

**University of Rajasthan
Jaipur**

SYLLABUS

**POST P.G. DIPLOMA IN
ENVIRONMENTAL STUDIES**

2016

Appendix - II

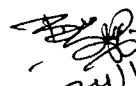
Post P.G. Diploma in Environmental Studies

(2015-2016)

Post P.G. Diploma in Environmental Studies will be divisible into two semesters. There will be 4 papers in each semester. In all there will be 8 papers including practicals. 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 atleast 50% in aggregate (45% for SC and ST candidates).


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Post P.G.Diploma in Environmental Studies
1st Semester

S.No.	Subject code	Course Title	Course category	Credit	Contact Hours Per Week		
					L	T	P
1.	DES 101	Fundamentals of Ecology	CCC	8	6	2	0
2.	DES 102	Natural Resources	CCC	8	6	2	0
3.	DES 103	Environmental Pollution	CCC	8	6	2	0
4.	DES 111	Practicals	CCC	12		-	18
				36			

Post P.G.Diploma in Environmental Studies
2nd Semester

S. N.	Subject code	Course Title	Course category	Credit	Contact Hours Per Week		
					L	T	P
1.	DES 201	Diversity of Ecosystems	CCC	8	6	2	0
2.	DES 202	Environmental Impact Assessment (EIA)	CCC	8	6	2	0
3.	DES 203	Environment Management and Planning	CCC	8	6	2	0
4.	DES 211	Practicals	CCC	12		-	18
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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 101: Fundamentals of Ecology

History of Ecology and Environmental Science, Historical development of ecology, Ecological principles.

Organism – Environment Interaction and Interaction, Commensalism, Amensalism, Mutualism, Parasitism, Predation, Symbiosis.

Concept of an Ecosystem, Ecological pyramids, Ecological amplitudes, and Ecological niches.

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

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

DES 102: Natural Resources

Non-renewable resources. Their availability, distribution and economics.

Renewable Resources, Distribution, rate of depletion and imbalances.

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

Methods and Policies of Conservation of Natural resources and wildlife, WWF and CITES.

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

DES 103: Environmental Pollution

Air pollution; Types of air pollutants, sources of air pollution, methods of detection and effects of air pollution.

Water Pollution; Types of water pollutants, Sources and Impacts of water pollution.

Land Pollution; Sources and adverse impacts on Environment and human health.

Noise Pollution; Sources and impacts, Radiation Pollution; Sources and Impacts, Space pollution ; sources and impacts.

DES 111: Practicals based on theory papers

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Semester-II

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

DES 201 : Diversity of Ecosystems

Forest Ecosystem; Types and conservation, Distribution and Productivity of Forests, Conservation Policies and Acts.

Grassland; Grassland ecosystems, types, distribution and productivity in grassland ecosystems.

Desert; Desert ecosystems. (Hot and Cold) distribution, productivity, and adaptations.

Aquatic ecosystem; fresh water, estuaries and marine ecosystem.

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

DES 202 : Environmental Impact Assessment (EIA)

Introduction, aims and objectives of EIA, Procedures of EIA, in different countries, methodologies of EIA. Cost benefit analysis.

EIA of Thermal Power and Nuclear Power Plants.

EIA of Chemical Industries, Steel industries, Paper and pulp industries and distilleries.

EIA of Mining, EIA of River Valley projects and major harbours.

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

DES 203 : Environmental Management and Planning

Introduction to environmental management system (EMS): Goals ISO 14000 and ISO 14001.

Air pollution Control Technologies, Water Pollution control Technologies

Impact of use and production of Energy and Mitigations.

Waste; Generation, Sources and types Solid Waste management, Toxic and Hazardous Waste management.

DES 211 :Practicals based on theory papers

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Suggested Readings:

Ecology and our Endangered Life Support System.

Odum, E.P. 1989. Sunderland, Mass, ISE.

Living in the Environment, Principles, connections and solutions.

Miller, G.T. (Jr). 2004. Books/Cole-Thomson Learning, USA.

Principles of Environmental Science; Inquiry and Applications,

Cunningham, W.P. and Cunningham, A. 2003. Tata McGraw-Hill publishing Company Ltd. New York, USA.

Climatology; An atmospheric Science. Oliver, J.E. and Hidore, J.J.

2003. Pearson Education, Singapore.

Understanding weather and climate. Aguado, E and Burt, J.E.

2001. Prentice Hall, N.J. USA.

Atmospheric Chemistry and Global change,

Brasseur, G.P., Orlando, J.J. and Tyndall, G.S. 1999. Oxford University Press, New York, USA.

Geosystems, Christopherson, R.W. 2000. Prentice Hall, N.J. USA.

World Regional Geography: A Development Approach. Clawson, D.L. 2001. Prentice Hall, N.J. USA.

Introduction to Meteorology, Cole, F.W. 1980. John Wiley and Sons, New York, USA.

Principles of Atmospheric Physics and Chemistry. Richard, G. 1995. Oxford University Press, New York, USA.

Global environmental change. Hidore, J.J. 1996. Prentice Hall, N.J. USA.

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- Our changing Planet. Mackenzie, F.T. 1998. Prentice Hall, N.J. USA.
- Chemistry of Atmosphere. Wayne, R.P. 1999. Oxford University Press.
- World Geography. Hussain, .2004. Rawat Publication .New Delhi.
- Ecology; Theories and applications. Stiling, P. 2002. Prentice Hall of India Pvt. Ltd. New Delhi.
- Atmosphere and Air Pollution Control Techniques. Khan, T.I. 2004. Avishkar Publishers, Jaipur.
- Air Pollution Control Theory Crawford, . 2002 Tata Mc Graw Hill, New Delhi.
- Ecology in practice, Castric and Barker, 1984. UNESIO Paris.
- Environmental Impact of Production and use of Enewrgy, Prakash, I 1988. Scientific publishers, Jodhpur.
- Desert Ecology. Prakash 1988. Scientific Publishers Jodhpur.
- Disease Ecology, Learonth, A. 1988. Slackwell, Oxford.
- Environmental and Natural Resources Economics Titenberg, T. 1986. Foreseman and Co. London.
- State of the world. World watch Institute Annual Reports.
- Our Common Fitire. 1998 Oxford Universities Press.
- Global Biodiversity Conservation Measures. Khan, T.I. and Al-Ajmi, D.N. 1999 Pointer Publishers, Jaipur.
- Hydrogen Energy; Economics and Social Challenges. Ekins, P 2010. RFF Press London.
- The Economics of Waste. Porter, R.C. 2002. RFF Press, London.

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Climate Change Economics and Policy. Toman, M.A. 2001. RFF Press, London.

The Economics of Ecosystems and Biodiversity. Ecological and Economic foundation. Earth scan 2010. RFF Press. London.

Conserving and valuing ecosystem services and Biodiversity. Ninan, K.N. 2008 RFF Press, London.

The Trade in wildlife. Oldfield, S 2002. RFF Press London.

Small is profitable. Lovins, A.B. 2003. RFF Press, London.

The Solar economy. Scheer, H. 2004 RFF Press London.

Environmental Principles and Policies, Beder, S. 2006, RFF Publishers, London.

Managing Solid Wastes in Developing Countries, Holmes, J.R. 1984 John Wiley and Sons, New York, USA.

Biodiversity, Biopiracy and Biopolitics: The Global Perspective. Chauhan S.S. 2001. Kalinga Publications. New Delhi.

Environmental Protection and Management: From Stockholm to Rio and After. Chauhan S.S. 2004 Kalinga Publications. New Delhi.

Solid Waste management in developing Countries. Wilson, D.C. and Nair, C 1991 Singapore.

Introduction to Energy. Cassedy E.S. and Grossman, p.z. 1998 Cambridge University press. N.Y.

Prospects for Sustainable energy cassedy, E.S. jr. 2000 Cambridge University Press U.K.

Ecology Facts. Allaby . 1986. Bridge House, London.

Ecology colin van X, P 1986. John Wiley and sons NY

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Environmental Impact Assessment. Wathen, P. 1988. Unwin Hyman, Boston.

Industry Environment and the law. Shastri, S. Bakre, P.P. and Khan, T.I. 1996. RBSA Publishers, Jaipur.

Water and sanitation. Bourne, P.G. 1984. Academic Press, New York.
Biotechnology and Waste Water treatment Cambridge University Press, London.

Principles of Water quantity Control. Tebbut, T.H.Y. 1983. WHO.

Waste Water Engineering Metcalf and Eddy. 1972. McGraw Hill, N.Y.

Air pollution Control equipments, Brauer, H and Varma, Y.B.G. 1981. Springer, Berlin.

Nuclear Development: Advanced Nuclear Fuel Cycles and Radioactive Waste Management. OECD, Nuclear Energy Agency
Published by: OECD Publishing.

Radioactive Waste: The problem and its management, K.R. Rao. CURRENT SCIENCE, 1534 VOL.81, No.12, 25 DECEMBER 2001.