

Scheme of Examination
AND
Course of Study

Diploma on Disaster Management



DEPARTMENT OF ZOOLOGY & ENVIRONMENTAL SCIENCES
GURUKULA KANGRI (Deemed to be University), HARIDWAR – 249404

September 2022

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Diploma on Disaster Management
Dept. of Zoology and Environmental Science
GURUKULA KANGRI (Deemed to be University), HARIDWAR
(A Deemed to be University U/S 3 of UGC Act, 1956)

Course Code	Course Title	Credits	Examination system		Total Marks
		T	ESE	S	
DDM - 101	Introduction to Disasters	4	70	30	100
DDM - 102	Disaster Management	4	70	30	100
DDM - 103	GIS, Risk Assessment and in Disaster Management	4	70	30	100
DDM - 104	Field Report/Case Studies	8	-		200

Unit 1

Hazard, Risk, Vulnerability, Disaster; Disaster Management, Meaning, Nature Importance, Dimensions & Scope of Disaster Management, Disaster Management Cycle.

Unit 2

National disaster management framework; financial arrangements for Disaster management, International Strategy for Disaster reduction

Unit 3

Natural Disasters- Meaning and nature of natural disasters, their types and effects, Hydrological Disasters - Flood, Flash flood, Drought, cloud burst

Unit 4

Geological Disasters- Earthquakes, Landslides, Avalanches, Volcanic eruptions, Mudflow; Wind related- Cyclone, Storm, Storm surge, tidal waves; Heat and cold Waves, Climatic Change, Global warming, Sea Level rise, Ozone Depletion, Explosion

Unit – 5

Man-made Disaster: CBRN – Chemical disasters, biological disasters, radiological disasters, nuclear disasters; Fire – building fire, coal fire, forest fire, Oil fire; Accidents- road accidents, rail accidents, air accidents, sea accidents, Pollution and deforestation- air pollution, water pollution, deforestation, Industrial wastewater pollution, deforestation, Bomb threat; terrorist incidence.

Suggested readings:

- Disaster Administration and Management, Text & Case studies- SL Goel-Deep and Deep Publications
- Disaster Management- G.K Ghosh-A.P.H. Publishing Corporation
- Disaster management – S.K.Singh, S.C. Kundu, Shobha Singh A – 119, William Publications, New Delhi.
- Disaster Management – Vinod K Sharma- IIPA, New Delhi,1995
- Encyclopedia of Disaster Management- Goel S.L. - Deep and Deep Publications, New Delhi, 2006.

Unit I

Factors affecting damage – types, scale population, social status, habitation pattern, physiology and climate; Factors affecting mitigation measures, prediction, preparation, communication, area and accessibility, population, physiology and climate,

Unit II

Hazard and Vulnerability Profile India, Hazardous material spill/ release, Disaster Management Indian scenario, India's vulnerability profile, Disaster Management Act 2005 and Policy guidelines, National Institute of Disaster Management, National Disaster Response Force (NDRF)

Unit III

National Disaster Management Authority, States Disaster Management Authority, District Disaster Management Authority Cases Studies; Local Knowledge Appropriate Technology and local Responses, Indigenous Knowledge, Development projects in India (dams, SEZ) and their impacts, Logistics management in specific emergency situation. National Flood Risk Mitigation Project (NFRMP), Mines Safety in India, Indian Meteorological Department, National Crisis Management Committee, Indian NATIONAL Centre for Oceanic Information System (INCOIS).

Unit IV

Disaster Risk Reduction Strategies, Disaster Cycle, Phases of Disaster, Preparedness Plans, Action Plans and Procedures, Early warning Systems Models in disaster preparedness, Components of Disaster Relief - (Water, food, sanitation, shelter, Health and Waste Management), Community based DRR, Structural non-structural measures in DRR, Factors affecting Vulnerabilities, Mainstreaming disaster risk reduction in development, Undertaking risk and vulnerability assessments.

Unit V

Policies for Disaster Preparedness Programs, Preparedness Planning, Roles and Responsibilities, Public Awareness and Warnings, Conducting a participatory capacity and vulnerability analysis, Sustainable Management, Survey of Activities Before Disasters Strike, Survey of Activities During Disasters, DRR Master Planning for the Future, Capacity Building, Sphere Standards. Rehabilitation measures and long-term reconstruction. Psychosocial care provision during the different phases of disaster.

Suggested readings:

- Disaster Administration and Management, Text & Case studies- SL Goel-Deep and Deep Publications
- Disaster Management- G.K Ghosh-A.P.H. Publishing Corporation
- Disaster management – S.K.Singh, S.C. Kundu, Shobha Singh A – 119, William Publications, New Delhi.
- Disaster Management – Vinod K Sharma- IIPA, New Delhi, 1995
- Encyclopaedia of Disaster Management- Goel S.L. - Deep and Deep Publications, New Delhi, 2006.

Unit - I

Geographical Information Systems - definition, development, data sources, data structures, raster and vector, data capturing, pre-processing, Introduction to Geomorphology and Geology, Study the topography of India, Morphometric analysis with the help of remote sensing & GIS techniques.

Unit - II

Concept and scope, data manipulations and product generation- Environmental GIS, Data acquisition system using GPS On line GIS applications.

Unit - III

Spatial data; sources of error and data quality; database design, convention, mapping concepts and Coordinate systems.

Methods of spatial interpolations in Geographical Information Systems; visualizations in Geographical Information socio-economical terrain, climate and socio economical parameters to target the vulnerability due to natural disasters using GIS and Remote Sensing.

Unit - IV

Over view of GIS software - Arc Info; Arc View Principles, operation protocols and hands on training query based information retrieval Web GIS Online GIS and its data applications. Development of GIS based decision support for disaster risk reduction.

Unit - V

Mainstreaming "Risk", Role of science and technology in Disaster Risk Reduction, Strategies of Risk reduction, International Mobilization of Risk reduction; Process of Risk assessment, Analytical systems for risk assessment, Campus Shooting, Financial Emergency, Natural hazard/ risk assessment, Understanding climate risk, Mapping of risk assessment, Decision making for risk reduction, Problems in risk assessment; Rationale for people's participation, Role of civil society organizations, Impact of Globalization, Activities and roles for the community action Risk reduction, Participatory risk assessment methods;

Suggested readings

- Remote Sensing Principles & Applications - B.C. Panda - Viva Book Pvt. Ltd.
- Remote Sensing and Geographical Information systems - M. Anji Reddy JNTU Hyderabad 2001, B.S. Publications.
- Remote Sensing and its applications - LRA Narayana - University Press 1999.
- Principles of Geo physical Information Systems - Peter A Burchard and Rachael, A. Mc Donnell- Oxford Publishers 2004.
- Concepts & Techniques of GIS - C.P.Lo Albert, K.W. Yongg - Prentice Hall (India) Publications.
- GIS - Kang tsung chang, TMH Publications & Co.,
- Basics of Remote sensing & GIS - S.Kumar- Laxmi Publications.
- Fundamental of GIS by Mechanical designs John Wiley & Sons

DDM - 104

Dissertation

M.M.: 200

Dissertation

150

Presentation

25

Viva Voce

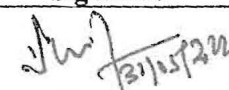
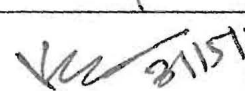
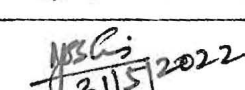
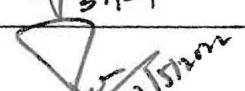
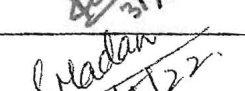

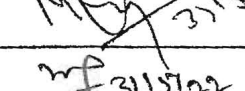
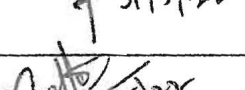
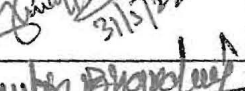
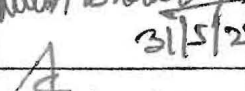
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Total

100

Subject Expert Committee Members actively participated in the preparation of curriculum for Six month Certificate course on Disaster Management. BOS meetings conducted physically with subject committee experts; and the curriculum is approved by the Chairpersons, External subject experts and committee members of Department of Zoology and Environmental Science.

NEP-2020- SUBJECT EXPERT COMMITTEE-

Name	Designation and address	Position	Signature
Prof. A.K. Chaubey	Professor, Department of Zoology, Chaudhary Charan Singh University, Meerut	Subject expert	 31/5/22
Prof. Kusum Arunachalam	School of Environment and Natural Resources, Doon University, Dehradun	Subject expert	 31/5/22
Prof. Namita Joshi	Department of Environmental Science, Kanya Gurukul Campus, Gurukula Kangri (DU), Haridwar	Member	 31/5/2022
Dr. Rakesh Bhutiani	Assistant Professor, Department of Zoology and Environmental science, Gurukula Kangri (DU), Haridwar	Member	 31/5/22
Dr. Sangeeta Madan	Department of Environmental Science, Kanya Gurukul Campus, Gurukula Kangri (DU), Haridwar	Member	 31/5/22
Dr. Nitin Kamboj	Assistant Professor, Department of Zoology and Environmental science, Gurukula Kangri (DU), Haridwar	Member	 31/5/22
Dr. Vinod Kumar	Assistant Professor, Department of Zoology and Environmental science, Gurukula Kangri (DU), Haridwar	Member	 31/5/22
Dr. Gagan Matta	Assistant Professor, Department of Zoology and Environmental science, Gurukula Kangri (DU), Haridwar	Member	 31/5/22
Dr. Nitin Bhardwaj	Assistant Professor, Department of Zoology and Environmental science, Gurukula Kangri (DU), Haridwar	Member	 31/5/22
Prof. D.S. Malik	Head, Department of Zoology and Environmental science, Gurukula Kangri (DU), Haridwar	Convener	 31/05/22