OF INTERDISCIPLINARY COURSES FOR ENVIRONMENTAL SCIENCES AND BOTANY

SCHEME & SYLLABUS



S.	Subject	Subject Name	Credits	Contact	Stream	Remarks
No.	Code		(L:T:P)	Hours		
				(L:T:P)		
1.	EVS001	Environmental	3:0:0	3:0:0	Other programs	As per existing
		Sciences			except	scheme of SBBSU
					Engineering and	
			TR I	2.15	Agriculture	
2.	EVS002	Environmental	0:0:0	3:0:0	Engineering	As per Model
		Studies				curriculum AICTE
			-	200	(AICTE)	scheme 2018
3.	EVS005	Environmental	1:0:1	1:0:2	Agriculture (ICAR)	As per 5 th Dean's
		Studies and				Committee ICAR
		Disaster				recommendation
		Management				

The co	The codes and subject names for PG Courses							
S. No.	Subject Code	Subject Name	Credits (L:T:P)	Contact Hours (L:T:P)	Stream	Remarks		
1.	EVS003	Natural Hazards and Disaster Management	3:0:0	3:0:0	UGC	As per existing scheme of SBBSU		
2.	EVS004	Disaster Management	0:0:0	2:0:0	Engineering (AICTE)	As per model curriculum AICTE scheme 2018		
3.	EVS006	Disaster Management and Risk Assessment	2:0:0 JALAN	2:0:0 DHAR	Agriculture (ICAR)	As per different Agriculture Universities		
4.	EVS007	Disaster Risk Reduction	1:1:2	1:1:2	UGC	As per course & Syllabus received from UGC		
5.	BOT522	Intellectual property and its management in agriculture	2:0:0	2:0:0	Agriculture (ICAR)			

SYLLABUS

ENVIRONMENTAL SCIENCE

Course Code	EVS001
Course Title	Environmental Science
Type of course	Theory
LTP	300
Credits	3
Course prerequisite	10+2
Course objective	To connect and sensitize the students towards the environment and prevailing environmental issues (natural, physical, social and cultural).
Course Outcomes (CO)	 The student will able to: 1. Understand the importance of environment in their life. 2. Learn about the concept of Ecosystem. 3. Understand the relation between social issues and environment. 4. Learn how human beings are affected with the pollution.

SYLLABUS

UNIT I

Introduction: Definition and scope and importance of multidisciplinary nature of environment. Need for public awareness.

Natural Resources: Natural Resources and associated problems, use and over exploitation, case studies of forest resources and water resources.

Ecosystems: Concept of Ecosystem, Structure, interrelationship, producers, consumers and decomposers, ecological pyramids-biodiversity and importance. Hot spots of biodiversity

A, DISTT. JALANDHAR (PU

UNIT II

Environmental Pollution: Definition, Causes, effects and control measures of air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear hazards. Solid waste Management: Causes, effects and control measure of urban and industrial wastes. Role of an individual in prevention of pollution, Pollution case studies, Disaster Management: Floods, earthquake, cyclone and landslides.

UNIT III

Social Issues and the Environment: From Unsustainable to Sustainable development, Urban problems related to energy, Water conservation, rain water harvesting, watershed management. Resettlement and rehabilitation of people; its problems and concerns. Case studies. Environmental ethics: Issues and possible solutions. Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies. Wasteland reclamation. Consumerism and waste products. Environment Protection Act. Air (Prevention and Control of Pollution) Act. Water (Prevention and control of pollution) Act. Wildlife Protection Act, Forest Conservation Act, Issues involved in enforcement of environmental legislation Public awareness

UNIT IV

Human Population and the Environment: Population growth, variation among nations. Population explosion –Family Welfare Programme. Environment and human health, Human Rights, Value Education, HIV/AIDS. Women and child Welfare. Role of Information Technology in Environment and human health.

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Text and Reference Books:

S. No	Name	Author(S)	Publisher
1	Environmental Biology	Agarwal, K.C. 2001	Nidi Publ. Ltd. Bikaner.
2	Environmental Science	Miller T.G. Jr.	Wadsworth
3	Perspectives in Environmental	Anubha Kaushik and	New Age International
	Studies	Gaurav Garg	Publishers

KHIALA, DISTT. JALANDHAR (PUNJAB)

ENVIRONMENTAL STUDIES

Course Code	EVS002	
Course Title	Environmental Studies	
Type of course	Theory (Audit Course)	
LTP	300	
Credits	0	
Course prerequisite	NA	
Course objective	To connect and sensitize the students towards the environment	
	and prevailing environmental issues (natural, physical, social and	
	cultural).	
	,	
Course Outcomes	CO1 To understand the importance of environment in their life	
(CO)	CO2 To learn about the concept of Ecosystem	
	CO3 To understand the relation between social issues and environment.	
	CO4 To learn about the new technology in harmony with environment.	

SYLLABUS

UNIT I

Introduction: Definition, scope and role of Environmental studies in Engineering. Awareness of basic concept of environment.

Types of Natural Resources and its management: Renewable and non-renewable resources case studies and there over-exploitation: Forest resources, Water resources, Mineral resources, Food resources, Land resources

Ecosystems, Types of Ecosystem, Energy Flow, Biodiversity, Biogeographical classification of India, Mega diversity centers, Hotspot, Threats to biodiversity : habitat loss, Conservation, Endangered and endemic species of India.

UNIT II

Environmental Pollution and Engineering Disaster: Definition, Causes, effects and control measures of air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Natural disaster (Avalanche, Landslide, floods, cyclones, earth quakes and volcano eruption), encroachment of

catchment area for human purpose and man-made disaster (Chernobyl explosion, Electronic Graveyard – China, The Exxon Valdez Oil Spill, Bhopal gas tragedy). Environmental ethics: Issues and possible solutions. Wasteland reclamation. Consumerism and waste products. Salient features of various environment, forest, wildlife and pollution acts. Manufacturing green technology, The National Green Tribunal Act 2010; scheme and labeling of environment friendly products, Ecomarks.

UNIT III

Environment and Social Issues: Sustainable development, urban problems related to energy, energy over-consumption and its impact on the environment, economy, and global change, Climate change, global warming, acid rain, ozone layer depletion. Solid waste management, Liquid waste management, Waste water recycling, rain water harvesting, watershed management, Environment economics

UNIT IV

Definition and concepts: green technology, green energy, green economy. Alternative sources as green energy (bio fuels, wind energy, solar energy, geothermal energy; ocean energy; nuclear energy); need for energy efficiency; energy conservation and sustainability. Sustainable development; case studies of environmental movements (Appiko Movement, Chipko Movement, Narmada Bachao Andolan).

SBBSU

Text and Reference Books:

S. No	Name	Author(S)	Publisher
1	Text Book for Environmental Studies	Erach Bharucha	UGC and Bharti Vidyapeeth Institute of Environment Education and Research, Pune
2	Environmental Biology	Agarwal, K.C. 2001	Nidi Publ. Ltd. Bikaner.
3	Environmental Science	Miller T.G. Jr.	Wadsworth
4	Perspectives in Environmental Studies	Kaushik, A and Gaurav Garg	New Age International Publishers

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NATURAL HAZARDS AND DISASTER MANAGEMENT

Course Code	EVS0	03	
Course Title	Natural Hazards and Disaster Management		
Type of course Theory Course		ry Course	
LTP	3 (0 0	
Credits	3	T BE	
Course Graduation			
prerequisite	1.	is and the second	
Course Objective	Course Objective To learn about natural hazards, risk assessment and management		
Course Outcome CO1 Knowledge about the natural car CO2 Risk Assessment of Natural haz CO3 Disaster Management and effect		Knowledge about the natural calamities and their origin	
		Risk Assessment of Natural hazards	
		Disaster Management and effect of Climate change	

SYLLABUS

UNIT I

Overview of natural hazards; Introduction to natural hazards, impact and mitigation in Global and Indian context; causes and consequences of geological hazards, flood, drought and climate change issues, forest hazard, tsunami and coastal hazards, cyclone hazards, snow avalanche, GLOF and glacier related hazards, extreme weather events, urban and industrial hazards.

UNIT II

Introduction to vulnerability and risk assessment, socio-economic and physical aspects of vulnerability and elements of risk mapping, assessment, and reduction strategies.

UNIT III

Earth observation: Data availability and key operational issues for DM: EO systems for natural hazards study: present (operational) and future systems; multi-temporal data sources, multi-temporal

database organisation: Key operational issues, utilisation of geo-information products for disaster management (available through International cooperation e.g. International Charter etc.)

Unit IV

Disaster management framework of India and recent initiatives by Govt. of India with special emphasis on DRR HFA 2005-2015, MDG and SAARC comprehensive framework for DRR Disaster Management Support (DMS): Status in India for use of space inputs Mainstreaming DRR in Development Planning Sustainable development in the context of Climate Change Disaster Recovery-Strategy and case examples.

S.	Name/Title	Author	Publisher
No.			
1	Environmental Hazards : Assessing	Keith Smith and	Routledge
	Risk and Reducing Disaster	Petley David, 2008.	
2	Geo-information for Disaster	van Oosterom Peter,	Springer-Verlag
	Management	ZlatanovaSiyka and	
		FendelElfriede, 2005	0
3	Geospatial Techniques in Urban	Showalter, Pamela S.	John Wiley and Sons.
	Hazards and Disaster Analysis	and Lu, Yongmei,	
-		2010.	
4	An International Perspective on	Stoltman JP, Lidstone	Kluwer Academic
-	Natural Disaster: Occurrence,	J and Dechano LM.,	Publishers
	Mitigation and Consequences	2004.	(17)
	ANTINA	17	TATAD)
	UNIT I	IMANDHAR (F	UDA:

Text and Reference books:

DISASTER MANAGEMENT

Course Code	EVS004		
Course Title	Disaste	er Management	
Type of course	Theory	(Audit Course)	
LTP	2 0	0	
Credits	0	CHE DEPE	
Course prerequisite	B. Tech		
Course Objective	To learn about natural hazards, risk assessment and disaster management		
Course Outcome	CO1	To learn critical understanding of key concepts in disaster risk reduction and humanitarian response	
2	CO2	To critically evaluate disaster risk reduction and humanitarian response policy and practice from multiple perspectives	
	CO3	To develop an understanding of standards of humanitarian response and practical relevance in specific types of disasters and conflict situations	
CO4 To critically managemer countries, p		To critically understand the strengths and weaknesses of disaster management approaches, planning and programming in different countries, particularly their home country or the countries	

SYLLABUS

UNIT I

KHIALA, DIST NDHAR (PUNIAB) Introduction Disaster: Definition, Factors and Significance; Difference Between Hazard and Disaster; Natural and Manmade Disasters: Difference, Nature, Types and Magnitude.

Repercussions of Disasters and Hazards: Economic Damage, Loss of Human and Animal Life, Destruction of Ecosystem. Natural Disasters: Earthquakes, Volcanisms, Cyclones, Tsunamis, Floods, Droughts and Famines, Landslides And Avalanches, Man-made disaster: Nuclear Reactor Meltdown, Industrial Accidents, Oil Slicks and Spills, Outbreaks of Disease And Epidemics, War and Conflicts.

UNIT III

Disaster Prone Areas in India Study of Seismic Zones; Areas Prone To Floods and Droughts, Landslides and Avalanches; Areas Prone to Cyclonic and Coastal Hazards With

Special Reference to Tsunami; Post-Disaster Diseases and Epidemics

UNIT IV

Disaster Preparedness and Management Preparedness: Monitoring of Phenomena Triggering A Disaster or Hazard; Evaluation of Risk: Application of Remote Sensing, Data From Meteorological and Other Agencies, Media Reports: Governmental and Community Preparedness.

UNIT V

Risk Assessment Disaster Risk: Concept and Elements, Disaster Risk Reduction, Global and National Disaster Risk Situation. Techniques of Risk Assessment, Global Co-Operation in Risk Assessment and Warning, People's Participation In Risk Assessment. Strategies for Survival.

UNIT VI

Disaster Mitigation Meaning, Concept and Strategies of Disaster Mitigation, Emerging Trends in Mitigation. Structural Mitigation and Non-Structural Mitigation, Programs of Disaster Mitigation in India.

Text and Reference books:

S. No.	Name/Title	Author	Publisher
1	Disaster Management in India: Perspectives, issues and strategies	R. Nishith, Singh AK,	'New Royal book Company
2	Model Curriculum of Engineering & Technology	Volume I	
3	Disaster Mitigation Experiences And Reflections	Sahni, Pardeep <i>et.al.</i> (Eds)	Prentice Hall Of India, New Delhi.
4	Disaster Administration And Management Text And Case Studies	Goel S. L.	Deep &Deep Publication Pvt. Ltd., New Delhi

ENVIRONMENTAL STUDIES AND DISASTER MANAGEMENT

Course Code	EVS0	EVS005		
Course Title	Environmental Studies and Disaster Management			
Type of course	Theo	ry & Practical		
LTP	201			
Credits	300			
Course prerequisite	10+2 (Non Medical or Medical) or Equivalent			
Course objective	Main objective of this subject is to familiarize the students ab			
Environmental Studies and Disaster Management		onmental Studies and Disaster Management		
Course outcomes	CO1 Students will learn about environmental studies			
	CO2 Students will learn about natural disasters and their manage			
	CO3	Students will learn about biodiversity and its conservation		

SYLLABUS

Theory

UNIT-I

Multidisciplinary nature of environmental studies Definition, scope and importance. Natural Resources: Renewable and non-renewable resources, Natural resources and associated problems. a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people. b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems. c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies. d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. e) Energy resources: Growing energy needs, renewable and nonrenewable energy sources, use of alternate energy sources. Case studies. f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

UNIT-II

Ecosystems: Concept of an ecosystem, Structure and function of an ecosystem, Producers,

consumers and decomposers, Energy flow in the ecosystem. Ecological succession, Food chains, food webs and ecological pyramids. Introduction, types, characteristic features, structure and function of the following ecosystem: a. Forest ecosystem b. Grassland ecosystem c. Desert ecosystem d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) Biodiversity and its conservation: - Introduction, definition, genetic, species & ecosystem diversity and biogeographical classification of India. Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values. Biodiversity at global, National and local levels, India as a mega-diversity nation. Hot-sports of biodiversity. Treats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. Endangered and endemic species of India. Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity. Environmental Pollution: definition, cause, effects and control measures of: a. Air pollution b. Water pollution c. Soil pollution d. Marine pollution e. Noise pollution f. Thermal pollution g. Nuclear hazards. Solid Waste Management: causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. BBS

UNIT-III

Social Issues and the Environment: From Unsustainable to Sustainable development, Urban problems related to energy, Water conservation, rain water harvesting, watershed management. Environmental ethics: Issues and possible solutions, climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. dies. Wasteland reclamation. Consumerism and waste products. Environment Protection Act. Air (Prevention and Control of Pollution) Act. Water (Prevention and control of Pollution) Act. Wildlife Protection Act. Forest Conservation Act. Issues involved in enforcement of environmental legislation. Public awareness. Human Population and the Environment: population growth, variation among nations, population explosion, Family Welfare Programme. Environment and human health: Human Rights, Value Education, HIV/AIDS. Women and Child Welfare. Role of Information Technology in Environment and human health.

UNIT-IV

Disaster Management

Natural Disasters- Meaning and nature of natural disasters, their types and effects. Floods, drought, cyclone, earthquakes, landslides, avalanches, volcanic eruptions, Heat and cold waves, Climatic change: global warming, Sea level rise, ozone depletion. Man Made Disasters- Nuclear disasters, chemical disasters, biological disasters, building free, coal free, forest free, oil free, air pollution, water pollution, deforestation, industrial waste water pollution, road accidents, rail accidents, accidents, sea accidents.

Disaster Management- Effect to migrate natural disaster at national and global levels. International strategy for disaster reduction. Concept of disaster management, national disaster management framework; financial arrangements; role of NGOs, community –based organizations and media.

Central, state, district and local administration; Armed forces in disaster response; Disaster response; Police and other organizations.

Practical

- 1. Pollution case studies. Case Studies- Field work:
- 2. Visit to a local area to document environmental assets river/forest/grassland/hill/mountain,
- 3. Visit to a local polluted site-Urban/Rural/Industrial/Agricultural,
- 4. Study of common plants, insects, birds and study of simple ecosystems-pond, river, hill slopes, etc.

Recommended Books:

S. No	Name	Author(S)	Publisher
1	Environment Education and Disaster Management	V D Harma	CBS Publisher and Distributors, New Delhi
2	Environment Engineering and Disaster Management	Sanjay K Sharma	Laxmi Publisher



DISASTER MANAGEMENT AND RISK ASSESSMENT

Course Code	EVS006			
Course Title	Disaster Management and Risk Assessment			
Type of course	Theory			
LTP	100			
Credits	1(1+0)			
Course prerequisite	B.Sc. (Agriculture)			
Course	To introduce learners to the key concepts and practices of natural disaster			
Objective (CO)	management; to equip them to conduct thorough assessment of hazards,			
	and risks vulnerability and capacity building			
Course	CO1	Students will be able to understand the nature of natural		
Outcomes	1.5	disasters, their types and effects		
	as!			
	CO2 Students will be able to understand the nature of manmade			
	disasters, their types and effects			
	1 20000			
	CO3 Students will be able to understand how to assess the risk and reduce disaster impact. They will also understand the role of			
	NGOs			

SYLLABUS

UNIT-I

Natural Disasters -Meaning and nature of natural disasters, their types and effects Floods, drought, cyclone, earthquake, landslides, avalanches, volcanic eruptions, Heat and cold waves, climatic change: global warming, sea level rise, ozone depletion

UNIT-II

Manmade disasters-Nuclear disasters, chemical disasters, biological disasters, building fire, coal fire, forest fire, field fires-burning of straw, stables and residues oil fire, air pollution water pollution, deforestation, industrial waste water pollution, road accidents, rail accidents, sea accidents KHIALA, DISTT. JALANDHAR (PUNJAB)

UNIT-III

Disaster management-effect to mitigate natural disaster at national and global level, International strategy for disaster reduction, Concept of disaster management, national disaster management framework; financial arrangements

UNIT-IV

Role of NGOs community-based organizations and media. Central, state, district and local administration; armed forces in disaster response, Disaster response; Police and other organizations. Risk assessment: introduction and scope; project planning; exposure assessment; toxicity assessment; hazard identification and assessment. human and ecological risk assessment.

Recommended Books:

S. No	Name	Author(S)	Publisher
1	Disaster Management future challenges and Opportunities	Jagbir singh	IK International Publishing House Pvt.Ltd.
2	National hazards and disaster management	R.B.Singh	UBS
3.	Handbook of Environmental Impact Assessment	Judith, P. 1999.	Blackwill Science
4	Social ImpactAssessment: An Introduction.	Barrow, C.J. 2000.	Oxford Universiy Press.



DISASTER RISK REDUCTION

Course Code	EVS007		
Course Title	Disaster Risk Reduction		
Type of course	Theory		
LTP	1:1:2		
Credits	3(1:1:2)		
Course prerequisite	10+2		
Course Objectives	 To impart Knowledge and Concepts of disaster, disaster management and disaster reduction To enhance the students understanding on Hazard Vulnerability and 		
	 Risk Analysis To develop positive attitude towards practical response to different stages of disaster management To develop positive attitude towards practical response to different stages of disaster management by adopting advance technology and sustainable development. 		
	4. To ensure disaster response skills in assessment, analysis,		
Course Outcomes	CO1 Students will be able to Define and analysis factors		
	contributing to disasters, threats to development, life and nature		
U	 CO2 Students will be able to Demonstrate, and practice disaster risk reduction activities towards sustainable development. CO3 Students will be able to Formulate, organize and assess disaster risk reduction activities according to the nature of disasters and factors of vulnerabilities 		
0			



UNIT-I: Concepts of Disaster and Vulnerability

Hazards and disasters-Concepts, vulnerability and risks

Hazard and disaster type-Natural Water-related, Pandemic, and Human induced hazards and disasters

Causes and impact of disasters-Impact on natural eco-system; physical, psychological and social impact

Disaster and finance resilience

GIS and remote sensing

Disaster vulnerability profile of India- specific to geographical regions and states (as per regional significance)

UNIT-II: Disasters Intervention Practices

Disaster Management Cycle-Rescue, relief, rehabilitation, reconstruction, prevention mitigation and preparedness

Disaster risk reduction (DDR)- Community based DDR, Institution concerned with safety, Disaster mitigation and construction techniques as per Indian standard.

Early Warning System

Trauma and Stress Management

First aid and emergency procedures

Awareness generation strategies for the community, on safe practices on disaster (as per regional significance)

Disaster Management UNIT-III:

Component of disaster management- Preparedness of rescue & relief, mitigation, rehabitation and reconstruction.

Institution framework of disaster management in India (NDMA-SDMA-DDMA, NDRF, Civic volunteers, NIDM)

Phases of disaster/risk management and post disaster responses IR (PUNIAB

Compensation and insurance

Application of Remote sensing and GIS in disaster management

Disaster risk reduction strategies and National Disaster Management Guidelines

Capacity building of disaster/damage mitigation (structural and non-structural measures

Disaster management Act-2005

Regional issues as per regional requirement/university can take two topics as per High Powered Committee

Practical exposures requirement:- Field work /Community visit and Vulnerability mapping, safe community planning and implementation, Mock zDrills/ regional issues as per university/region

Mode of evaluation: Continuous assessment tests, Quizzes, Assignments, Muktiple Choice Questions tests, Filed work report, project report

S. No	Name	Author (S)	Publisher
1	Disaster management Guidelines for Earthquakes, Landslides,	Singh, R (2017)	Horizon Press Publications
	Avalanches, and Sunami		
2	Disaster management and Preparedness	Taimpo (2016)	CRC Press
3	Disaster management and Preparedness	Nidhi, GD (2014)	CRC Publication Pvt. Ltd
4	Flood Disaster Risk managemnt	Gupta et al (2013)	CBS Publication Pyt. Ltd
5	Disaster management Guidelines for natural Disaster	Singh R (2016)	Oxford University Press Pvt. Ltd

Recommended books:



INTELLECTUAL PROPERTY AND ITS MANAGEMENT IN AGRICULTURE

Course Code	BOT522		
Course Title	Intellectual property and its management in agriculture		
Type of course	Theory		
L T P	2:0:0		
Credits	2(2+0)		
Course prerequisite	B.Sc. (Agriculture)		
Course Objectives	To equip students and stakeholders with knowledge of intellectual		
	property rights (IPR) related protection systems, their significance and		
	use of IPR as a tool for wealth and value creation in a knowledge-based		
	economy.		
Course Outcomes	CO1 Students will be able to understand Historical perspective		
and need for the introduction ofCO2Students will be able to u		and need for the introduction of Intellectual Property Right	
		Students will be able to understand National	
	Biodiversity protection initiatives. Convention on		
	Biological Diversity.		
- h-	Students will be able to understand Research collaboration		
	Agreement, License agreement		

UNIT-I

Historical perspectives and need for the introduction of Intellectual Property Right regime. TRIPs and various provisions in TRIPS Agreement. Intellectual Property and Intellectual Property Rights (IPR), benefits of securing IPRs.

UNIT-II

Indian Legislations for the protection of various types of Intellectual Properties. Fundamentals of patents, copyrights, geographical indications, designs and layout, trade secrets and traditional knowledge, trademarks, protection of plant varieties and farmers' rights and biodiversity protection

UNIT-III

Protectable subject matters, protection in biotechnology, protection of other biological materials, ownership and period of protection. National Biodiversity protection initiatives. Convention on Biological Diversity.

UNIT-IV

International Treaty on Plant Genetic Resources for Food and Agriculture. Licensing of technologies, Material transfer agreements, Research collaboration Agreement, License Agreement.

Recommended books:

S. No	Nam e	Author (S)	Publisher
1	Law related to intellectual	Dr. B.L. Wadehra	Universal law publishing
	property		
2	Law relating to intellectual	V.K. Ahuja	Universal law publishing
	property rights		

