

CENTRE FOR FUTURES STUDIES

Post Graduate Diploma in Sustainable Social Development
Syllabus

The Gandhigram Rural Institute - Deemed to be University
Gandhigram

Ministry of Education, Government of India
Accredited by NAAC with 'A' Grade (3rd Cycle)

Dindigul District Tamil Nadu

Centre for Futures Studies
Post Graduate Diploma in Sustainable Social Development

Semester	Category	Course Code	Title of the Course	Credit	Evaluation		Total Marks
					CFA	ESE	
I	Core Course	18CFSP0101	Principles of Sustainable Development	4	40	60	100
		18CFSP0102	Natural Resource Management and Sustainability	4	40	60	100
		18CFSP0103	Environmental Health and Sustainable Development	4	40	60	100
		18CFSP0104	Demographic Sciences	4	40	60	100
		18CFSP0105	Field Visit	4	100		100
Total				20			500
II	Core Course	18CFSP0206	Solid Waste Management	4	40	60	100
		18CFSP0207	Green Technologies	4	40	60	100
		18CFSP0208	Gender and Environmental Development	4	40	60	100
		18CFSP0209	Dynamics of Development	4	40	60	100
		18CFSP0110	Project	8	(150+50)		200
	Total				24		
Grand Total				44			1100

Centre for Futures Studies
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Post Graduate Diploma Program
PAPER I
Principles of Sustainable Development

Credits: 4

Maximum Marks: 100

Contact Hours: 64

CFA: 40 ESE: 60

Objectives:

- To understand the environmental, social and economic dimensions of sustainability and the principles evolved through landmark events so as
- To develop an action mindset for sustainable development.

Outcomes:

- Students will be able to develop a fair understanding of the social, economic and ecological linkage of human production and consumption
- Students will be able to Learn to integrate the Rio principles of Sustainable development in decision making and Contribute towards Green Economy

DETAILED SYLLABUS

- ❖ **UNIT I:**Sustainability and Development Challenges :Definition– Environmental, Economical and Social dimensions - Defining Development- Millennium Development Goals –Syndromes of Global Change: Utilization Syndromes, Development Syndromes, and Sink Syndromes
- ❖ **UNIT II:** Principles and Frame Work : History and emergence of the concept of sustainable development - Our Common Future -Stockholm to Rio plus 20– Rio Principles of Sustainable Development – Precautionary Principle- Polluter Pays Principle – Role of Civil Society, Business and Government
- ❖ **UNIT III:** Sustainable Livelihood: The Unjust World and inequities - Quality of Life - Poverty, Population and Pollution - Combating Poverty -Millennium Development Goals, Indicators, Targets, Status and intervention areas - Demographic dynamics of sustainability - Strategies to end Rural and Urban Poverty and Hunger – Sustainable Livelihood Framework- Health, Education and Empowerment of Women, Children, Youth, Indigenous People, Non-Governmental Organizations, Local Authorities and Industry for Prevention, Precaution , Preservation and Public participation.

- ❖ **UNIT IV: Sustainable Socio-Economic Systems: Protecting and Promoting Human Health** – Investing in Natural Capital- Agriculture, Forests, Fisheries - Food security and nutrition and sustainable agriculture- Water and sanitation - Biodiversity conservation and Ecosystem integrity –Ecotourism - Urbanization and Sustainable Cities – Sustainable Habitats- Green Buildings - Sustainable Transportation – Sustainable Consumption and Production – Sustainable Mining - Sustainable Energy– Climate Change –Mitigation and Adaptation - Safeguarding Marine Resources - Financial Resources and Mechanisms

- ❖ **UNIT V: Assessing Progress and Way Forward: Nature of sustainable development strategies and current practice-** Sustainability in global, regional and national context – Rio plus 20 - Approaches to measuring and analyzing sustainability– limitations of GDP- Ecological Footprint- Human Development Index- Human Development Report – National initiatives for Sustainable Development

Suggested Text Books and Publications:

1. Barry Dalal Clayton and Stephen Bass, Sustainable Development Strategies- a resource book”, Earthscan Publications Ltd, London, 2002.
2. Karel Mulder, Sustainable Development for Engineers - A Handbook and Resource Guide, Green Leaf Publishing, 2006.
3. MoEF “ Sustainable Development in India –stocktaking in the Run up to Rio plus 20”,Ministry of Environment and Forests, Government of India, New Delhi. 2012,
4. UNEP, , Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication, www.unep.org/greeneconomy, ISBN: 978-92-807-3143-9, 2011
5. World Bank “Inclusive Green Growth – The pathway to Sustainable development, World Bank- Washington DC, 2012

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PAPER II

Natural Resource Management and Sustainability

Credits: 4

Maximum Marks: 100

Contact Hours: 64

CFA: 40

ESE: 60

Objectives:

- To provide a view of the nature of Earth's resources, their generation, extraction and impact of human activities on earth's environment.
- To provide a better understanding on effective management strategies and give a critical insight of the major sustainability issues

Outcomes:

- Students will be able to define the major formative processes behind natural resource issues within Australia and internationally.
- Students will be able to discuss the integrated nature of human activities, environmental values, ecological processes and sustainable resource management.

DETAILED SYLLABUS

- ❖ **UNIT 1:** Introduction : Resource and reserves; Resource - Degradation; Conservation; Availability and Factors influencing its availability; Land resources; Water resources; Energy resources; Human impact on natural resources; Ecological, social and economic dimension of resource management.
- ❖ **UNIT 2:** Natural resources and conservation: Forest resources, water resources: soil resources: food resources: green revolution.
- ❖ **UNIT 3:** Non-renewable energy resources: Oil, Natural gas, Coal: environmental impacts of non renewable energy consumption; impact of energy consumption on global economy; application of green technology; future energy options and challenges.
- ❖ **UNIT 4:** Renewable energy resources: Energy efficiency; life cycle cost; cogeneration; solar energy: Hydropower: Nuclear power: Tidal energy; Wave energy; Ocean thermal energy conversion (OTEC); Geothermal energy; energy from biomass; bio-diesel.

- ❖ **UNIT 5:** Resource management : Approaches in resource management: Integrated resource management strategies; concept of sustainability science: different approach towards sustainable development and its different constituents; sustainability of society, resources and framework; sustainable energy strategy; principles of energy conservation; Indian renewable energy programme.

Suggested Text Books and Publications:

1. Craig, J.R., Vaughan. D.J. & Skinner. B.J. 1996. Resources of the Earth: Origin, Use, and Environmental Impacts (2nd edition). Prentice Hall, New Jersey.
2. Freeman, A.M. 2001. Measures of value and Resources: Resources for the Future. Washington DC.
3. Freeman, A.M. 2003. Millennium Ecosystem Assessment: Conceptual Framework. Island Press.
4. Ginley, D.S. & Cahen, D. 2011. Fundamentals of Materials for Energy and Environmental Sustainability. Cambridge University Press.
5. Klee, G.A. 1991. Conservation of Natural Resources. Prentice Hall Publication.
6. Owen, O.S, Chiras, D.D, & Reganold, J.P. 1998. Natural Resource Conservation – Management for Sustainable Future (7th edition). Prentice Hall.

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PAPER III
Environmental Health & Sustainable Development

Credits: 4

Maximum Marks: 100

Contact Hours: 64

CFA: 40 ESE: 60

Objective:

- To understand how health is related to the environment and sustainable development.
- To improve the understanding of environmental issues in public health, policy and practice.

Outcomes:

- Students will be able to understand and demonstrate the links between health, environment and sustainable development.
- Students will be able to evaluate how environmental issues are addressed in public current health practice and understand mechanism for policy action.

DETAILED SYLLABUS

- ❖ **UNIT 1:** Environment-Definition, Concept, Components, Environmental Pollution-Sources, Impacts and treatments of Air (Indoor/Outdoor), Water, Soil, Nuclear, Solid waste, Biomedical waste, e- waste etc.
- ❖ **UNIT 2:** Introduction - Development & Environmental issues -Environmental Ethics, Global Warming, Climate Change, Ozone Depletion, Acid Rain etc.
- ❖ **UNIT 3:** Introduction- Eco-friendly environmental practices-Waste management, Energy practices, Agriculture Practices.
- ❖ **UNIT 4:** Environmental Disaster- Definition, types and management. Environment & Health Impact Assessment-Concept, Steps and application
- ❖ **UNIT 5:** Sustainable Development –Introduction, principles, models, Rights Based Approach for development and health, Developmental Planning-Macro & Micro level, Societal Health & Development, Community Organization and participation.

Suggested Text Books and Publications:

1. Environmental and Health Impact Assessment of Development Projects: A edited by Robert G. H. Turnbull, Elsevier Sciences Publication
2. Environmental Chemistry, B.K.Sharma, Krishna Prakashan Media.
3. Environmental Science by S C Santra, Publisher: : New Central Book Agency Calcutta , 2001
4. Perspectives in Environmental Health -Vector and Water Borne Diseases Mukhopadhyay Aniruddha, De A K
5. Sociology Anthropology, and Development, Michael M. Cernea, The World Bank Washington, D.C, 1994
6. Development and the Environment, Lewis T. Preston, The World Bank Washington, D.C, 1992

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PAPER IV
Demographic Sciences

Credits: 4

Maximum Marks: 100

Contact Hours: 64

CFA: 40 ESE: 60

Objective:

- To understand how population is related to its sociological determinants and consequences.
- To understand the relationship between population and issues such as urbanization, population aging and health, and environment.

Outcomes:

- Students will be able to understand the basics of demographic concepts.
- Students will be able to develop a positive and pleasing personality, adopt problem solving tools and make informed decisions.

DETAILED SYLLABUS

- ❖ **UNIT 1:** Introduction: Definitions, Scope and nature, importance of the study, Historical review, difference and similarities between Demography and Population Sciences.
- ❖ **UNIT 2:** Methods of Demographic Data Collection: Primary and Secondary sources of data collection, Procedures, Uses, Strengths and weakness of census, vital statistics, sample survey, dual reporting system – SRS, Data from national health program/disease surveillance, hospital statistics, police records, remand homes etc.
- ❖ **UNIT 3:** Population composition: Sex composition, factors affecting sex composition, Age structure Population pyramids, impact of various demographic processes on the age structure. Comparison – developed and developing countries.
- ❖ **UNIT 4:** Population Growth and Problems: Population growth, reasons for sudden growth in population, problems emerging out of that. Rural-urban distribution of growth pattern, population growth and related problems.
- ❖ **UNIT 5:** Population Policy: Health planning in terms of Family planning, Health services, Vital processes. Policies and programmes influencing demographic processes in the context in India's population.

Suggested Text Books and Publications:

1. Principles of population Studies: Asha Bhende and Tara Kanitkar, Himalaya Pub, Houses, Mumbai, 1996
2. Population: John Weeks, Wordsworth pub., California, USA, 1994.
3. Population Transition In India: S.N.Singh, M.K.Premi, P.S.Bhatia, B.R.Publishing Corporation, Delhi, 1989.
4. Population in the context of India's development: P.B. Desai UGC – UNFPA project, Ahmedabad, 1987.
5. Demographic Diversity of India, Ashish Bose, B.R. Publishing Corporation, Delhi, July 1991
6. Techniques of Demographic Analysis: K.B. Pathak, F. Ram, Himalaya Publishing Houses, Mumbai, 1992.

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PAPER VI
Solid Waste Management

Credits: 4

Maximum Marks: 100

Contact Hours: 64

CFA: 40 ESE: 60

Objectives:

- To provide an insight into the current scenario of solid waste generation and problem in its handling and management.
- To provide details on different governmental policies that explains proper transportation, handling and disposal of solid waste to minimize its effect on environment.

Outcomes:

- Students will be able to achieve an overview understanding of the main aspects of waste policy and systems.
- Students will be able to familiarize with the characterization of different kinds of solid and hazardous wastes and their treatment.

DETAILED SYLLABUS

- ❖ **UNIT 1:** Introduction: Sources and generation of solid waste, their classification and chemical composition; characterization of municipal solid waste; hazardous waste and biomedical waste.
- ❖ **UNIT 2:** Effect of solid waste disposal on environment :Impact on environment, human and plant health; effect of solid waste and industrial effluent discharge on water quality and aquatic life; mining waste and land degradation; effect of land fill leachate on soil characteristics and ground water pollution.
- ❖ **UNIT 3:** Solid waste Management: Different techniques used in collection, storage, transportation and disposal of solid waste; landfill; thermal treatment; drawbacks in waste management techniques.
- ❖ **UNIT 4:** Waste- to- energy (WTE): Concept of energy recovery from waste; refuse derived fuel (RDF); different WTE processes: combustion, pyrolysis, landfill gas (LFG) recovery; anaerobic digestion; gasification. Integrated waste management: Concept; hierarchy; methods and importance.

- ❖ **UNIT 5:** Life Cycle Assessment (LCA) & Policies for solid waste management: Lifecycle inventory of solid waste; LCA- role; advantage and limitation; Municipal Solid Wastes Rules 2000; Hazardous Wastes Management and Handling Rules 1989; Bio-Medical Waste Rules 1998; Eco-friendly or green products.

Suggested Text Books and Publications:

1. Asnani, P. U. 2006. Solid waste management. India Infrastructure Report 570.
2. Bagchi, A. 2004. Design of Landfills and Integrated Solid Waste Management. John Wiley & Sons.
3. Blackman, W.C. 2001. Basic Hazardous Waste Management. CRC Press.
4. McDougall, F. R., White, P. R., Franke, M., & Hindle, P. 2008. Integrated Solid Waste Management: A Life Cycle Inventory. John Wiley & Sons.
5. White, P.R., Franke, M. &Hindle P. 1995. Integrated Solid waste Management: A Lifecycle Inventory. Blackie Academic & Professionals.
6. Zhu, D., Asnani, P.U., Zurbrugg, C., Anapolsky, S. & Mani, S. 2008. Improving Municipal Solid waste Management in India. The World Bank, Washington D.C.

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PAPER VII
Green Technologies

Credits: 4

Maximum Marks: 100

Contact Hours: 64

CFA: 40 ESE: 60

Objectives:

- To introduce the concept of green technology, its goals and advantages.
- To highlight a potential role of green technologies in realizing the goal of sustainable development and focuses on community participation to tap the economic benefits associated with switching to green technologies.

Outcomes:

- Students will be able to learn the basic principles of green and sustainable chemistry
- Students will be able to familiarize with, and can reflect on the key environmental and social challenges that are occurring in a variety of socio-economic and cultural contexts, and understand their major causes and impacts

DETAILED SYLLABUS

- ❖ **UNIT 1:** Introduction: Definition and concepts: green technology, green energy, green infrastructure, green economy and green chemistry; sustainable consumption of resources; individual and community level participation
- ❖ **UNIT 2:** Green technologies: Green technologies in historical and contemporary perspectives; successful green technologies: wind turbines, solar panels; 3 R's of green technology: recycle, renew and reduce; paradigm shift from „cradle to cradle“ to „cradle to grave“
- ❖ **UNIT 3:** Green infrastructure, planning and economy : Green buildings - history need and relevance, construction; associated costs and benefits; outlined examples; LEED certified building; Eco-mark certification, Eco-mark in India, importance and implementation; Green planning: role of governmental bodies, land use planning, concept of green cities, waste reduction and recycling in cities, role of informal sector in waste management, public transportation for sustainable development, green belts

- ❖ **UNIT 4:** Applications of green technologies: Increase in energy efficiency: Green House Gas (GHG) emissions reduction: Pollution reduction and removal (Flue Gas Desulfurization (FGD) methods.

- ❖ **UNIT 5:** Green future : Agenda of green development; reduction of ecological footprint; role of green technologies towards a sustainable future; major challenges and their resolution for implementation of green technologies; green practices to conserve natural resources; emphasis on waste reduction instead of recycling, role of advancement in science in developing environmental friendly technologies.

Suggested Text Books and Publications:

1. Anastas, P.T. & Warner, J.C. 1998. Green Chemistry: Theory & Practice. Oxford University Press.
2. Arceivala, S.L. 2014. Green Technologies: For a Better Future. Mc-Graw Hill Publications.
3. Baker, S. 2006. Sustainable Development. Routledge Press.
4. Hrubovcak, J., Vasavada, U. & Aldy, J. E. 1999. Green technologies for a more sustainable agriculture (No. 33721). United States Department of Agriculture, Economic Research Service.
5. Thangavel, P. & Sridevi, G. 2015. Environmental Sustainability: Role of Green Technologies. Springer publications.
6. Woolley, T. & Kimmins, S. 2002. Green Building Handbook (Volume 1 and 2). Spon Press.

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PAPER VIII
Gender and Environmental Development

Credits: 4

Maximum Marks: 100

Contact Hours: 64

CFA: 40 ESE: 60

Objectives:

- To prepare students to understand the concept of gender in society and its relevance in the environmental context.
- To enable students to examine environmental issues from a gender-sensitized perspective.

Outcomes:

- The students will be able to analyse and appreciate the linkage between environmental management and gender
- The students will be able to demonstrate the skill necessary to analyse complex multidisciplinary development pertaining to environment

DETAILED SYLLABUS

- ❖ **UNIT 1:** Introduction: The socially constructed „gender“ concept. Gender and society: Gender existence in society; gender: matriarchy and patriarchy as means of social exclusion (case studies in an Indian context); gender equity issues in rural and urban settings.
- ❖ **UNIT 2:** Gender and the environment: Relevance of the concept in an environmental context; evolution of gender hierarchies in historical and contemporary perspective; gendered division of roles in cultural, social and economic perspective; gender inequalities.
- ❖ **UNIT 3:** Gender, resources and the environment: Knowledge about the environment among men and women; differential dependencies on environmental resources; implications of gendered responses to environmental degradation.
- ❖ **UNIT 4:** Gender and environmental management: Women’s participation in environmental movements and conservation; historical and contemporary case studies; role of women in environmental education, awareness and sustainable development.

- ❖ **UNIT 5:** Strategies for change: Need for gender equity; Instruments for change: education, media, action groups, policy and management; equity in resource availability and consumption for a sustainable future.

Suggested Text Books and Publications:

1. Agarwal, B. 1992. The Gender and Environment Debate: Lessons from India. Feminist Studies (Minnesota).
2. Agarwal, B. 1997. Gender, Environment and Poverty Interlinks: Regional Variations and
3. Temporal Shifts in Rural India: 1971-1991. World Development 25: 1-42.
4. Agarwal, B. 2001. Participatory exclusions, community forestry, and gender: An analysis for South Asia and a conceptual framework. World Development 29: 1623-1648.
5. Jackson, C. 1993. Doing what comes naturally? Women and environment in development
6. World Development 21: 1947-63.
7. Krishna, S. 2004. Livelihood and Gender. New Delhi, Sage.
8. Leach, M. 2007. Earth Mother myths and other eco-feminist fables: How a strategic notion rose and fell. Development and Change 38: 67-85.

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PAPER IX
Dynamics of Development

Credits: 4

Maximum Marks: 100

Contact Hours: 64

CFA: 40 ESE: 60

Objectives:

- To enable students to understand about rural, urban and tribal development
- To equip students with specific skill and techniques of working with rural, urban and tribal communities

Outcomes:

- Students will be able to apply their knowledge to independently identify rural, urban and tribal issues
- Students will be able to critically analyse specific rural, urban and tribal developmental needs

DETAILED SYLLABUS

- ❖ **UNIT 1:** Concept of Development: Concept, Objectives and Indicators, development to social development; sustainable Development-socio cultural sustainability; Critique of Development. Theories and Paths of Development: Modernization, Centre-peripheri, world-systems and unequal exchange; capitalist, socialist, Gandhian and NGOs.
- ❖ **UNIT 2:** Rural Development: concept, approaches and strategies for Rural Reconstruction-Gandhian, Community Development Programme, Current programmes for rural Development; role of cooperatives in Rural development; Issues in Rural development-ecological, illiteracy, health, rural poverty, credit indebtedness and emerging inequalities.
- ❖ **UNIT 3:** Urban Development: Urbanism and Urbanization; Urban planning concept, history and methods; Urban policies and urban development- continuity and discontinuity; Welfare Programme for Urban social groups women, children, youth and others. Emerging issues in urban development-slums, congestion poverty, and disposal of waste.

- ❖ **UNIT 4:** Tribal Development: concepts and approaches; Tribal development and the constitution; Tribal development policies and plans in India; tribes and their rights; Tribal Welfare Programmes social work and tribal development; Issues in Tribal Development.

- ❖ **UNIT 5:** Community Participation in Development: State, corporate, civil society, community, and individual-level initiatives to ensure sustainable development; case studies of environmental movements (Appiko Movement, Chipko Movement, Narmada Bachao Andolan); corporate responsibility movement; appropriate technology movement; environmental groups and movements, citizen groups; role played by NGOs; environmental education and awareness.

Suggested Text Books and Publications:

1. Bulmer, M. et. al.: The Goals of Social Policy.
2. Chakraborti, S.: Development Planning Indian Experience.
3. Dimitto, D.M.: Social Welfare: Politics and Public Policy.
4. Ghosh, A.: Planning in India: The challenges for the Nineties.
5. Miri, Mirinal: tribal Development in India.
6. Rao, D.B.: World Summit for Social Development.