



ANNAMALAI UNIVERSITY

207 - B.Sc. ENVIRONMENTAL MANAGEMENT

Programme Structure and Scheme of Examination (under CBCS)
(Applicable to the candidates admitted in Affiliated Colleges from
the academic year 2022 - 2023 onwards)

Course Code	Part	Study Components & Course Title	Hours/ Week	Credit	Maximum Marks		
					CIA	ESE	Total
		SEMESTER – I					
22UTAML11	I	Language Course - I : Tamil/Other Languages	5	3	25	75	100
22UENGL12	II	English Course - I : Communicative English I	5	3	25	75	100
22UEVMC13	III	Core Course - I : Environmental Ecology	4	4	25	75	100
22UEVMC14		Core Course - II : Environmental Botany	4	4	25	75	100
		Core Practical - I : Environmental Eco - Botany	3	-	-	-	-
22UEVMA01		Allied - I : Paper - 1 : Environment and Ecotourism	4	4	25	75	100
		Allied Practical - I : Ecotourism	3	-	-	-	-
22UENVS18	IV	Environmental Studies	2	2	25	75	100
		Total	30	20			600
		SEMESTER – II					
22UTAML21	I	Language Course - II : Tamil/Other Languages	5	3	25	75	100
22UENGL22	II	English Course - II : Communicative English II	5	3	25	75	100
22UEVMC23	III	Core Course - III : Environmental Zoology	4	4	25	75	100
22UEVMP24		Core Practical - I : Environmental Eco - Botany and Zoology	3	4	40	60	100
22UEVMA02		Allied - I : Paper -2 : Basics of Computer	4	4	25	75	100
22UEVMP02		Allied Practical - I : Ecotourism and Basics of computer	2	3	40	60	100
22UEVME27		Internal Elective - I	3	3	25	75	100
22UVALE27	IV	Value Education	2	1	25	75	100
22USOFS28		Soft Skill	2	1	25	75	100
		Total	30	26			900

Internal Elective Courses

22UEVME27-1	Internal Elective - I	Principles of Sustainable Development and Management
22UEVME27-2		Forest Management

Allied Courses

22UEVMA01	Theory	Environment and Ecotourism
22UEVMA02	Theory	Basics of Computer
22UEVMP02	Practical	Ecotourism and Basics of Computer

SEMESTER: I PART:III	COURSE CODE: 22UEVMC13 COURSE TITLE: ENVIRONMENTAL ECOLOGY	CREDIT:4 HOURS:4
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COURSE OBJECTIVES

- 1) To learn the concept, principles of ecology and ecosystem
- 2) To understand the structure and functions of ecosystem
- 3) To impart knowledge about population ecology
- 4) To understand the community ecology.
- 5) To study the ecological relationships among organism.

UNIT - I: Ecology

Definition - Scope and importance of Ecology - Subdivisions of Ecology - Autecology- Synecology - Branches of Ecology - Environmental Factors – Abiotic: Water- Air - Soil - Temperature – Light - Biotic Factors.

UNIT - II: Ecosystem

Structure of Ecosystem - Principle steps and components of an Ecosystem - Ecosystem Types- Aquatic Ecosystem - Pond Ecosystem - Functions of Ecosystem - Energy - Food Chain- Food Web- Ecological Pyramids - Pyramid of Number, Biomass and Pyramid of Energy- Inverted Pyramids.

UNIT - III: Population Ecology

Characteristics of Population - Natality - Mortality - Age Distribution - Age Pyramids - Survivorship Curves - Population Dispersal - Population Growth Forms - Carrying Capacity- Ecological Adaptations - Hydrophytes - Morphology and Anatomy - Mesophytes - Morphology and Anatomy - Xerophytes - Morphology and Anatomy - Halophyte.

UNIT - IV: Community Ecology

Definition - Ecological Dominance - Ecotone and Edge Effect - Ecological Niche - Ecological Equivalence - Ecological Indicators - Ecological Succession - Types - Primary and Secondary Succession - Process of Succession - Nudation-Invasion - Establishment - Competition- Reaction - Stabilization .

UNIT - V: Animal Association

Inter-specific Relationship - Neutralism - Symbiosis - Mutualism- Commensalism -Antagonism- Competition, Predation, Antibiosis, Exploitation, Parasitism- parasitic adaptations - Intra specific relationship.

COURSE OUTCOMES

After completion of this course, students will be able to gain knowledge in

- 1) The scope and importance of ecology.
- 2) The structure and functions of Ecosystem.
- 3) The characteristics of population ecology.
- 4) The community ecology, ecological succession, ecotone and ecological niche.
- 5) The inter and intra specific relationship of animals.

Textbooks

- 1) Bhatia, A.L. (2010). *Textbook of Environmental Biology*, I.K. International Publishing House Pvt. Ltd., New Delhi, India.
- 2) Verma, P.S. and Agarwal, V.K. (2000). *Environmental Biology (Principles of Ecology)*, S Chand and Company Limited, New Delhi.
- 3) Rastogi V.B, and M.S. Jayaraj, (1989). *Animal Ecology and Distribution of animals*, Kedarnath, Ram Nath Meerut – 250 001.
- 4) Smith, T.M. and Smith, R.L. (2015). *Elements of Ecology*, (9thed.). Pearson Education.
- 5) Singh, J.S., Singh, S.P. & Gupta, S.R. (2006). *Ecology, Environment and Resource Conservation*. Anamaya Publications.

Supplementary Readings

- 6) Chapman, J.L. and Reiss, M.J. (1998). *Ecology, Principles and Applications*, Cambridge University Press.
- 7) Kotpal. R.L, and N.P. Bali, (1986). *Concepts of Ecology*, Vishal Publications, New Delhi – 7.
- 8) Ananthakrishnan, T. N. and Viswanathan, T. R., *General Animal Ecology*, Macmillan India, New Delhi, 1976
- 9) Eugene P. Odum, 1971. *Fundamentals of ecology*, Saunders International Student Edition, W.B. Saunders Company, Philadelphia London, Toronto.
- 10) Clark, G.L. (1954). *Elements of Ecology*, John Wiley and Sons Inc., New York, London.

Supplementary Reading

1. <https://www.environment-ecology.com>.
2. <https://www.britannica.com>.
3. <https://esj.journalsonlinelibrary.wiley.com>.

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	2	3	3	3
CO3	2	3	3	2	3
CO4	3	3	3	3	3
CO5	3	3	2	3	3

SEMESTER: I PART: III	COURSE CODE: 22UEVMC14 CORE TITLE: ENVIRONMENTAL BOTANY	CREDITS: 4 HOURS: 4
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COURSE OBJECTIVES

- 1) To impart knowledge about classification of plants.
- 2) To understand the basics of cell and its structure.
- 3) To learn about the anatomy of various plant types.
- 4) To study the existence and role of Mendel's law.
- 5) To study the economic importance of plants.

Unit - I: FUNDAMENTALS OF CLASSIFICATION

Fundamental of classification, Basic unit of classification - classification of plants - Taxonomic hierarchy - Artificial and Natural classification- Merits and Demerits.

Unit - II: CELL DIVISION AND TYPES

Prokaryotic and Eukaryotic cells - cell organelles - Mitochondria, chloroplast and nucleus, cell division - mitosis - its significance.

Unit- III: ANATOMY OF PLANTS

Anatomy of dicot stem, root - Monocot stem, root - Structure and life History of Gracilaria, Agaricus, Lycopodium and Cycas - Economic importance of Gracilaria and Agaricus.

Unit-IV: GENETICS AND LAWS

Mendel- Reason for Mendel's success- Characters selected by Mendel - Monohybrid Experiment - Homozygous, Phenotype, genotype - Back cross and Test cross - Dihybrid Experiment - Mendel's Laws, Law of Dominance, Law of Segregation and Law of Independent Assortment.

UNIT-V: ECONOMIC BOTANY

Economic Botany - Medicinal Plants, Edible oil Seeds, Pulses, Vegetables, Fruits, Mushroom, Single Cell Protein, Spirulina.

COURSE OUTCOMES

After completion of this course, students will be able to gain knowledge in

- 1) The various types of classification of plants.
- 2) The cell division and various cell organelles.
- 3) The anatomical features of plants.
- 4) Mendel's law of inheritance.
- 5) The economic importance of various plants.

Textbooks

- 1) Jeffery, C. (1982). *An introduction of plants Taxonomy*, Cambridge University Press.
- 2) Smith Gilbert, M (1995). *Cryptogrammic Botany*, VOL. 1&2, McGraw Hill, New York.

- 3) Verma, P. S and V.K. Agarwal, (1989). *Principles of Ecology*, S. Chand and company, New Delhi.
- 4) Singh, V., P.C. Pandey and D.K. Jain (2017). *A Text Book of Botany*. (5thed.), Rastogi.
- 5) Pandey S.N. and Trivedi, P.S. (2015). *A text Book of Botany*, Vol 1 (11thed.), Vikas Publishing House, Pvt., Ltd., UP.
- 6) Mathawat, G.S.P., Sharma, D. and R.K. Sahni (1996). *A text book of Botany*, Ramesh Book depot, Jaipur.
- 7) Verma, V. (2009). *Text book of Economic Botany*, Ane Books Pvt Ltd, Chennai.

Text Books

- 1) Mehrotra, R.S. (1991). *Plant Pathology*, Tata McGraw Hill Publishing Co., Ltd., New Delhi.
- 2) Muneeswaran, A. (2004). *Allied Botany*, Titan Nooks, Madurai, India.
- 3) Pandey, B.P. (1991). *Economic Botany*, S. Chand and Co., New Delhi.
- 4) Verma, P.S and V.K. Agarwal, (1989). *Principles of Ecology*, S. Chand and Company, New Delhi.
- 5) Hill, A.W. (1951). *Economic Botany*, McGraw Hill Publications.
- 6) Dash, M.C. (1995). *Fundamentals of Ecology*, McGraw Hill, Publications.

Supplementary Reading

- 1) <http://www.thecompleteuniversityguide.co.uk/courses/options/botany/>
- 2) <https://botany.org/home/careers-jobs/careers-in-botany/what-is-botany.html>
- 3) <http://www.livescience.com/14016-natural-products-nih.html>

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	3	3	2	3	3
CO2	3	2	3	3	3
CO3	2	2	3	2	3
CO4	3	3	3	3	3
CO5	3	3	2	3	3

SEMESTER: I PART: IV	COURSE CODE: 22UENV5 18 COURSE TITLE: Environmental Studies	CREDIT: 2 HOURS: 2
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COURSE OBJECTIVES

1. To gain knowledge about the importance of environmental sciences and natural resources.
2. To learn the concept, structure and function of ecosystem and the importance of biodiversity.
3. To understand and gain knowledge about environmental pollution and management.
4. To impart knowledge about social issues and human population.
5. To acquire the skills for identifying and solving pollution problem.

UNIT - I: INTRODUCTION TO ENVIRONMENTAL SCIENCES: NATURAL RESOURCES:

Environmental Sciences – Relevance – Significance – Public awareness – Forest resources – Water resources – Mineral resources – Food resources – conflicts over resource sharing - Exploitation - Land use pattern - Environmental impact - fertilizer -PesticideProblems-casestudies.

UNIT - II:ECOSYSTEM, BIODIVERSITY AND ITS CONSERVATION:

Ecosystem – concept – structure and function producers, consumers and decomposers - Food chain - Food web - Ecological pyramids - Energy flow - Forest, Grassland, desert and aquaticeco system.

Biodiversity - Definition - genetic, species and ecosystem diversity - Values and uses of biodiversity - biodiversity at global, national (India) and local levels - Hotspots, threatstobiodiversity-conservationofbiodiversity-Insitu &Exsitu.

UNIT - III:ENVIRONMENTALPOLLUTIONANDMANAGEMENT

Environmental Pollution – Causes – Effects and control measures of Air, Water, Marine, soil, solidwaste, Thermal, Nuclear pollution and Disaster Management - Floods, Earth quake, Cyclone and Land slides.Role of individuals in prevention ofpollution-pollutioncasestudies.

UNIT - IV:SOCIALISSUES-HUMANPOPULATION

Urban issues - Energy - water conservation - Environmental Ethics - Global warming -Resettlement and Rehabilitation issues - Environmental legislations - Environmentalproduction Act. 1986 - Air, Water, Wildlife and forest conservation Act – Population growth and Explosion – Human rights and Value Education – Environmental Health- HIV/AIDS – Role of IT in Environment and Human Health – Women and child welfare – Public awareness – Case studies.

UNIT-V:FIELDWORK

Visittoalocalarea/localpollutedsite/localsimpleecosystem-Reportsubmission

Course Outcomes

After completion of this course, students will be able to gain knowledge in

- 1) The scope and importance of environmental science and natural resources.
- 2) The structure and functions of Ecosystem and biodiversity and its conservation.
- 3) The problem of environmental pollution and its management.
- 4) The social issues and human population.
- 5) They will identify and solve the pollution problem.

Text Books

- 1) Agarwal,K.C. (2008). *EnvironmentalBiology*, NidiPubl.Ltd.Bikaner.
- 2) Bharucha Erach, (2004). *Textbook for Environmental Studies*, UGC.
- 3) Odum, E.P., Odum, H.T. & Andrews, J. (1971). *Fundamentals of Ecology*. Philadelphia: Saunders.
- 4) Brusseau, M.L., Pepper, I.L., and Gerba, C. (2019). *Environmental and Pollution Science*. Academic Press, USA.
- 5) Primack R.B. (2014). *Essentials of Conservation Biology*, Oxford University Press, USA.
- 6) Raven, P.H, Hassenzahl, D.M., Hager M.C, Gift N.Y, and Berg L.R. (2015). *Environment*, (9th Ed.), Wiley Publishing, USA.
- 7) Rosencranz, A., Divan, S., and Noble M.L. 2002. *Environmental Law and Policy in India: Cases, Material & Statutes*. Oxford University Press.
- 8) Schmidt, D., Shahar, D.C. 2018. *Environmental Ethics: What Really Matters, What Really Works* 3rd Edition, Oxford University Press, USA.
- 9) Sengupta,R.(Ed.) 2013. *Ecological Limits and Economic Development*. Oxford University Press, New Delhi, India.
- 10) Singh, J.S., Singh, S.P. and Gupta, S.R. 2017. *Ecology, Environmental Science and Conservation*. S. Chand Publishing, New Delhi.
- 11) Stuetz R.M., and Stephenson T. (Eds.) (2009). *Principles of Water and Wastewater Treatment Processes (Water and Wastewater Process Technologies)*. IWA Publishing, London, UK.
- 12) Sodhi, N.S., Gibson, L. and Raven, P.H. (Eds). (2013). *Conservation Biology: Voices from the Tropics*. John Wiley & Sons.
- 13) Thapar, V. (1998). *Land of the Tiger: A Natural History of the Indian Subcontinent*. University of California Press, USA.
- 14) Warren, C.E. (1971). *Biology and Water Pollution Control*. WB Saunders.
- 15) Wilson, E.O. (2006). *The Creation: An Appeal to Save Life on Earth*. W.W. Norton & Company, NewYork, USA.
- 16) World Commission on Environment and Development. (1987). *Our Common Future*. Oxford University Press, USA.

Supplementary Readings

- 1) Kumarasamy,K.,A. Alagappa Moses and M.Vasanthi, (2004). *Environmental Studies*, Bharathidasan University Pub,1, Trichy.
- 2) Rajamannar, (2004). *Environmental Studies*, EVR College Pub, Trichy.
- 3) Kalavathy,S. (ED.) (2004). *Environmental Studies*, Bishop Heber College Pub., Trichy.

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
C01	3	3	3	3	3
C02	3	2	3	3	3
C03	2	3	3	2	3
C04	3	3	3	3	3
C05	3	3	2	3	3

SEMESTER: II PART: III	COURSE CODE: 22UEVMC23 COURSE TITLE: ENVIRONMENTAL ZOOLOGY	CREDITS: 4 HOURS: 4
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COURSE OBJECTIVES

- 1) To know about the distribution of animals in the universe
- 2) To understand the evolutionary history of animals
- 3) To learn about economic importance of animals
- 4) To understand the breeding phenomenon in fishes
- 5) To learn about ornamental fish culture

UNIT-I: ZOO GEOGRAPHY

Animal Distribution- Definition- Classification of Animal Distribution-Patterns of Distribution- Cosmopolitan Distribution- Discontinuous Distribution- Bipolar Distribution- Isolated Distribution- With Examples- Factors Affecting Distribution- Factors Influencing Distribution.

UNIT-II: EVOLUTION

Origin of Life- Theories of Evolution- Lamarck- Theory of Use and Disuse- Theory of Inheritance of Acquired Characters- Neo-Lamarckism- Darwin's Theory of Natural Selection - Variation- Geometric Ratio of Increase in Production- Struggle for Existence- Survival of the Fittest- Sexual Selection- Neo-Darwinism.

UNIT-III: ECONOMIC ZOOLOGY

Productive Insects- Honeybee Culture- Production of Honey- Economic Importance of Honey- Silkworm Culture- Production of Silk- Economic Importance of Silk, Lac Insect- Culture- Production of Lac- Economic Importance of Lac.

UNIT-IV: INDUCED BREEDING IN FISHES

Hypophysation- Principles of Hypophysation- Procedure- Collection, Preparation and Injection of Pituitary extract - Mechanism of Pituitary Action- Advantages- Seed Collection- Collection from Natural Habitat- Bundh Breeding- Transport of Fish Seeds- Open System-Closed System.

UNIT-V: ORNAMENTAL FISH CULTURE

Aquarium Culture - Aims of Aquarium Culture - Types of Aquariums - Requirements for Aquarium making- Setting of Aquarium - Aquarium maintenance - Aquarium Fishes- Gold Fish- Angel Fish- Fighter Fish- Koi-Molly-Sword Tail- Zebra Fish - Guppy- Fish Marketing- Definition- Marketing Channels- Types of Fish Marketing- Risk of Fish Marketing.

COURSE OUTCOMES

After completion of this course, students will be able to gain knowledge in

- 1) Animal distribution.
- 2) The evolutionary significance of animal kingdom.
- 3) The economic importance of animals.
- 4) Breeding pattern of fishes.
- 5) Ornamental fish culture.

Text Books

- 1) Sharma, P.D. (2018). *Fundamentals of ecology*, Rastogi publication.
- 2) Arumugam N, (2001). *Organic Evolution*, Saras Publication.
- 3) Ravindranath K.R. (2005). *Economic Zoology*, Dominant Publishers, New Delhi.
- 4) Srinivasalu Reddy, M & Sambasivarao K.R.S, (2004). *A Text Book of Aquaculture*, Discovery Publishing House, New Delhi.
- 5) Pradip V Jabde (2016). *Text Book of Applied Zoology*, Discovery Publishing House, New Delhi.

Supplementary Readings

- 1) Pillay T.V.R. (1990). *Aquaculture. Principles & Practices*, Black Well Publication, Oxford.
- 2) Jhingaran V.G. (1981). *Fish & Fisheries of India*, Hindustan Publishing Corporation.

Supplementary reading:

- 1) <https://www.researchgate.net>
- 2) <https://www.aquaculturealliance.orgs>
- 3) <https://www.iaszoology.com>

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	2	3	3	2
CO3	2	3	2	2	3
CO4	3	3	3	3	3
CO5	3	2	2	3	3

SEMESTER: II PART: III	COURSE CODE: 22UEVMP 15 and24 COURSE TITLE: ENVIRONMENTAL ECO - BOTANY AND ZOOLOGY	CREDITS:4 HOURS:3
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Core Practical

- 1) Micro preparation and anatomy of dicot stem.
- 2) Micro preparation and anatomy of dicot root.
- 3) Squash preparation of onion root tip for Mitosis.
- 4) Identification of Museum and Live specimen-Gracilaria,Agaricus.
- 5) Identification and micro preparation of Lycopodium stem T.S., Strobilus L.S.
- 6) Study on the Morphology and Anatomy of Hydrophytes.
- 7) Study on Morphology and Anatomy of Mesophytes- stem.
- 8) Study on Morphology and Anatomy of Xerophytes. - Stem
- 9) Study on Morphology and Anatomy of Halophytes. Museum specimens and slides.
- 10) Demonstration of honeybee culture and Silkworm culture.
- 11) Identification of invertebrates in Local habitat.
- 12) Identification of vertebrates in your local habitat.

SEMESTER:II PART:III	COURSE CODE: 22UEVME27 COURSE TITLE: PRINCIPLES OF SUSTAINABLE DEVELOPMENT AND MANAGEMENT	CREDIT:3 HOURS:3
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COURSE OBJECTIVES

- 1) To understand the principles of management and how to acquire skill to become a good manager.
- 2) To apply the concept of planning and decisionmaking.
- 3) To provide the basic knowledge of organization and span of control.
- 4) To enable the students to understand the delegation of authority.
- 5) To enable students to be aware of coordination and control process.

UNIT- I:INTRODUCTION OF MANAGEMENT

Function of management- planning, organizing and controlling - systems approach to management - Patterns of analysis - Economic, social, political and ethical factors - Affecting management practice.

UNIT - II: PLANNING PROCESS MANAGEMENT

Steps in the planning process management - By objectives - programme budgeting - capital budgeting - economic analysis - marginal analysis - benefits / cost analysis etc. Decision analysis - risk and uncertainty - decision trees, strategy and policy analysis - Limitation of planning.

UNIT- III : ORGANIZATIONAL STRUCTURE

Organizational structure - Formal and Informal organization - Line and staff relations - Relations with the public - Principles of Delegation - Performance Appraisal - Motivation - Communication and Leadership Aspect - Theories of organization.

UNIT- IV: IMPORTANCE OF GREEN BUILDING

Green buildings - History of green buildings - Need and Relevance of Green Buildings - Associated Cost and Benefits - Outlined Examples of Green Buildings - LEED Certified Building - Eco - Mark Certification - Establishment of Eco - mark in India - Its Importance and Implementation.

UNIT- V: SUSTAINABLE DEVELOPMENT

Public Transportation for Sustainable Development - Green Belts - Green Banking- Setting Environmental Goals - Resource Mobilization - Use of Natural Resources and Environmental Indicators - Output Building - Monitoring and Evaluating Environmental Programme.

COURSE OUTCOMES

After completion of this course Students will be able to gain Knowledge in.

- 1) Management Functions and Factors affecting the management practice.
- 2) Planning process, programme budgeting and capital budgeting.
- 3) Organizational structure.
- 4) Importance of green Building
- 5) Natural Resources and Environmental Indicators.

Text Books

- 1) Sharma, R.D. (1976). *Organizational management*, Light and life publishers, New Delhi.
- 2) Chakraborty, S.L. (1976). *Management by objectives*, MacMillan Publishers Ltd., New York.
- 3) Varma, P.S. and V.K. Agarwal (1992). *Theory and practice of management*, Forward Book Depot, New Delhi.

Supplementary Readings

- 1) <https://www.eolss.net>
- 2) <https://www.scribd.com>
- 3) <https://www.kobo.com>

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	2	2	3	2
CO3	2	3	3	2	3
CO4	3	2	3	3	3
CO5	3	3	2	3	3

SEMESTER: II PART: III	COURSE CODE: 22UEVME27 COURSE TITLE: FOREST MANAGEMENT	CREDIT: 3 HOURS: 3
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COURSE OBJECTIVES

- 1) To learn about the forest ecology, types of forests and its resources.
- 2) To know the economy of forest.
- 3) To know the threats to forest and management of it.
- 4) To know the conservation measures through policy and legislation
- 5) To know the forest management strategies.

UNIT 1: Concept of forest Ecology

Forest ecosystem - Forest types; forest productivity: nutrient cycling, natural stress to forest (drought, water logging).

UNIT 2: Forest Economics

Forest Resources, Non – Timber forest Products (NTFPs) definition and scope; (medicinal plants, gums, oil seeds nuts). Forest economics – estimation of demand and supply.

UNIT 3: Threats and Protective Measures of forest biodiversity

Forest Fire, Encroachment, poaching, grazing, fencing, and theft. Effect of wild animals on forest regeneration, Role of Afforestation and reforestation.

UNIT 4: Forest Legislation

Forest Conservation Act 1980. Indian forest policy 1990. National Forest Policy 1998. Scope and objectives of forest inventory.

UNIT 5: Forest management

Objective and principles of forest management; techniques; commercial forests, forest cover monitoring. Agroforestry, Social Forestry and Combined Forest Management.

COURSE OUTCOMES

After completion of the course, the students will be able to

- 1) Define the forest ecology, types of forests, its resources and threats.
- 2) Recognize the social, economic and environmental values of forest resources.
- 3) Identify the threats to forest resources.
- 4) Restate the forest policy, legislation and forest management strategies.
- 5) Apply the management strategies towards forest conservation.

Textbooks

- 1) Puri, G.S., Gupta, R.K., Meher-Homji VM and Puri, (1989). *Forest Ecology*, Oxford and IBH publishing Co., Pvt. Ltd, New Delhi.
- 2) FSI, State of Forest Report (1997). *Forest survey of India*, Ministry of Environment and Forests, Dehradun.
- 3) Gadgil, M. and Guha. R, (1995). *Ecology and Equity: the use and abuse of nature in contemporary India*, Penguin books, New Delhi.

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
C01	3	3	3	3	3
C02	3	2	3	3	2
C03	2	3	2	2	3
C04	3	2	3	3	3
C05	3	3	2	3	3