

**Master of Science Sustainable Development
Semester – 1**

Paper No	Subject Name	Contents of Syllabi
Paper-I	GLOBAL SUSTAINABLE DEVELOPMENT I	<ul style="list-style-type: none"> -Brundtland Commission/ World Commission on Environment and Development. -What is Sustainable Development? -What is Sustainability? -History of Sustainability. -Sustainability Measurement. -Carrying Capacity. -Water Crisis. -Land Use Management. -Forestry Development. -Ecoforestry. -Sustainable Agriculture. -Extinction. -Sustainable Energy. -Water Resources. -Sustainability Science. -Education for Sustainable Development. -Maximum Sustainable Yield. -Sustainable Forest Management. -Sustainable Entrepreneurship. -Sustainable Procurement. -Sustainable Business. -Sustainable National Income. -Sustainable Transport. -Sustainable Tourism. -Sustainable Design. -Sustainable Urban Infrastructure.

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Paper-II	BIODIVERSITY CONSERVATION & MANAGEMENT I	<ul style="list-style-type: none">-What is Biodiversity?-Measurement of Biodiversity.-Species Richness.-Shannon Index.-2010 Biodiversity Indicators- Partnership.-Evolution.-Evolutionary Thought.-How does Evolution Occur?-Timeline of Evolution.-Social Effect of Evolutionary Theory.-Objections of Evolution.-Population Genetics.-Genetics.-Heredity.-Mutation.-Molecular Evolution.-Genetic Recombination.-Sexual Reproduction.-Gene Flow.-Hybrid.
Paper-III	GLOBAL ENERGY POLICIES AND RESOURCES I	<ul style="list-style-type: none">-What is Energy?-History of Energy.-Timeline of Thermodynamics.-Units of Energy.-Potential Energy.-Elastic Energy.-Kinetic Energy.-Internal Energy.-Electromagnetism.-Electricity.-Chemical Thermodynamics.-Nuclear Binding Energy.-Energy Transformation.-Conservation of Energy.-Bioenergetics.-Activation Energy.-Energy Accounting.-Energy Conservation.-Strategic Petroleum Reserve.-Enthalpy.-Entropy.

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Paper-IV	GREEN MOVEMENTS I	<ul style="list-style-type: none">-Environmental Movement.-Environmental Protection.-Environmental Health.-Environmental Justice.-Ecology Movement.-Environmentalism.-Bright Green Environmentalism.-Anti- Nuclear Movement.
Paper-V	GREEN AND ECO PHILOSOPHY I	<ul style="list-style-type: none">-Ecosophy.-Deep Ecology.-Biocentrism.-Ecocentrism.-Ecological Humanities.-Ecofeminism.-Green Politics.-Activism.

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Semester – 2

Paper No	Subject Name	Contents of Syllabi
Paper-I	GLOBAL SUSTAINABLE DEVELOPMENT II	<ul style="list-style-type: none">-Millennium Ecosystem Assessment.-Overfishing.-Sustainable Fisheries.-Dangerous Goods.-What is Global Warming?-What is Climate Change?-Temperature Record of the Past 1000-Years.-Temperature Record.-Ice/ Glacial Age.-Paleocene- Ecocene Thermal Maximum.-Current Sea Level Rise.-Greenhouse Effect.-Carbon Dioxide in Earth's Atmosphere.-List of Countries by Carbon Dioxide-Emissions Per Capita.-List of Countries by Carbon Dioxide-Emissions.-List of Countries by Ratio of GDP to- Carbon Dioxide Emissions.-Avoiding Dangerous Climate Change.-Asian Brown Cloud and Asian Yellow- Dust.-List of Countries by Greenhouse Gas - Emissions.-List of Countries by Greenhouse Gas – Emissions Per Capita.-Carbon Credit.-Emissions Trading.-Acid rain.

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Paper-II	BIODIVERSITY CONSERVATION & MANAGEMENT II	<ul style="list-style-type: none">-Horizontal Gene Transfer.-Natural Selection.-Fitness.-Genetic Drift.-Effective Population Size.-Coevolution.-Speciation.-Common Descent.-Evidence of Common Descent.-Homology.-Agricultural Biodiversity.-Genetic Erosion.-Ecological Effects of Biodiversity.-Species.-Species Problem.-Habitat Destruction.-Introduced Species.-Genetic Pollution.-Effect of Climate Change on Plant- Biodiversity.-Conservation Biology.-International Year of Biodiversity.
Paper-III	GLOBAL ENERGY POLICIES AND RESOURCES II	<ul style="list-style-type: none">-Thermodynamics Free Energy.-Renewable Energy.-Wind Power.-Wind Farm.-Hydroelectricity.-Hydropower.-Solar Energy.-Solar Power.-Solar Thermal Energy.-Geothermal Power.-Geothermal Heat Pump.-Renewable Energy Commercialization.-Ethanol Fuel.-Renewable Energy in Developing- Countries.-Renewable Energy Industry.-Renewable Energy Policy.-Cellulosic Ethanol Commercialization.-Biogas.-Bio energy.-Biomass.-Bio fuel.

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Paper-IV	GREEN MOVEMENTS II	<ul style="list-style-type: none">-Radical Environmentalism.-Social Energy.-Gaia Philosophy.-Inclusive Democracy.-Indian Green Movements.-Environmental Movements: A Holistic-Perspective.-Other Green Movements.-Environmental groups.
Paper-V	GREEN AND ECO PHILOSOPHY II	<ul style="list-style-type: none">-Conservation Movement.-Timeline of Environmental History.-Green Philosophy.-Future of Green Philosophy.-Political Ecology.-International Understanding of -Ecophilosophy.-Global and National Ecological-Movements.

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Semester – 3

Paper No	Subject Name	Contents of Syllabi
Paper-I	ENVIRONMENTAL POLICIES AND PERSPECTIVES I	<ul style="list-style-type: none">-Environmental Policy.-Environmental Principles and Policies.-Sustainability.-Environmental Issue.-Polluter Pays Principle.-Precautionary Principle.-Best Available Technology.-Biosafety.-Biosecurity.-Genetically Modified Plant.-Public Toilet.-Social Equity.-Human Rights Principles.-Public Participation Principle.-Participatory Budgeting.-Participatory Economics.-Participatory Planning.-Participatory Justice.-Public Engagement.-Radical Transparency.-E- Democracy.-Open Business.-Rio Declaration on Environment and-Development.-Agenda 21.-Convention on Biological Diversity.-2010 Biodiversity Target.

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Paper-II	ENVIRONMENTAL DISASTERS I	<ul style="list-style-type: none">-What is an Environmental Disaster.-Biological Hazard.-List of Environmental Disasters.-List of Oil Spills.-Emergency Management.-National Disaster Management- Authority.-Salinity in Australia.-Fertile Crescent.-Dust Bowl.-Great Sparrow Campaign.-Africanized Bee.-Aral Sea.-Dirty Dairying.-Hedgerow Removal.-Australian Mega fauna.-Easter Island.-Old- Growth Forest.-Rabbits in Australia.-Red Imported Fire Ant.-Dutch Elm Disease.-American Bison.-Nile Perch.-Lake Victoria.
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Paper-III	ISLAND DEVELOPMENT AND BIODIVERSITY I	<ul style="list-style-type: none">-What is an Island?-Coral Reef.-Desert Island.-Archipelago.-List of Island Countries.-Small Island Developing States.-Island Biogeography.-Island Ecology.-Private Island.-Reef.-Tidal Islands.-List of Islands.-List of Archipelagos.-List of Artificial Islands.-List of Divided Islands.-List of Islands by Area.-List of Islands Highest Point.-List of Islands by Population.-List Islands in Lakes.-List of Islands Named After People.-List of Islands of India.-Andaman Islands.-Kaveri River.-Chorao Island.-Divar Island.-Lakshadweep Islands.-Majuli Island.
Paper-IV	FRAGILE ECOSYSTEM DEVELOPMENT I	<ul style="list-style-type: none">-What is Ecosystem?-Aquatic Ecosystem.-Lentic Ecosystem.-Lotic Ecosystem.-Agroecology.-Chaparral.-Coral Reef.-Desert.-Forest.-Greater Yellowstone Ecosystem.-Human Ecosystem.-Large Marine Ecosystem.-Littoral Zone.-Prairie.-Rainforest.-Riparian Zone.-Savanna.-Steppe.-Taiga.-Tundra.-Biome.

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Paper-V	FOREST AND WILDLIFE PROTECTION I	<ul style="list-style-type: none">-What is Forest?-What is Forestry?-What is Logging?-What is Deforestation?-What is Agro forestry?-Ancient Woodland.-Forest Management.-Outline of Forestry.-Sustainable Forest Management.-Forest Migration.-Intact Forest Landscape.-Old Growth Forest.-Red Forest.-List of Trees.-List of Oldest Trees.-Permaculture.-Forest Gardening.-Mycoforestry.-Wildlife.-Wilderness.-Endangered Species.-Ex- Situ Conservation.-In- Situ Conservation.
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Semester – 4

Paper No	Subject Name	Contents of Syllabi
Paper-I	ENVIRONMENTAL POLICIES AND PERSPECTIVES II	<ul style="list-style-type: none">-List of International Environmental - Agreements.-Commercialization of Traditional -Medicines.-Earth Summit 2002-Environmental Judgements: M.C. Mehta vs Kamal Nath.-Environmental Judgements: M.C. Mehta vs Union of India.-Environmental Criminology.-Bhopal Disaster.-List of Industrial Disaster.-Timeline of Environmental History.-Pollution.-Regulation and Monitoring of Pollution.-Recycling.-Compost.-Computer Recycling.-Aluminum Recycling.-Glass Recycling.-Paper Recycling.-Plastic Recycling.-Textile Recycling.-Waste Minimization.-Waste Management.-Plasma Arc Waste Disposal.-Landfill.-Incineration.-Anaero-to-Energy.-Biomedical Waste.

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Paper-II	ENVIRONMENTAL DISASTERS II	<ul style="list-style-type: none">-Saemangeum Seawall.-Emerald Ash Borer.-Environmental Threats to the Great -Barrier Reef.-2006 Zakouma Elephant Slaughter.-Biodiversity of New Zealand.-Lord Howe Island.-Shark Finning.-Vulture.-Diclofenac.-Rabies.-Kingston Fossil Plant Coal Fly Ash Slurry- Spill.-European Colonization of the- Americans.-Health Effects Arising from the- September 11 Attacks.-Goiania Accident.-Minamata Disease.-Uranium Mining in Kakadu National- Park.-Environmental Issues in the Niger Delta.-Chernobyl Disaster.-2006 Southeast Asian Haze.-2006 Cote D'Ivoire Toxic Waste Dump.-Draining and Development of the- Everglades.-Coral Bleaching.
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Paper-III	ISLAND DEVELOPMENT AND BIODIVERSITY II	<ul style="list-style-type: none">-Maliku Atoll-Munroe Island.-Mumbai Harbour.-Nicobar Island.-Rameswaram Island.-Sriharikota Island.-Vypin Island.-Wellington Island.-New Moore/ South Talpatti.-Gangasagar Island.-Micronation.-Pacific Islands Forum.-Secretariat of the Pacific Community.-Pacific Forum Line.-Pacific Union and Caribbean- Community.-Tsunami.-Tsunami Warning System.-Historic Tsunamis.-2004 Indian Ocean Earthquake and- Tsunami.-Countries Affected by the 2004 Indian- Ocean Earthquake.-Library Damage Resulting from the- 2004 Indian Ocean earthquake.-Humanitarian Response to the 2004- Indian Ocean Earthquake.
Paper-IV	FRAGILE ECOSYSTEM DEVELOPMENT II	<ul style="list-style-type: none">-Ecosystem Services.-Business Ecosystem.-Ecosystem Ecology.-Ecosystem Management.-Ecosystem Model.-Ecosystem Valuation.-Managing Fragile Ecosystems and-Sustainable Mountain Development.-Combating Desertification and Drought.-Biogeochemical Cycle.-History of Ecology.-Ecology: Past, Present and Future.-Human Ecology.-Holocene Extinction.-List of Extinct Plants.-List of Extinct Birds.-List of Extinct Mammals.-Ecological Forecasting.

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Paper-V	FOREST AND WILDLIFE PROTECTION II	<ul style="list-style-type: none">-Wildlife Corridor.-Wildlife Crossing.-Ornithology.-Wildlife Garden.-Butterfly Gardening.-Natural Landscaping.-Wildness.-Wildlife of India.-Fauna of India.-Flora of India.-Sanctuary.-Wildlife Sanctuaries of India.-National Parks of India.-National Park.-List of Protected Areas of India.-List of Zoos in India.-List of National Parks.-Nature.-Natural Resource.-Natural Resource Management.-Natural Landscape.-The Nature Conservancy.
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Semester - 1

Paper	Paper Name	Project Work	External Max Marks	Total
Paper - I	GLOBAL SUSTAINABLE DEVELOPMENT I	30	70	100
Paper - II	BIODIVERSITY CONSERVATION & MANAGEMENT I	30	70	100
Paper - III	GLOBAL ENERGY POLICIES AND RESOURCES I	30	70	100
Paper - IV	GREEN MOVEMENTS I	30	70	100
Paper - V	GREEN AND ECO PHILOSOPHY I	30	70	100

Semester - 2

Paper	Paper Name	Project Work	External Max Marks	Total
Paper - I	GLOBAL SUSTAINABLE DEVELOPMENT II	30	70	100
Paper - II	BIODIVERSITY CONSERVATION & MANAGEMENT II	30	70	100
Paper - III	GLOBAL ENERGY POLICIES AND RESOURCES II	30	70	100
Paper - IV	GREEN MOVEMENTS II	30	70	100
Paper - V	GREEN AND ECO PHILOSOPHY II	30	70	100

Semester - 3

Paper	Paper Name	Project Work	External Max Marks	Total
Paper - I	ENVIRONMENTAL POLICIES AND PERSPECTIVES I	30	70	100
Paper - II	ENVIRONMENTAL DISASTERS I	30	70	100
Paper - III	ISLAND DEVELOPMENT AND BIODIVERSITY I	30	70	100
Paper - IV	FRAGILE ECOSYSTEM DEVELOPMENT I	30	70	100
Paper - V	FOREST AND WILDLIFE PROTECTION I	30	70	100

Semester - 4

Paper	Paper Name	Project Work	External Max Marks	Total
Paper - I	ENVIRONMENTAL POLICIES AND PERSPECTIVES II	30	70	100
Paper - II	ENVIRONMENTAL DISASTERS II	30	70	100
Paper - III	ISLAND DEVELOPMENT AND BIODIVERSITY II	30	70	100
Paper - IV	FRAGILE ECOSYSTEM DEVELOPMENT II	30	70	100
Paper - V	FOREST AND WILDLIFE PROTECTION II	30	70	100