

**University of Rajasthan
Jaipur**


SYLLABUS

**POST-GRADUATE
DIPOMA IN**

- ⇒ **HUMAN ECOLOGY**
- ⇒ **ENVIRONMENTAL STUDIES**
- ⇒ **POPULATION STUDIES**

(SEMESTER SCHEME)

I / II Semester Exam 2018-2019


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(Academic)
University of Rajasthan
JAIPUR

INDIRA GANDHI CENTRE FOR HUMAN ECOLOGY, ENVIRONMENTAL AND
POPULATION STUDIES,
UNIVERSITY OF RAJASTHAN, JAIPUR-302004


Post P.G. Diploma in Human Ecology (Semester Scheme)

I SEMESTER

Post P.G. Diploma in Human Ecology is divided into two semesters. There are Five theory papers and One field study in each semester. Grades will be awarded as per norms considered for faculty of science.

Eligibility for Admission

Masters Degree in Social Science, Science, Medical Science, Engineering, Law with atleast 50% marks (45% for SC and ST candidates).


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Post P.G.Diploma in Human Ecology

Ist Semester

S.N.	Subject code	Course Title	Course category	Credit	Contact hours per week		
					Lecture	Tutorial	Pract
1.	DHE 701	Man and Environment	CCC	6	6	0	0
2.	DHE 702	The Human Ecosystem	CCC	6	6	0	0
3.	DHE 703	Technological Revolution	CCC	6	6	0	0
4	DHE A01	Elective-1 Natural Resources	ECC	6	6	0	0
5	DHE A02	Elective-2 Development and Environment	ECC	6	6	0	0
6	DHE A11	Elective-3 Field Studies in lieu of 3 rd Elective paper	ECC	6	0	0	6
		Total		36	30	0	6

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Post P.G. Diploma in Human Ecology

Semester-I

Note: Each paper will have five questions. Questions No.1 containing short answer type questions from the entire syllabus and will be compulsory.

DHE 701:	Man and Environment	80 Hours
	The natural and the built environment of man, attempt to modify environment, impact of human activity on environment	(20 Hours)
	Human diseases resulting from environmental degradation: Air, Water, Noise and Radiation Pollution, Hazardous waste accumulation.	(20 Hours)
	Human genetics and heredity, role of heredity and environment in human growth and development.	(20 Hours)
	Cultural evolution of man and the impact of human culture on the environment, role of faith and beliefs and tradition in ecosystem preservation. Modernization, Consumerism and extravagant life style and their effect on environment.	(20 Hours)

DHE 702:	The Human Ecosystem	80 Hours
	Fundamentals of Ecology, ecological principles and factors determining survival of life on earth. The concept of Global ecological balance and threats of its imbalances due to rising human population.	(20 Hours)
	The urban ecosystem and its relationship with the rural ecosystem urban human ecosystem as highly energy intensive and unsustainable. Strategies for sustainable urbanization.	(20 Hours)
	The rural ecosystem as ecologically more sustainable development. rural development an ecological necessity. Ecology of forest dwellers. The 'tribals' of India.	(20 Hours)
	Quality of life in the rural and urban areas. Environmental problems arising from the rapid urban development.	(20 Hours)


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DHE 703: Technological Revolution

80 Hours

Industrialization, Motorization and Farmization, their positive and negative impacts on man and environment. Eco-farming, Eco-housing and Eco-automobiles. (20 Hours)

Green Revolution, its economical and ecological consequences. (20 Hours)

Environmental principles of 3R: Waste reduction, waste recycle, waste reuse and recovery. (20 Hours)

Technological and Development disasters and their impact on Human ecology, construction of big dams and highways and their environmental consequences. (20 Hours)

Elective-1

DHE A01: Natural Resources

80 Hours

Classification of natural resources, Renewable and Non-renewable resources their availability and distribution. (20 Hours)

Solar Energy. Wind energy, Geothermal energy, Hydroelectricity and Tidal energy. (20 Hours)

Hydrogen as fuel, Biomass energy (20 Hours)

Need for judicious conservation and consumption of natural resources. Ecological problems involved in the harnessing of resources for human development. (20 Hours)

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Elective-2

DHE A02: Development and Environment 80 Hours

The dilemma of human development, economic development vis-a vis ecological destruction. Need for a balance between economy and ecology. **(20 Hours)**

The ecological and moral principles in development, Gandhian ideology of development, Equitable development **(20 Hours)**

Preliminary aspects of Environmental impact assessment (EIA) and social impact assessment. Corporate Social Responsibilities. **(20 Hours)**

The Brundtland commission report on "Our common future" (1987) and concept of sustainable development. Agenda 21. **(20 Hours)**

Elective-3

DHE A11: Field Studies in lieu of 3rd Elective paper

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Post P.G. Diploma in Human Ecology (Semester Scheme)

II SEMESTER

Post P.G. Diploma in Human Ecology is divided into two semesters. There are Five theory papers and One field study in each semester. Grades will be awarded as per norms considered for faculty of science.

Eligibility for Admission

Masters Degree in Social Science, Science, Medical Science, Engineering, Law with atleast 50% marks (45% for SC and ST candidates).

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Post P.G. Diploma in Human Ecology

IInd Semester

S.N.	Subject code	Course Title	Course category	Credit	Contact hours per week		
					Lecture	Tutorial	Practical
1.	DHE 801	Ecopolitics and Development	CCC	6	6	0	0
2.	DHE 802	Ethnobiology	CCC	6	6	0	0
3.	DHE 803	Ecological Economics	CCC	6	6	0	0
4	DHE B01	Elective-1 Diversity of Ecosystem	ECC	6	6	0	0
5	DHE B02	Elective 2- Biological Diversity	ECC	6	6	0	0
6	DHE B11	Elective-3 Field Studies in lieu of 3 rd Elective paper	ECC	6	0	0	6
		Total		36	30	0	6

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- DHE 801: Environment and politics** **80 Hours**
- The global and Indian Perspective, the interlinked national and international environmental issue of development. **(20 Hours)**
- The ecological status of the developed, developing and the under developed nations. **(20 Hours)**
- Ecopolitics with regard to global distribution of natural resources inequities in its consumption, provision of Eco-fund for environmental cleaning. **(25 Hours)**
- The Stockholm Conference (1972), The United Nations Conference on Environment and Development (1992). **(15 Hours)**

- DHE 802: Ethnobiology** **80 Hours**
- Introduction to Ethnobiology, plant and animal resources of India **(20 Hours)**
- Medicinal and food crops of Rajasthan used by tribal communities. **(20 Hours)**
- Ethnoecology, traditional ecological knowledge and its use in environmental protection. **(20 Hours)**
- Traditional Environmental Management and its contribution in forest, water and soil conservation and wildlife protection. **(20 Hours)**

- DHE 803 : Ecological Economics** **80 Hours**
- History and development of Ecological economics, objective of Ecological Economics, Need of Ecological Economics, reintegration of Ecology and Economics **(20 Hours)**
- Sustainable scale, fair distribution and efficient allocation;* ecosystem, biodiversity and ecological services. **(20 Hours)**
- Substitutability versus complimentary of natural, human and manufactured capital; trade and community **(20 Hours)**
- History of environmental institutes and instruments, success, failures and remedies; policy instruments. **(20 Hours)**

Elective-1

DHE B01: Diversity of Ecosystem

80 Hours

The ecological principles and factors determining survival of life on earth, The global ecosystem and the place of man in it; human *food chain and the energy requirements* for the maintenance of human ecosystems on earth. **(20 Hours)**

Forest ecosystem- Forest as an ecosystem, economics and ecology of forest, role of forests in protection of species, climate regulation and production of various produce **(20 Hours)**

Grassland ecosystem - Distribution and types of grasslands, Wetland Ecosystem- Distribution and economic importance of wetlands. **(20 Hours)**

Desert Ecosystem and Wastelands- Structure, types and global distribution of deserts, Types and distribution of wastelands in India, Aquatic Ecosystem: structure and distribution of fresh water ecosystem, eusturies and marine ecosystem. **(20 Hours)**

Elective 2-

DHE B02: Biological Diversity

80 Hours

Meaning and scope of Biological diversity, causes of losses of Biological diversity, Importance of Biological diversity. **(20 Hours)**


Levels of biodiversity, Alpha, Beta and Gama diversity, Endangered and threatened species, Hot spots of Biodiversity, Red data book **(20 Hours)**

Bio-geographical zones of India, Diversity and distribution of major forests at National and Global level, Status of biodiversity in India, Agro-ecological regions of crop diversity in India, Biodiversity conservation in folk-beliefs in Rajasthan, **(20 Hours)**

Modern techniques of Measurements and monitoring of biodiversity, The concept of global "ecological balance" and the threats of its imbalances due to rising human population. **(20 Hours)**

Elective-3

DHE B11: Field Studies in lieu of 3rd Elective paper


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Post P.G. Diploma in Environmental Studies (Semester scheme)

Post P.G. Diploma in Environmental Studies is divided into two semesters. There are Six theory papers and two practicals in each semester. Grades will be awarded as per norms considered for faculty of science.

Eligibility for admission:

Masters Degree in Science, Medicine, Engineering, Law (with B.Sc.) with at least 50% in aggregate (45% for SC and ST candidates).

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Post P.G.Diploma in Environmental Studies

1st Semester

No.	Subject code	Course Title	Course category	Credit	Contact hours per week		
					Lecture	Tutorial	Practical
	DES 701	Fundamentals of Ecology	CCC	4	4	0	0
	DES 702	Distribution and Management of Natural Resources	CCC	4	4	0	0
	DES 703	Environmental Pollution	CCC	4	4	0	0
	DES 711	Core Lab	CCC	6	0	0	6
	DES A01	Elective-1 Objectives and Procedure of EIA	ECC	4	4	0	0
	DES A02	Elective-2 Environment Management and Planning	ECC	4	4	0	0
	DES A03	Elective-3 Natural Disasters and their Management	ECC	4	4	0	0
	DES A11	Elective Lab	ECC	6	0	0	6
		Total		36	24	0	12

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Post P.G. Diploma in Environmental Studies

Semester-I

Note: Each paper will have five questions. Questions No.1 containing short answer type questions from the entire syllabus and will be compulsory.

DES 701: Fundamentals of Ecology 60 Hours

History of Ecology and Environmental Science, Historical development of ecology, Ecological principles. (15 Hours)

Organism-Environment Interaction, Commensalism, Amensalism, Mutualism, Parasitism, Predation, Symbiosis. (15 Hours)

Concept of an Ecosystem, Ecological pyramids, Ecological amplitudes, and Ecological niches. (15 Hours)

Structure and Function of an Ecosystem, Food Chain, Food Web, Trophic levels, Ecological energetic, Flow of energy, Biogeochemical cycling. (15 Hours)

DES 702: Distribution and Management of Natural Resources 60 Hours

Non-renewable resources, Their availability, distribution and economics. (15 Hours)

Renewable Resources, Distribution, rate of depletion and imbalances. (15 Hours)

Wildlife Resources-Necessity of Wildlife, State of Wildlife in India, National Parks, Sanctuaries, Biosphere Reserves and Tiger Projects. (15 Hours)

Methods and Policies of Conservation of Natural resources and wildlife, WWF and CITES. (15 Hours)

DES 703: Environmental Pollution 60 Hours


Air pollution: Types of air pollutants, sources of air pollution, methods of detection and effects of air pollution. (15 Hours)

Water Pollution: Types of water pollutants, sources and impacts of water pollution. (15 Hours)

Land Pollution: Sources and adverse impacts on Environment and human health (15 Hours)

Noise Pollution: Sources and impacts, Radiation Pollution; Sources and Impacts, Space pollution; sources and impacts. (15 Hours)

DES 711: Core Lab based on theory papers


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Elective-1

DES A01: Objectives and Procedure of EIA	60 Hours
Introduction, aims and objectives of EIA, Procedures of EIA, in different countries, methodologies of EIA. Cost benefit analysis.	(15 Hours)
EIA of Thermal Power and Nuclear Power Plants.	(15 Hours)
EIA of Chemical Industries, Steel industries, Paper and pulp industries and distilleries.	(15 Hours)
EIA of Mining, EIA of River Valley projects and major harbours.	(15 Hours)


Elective-2

DES A02: Environmental Management and Planning	60 Hours
Introduction to environmental management system (EMS): Goals ISO 14000 and ISO 14001.	(15 Hours)
Air pollution Control Technologies, Water Pollution control Technologies	(15 Hours)
Impact of use and production of Energy and Mitigations.	(15 Hours)
Waste; Generation, Sources and types Solid Waste management, Toxic and Hazardous Waste management.	(15 Hours)

Elective-3

DES A03: Natural Disasters and their Management	60 Hours
Earth's process and disaster, Concepts of Hazard, Vulnerability, Risks. Types of Disasters, Causes and effects.	(15 Hours)
Geological Disasters: Earthquakes, Volcanic Eruption, Landslides; Wind and Water Related Natural Disaster: Floods and Flash Floods, Droughts, Cyclones, Tsunamis, Man-Made Disasters.	(15 Hours)
Disaster Cycle, Phases of Disaster, Disaster Risk Reduction, Disaster Preparedness, Disaster Mitigation.	(15 Hours)
National Policy on Disaster Management (NPDM), Institutional and Legal Arrangements, International Decade for Natural Disaster Reduction (IDNDR), Policy for disaster reduction.	(15 Hours)


DES A11: Practicals based on theory papers


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Post P.G.Diploma in Environmental Studies

2nd Semester


S.No.	Subject code	Course Title	Course category	Credit	Contact hours per week		
					Lecture	Tutorial	Practical
1.	DES 801	Environmental Economics, Auditing and Design	CCC	4	4	0	0
2.	DES 802	Diversity of Ecosystems	CCC	4	4	0	0
3.	DES 803	Sustainable Development	CCC	4	4	0	0
4	DES 811	Core Lab	CCC	6	0	0	6
5	DES B01	Elective-1 Social Issues and Environment	ECC	4	4	0	0
6	DES B02	Elective-2 Energy Resources	ECC	4	4	0	0
7	DES B03	Elective-3 Environmental Pollution Control	ECC	4	4	0	0
8	DES B11	Elective Lab	ECC	6	0	0	6
		Total		36	24	0	12


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Post P.G.Diploma in Environmental Studies

2nd Semester

S.No.	Subject code	Course Title	Course category	Credit	Contact hours per week		
					Lecture	Tutorial	Practical
1.	DES 801	Environmental Economics, Auditing and Design	CCC	4	4	0	0
2.	DES 802	Diversity of Ecosystems	CCC	4	4	0	0
3.	DES 803	Sustainable Development	CCC	4	4	0	0
4	DES 811	Core Lab	CCC	6	0	0	6
5	DES B01	Elective-1 Social Issues and Environment	ECC	4	4	0	0
5	DES B02	Elective-2 Energy Resources	ECC	4	4	0	0
7	DES B03	Elective-3 Environmental Pollution Control	ECC	4	4	0	0
3	DES B11	Elective Lab	ECC	6	0	0	6
		Total		36	24	0	12


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Post P.G. Diploma in Environmental Studies
II Semester

DES 801: Environmental Economics, Auditing and Design **60 Hours**

Objectives and scope of EA, types, general audit methodology, Elements of audit process. (15 Hours)

Waste audits, Liability Audits and site Assessment, EMS auditing, principals of green buildings. (15 Hours)

Environmental economics definition, environmental cost, benefit taxes, accounting, environmental valuation, economy of natural resources, ecological economics. (15 Hours)

Principals of environmental design, benefits and motivation for ED, ED for manufactured products, ED for building construction, Indian examples. (15 Hours)

DES 802: Diversity of Ecosystems **60 Hours**

Forest Ecosystem; Types and conservation, Distribution and Productivity of Forests, Conservation Policies and Acts. (15 Hours)

Grassland: Grassland ecosystems, types, distribution and productivity in grassland ecosystems. (15 Hours)

Desert: Desert ecosystems (Hot and Cold) distribution, productivity, and adaptations. (15 Hours)

Aquatic ecosystem: fresh water, estuaries and marine ecosystem. (15 Hours)

DES 803: Sustainable Development **60 Hours**


Sustainable agriculture: drip irrigation, organic fertilizers, organic pesticides, integrated pest management. (15 Hours)

Sustainable industrialization: clean development mechanism, reduction of emission in air, reduction of effluents in water bodies. (15 Hours)

Sustainable forest management: water shed development and conservation, soil conservation, ecosystem peoples' rehabilitation. (15 Hours)

Sustainable mining: mining overburden utilization, mine reclamation, afforestation, conservation of indigenous species. (15 Hours)

DES 811: Core lab based on theory papers


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Elective-1

DES B01: Social Issues and Environment

60 Hours

Environmental ethics, Religion and Environment, Eco-Imperialism with regard to global distribution of resources, eco-fund (15 Hours)

Current environmental issues in India; Narmada Dam, Tehri Dam, Almetti Dam, Silent valley, Doon Valley, Sariska and Narayan Sarovar etc. Chipko movement, Appiko movement (15 Hours)

Scheme of labeling of environmentally friendly products (Ecomark), Public awareness (15 Hours)

Role of NGOs in environmental protection, KSSP, etc., problems and causes related to resettlement and rehabilitation of displaced people, dams-benefits and problems. (15 Hours)

Elective-2

DES B02 : Energy Resources

60 Hours

Classification of energy resources, renewable and non renewable energy resources, supply and demand of energy both in urban and rural areas. (15 Hours)

Conventional energy resources, coal, oil, natural gas, nuclear energy. (15 Hours)

Non-conventional energy sources, solar, wind, hydel, tidal and geothermal energy resources, the nuclear fuels, biomass energy, hydrogen as fuel etc. (15 Hours)

Concept of alternative sources of energy, energy from waste, Alternative Fuels for Transportation. (15 Hours)

Elective-3

DES B03 : Environmental Pollution Control

60 Hours


Air pollution control technologies and equipments, air quality monitoring. (15 Hours)

Water pollution control: Waste Water Treatment, Groundwater Protection Surface Water Management, Treatment and Supply of Drinking Water. (15 Hours)

Control of soil pollution, Soil Conservation, mine land reclamation, Wasteland reclamation, Control of noise pollution: structural and non structural measures. (15 Hours)

Role of an individual in prevention of pollution, Pollution case studies. (15 Hours)

DES B11: Elective lab based on theory papers


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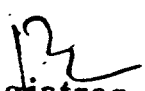
Post P.G. Diploma in Population Studies (Semester scheme)

I SEMESTER

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Eligibility for admission:

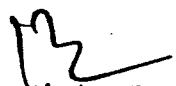
Master degree in Social Science, Science, Medical Science, Engineering, Law with at least 50% Marks (45% for SC and ST candidates).


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Post P.G. Diploma in Population Studies

1st Semester

S.N.	Subject code	Course Title	Course category	Credit	Contact hours per week		
					Lecture	Tutorial	Practi
1.	DPS 701	The Ecology of Human Population	CCC	6	6	0	0
2.	DPS 702	Population Growth and Resource Development	CCC	6	6	0	0
3.	DPS 703	Population Control, Planning and Policies	CCC	6	6	0	0
4	DPS A01	Elective-1 The Human Population and Environment	ECC	6	6	0	0
5	DPS A02	Elective-2 Social Impact Assessment and Sustainable Development	ECC	6	6	0	0
6	DPS A11	Elective-3 Field Studies in lieu of 3 rd Elective paper	ECC	6	0	0	6
		Total		36	30	0	6


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Post P.G. Diploma in Population Studies

Semester-I

- DPS 701: The Ecology of Human Population** **80 Hours**
- Ecology and the concept of human ecosystem; components of ecosystem; role of human beings in the global ecosystem, human food chain. Growing human population - a threat to the global ecological balance; ecological factors affecting human existence on earth. **(20 Hours)**
- The human "Population bomb" impact of growing human population on the life support systems of Earth e.g. air, water, land soil flora and fauna. Ecological Pyramids of number and biomass and the impact of human population explosion on the global ecosystem; relationship between population, poverty and pollution; impact of population on human health and environmental sanitation. **(20 Hours)**
- Current trends of population growth; population distribution, density and composition; population projections for the future; rural and the urban population and quality of life, migration of population-causes and consequences. **(20 Hours)**
- Determinants of fertility and mortality, indicators of fertility, measurements of morality, life expectancy and longevity; crowding behavior-social and psychological aspects. Human genetics, blood groups and Rh factors, fitness characteristics; meecological adaption; genetical adaption among primitive human societies (tribal population). Heterosis; inbreeding depression; social factors promoting hybridization, genetical disorders among human population; behavioral genetics. **(20 Hours)**
-
- DPS 702: Population Growth and Resource Development** **80 Hours**
- Status of world human population; developing and the developed nations and their population problems; Population growth, economic development and the quality of life in the developing and the developed countries; Population growth curves of human beings and other species on earth. **(20 Hours)**
- Growth of population in india-prc and post independence scenario; sex ratio; distribution of Population in India and the Population density. **(20 Hours)**
- Ecology Vs Economy-the concept of sustainable development with regard to growing human population; socio-economic impact of population explosion and their ecological consequences. **(20 Hours)**


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The finite natural resources (minerals and materials) of earth vis-a-vis the infinitely growing human population, the world food resources vis-a-vis the growing human population quality of food, malnutrition and deficiency diseases with special references to the developing countries. The relationship between population growth, increase in poverty and rise of pollution-the 3 P syndrome and the vicious circle. (20 Hours)

DPS 703: Population Control, Planning and Policies 80 Hours

Need of population education and awareness, and their objectives; Population education in India-achievements and failures. (20 Hours)

Theories of population control; family planning and family welfare programme in India socio-economic prosperity as a key factor in population control. (20 Hours)

The mechanical and oral contraceptives and devices of fertility control and prevention of birth sterilization and immunization; herbal contraceptives and anti-fertility plants. (20 Hours)

Population policies of developed and developing countries with special reference to China and Islamic countries one and two child norms population planning and policies of India since independence the socio-political and religious aspects of compulsory sterilization perspective of population planning for the future. (20 Hours)

Elective-1


DPS A01: The Human Population and Environment 80 Hours

Population Explosion and status of Environment: Status of population, status of environment, sustainable development, deforestation, soil erosion, flooding, excessive ground water exploitation, water pollution, air pollution, mining, global warming, acid rain, ozone depletion. (20 Hours)

Population and Health: Concept of health, physical health, mental health, Social health, determinants of health, indicators of health, health profile-Indian scenario, communicable diseases, non communicable diseases, national health policy of India. (20 Hours)

Population and Nutrition: Economic status and food intake, food beliefs among population, nutritionally vulnerable groups, nutrition and fertility, nutrition and child survival, nutritional deficiency diseases among population, national nutritional programmes of India. (20 Hours)

Population control Law: The Medical termination of pregnancy (MTP) Act of India, Population control laws in India, China and Islamic countries. (20 Hours)


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Elective-2

DPS A02: Social Impact Assessment and Sustainable Development 80 Hours

Economic Traits of Population: Economically active and inactive Population, employment status (unemployment, under employment and labour absorption), work force, occupation, structure, income and expenditure. (20 Hours)


Technological Revolution: Industrialization, Farmization, Urbanization, meaning of urbanization, determinants of urbanization, urbanization in India, world urbanization. (20 Hours)

Sustainable Development: The Brundland Commission Report (1987) about sustainable development, the strategies for sustainable industrialization, sustainable agriculture, sustainable urbanization and sustainable transport system, developmental philosophy based on human needs and not greed Gandhian philosophy of development. (20 Hours)

Eco-politics and Development: Politics and environment, the North and South ecopolitical divide on the issues of environment and development ,national and international politics on the course of development and environment, role of politician, legislature, and constitution in environment and development. (20 Hours)

Elective-3

DPS A11: Field Studies in lieu of 3rd Elective paper


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Post P.G. Diploma in Population Studies (Semester scheme)

II SEMESTER

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Post P.G.Diploma in Population Studies

2nd Semester

S.N.	Subject code	Course Title	Course category	Credit	Contact hours per week		
					Lecture	Tutorial	Practic
1.	DPS 801	Development of Population Studies	CCC	6	6	0	0
2.	DPS 802	Population and Human Resources	CCC	6	6	0	0
3.	DPS 803	Demography	CCC	6	6	0	0
4	DPS B01	Elective-1 Epidemiology	ECC	6	6	0	0
5	DPS B02	Elective-2 Basic statistical tools for population studies	ECC	6	6	0	0
6	DPS B11	Elective-3 Field Studies in lieu of 3 rd Elective paper	ECC	6	0	0	6
		Total		36	30	0	6


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Post P.G. Diploma in Population Studies

IInd Semester

DPS 801: Development of Population Studies

80 Hours

History of Population: Past, present and future population trends across world, continents, major regions, India and Indian states, with brief description of causes. population pyramids, pre-Malthusian view on population, the theories of Malthus and his immediate predecessors, post-Malthusian views on population. **(20 Hours)**

Optimum Theories of Population: Optimum theory of population, explanation of the optimum theory, views of Dalton and Robbins, criticism of the optimum theory. **(20 Hours)**

Biological Theories of Population: Sadler's Density and Fecundity principle, Diet Theory of Thomas Doubleday, Logistic Curve Theory, Carrado Ginni's principle, Herbert Spencer's Analysis of fertility function, Theories of protein consumption, Kaczynsky's Biological Theory. **(20 Hours)**

Socio-Cultural, Economic and Demographic Transition of Population: Dumont Theory of social capillarity, Frank Fetter Theory of voluntarism, Nitti Principle of Individuality, L. Brente Theory of Prosperity and Pleasure, Ungern Sternberg Theory of Rationalism, Henry George and Harvey Liebenstein Theory of population growth, Theory of Demographic Transition. **(20 Hours)**

DPS 802 : Population and Human Resources

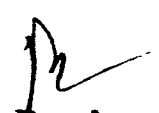
80 Hours

Population as a resource, relation of Population growth and development, The Food and Population Balance **(20 Hours)**

The Population Perspective Population growth, changes in mobility, Managing Distribution and Mobility **(20 Hours)**

Conditions of health and education, Managing the human resources, Improving Health, Broadening Education, Empowering Vulnerable Groups. **(20 Hours)**

Targets and indicators of the Millennium Development Goals, Status of Human Resource Development in India. **(20 Hours)**


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DPS 803 : Demography

80 Hours

(20 Hours)

Definition and Evolution of demography as a scientific discipline; Nature and scope of demography, Multi-disciplinary nature of demography, its links with other disciplines. Basic demographic concepts.

Types and different sources Demographic Data, Population censuses across the world, Indian censuses, vital registration system, sample registration system, survey on causes of death, National Sample Survey Organization's surveys, details of different rounds collecting population and health data. **(20 Hours)**

Age-Sex Structure and its Dynamics, Role of age-sex structure in demography. Present status, past trends and probable future changes in age-sex structure of India, Determinants and consequences of sex-age structure of population. **(20 Hours)**

Demographic dividend, Ageing of the population. Relative role of low fertility and low mortality in ageing. Socio-economic consequences of population ageing. Components of population change. Demographic transition **(20 Hours)**

Elective-1

DPS B01: Epidemiology

80-Hours

Definition and objectives of epidemiology; Epidemiology and clinical practice; The epidemiologic approach; Infectious disease epidemiology, occupational epidemiology, disaster epidemiology, **(20 Hours)**

Disease outbreak; Determinants of disease outbreak, Identifying the roles of genetic and environmental factors in disease causation: Association with known genetic diseases; Age at onset; Family studies; Interaction of genetic and environmental factors. **(20 Hours)**

Epidemiology and public policy: Epidemiology and prevention; Population versus high risk approaches to prevention; epidemiology and clinical medicine; Risk assessment; Meta Analysis. **(20 Hours)**

Cohort studies – design, types of cohort studies; Case control study – design, selection of cases and controls, problems in control selection, matching, problems of recall, use of multiple controls, when case control study warranted, nested case-control study; cross-sectional studies. **(20 Hours)**


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Elective-2

- DPS B02: Basic statistical tools for population studies** **80 Hours**
- Descriptive and Inductive statistics, Concept of variables, Tabulation of data, conversion of raw data into frequency distribution, graphical presentation of data. Measures of Central Tendency- Mean (arithmetic, geometric, harmonic) Median, Mode; their merits and demerits.** **(20 Hours)**
- Measures of dispersion: Range, Variance, Standard Deviation, Merits and demerits of different measures of dispersion. Probability, Laws of probability. Correlation- Pearson correlation coefficient, and its properties; Spearman ranks correlation coefficient. Concept of linear regression.** **(20 Hours)**
- Inductive statistics: Population, sample parameter, standard error. Testing statistical hypothesis and test of significance. Testing the association of attributes and Chi-square goodness of fit. Analysis of Variance and Covariance. Introduction to Multivariate Analysis.** **(20 Hours)**
- Introduction to sampling; Simple random and systematic sampling; Sample size and power estimation; Stratified sampling; Cluster sampling; Concept of design effect and its estimation; Concept of weighting; Sampling and non-sampling errors.** **(20 Hours)**

Elective-3

- DPS B11: Field Studies in lieu of 3rd Elective paper**


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