20Thought%20_B.A.%20-III.pdf
3. <https://www.yourarticlelibrary.com/geography/dichotomy-between-determinism-and-possibilism-of-geography/24592>
4. <https://www.youtube.com/watch?v=cjyQuaMOvv0>
5. <https://www.uou.ac.in/sites/default/files/slm/GE-301.pdf>



TAMIL NADU OPEN UNIVERSITY
DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCIENCES
CHENNAI – 15

M.Sc. GEOGRAPHY- SECOND YEAR: III SEMESTER (DISTANCE MODE)

COURSE TITLE : **Regional Planning**
COURSE CODE : **MGEOS_32**
COURSE CREDIT : **4 Credits**

COURSE OBJECTIVES

While studying the **Regional Planning**, the student shall be able to:

- CO1 Equip the definition, classification and regional imbalance of regional concept.
 - CO2 Analyse the regional planning concepts.
 - CO3 Identify the types of Regions and their problems
 - CO4 Enumerate different theories for regional development.
 - CO5** Analyse the regional planning in Tamilnadu
-

COURSE OUTCOMES

After completion of the **Regional Planning**, the student will be able to:

- CLO1 Equipping the definition, classification and regional imbalance of regional concept.
 - CLO2 Analysing the regional planning concepts and theories.
 - CLO3 Identifying the various types of Regions and their problems
 - CLO4 Appreciating the regional development theories.
 - CLO5** Analysing the regional planning in Tamilnadu
-

Syllabus Details

Block 1: Regional Concept

- 1. Definition and Classification of Regions
- 2. Regional imbalance and Disparity

Block 2: Regional planning:

- 3. Concepts and Theory of Regional Planning
- 4. Concept of Regional Hierarchy - Sectoral and Spatial planning concepts

Block 3: Types of Regions and Problems

- 5. Regional divisions according to variations in levels of socio-economic development.
- 6. special purpose regions-river valley regions, metropolitan regions,
- 7. Problem regions - hilly regions, tribal regions, regions of drought and floods.

Block 4: Theories of Regional Development

- 8. Economic Base Theory
- 9. Location Allocation Models
- 10. Central Place Theory

11. Growth Pole Theory
12. Diffusion Models

Block 5: Regional Planning in Tamil Nadu:

13. Planning regions of Tamil Nadu
14. Backward area development and Panchayat Act,
15. Municipality Act, Corporation Act, TNULB Act, land acquisition Act 1854.
16. Town and Country Planning Act of Tamil Nadu.

References

1. Misra, R. P., Sundaram, K.V.andV.L.S.Prakasa Rao, (1974) Regional Development planning in India, Vikas Publishing House Delhi.
2. Sundaram, K.V. and R.P. Misra (1976) Micro –Level planning and Development Process Vol.1: Area Development Programme in India –A Review and Appraisal, Institute of Development Studies, University of Mysore.
3. Misra, RP (2002) Regional Planning –Concept, Techniques, Policies and case Studies, Concept publishing Company, Delhi.

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4. <https://csub.libguides.com/c.php?g=561010&p=3860927>
5. <http://guides.lib.berkeley.edu/city-planning>
6. <http://guides.lib.umich.edu/c.php?g=283101&p=1886114>
7. <http://www.semcog.org/>
8. <http://geography.utoronto.ca/department/careers-in-geography-and-planning/>



TAMIL NADU OPEN UNIVERSITY
DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCIENCES
CHENNAI – 15

M.Sc. GEOGRAPHY- SECOND YEAR: III SEMESTER (DISTANCE MODE)

COURSE TITLE	:	Geography of Resources
COURSE CODE	:	MGEOS_33
COURSE CREDIT	:	4 Credits

COURSE OBJECTIVES

While studying the **Geography of Resources**, the student shall be able to:

- CO1 Grasp the concept, classifications and techniques of utilize the Natural resources.
 - CO2 Value the pressure and problems of utilizing the Natural resources.
 - CO3 To know the world distribution of natural resources, utilization, problems and management.
 - CO4 Knowing the world distribution of Metallic, Non-metallic and energy resources- utilization, problems and management
 - CO5 To understand the Resources Planning, Conservation and Management
-

COURSE OUTCOMES

After completion of the **Geography of Resources**, the student will be able to:

- CLO1 Comprehend the concept, classifications and techniques of utilize the Natural resources.
 - CLO2 Assessing the pressure and problems of utilizing the Natural resources.
 - CLO3 Realizing the world distribution of natural resources, utilization, problems and management.
 - CLO4 Knowing the world distribution of Metallic, Non-metallic and energy resources- utilization, problems and management
 - CLO5 Recognizing the Resources Planning, Conservation and Management
-

Syllabus Details

Block 1: Natural Resource: Concept, Classification and Techniques

1. Natural Resources: Concept and classification
2. Approaches to Resource utilization: Utilitarian, conservational, community based
3. Significance of Resources: Backbone of economic growth and development

Block 2: Pressure and Problems of Natural Resources

4. Pressure on Resources - Appraisal and conservation of natural resources
5. Problems of Resource depletion: Global scenario: Forest, Water, Fossil fuels

Block 3: World Distribution of Natural Resources I

6. Human Resources: Distribution, Utilisation, Problems and Management
 7. Land and Water Resources: Distribution, Utilisation, Problems and Management
 8. Forests and Energy Resources: Distribution, Utilisation, Problems and Management
-

Block 4: World Distribution of Natural Resources II

9. Metallic Mineral Resources (Iron ore, Bauxite, Copper): Distribution, Utilisation, problems and management
10. Non-Metallic Mineral Resources (Limestone, Mica, Gypsum): Distribution, Utilisation, problems and management.
11. Energy Resources (Conventional and Non-Conventional): Distribution, Utilisation, problems and management

Block 5: Resources Planning, Conservation and Management

12. Conservation and Management Methods
13. Resource Planning in India
14. Problems of Natural Resource Management in India
15. Integrated Resource Development and its Applications
16. Application of Geospatial Technology in Natural Resources Management

References:

1. Gurjar, R.K., Jat, B.C., 2009. Geography of Water Resources, Madison. Rawat Publications.
2. Amita Baviskar (ed) (2007): Waterscapes the Cultural Politics of a Natural Resource Permanent Black Himalaya, Uttaranchal.
3. Arun Kumar Singh (June 2004): Privatization of Rivers in India, Vikas Adhyayan Kendra, Mumbai
4. Shripad Dharmadhikary (2002): Water: Private, Limited Fundamental Issues in Privatisation and Corporatisation of Water in India. Manthan Adhyayan Kendra, Badwani (M.P)
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7. Sangvai Sanjay (ed) (2000): The River and Life People Struggle in the Narmada Valley, Earth care Books, Mumbai.
8. Asthana, D.K., and Meera Astana., 1998. Environmental Problems and Solutions, S.Chand and Co., New Delhi.
9. Husain, M., 1994. Resource Geography. Perspectives in Economic Geography. New Delhi Anmol Publications

Web Resources

1. <https://www.yourarticlelibrary.com/geography/resources/resource-meaning-concept-and-its-classification-geography/74529>
2. <https://redox-college.s3.ap-south->

[1. amazonaws.com/kmc/2020/Mar/22/3aj2X6RQ4QKoU4FRTyxQ.pdf](https://www.amazonaws.com/kmc/2020/Mar/22/3aj2X6RQ4QKoU4FRTyxQ.pdf)

3. <https://www.nationalgeographic.org/standards/national-geography-standards/16/>
4. <https://www.jagranjosh.com/general-knowledge/summary-on-indian-economic-geography-resources-and-energy-1488803231-1>



TAMIL NADU OPEN UNIVERSITY
DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCIENCES
CHENNAI – 15

M.Sc. GEOGRAPHY- SECOND YEAR: III SEMESTER (DISTANCE MODE)

COURSE TITLE	:	Principles of Geographical Information System
COURSE CODE	:	MGEOS_34
COURSE CREDIT	:	4 Credits

COURSE OBJECTIVES

While studying the **Principles of Geographical Information System**, the student shall be able to:

- CO1 Find out the basic concepts and Data Structure of GIS.
 - CO2 Demonstrate the principles of interpolation and importance of elevation model.
 - CO3 Examine the capabilities of GIS in input, verification, analysis, modeling and output generation
 - CO4 Demonstrate the advanced level of analysis techniques in GIS
 - CO5 Analyse the GIS Applications in the automation and decision support system.
-

COURSE OUTCOMES

After completion of the **Principles of Geographical Information System**, the student will be able to:

- CLO1 Finding the basic concepts and Data Structure of GIS.
 - CLO2 Training the principles of interpolation and importance of elevation model.
 - CLO3 Examining the capabilities of GIS in input, verification, analysis, modeling and output generation
 - CLO4 Demonstrating the advanced level of analysis techniques in GIS
 - CLO5 Analysing the GIS Applications in the automation and decision support system.
-

Syllabus Details

Block 1: Basics of GIS and Data Structure:

1. Definition - Usefulness of GIS - Components of GIS and Data Structure
2. Data input Methods and Verification
3. Data Base Structures (Raster Data Structures and Vector data Structures) –
4. Data Conversion, (Vector to Raster and Raster to Vector).

Block 2: Spatial Interpolation and DEM

5. Basic Principles of Interpolation and Methods
6. Need for Three Dimensional Models, Methods of DEM and Products

Block 3: Data Analysis, Modeling and Network Modeling

7. Simple data retrieval - Data retrieval through Boolean Logic
 8. Overlay analysis
 9. Capabilities (Neighborhoods Operations)
 10. Buffering - Cartographic Modeling using Natural Language Commands
-

Block 4: Advanced GIS:

11. Types of Classification of GIS (Exogenous, Arbitrary, Idiographic & Serial) –
12. Multivariate Analysis.
13. Artificial Intelligence
14. Object Oriented GIS.

Block 5: Applications of GIS

15. Application of GIS in automation and Mobile Applications
16. Decision making and query building processes in Geological Technology.

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1. Gomarasca, M. A. (2009) Basics of Geometrics, Springer Science, New York
2. Burrough, P. A., & McDonnell, R., (2000). Principles of Geographical Information Systems, Oxford Press, London.
3. Heywood, I., Comelius, S., and Carver, S., (1988). An Introduction to Geographical Information Systems, Addison Wiley Longmont, New York.
4. Burrough, P.A 1986: Principles of Geographical information Systems for Land Resources Assessment, Clarendone Press, Oxford.
5. Avery, T.V, Interpretation of Aerial Photography Burgass, Publishing Company.
6. Gautham, N.C 1970: Urban Landuse Study Through Aerial Photo binterpretations Techniques, Pink Publishing House, Mathura.
7. American Society of Photogrammetry, 1983: Manual of Remote Sensing (2nd Edition), ASP Falls Church, Virginia. 5. Campbell, J 1984: introductory Cartography, Printers Hall Englewood Cliffs, N.J
8. Dent B.D 1985: Principles of Thematic Map Design, Addition - Wesley, Reading, Mass.

Web Sources

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2. <https://www.giscourse.com/online-resources-for-gis/>
3. <https://www.esri.com/en-us/esri-press/browse>
4. <https://libguides.ucd.ie/gisguide/gisbooks>
5. <https://volaya.github.io/gis-book/en/gisbook.pdf>
6. <https://open.umn.edu/opentextbooks/textbooks/67>



TAMIL NADU OPEN UNIVERSITY
DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCIENCES
CHENNAI – 15

M.Sc. GEOGRAPHY- SECOND YEAR: III SEMESTER (DISTANCE MODE)

COURSE TITLE : Watershed Management

COURSE CODE : MGEOSE_33

COURSE CREDIT : 4 Credits

COURSE OBJECTIVES

While studying Watershed **Management**, the student shall be able to:

- CO1 Realizing watershed management
 - CO2 Evaluating the Function and Structure of Watershed
 - CO3 Analyze the function structure of watershed.
 - CO4 Appreciate the plan and approaches of integrated watershed management.
 - CO5 Development and Management of Watershed
-

COURSE OUTCOMES

After completion of the **Watershed Management**, the student will be able to:

- CLO1 Realizing concept, components, characteristics of watershed management
 - CLO2 Evaluating the morphological and climatic characteristics of Watershed
 - CLO3 Analyzing the land capability classification and soil resources evaluation.
 - CLO4 Appreciating the plan and approaches of integrated watershed management.
 - CLO5 Analyzing Integrated watershed management programmes
-

Syllabus Details

Block 1: Introduction to Watershed management

1. Philosophy and Concept of Watershed management
2. Components of watershed: land, water and vegetation
3. Physical and Socio-Economic characteristics of watershed
4. Watershed Delineation and codification

Block 2: Function and Structure of Watershed

5. Morphological Characteristic of Watershed
6. Climatic characteristics of Watershed

Block 3: Watershed Analysis:

7. Land capability classification of watershed
8. Soil resource evaluation
9. Slope analysis and vegetation cover

Block 4: Integrated Watershed Management

10. Objectives of IWM
11. Land and Water conservation practices
12. Importance of land use planning in watershed development
13. Water harvesting and afforestation, population and livestock development.

Block 5: Development and Management of Watershed

14. Participatory Rural Appraisal in Watershed Programme: basic principle, fundamentals and Different Tools Employed in PRA
15. Empowerment of Women and other gender issues
16. Equity, property rights, and biophysical characteristics in Watershed management.

References

1. Elango, L., Jayakumar, R., 2001. Modeling in Hydrology, UNESCO, and New Delhi.
2. Murty, J.V.S., 1994. Watershed Management in India, Wiley Eastern Ltd, New Delhi.
3. Rajesh Rajora, 2002. Integrated Watershed Management, R. Rawat Publications, New Delhi.

Web Source

1. <https://www.yourarticlelibrary.com/watershed-management/watershed-management-meaning-types-steps-and-programmes/77309>
2. <https://www.geographynotes.com/watershed-management-2/watershed-management-components-and-practices-geography/6250>
3. <https://lotusarise.com/watershed-management-upsc/>
4. <https://www.indiawaterportal.org/faqs/watershed-management-in-india>
5. <https://www.india.gov.in/integrated-watershed-management-programme-ministry-rural-development>
6. <https://www.mapsofindia.com/government-of-india/integrated-watershed-management-programme.html>



TAMIL NADU OPEN UNIVERSITY
DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCIENCES
CHENNAI – 15

M.Sc. GEOGRAPHY- SECOND YEAR: IV SEMESTER (DISTANCE MODE)

COURSE TITLE : Geography of India

COURSE CODE : MGEOS_41

COURSE CREDIT : 4 Credits

COURSE OBJECTIVES

While studying the **Geography of India**, the student shall be able to:

- CO1 Identify the diverse location, physiographic, drainage system of India
 - CO2 Locate and analyze the climate seasons and natural resources
 - CO3 Illustrate population and migration patterns, problems and prospects of agriculture.
 - CO4 Illustrate problems and prospects of industry
 - CO5 Elaborate trade and transport development in India
-

COURSE OUTCOMES

After completion of the **Geography of India**, the student will be able to:

- CLO1 Identifying the diverse location, physiographic, drainage system of India
 - CLO2 Analyzing various climate seasons and natural resources in India
 - CLO3 Analysing population and migration patterns, problems and prospects of agriculture.
 - CLO4 Illustrating problems and prospects of industry
 - CLO5 Elaborating trade and transport development in India
-

Syllabus Details

Block 1: Location and Physical Characteristics

- 1. Setting and situation of India
- 2. Major Physiographic Regions and their Characteristics
- 3. Drainage System

Block 2: Climate and Natural Resources

- 4. Climate: Seasonal Weather Characteristics and Climatic Divisions
- 5. Indian Monsoon (mechanism and characteristics), Jet Streams
- 6. Natural Resources: Soil, Vegetation, Water,
- 7. Natural Resources: Mineral and Marine Resources.

Block 3: Agriculture

- 8. Population and Migration
- 9. Agriculture (Production, Productivity and Yield of Major Food Crops),
- 10. Major Crop Regions, Regional Variations in Agricultural Development,
- 11. Environmental, Technological and Institutional Factors affecting Indian Agriculture.
- 12. Agro-Climatic Zones, Green Revolution, Food Security and Right to Food.

Block 4: Industry

13. Industrial Development since Independence
14. Industrial Regions and their characteristics
15. Industrial Policies in India.

Block 5: Transport and Trade

16. Development and Patterns of Transport Networks (railways, roadways, waterways, airways and pipelines)
17. Internal and External Trade (trend, composition and directions)

References

1. Majid Husain (2009 and 2014) Geography of India, Tata McGraw hill Education Private Ltd, New Delhi.
2. Chopra J.K. (2010) Geography of India, Unique Publisher, New Delhi.
3. Douglas L. Johnson (2009) World Regional Geography, Tenth edition, Pearson Education Inc, New Jersey.
4. Majid Husain (2012) World Geography, Fourth edition, Rawat Publications, Jaipur.
5. AlkaGautam (2014) Advanced geography of India, Sharda PustakBhawan, Allahabad.
6. Ramanathan, R (2014) Indian transport towards the new millennium, Concept Publishing Company, New Delhi.
7. Prithvish Nag (2014) Geography of India, Concept Publishing Company, New Delhi.
8. RupaliChatterji (2014) Geography of India, Global Academic Publishing and distribution, New Delhi.
9. Arunachalam, P (2014) Geography of India; physical, political and commercial, Swastika Publications, New Delhi.

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10. [http://www.yourarticlelibrary.com/agriculture/8-salient-features-of-indianagriculture/20959/\(Agriculture\)](http://www.yourarticlelibrary.com/agriculture/8-salient-features-of-indianagriculture/20959/(Agriculture))
11. <http://www.thealternative.in/business/10-technological-innovations-revolutionizingindian-agriculture/>
12. <https://www.youtube.com/watch?v=SleZS3lbcuM>
13. <http://www.biologydiscussion.com/forest/loss-of-forest-cover-and-land-degradationin-jhum-in-indias-north-east-a-case-study/1932>



TAMIL NADU OPEN UNIVERSITY
DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCIENCES
CHENNAI – 15

M.Sc. GEOGRAPHY- SECOND YEAR: IV SEMESTER (DISTANCE MODE)

COURSE TITLE : **Political Geography**
COURSE CODE : **MGEOS_42**
COURSE CREDIT : **4 Credits**

COURSE OBJECTIVES

While studying Political **Geography**, the student shall be able to:

- CO1 Recognize nature, scope and subject matter of political geography
 - CO2 Identify the Geographic Elements and the State in Political Geography
 - CO3 Elaborate themes in Political Geography
 - CO4 Relevance to the Geopolitical significance of Indian Ocean
 - CO5 Elaborate Political geography of contemporary India
-

COURSE OUTCOMES

After completion of Political **Geography**, the student will be able to:

- CLO1 Recognizing nature, scope and subject matter of political geography
 - CLO2 Identifying the Geographic Elements and the State in Political Geography
 - CLO3 Elaborating themes in Political Geography
 - CLO4 Relevant to the Geopolitical significance of Indian Ocean
 - CLO5 Elaborating Political geography of contemporary India
-

Syllabus Details

Block 1: Nature, scope of Political Geography

1. Meaning, nature and scope and recent trends of political geography
2. Approaches to political geography
3. Relevance of political geography in international relations.

Block 2: Geographic Elements and the State:

4. Physical Elements
5. Human elements
6. Economic elements
7. Political geography and environment interface

Block 3: Themes in Political Geography:

8. State, Nation and Nation State
9. Concept of Nation and State, Attributes of State

10. Frontiers, Boundaries, Shape, Size, Territory and Sovereignty

11. Geopolitics and Theories (Heartland and Rimland)

Block 4: Geopolitical significance of Indian Ocean:

12. Regional Organisations of Cooperation (SAARC, ASEAN, OPEC, EU).

13. Neopolitics of World Natural Resources.

Block 5: Political geography of contemporary India:

14. Geopolitics of Climate Change

15. Geopolitics of World Resources

16. Geo-politics of India Ocean

References

1. Alexander, L.M., 1963. World Political Patterns Ran McNally, Chicago,
2. De Blij, H. J., Glassner, 1968. Martin Systematic Political Geography, John Wiley, New York.
3. Deshpande C.D., 1992. India-A Regional Interpretation Northern Book Centre, New Delhi.
4. Dikshit, R.D., 1996. Political Geography: A Contemporary Perspective. Tata McGraw Hill, New Delhi.
5. Dikshit, R.D., 1999. Political geography: A Century of progress, Sage, New Delhi.
6. Fisher Charles A., 1968. Essays in Political Geography, Methuen, London.
7. John R., 1982. Short: An introduction to Political Geography Routledge, London,
8. Panikkar K. M., 1959. Geographical Factors in Indian History: 2 vols. Asia Publishing House, Bombay.

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1. <http://moirabaricollegeonline.co.in/attendance/classnotes/files/1588653170.pdf>
2. <https://www.thoughtco.com/overview-of-political-geography-1435397>
3. <https://geography.name/political-geography-2/>
4. https://ebrary.net/6186/geography/political_geography
5. <https://geography.name/political-geography/>



TAMIL NADU OPEN UNIVERSITY
DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCIENCES
CHENNAI – 15

M.Sc. GEOGRAPHY- SECOND YEAR: IV SEMESTER (DISTANCE MODE)

COURSE TITLE : **Practical: Mapping Techniques II**
COURSE CODE : **MGEOS_P2**
COURSE CREDIT : **6 Credits**

COURSE OBJECTIVES

While studying Mapping **Techniques II**, the student shall be able to:

- CO1 Demonstrate the Principles and techniques of traditional method of mapping for Agricultural Activity
 - CO2 Demonstrate the Principles and techniques of traditional method of mapping for Industrial Activity
 - CO3 Demonstrate the Principles and techniques of traditional method of mapping using statistics
 - CO4 Demonstrate the Principles and techniques of traditional method of mapping for Transport Activity
 - CO5 Demonstrate the Principles and techniques of traditional method of mapping using Remote Sensing techniques.
-

COURSE OUTCOMES

After completion of the **Mapping Techniques II**, the student will be able to:

- CLO1 Training in the Principles and techniques of traditional method of mapping for Agricultural Activity
 - CLO2 Training in the Principles and techniques of traditional method of mapping for Industrial Activity
 - CLO3 Training in the Principles and techniques of traditional method of mapping using statistics
 - CLO4 Training in the Principles and techniques of traditional method of mapping for Transport Activity
 - CLO5 Training in the Principles and techniques of traditional method of mapping using Remote Sensing techniques.
-

Syllabus Details

Block 1: Agriculture

1. Crop-combination Techniques: Weaver's Method
2. Crop-combination Techniques: Rafiullah's Methods
3. Crop Concentration
4. Crop Diversification

Block 2: Industry

5. Location Quotient
6. Lorenz Curve
7. Nearest Neighbourhood Techniques

Block 3: Statistics

8. Mean Centre
9. Standard Deviation
10. Correlation
11. Regression Analysis

Block 4: Transport

12. Network Analysis
13. Connectivity
14. Binary Matrix
15. Shortest Path Matrix

Block 5: Aerial Photo

16. Marginal Information
17. Determination of Scale and Height.
18. Interpretation

Block 6: Satellite Imagery

19. Marginal Information
20. Image Classification
21. Preparation of Thematic Maps

References

1. Buch T.W. 1980 'Maps – Topographical and Statistical', Oxford, London press, London.
2. Monkhouse F.F. 1980 'Maps and Diagrams', Wilkinson H.R. Methuen and Co. Ltd.
3. Negi, Balbir Singh 1995 'Practical Geography', 3rd edition, Kedar Nath and Ram Nath, Meerut, Delhi.
4. Rangunandan Singh & Kannja 1990 'Map work and Practical Geography', Central Book Depot, Allahabad.
5. Clark, W.A.V. and Hosking, P.L. 1986: Geographical Methods for Geographers, John Wiley and Sons, New York
6. Dickinson, G.C. (1973): Statistical Mapping and Presentation of Statistics
7. Goon, A.M., Gupta, M.K. & Dasgupta, B. 1992: Fundamentals of Statistics, Volume 1, The World Press Pvt. Ltd., Kolkata
8. C. B. Gupta: An Introduction to Statistical Methods, Vikas Publishing House, Delhi, 1974.

Web Resources

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2. <https://www.wikienvironment.org/lorenz-curve-gini-coefficient/>
3. <https://leetcode.com/problems/shortest-path-in-binary-matrix/>
4. <https://www.geographynotes.com/topography/aerial-photography/aerial-photography-meaning-and-interpretation-geography/5964>
5. <https://www.thefreemanonline.org/a-guide-to-satellite-imagery-interpretation/>



TAMIL NADU OPEN UNIVERSITY
DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCIENCES
CHENNAI – 15

M.Sc. GEOGRAPHY- SECOND YEAR: IV SEMESTER (DISTANCE MODE)

COURSE TITLE	:	Project
COURSE CODE	:	MGEOS_P3
COURSE CREDIT	:	8 Credits

COURSE OBJECTIVES

While studying the **Project**, the student shall be able to:

- To acquire knowledge of doing Project related to any geographic field.
 - To learn preparation of project report mainly based on data collection, analysis, mapping and interpretation.
 - To understand the report preparation.
-

COURSE OUTCOMES

After completion of the **Project**, the student will be able to:

- Acquiring knowledge of doing Project related to any geographic field.
 - Learning preparation of project report mainly based on data collection, analysis, mapping and interpretation.
 - Understanding the report preparation.
-

Details

At the end of the first year, the problem of the project work will be decided and approved for each candidate. The candidate shall submit a project report at the end of the second year. The Project evaluation will be done by subject expert/course coordinator.

Project:

1. Preparation of project report mainly based on data collection, analysis, mapping and interpretation
2. Evaluation of report

Guidance:

- Projects shall be on any area of interest in Geography. Any topic can be chosen by the candidate.
- The students will have to attach themselves to selected higher educational institution, Government and aided Colleges and Universities for guides to work on the Project in Tamilnadu for doing their projects.
- Project Guide should be as a permanent faculty in an institution in the level of Assistant Professor, Associate Professor and Professor.
- At the end of the first year a student can get approval for the guide from the Tamil Nadu Open University.
- Project title and the guide should be approved by the Course Co-Ordinator from Tamil Nadu Open University.
- Students also can choose the course co-coordinator for the guideship from TNOU.

Report Writing

Text of the report should ideally be divided into the following sections:

- Introduction,
- Statement of problem(s)
- Objectives
- Materials and methods,
- Analysis
- Results and Discussions
- Conclusion
- References/bibliography

The student should prepare an individual report based on primary and secondary data collected during field work. The maximum length of the report should not exceed 15000 words, excluding figures, tables, photographs, maps, references, and appendices.



TAMIL NADU OPEN UNIVERSITY
DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCIENCES
CHENNAI – 15

M.Sc. GEOGRAPHY- SECOND YEAR: IV SEMESTER (DISTANCE MODE)

COURSE TITLE	:	Environmental Impact Assessment
COURSE CODE	:	MGESE_41
COURSE CREDIT	:	4 Credits

COURSE OBJECTIVES

While studying the **Environmental Impact Assessment**, the student shall be able to:

- CO1 Realize the concept of Environmental impact assessment.
 - CO2 Communicate the administrative procedure and decision-making processes.
 - CO3 Elaborate EIA Approaches and Methodologies
 - CO4 Criticize the Assessment of impact.
 - CO5 Enumerate the approaches and planning to assess the environmental impacts.
-

COURSE OUTCOMES

After completion of the **Environmental Impact Assessment**, the student will be able to:

- CLO1 Realizing the concept of Environmental impact assessment.
 - CLO2 Expressing in administrative procedure and decision-making processes.
 - CLO3 Elaborating EIA Approaches and Methodologies
 - CLO4 Criticizing the Assessment of impact.
 - CLO5 Enumerating the approaches and planning to assess the environmental impacts.
-

Syllabus Details

Block 1: The concept of environment and ecosystem:

1. The problem - environmental impacts of human actions
2. Environmental changes: natural and manmade
3. Environmental impacts
4. The stage of technological development

Block 2: Administrative procedure:

5. Designing administrative procedure
6. Sequence of environmental planning
7. Decision-making

Block 3: EIA:

8. Definition – need - initial environmental initiation
9. Steps in EIA – systematic approach for using EIA
10. EIA methodologies

Block 4: Assessment of impact:

11. EIA on development activities and land use

12. EIA on surface water environment
13. EIA on prediction and assessment of impacts
14. EIA on environmental audit

Block 5: Environmental planning and management:

15. Concept of environmental management,
16. Aspects and approaches to environmental management

References

1. Andrew R.W. Jackson and Julie M. Jackson (1996); Environmental science – (The natural environment and human impact); Longman, London.
2. Anjaneyulu, Y. 2002: Environmental Impact Assessment Methodologies, BSP Publications, Hyderabad.
3. Eugene P. Odum (1997); Ecology – A Bridge Between Science and Society; Sinauer Associates, Inc., Massachusetts, U.S.A.
4. Gilbert M. Masters (1990); Introduction to Environmental Engineering and science; Prentice, Hall of India Pvt. Ltd., New Delhi.
5. John S. Dryzek & David Schlosberg (1999); Debating the Earth – The Environmental Politics Reader; Oxford University Press, New York.
6. Munn, R.E. 1979: Environmental Impact Assessment Principles and Procedures, SCOPE 5, John Wiley & Sons, New York.

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2. <https://blog.forumias.com/environment-and-ecosystem/>
3. <https://www.epa.wa.gov.au/administrative-procedures>
4. <https://prepp.in/news/e-492-need-for-environmental-impact-assessment-eia-environment-notes>
5. <https://study.com/academy/lesson/environmental-planning-in-management-definition-lesson-quiz.html>
