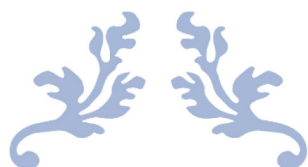


Maa Shakumbhari University, SAHARANPUR U.P.

माँशाकुम्भरीविश्वविद्यालय, सहारनपुर, उत्तरप्रदेश



MINOR ELECTIVE PAPERS

Offered by the Department of Botany



NEP-2020
2021- ONWARDS

Sl No.	Year	Title	Credits	Max. Marks
1.	I	Disaster Management system in India	5	25+75
2.	II	Global Environment and Challenges	5	25+75

Members from the Board of Studies

S.No.	Name	Signature
1.	Prof. Sanjeev Kumar , Department of Botany, D.A.V. (P.G.) College, Muzaffarnagar (Convener)	
2.	Prof. Ritu Agarwal , Department of Botany, M.S. College, Saharanpur (Member)	
3.	Dr. Rakesh Kumar , Department of Botany, VSP Govt. (P.G.) College, Kairana, Shamli (Member)	
4.	Dr. Yogendra Kumar , Department of Botany, GDC, Saharanpur (Member)	
5.	Prof. Rupnarayan , Department of Botany, CCSU, Meerut (Member)	
6.	Prof. Alok Srivastav , Department of Plant Science, MJPRU, Bareilly (External Expert)	

Syllabus for Minor/Elective Papers offered by Department of Botany

I- Disaster Management system in India

Programme/Class: Certificate Course		Year: I	Semester: I/II Paper- Minor/ Elective
Subject: Offered by Botany			
Course Code: 04		Course Title: Disaster Management system in India	
Course outcomes:			
<ol style="list-style-type: none"> 1. The course focuses on basic concept of disaster(s) and disaster management, their significance and types. 2. The course will enable to develop the analytical skills to study relationship between vulnerability, disasters, disaster prevention and risk reduction. 3. The knowledge creates awakened group for integrated disaster management in the country. 4. It will enable young people in each city district or village to understand and explore avenues of reducing disaster risks and work towards preparedness and contribute towards minimizing losses and saving lives. 			
Credits: 5		Minor/Elective	
Max. Marks: 25+75		Min. Passing Marks:	
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-1-0			
Unit	Topic	No. of L+T (75 hrs)	
I	Overview and understanding of Disaster, definitions of Disaster, Hazard, Vulnerability, Resilience and Risks.	8	
II	Classification of disaster, natural hazards and Man-made disasters, Causes and social impacts, urban disasters, pandemics and climatic change.	10	
III	Panchayati Raj Institutions/Urban Local Bodies (PRIs/ULBs), states, Centre, and other stake-holders. CBRN disaster, NDMA, NDRF, NIDM, STATE DM.	12	
IV	Disaster Risk Management in India: Hazard and Vulnerability profile of India, Components of Disaster Relief: Water, Food, Sanitation, Shelter, Health, Fire, Waste Management Institutional arrangements	12	
V	Mitigation, Response and Preparedness, DM Act and Policy, Other related policies, plans, programmes and legislation	11	
VI	Disaster-induced Refugee problem – Problems of women and children during disasters; Principles of psycho-social care, issues and recovery Relationship between disasters, development and vulnerabilities	8	
VII	Equity issues in disasters; Issues of rehabilitation and resettlement of survivors; Stakeholders in disaster relief management	6	
VIII	Disaster risk reduction – Strategies, Preparedness plans, Action Plans and procedures, Early Warning systems; Factors contributing to vulnerability. Capacity building	8	
Suggested Reading:			
<ol style="list-style-type: none"> 1. Disaster Management R. Subramanian Vikas Publishing House - Business & Economics. 2. Gupta Anil K, Sreeja S. Nair. 2011 Environmental Knowledge for Disaster Risk Management, NIDM, New Delhi. 3. Indian Journal of Social Work 2002. Special Issue on Psychosocial Aspects of Disasters, Volume 63, Issue 2, April. 			

	<p>4. Kapur, Anu & others, 2005: Disasters in India Studies of grim reality, Rawat Publishers, Jaipur</p> <p>5. Kapur Anu 2010: Vulnerable India: A Geographical Study of Disasters, IAS and Sage Publishers, New Delhi.</p> <p>6. Govt. of India: Disaster Management Act 2005, Government of India, New Delhi.</p> <p>7. Government of India, 2009. National Disaster Management Policy.</p>	
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Internal Assessment	Marks
Class Interaction	5
Quiz	5
Seminar	7
Assignment (Charts/ Flora/ Rural Service/ Technology Dissemination)	8
	25

Course prerequisites:

Qualification: To study this course, a student must have qualified 10+2/ NSQF level 3 from Sector Skill Councils / Diploma holder from ITI in (Biology/ Agriculture/ Biotech/ Forestry/ Microbiology/Gardening /biomedicalScience.

Facilities: Smart and Interactive Class

Other Requisites: Video collection, Books, CDs, Access to On-line resources, Display Charts

Suggested equivalent online courses:

onlinecourses.swayam2.ac.in/cec19_hs20/preview

Syllabus for Minor/Elective Papers offered by Department of Botany

II- Global Environment and Challenges

Programme/Class: Diploma Course	Year: II	Semester: III/IV Paper- Minor/ Elective
Subject: Offered by Botany		
Course Code: 04	Course Title: Global Environment and Challenges	
Course outcomes:		
<ol style="list-style-type: none"> 1. To acquaint the students with complex environment and global change driven by humans, their impact and mitigation; 2. To make them understand importance of biodiversity, conservation and its role in maintaining structure and health of global ecology. 3. This knowledge is critical in understanding the adverse impact of human's consumerist nature, evolving strategies for sustainable development and natural resource management. 4. It will enable the students to know more about the challenges posed by massive economic growth, reckless development, unplanned strategies, and overutilization of natural resources. 5. It will facilitate the students to critically examine the leading discussion and practices of development, so as to enable them to participate effectively in decision making at various levels. 		
Credits: 5	Minor/Elective	
Max. Marks: 25+75	Min. Passing Marks:	
Total No. of Lectures-Tutorials-Practical (in hours per week): 3-2-0		
Unit	Topic	No. of Lectures + Tutorials (75 hrs)
I	Global Change: Driving factors, Anthropocene characteristics; Global land cover and land use change; Multiple impacts of land use change; Global climate change: Causes, effects and mitigation strategies; stratospheric ozone loss	12
II	Environmental Pollution: Causes and effects of air, water, soil, noise, radioactive pollution; Basic pollution abatement practices and technologies; Role of plants in reducing pollution impact	14
III	Invasive Ecology: Biotic Invasions; Invasive Alien Species (IAS), Invasibility characteristics, Phenotypic plasticity; Extent and mechanisms of biological invasions; Ecological and economic impacts; Management strategies	10
IV	Loss of Biodiversity: Biodiversity as indicator of well-being of an ecosystem; hot spots, ecotourism Threats and pattern of biodiversity loss - Natural and anthropogenic causes; IUCN threat categories, Red data books; Conservation and restoration of biodiversity - Indian socio-cultural value system for nature's conservation.	8

V	Global Water Crisis: Distribution, withdrawal and consumption patterns Causes and effects of water crisis; Water conservation approaches	8
VI	Global Energy Crisis: Sources of energy supply; Current potential and future prospects of energy sources; Energy crisis; Energy conservation strategies	8
VII	Challenges of Urbanization: Trends of urbanization; Environmental impact of urbanization; Concept of green cities and sustainability.	8
VIII	Agro-Ecological Construction Strategies: Ecological home garden, medicinal plant garden, Kitchen garden; Vertical Stratification principle and application; man-made plant/forest communities (fruit-tree/commercially important tree/medicinal plant/pepper/tea/coffee/creeper or climber-crop plant combinations); home/kitchen recyclable wastes (urban/rural) and Applied leaf biomass as manure in ecological constructions. Every household as experimental station.	7

Suggested Readings:

1. McConnell, R. (2008) Environmental issues: An introduction to sustainability. Pearson.
2. Wali, M.K., Fatih Evrendilek, M. Siobhan Fennessy (2009) The environment: science: Issues and solutions. CRC Press.
3. Neelin, J. (2011) Climate change and climate modelling. Cambridge University Press.
4. John Marshall, R. Alan Plumb (2008) Atmosphere, ocean and climate dynamics: An introductory text. Elsevier
5. Phillips, B., D. Thomas, A. Fothergill, L. Blinn-Pike (2009) Social vulnerability to disasters. CRC Press.
6. Hill, M. (2010) Understanding environmental pollution. Cambridge University Press.
7. Environmental Studies (Hindi) ISBN 81-301-0004-5B. L. Chaudhary & Jitendra Pandey Edition: 2013 Pages: 340 + XII Apex Publishing House
8. Soil and Water Conservation ISBN 978-81-301-0071-5S. C. Mahnot & P. K. Singh Apex Publishing House
9. Ecology And Environmental Biology (ikfjflFkfrdh ,oa i;kZoj.k tSfodh½ by RBD
Publisher Author: Bhatia - Jain - Kohli - Shrivastava - Singh – Verma
10. Parris, Kirsten M., 2016, Ecology of Urban Environments, Wiley Blackwell
11. Garud Puran, Latest Edition, Geeta Press, Gorakhpur
12. Chapman and Riss. Ecology: Principles and Applications, Latest Ed., Cambridge University Press
13. Kumar, H.D. Modern Concept of Ecology, Latest Ed. Vikas Publishing House
14. Begon, M., Herper, J.L. and Townsend, C.R. Ecology- Individuals, Populations and Communities (3rd ed.), Oxford Blackwell Science
15. Verma, P.S. & Agarwal, U.K. Concept of Ecology, Latest Ed., S. Chand & Company
16. Kumar, U. & Asija, M.J. Bio-diversity: Principles & Conservation, 2005, Student Edition, Agrobios (India)
17. Krishnamurthy, K.V. An Advanced Text Book on Biodiversity, 2003, Oxford & IBH Publishing Co. Ltd.
18. Primack, R.B. Essentials of Conservation Biology, 1993, Sinauer Associates.
19. Vasudevan, N. (2006). Essentials of Environmental Science. Narosa Publishing House, New Delhi.
20. Singh, J. S., Singh, S.P. and Gupta, S. (2006). Ecology, Environment and Resource Conservation. Anamaya Publications, New Delhi.
21. Rogers, P.P., Jalal, K.F. and Boyd, J.A. (2008). An Introduction to Sustainable Development. Prentice Hall of India Private Limited, New Delhi.
22. Abbasi, S. A. (1998). Environmental Pollution and its Control. Cogent International, Pondicherry.
23. Abbasi, S. A. and Ramasamy, E. V. (1999). Biotechnological Methods of Pollution Control. Universities Press (India) Limited, Hyderabad.
24. Rand, M. C., Greenberg, A. E. and Taras, M. J. (Ed.) (1995). Standard methods for the examination of water and wastewater: 19th edition, American Public Health association (APHA), Washington, D.C.
25. Scragg, A. (1999). Environmental Biotechnology, Addison Wesley Longman, Singapore.
26. Tchobanoglaus, G. (1988). Wastewater Engineering: Treatment, Disposal, Reuse. Tata Mc Graw Hill, New Delhi.
27. Aarve, V. P., William, A. W. and Debra, R. R. (2002). Solid waste engineering. Cengage reading, USA.
28. George, T. and Frank, K. (2002). Handbook of solid waste management: (Second edition). Mc Graw Hills.
29. Kanthi, L. S. (2000). Basics of Solids and hazardous waste management Technologies. Prentice Hall.
30. Hardy, J.T. 2003. Climate Change: Causes, Effects and Solutions. John Wiley & Sons.

31. Harvey, D. 2000. Climate and Global Climate Change. Prentice Hall.
32. Manahan, S.E. 2010. Environmental Chemistry. CRC Press, Taylor and Francis Group.
33. Maslin, M. 2014. Climate Change: A Very Short Introduction. Oxford Publications.
34. Mathez, E.A. 2009. Climate Change: The Science of Global Warming and our Energy Future. Columbia University Press.
35. Mitra, A.P., Sharma, S., Bhattacharya, S., Garg, A., Devotta, S. & Sen, K. 2004. Climate Change and India. Universities Press, India. Philander, S.G. 2012. Encyclopedia of Global Warming and Climate Change (2nd edition). Sage Publications. Springer.
36. Gaston, K.J. & Spicer, J.I. 1998. Biodiversity: An Introduction. Blackwell Science, London,
37. Sodhi, N.S. & Ehrlich, P.R. (Eds). 2010. Conservation Biology for All. Oxford University Press.
38. Sodhi, N.S., Gibson, L. & Raven, P.H. 2013. Conservation Biology: Voices from the Tropics. Wiley-Blackwell, Oxford, UK.
39. Harper, C. Snowden, M. 2017, Environment and Society: Human Perspectives on Environmental issues. Taylor and Francis
40. Middleton, N. 2013, The Global Casino: An Introduction to Environmental Issues. Routledge,
41. Dave D. 2009, Biological Pollution: An Upcoming Global Threat. TERI Information Digest on Energy and Environment. 8(1) 19-33
42. Mukherjee, T. 2020, Documentation and Protection of Traditional Knowledge. In *Medicinal Plants: biodiversity, Sustainable Utilization and Conservation*. Pp 135-142 Springer, Singer
43. You, S., Sonne, C. and OK, Y.S. 2020. COVID19's Unsustainable Waste Management Science(368(6498) 1438

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