

CHOICE BASED CREDIT SYSTEM (CBCS) SYLLABUS

OF

Post Graduate Diploma in Disaster Management

(P.G.D.D.M.)

Implemented From the Academic Year 2015-2016

**PGDDM syllabus based on Choice Based Credit System [CBCS] pattern
from the Academic Year 2015-16**

Semester – I			Semester – II		
Paper No.	Subject	Credits	Paper No.	Subject	Credits
Compulsory Subjects (DM 101 to DM 104)			Compulsory Subjects (DM 201 to DM 204)		
DM 101	Introduction to Disaster Management	04	DM 201	Disaster Preparedness	04
DM 102	ICT for Disaster Management	04	DM 202	Disaster Response	04
DM 103	GIS in Disaster Management	04	DM 203	Rehabilitation Reconstruction and Recovery	04
DM 104	Practical Work	04	DM 204	Project Work	04
DM 105	Industrial Disaster Management	04	DM 205	Industrial Safety Management	04
Elective (Any one subjects from DM 106 to DM 108)			Elective (Any one subjects from DM 206 to DM 208)		
DM 106	Risk Assessment and Vulnerability Analysis	04	DM 206	Managing Human behavior	04
DM 107	Environment Studies	04	DM 207	Finance and Insurance in Disaster Management	04
DM 108	Research Methodology in Disaster Management	04	DM 208	Disaster Management Policy and Administration	04
Total Credits		24	Total Credits		24

- In both semester first five Courses are compulsory (For Semester- I, DM 101 to DM 105 and for Semester- II, DM 201 to DM 205). Out of the remaining Courses student shall select any one Courses in both semester (For Semester- I, DM 106 to DM 108 and for Semester- II, DM 206 to DM 208)
- Revised syllabus based on choice based credit system [CBCS] pattern for one year full time UGC sponsored Post Graduate Diploma in Disaster Management effective from Academic Year 2015-16

(I) Introduction

The name of the course shall be *Post Graduate Diploma in Disaster Management (P.G.D.D.M.)*

(II) Objectives

The basic objectives of the course are-

1. To minimize the risk of disasters with the effective use of Remote sensing and GIS
2. To train students on various aspects of Disaster Management
3. To create safe and sustainable environment by community strengthening capacity building
4. To assist local administration by providing expertise in the field of Disaster Management

(III) Eligibility for Admission

The candidate should fulfill the following eligibility criteria:

Any post graduate students passed with minimum of **50%** marks in aggregate* or equivalent CGPA (**45%** in case of candidates of backward class categories and Persons with Disability belonging to Maharashtra State only) from any **of the Universities** incorporated by an act of the central or state legislature in India or other educational institutions established by an act of Parliament or declared to be deemed as a University under Section 3 of the UGC Act.

(IV) Course Structure of Post Graduate Diploma in Disaster Management

PGDDM course is divided in to two semesters; details of each semester are as given below:

Course Structure of PGDDM Semester: I

Course No	Course	Credits	Total Lectures	Internal Marks	Unv.Exam External Marks	Total Marks
DM 101	Introduction to Disaster Management	4	48	50	50	100
DM 102	ICT for Disaster Management	4	48	50	50	100
DM 103	GIS in Disaster Management	4	48	50	50	100
DM 104	Practical Work	4	48	50	50	100
DM 105	Industrial Disaster Management	4	48	50	50	100
Elective (Any one subject from DM 106 to DM 108)						
DM 106	Risk Assessment and Vulnerability Analysis	4	48	50	50	100
DM 107	Environment Studies	4	48	50	50	100
DM 108	Research Methodology in Disaster Management	4	48	50	50	100
Total		24		300	300	600

Course Structure of PGDDM Semester: II

Course No	Course	Credits	Total Lectures	Internal Marks	Unv.Exam External Marks	Total Marks
DM 201	Disaster Preparedness	4	48	50	50	100
DM 202	Disaster Response	4	48	50	50	100
DM 203	Rehabilitation Reconstruction and Recovery	4	48	50	50	100
DM 204	Project Work	4	60	50	50	100
DM 205	Industrial Safety Management	4	48	50	50	100
Elective (Any one subject from DM 206 to DM 208)						
DM 206	Managing Human behavior	4	48	50	50	100
DM 207	Finance and Insurance in Disaster Management	4	48	50	50	100
DM 208	Disaster Management Policy and Administration	4	48	50	50	100
Total		24		300	300	600

Notes:-

1. The duration of Lecture is 60 minutes.
2. After every three years, syllabus will be revised.

(V) Pattern of Examination

Each Paper will have two components, internal and external with equal weightage.

a. Examination patter for Theory subjects

Internal Component (50 Marks)			External Component (50 Marks)	Total
Test 1	Test 2	Home Assignment	Semester end exam	
15	15	20	50	100

b. Examination patter for Practical subject

Internal Component (50 Marks)		External Component (50 Marks)	Total
Test	Practical Journal	Semester end exam	
25	25	50	100

(VI) The grading will given on CGPA as practiced by University

(VII) STANDARD OF PASSING

1. Every candidate must secure minimum 50% marks in aggregate for passing. For passing, student shall score minimum 25 out of 50 marks in both internal as well as external examination in every subject.
2. The internal and external assessment will constitute separate heads of passing and they will be show separately in the transcripts.
3. For each Courses / course the ratio of marks of internal assessment in relation to the external assessment shall be 50:50.
4. The external assessment shall be based on the external written examination to be held at the end of each semester for each Course / course. The project report and viva shall constitute one head of passing.
5. Marks in internal assessment should be communicated to the university before the commencement of the semester examination.

PGDDM Semester - I

PGDDM Semester I

Course No. DM 101

Paper Title: Introduction to Disaster management

Total Credits: 4

Total Hours: 48

Learning Objectives

- To orient students about various natural and manmade disasters
- To teach the concept of Disaster management and measures to be taken at different stages of disaster management
- To provide insight about global, national and regional level scenario of disaster management

Module 1 –Introduction

Unit 1: Hazard, Risk, Vulnerability, Disaster;

Unit 2: Disaster Management, Meaning, Nature Importance, Dimensions & Scope of Disaster Management, Disaster Management Cycle.

Unit 3 : National disaster management framework; financial arrangements for Disaster management, International Strategy for Disaster reduction.

Module 2 – Natural Disasters

Unit 1: Natural Disasters- Meaning and nature of natural disasters, their types and effects

Unit 2: Hydrological Disasters - Flood, Flash flood , Drought, cloud burst

Unit 3: Geological Disasters- Earthquakes, Landslides, Avalanches, Volcanic eruptions, Mudflow

Unit 4: Wind related- Cyclone, Storm, Storm surge, tidal waves

Unit 5: Heat and cold Waves, Climatic Change, Global warming, Sea Level rise, Ozone Depletion

Module 3 – Man made Disaster

Unit 1: CBRN – Chemical disasters, biological disasters, radiological disasters, nuclear disasters

Unit 2: Fire – building fire, coal fire, forest fire, Oil fire

Unit 3 Accidents- road accidents, rail accidents, air accidents, sea accidents

Unit4: Pollution and deforestation- air pollution, water pollution, deforestation, Industrial wastewater pollution, deforestation

Module 4 Disaster Determinants

Unit 1 Factors affecting damage – types, scale population, social status, habitation pattern, physiology and climate.

Unit 2: Factors affecting mitigation measures, prediction, preparation, communication, area and accessibility, population, physiology and climate,

Course Outcome:

Students will learn different disasters and measures to reduce the risk due to these disasters.

Also, students will learn institutional frame work for disaster management at national as well as global level

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.

PGDDM Semester I

Course No. DM 102

Paper Title: ICT for Disaster Management

Total credits: 4

Total Hours: 48

Learning Objectives:

- To teach basic concepts of ICT
- To educate students about recent ICT technologies in the field of Disaster Management

Module 1 Computer Systems

Computer, Basic Organization of Computers, Classification of Computers, Hardware, Software, Computer Languages, Computer Memory, Types of Memory (Primary And Secondary), Secondary Storage Devices , I/O Devices, Application software, Software Package, Operating Systems, Database Management System, Data Warehousing and Data Mining

Module 2 Information Communication Technology

Business Data Processing- Data storage hierarchy, methods of organizing data, file management Data Communications and Computer Networks- Elements of Communication Systems, Data transmission modes, speed, media; Digital and Analog data transmission, Switching techniques, Routing Techniques, Network topologies, Network Types, Communication protocols, wireless networks, Internet, multimedia

Module 3 Information Processing

Definition , difference between Data and Information, Relevance of Information to Decision Making, Source and Types of Information, Quality of Information, Value of information, Data Collection methods, Assessing Information Needs, Management Information Systems, Decision Making Concept-Models of Decision Making

Module 4 Advanced Information Communication Technology

Tsunami Early Warning System, Forest Resource Information System, ,GIS, Remote Sensing, Digital Image Processing, emergency communication System, Bluetooth and Wireless communication, HAM Radio.

Module 5 Disaster Management Information Sources

Forecasting & warning: Indian meteorological department, tsunami warning centre, pacific disaster centre, central water commission; **Resources:** UNISDR, USAID, Red Cross ,Indian disaster resource network; **Other :** National disaster management authority, National Institute of disaster management, National Geophysical Research Institute, Bhuwan, National disaster response force, State and district disaster management centre

Suggested Readings:-

1. Computer Fundamentals- P. K. Sinha, BPB Publications
2. Fundamentals of Computers - V.Rajaraman - PHI Publication , IVth Edition.
3. Fundamentals of Programming - Raj K.Jain - S.Chand Publication
4. Database System Concepts - Abraham Silberschatz and Henry Korth, Sudarshan : Tata McGraw-Hill- IVth Edition, ISBN : 0-07-120413-X
5. Fundamentals of Data base Systems - Elmasri and Navathe , Addison-Wesley, 1999, III rd Edition
6. Fundamentals of Remote Sensing - Noam Levin, November 1999
7. Introduction to Remote Sensing - Dr Robert Sanderson - New Mexico State University

PGDDM Semester I

Course No. DM 103

Paper Title: Geographical Information System in Disaster Management

Total credits: 4

Total Hours: 48

Learning Objectives:

To study the concept of GIS and its applications in the field of Disaster Management

Module 1 Introduction

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

Module 2 Data base management systems in GSI

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

Module 3 Geographical Information System

Unit 1: - Spatial data; sources of error and data quality; database design, convention, mapping concepts and Coordinate systems.

Unit 2 : Methods of spatial interpolations in Geographical Information Systems; visualizations in Geographical Information Systems, Linking terrain, climate and socio economical parameters to target the vulnerability due to natural disasters using GIS and Remote Sensing.

Module 4 GIS SOFTWARE

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.

Course Outcome:

Trained students with the help of GIS will assist disaster management teams in reducing disaster risk .

Suggested readings

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

PGDDM Semester I

Module No. DM 104

Paper Title: PRACTICAL WORK

Total Credits: 4

Total Hours: 48

This is full credit course based on Use of GIS software especially Arc GIS. Students are expected to carry out GIS practicals on different phases of Disaster Management such as Disaster preparedness, mitigation, response, recovery rehabilitation and reconstruction. Each student shall perform ten practical on any aspects of disaster management and shall submit the Journal book at the end of the semester. The weightage for internal and external components is 50 % each. Internal components comprises of class test and practical journal, each carrying 25 marks.

Areas of GIS Practical

1. GIS database design.
2. Spatial interpretation of GIS.
3. GIS application in land slide inventory studies.
4. GIS applications earthquake studies.
5. GIS applications in flood hazard.
6. GIS applications in forest fire.
7. GIS applications in cyclone hazard.
8. GIS applications in tsunami hazard.
9. Hazard mapping with GIS
10. Use of GIS in Risk assessment and Vulnerability Analysis
11. GIS applications in Urban planning
12. GIS application in traffic management
13. GIS application in health management
14. Any other application related to disaster management

PGDDM Semester I

Course No. DM 105

Paper Title: Industrial Disaster Management

Total Credits: 4

Total Hours: 48

Learning Objectives

- To educate students about various industrial hazards
- To train students in risk assessment and hazard analysis of Industries
- To train students in preparing offsite and onsite plans

Module 1 Introduction

Concept, Need and Importance of Industrial Disaster Management

Module 2 Industrial Hazards

Chemical hazards, Biological hazards, Radiological hazards, nuclear hazards, Physical hazards, Electrical hazards, Fire hazard, Gas hazards etc.

Module 3 Risk Assessment & Hazard Identification

Unit 1: Checklist procedure, Preliminary hazard analysis, What if analysis, Failure mode effect analysis, Hazard and operability (HAZOP) studies, Hazard analysis techniques: Fault tree analysis, Event tree analysis, General outline of DOW index, Risk estimation and management, Major hazard control

Unit 2: Identification of hazard, Categorization methods for elimination of hazard, Mechanical hazards;

Machine guarding, safety with hand tools/ portable power tools, Pressure vessel hazards and their control, Safety in material handling: hazards and safe Practices, safety with storage of materials

Module 4 Disaster Management Plans

Unit 1: Onsite Plans

Standard operating procedures, control room, safety officer, Different committees for Disaster management, rescue team, training, exercises and mock drills

Unit 2: Offsite Plans

Dissemination of information, identification of vulnerable locations, need and damage assessment, rescue and relief plans, compensation

Suggested Readings:

- Disaster Administration and Management, Text & Case studies- SL Goel-Deep and Deep Publications
- Hazardous Materials Disaster Management-Arunkumar Talwar, Coomnwealth Publisher
- Heinrich H.W. "Industrial Accident Prevention" McGraw-Hill Company, New York, 1980"Safety in Industry" N.V. Krishnan Jaico Publishery House, 1996

PGDDM Semester I

Course No. DM 106

Paper Title: Risk Assessment & Vulnerability Analysis

Total Credits: 4

Total Hours: 48

Learning Objectives:

- To train students in doing Risk assessment and Vulnerability analysis
- To teach students vulnerability reduction strategies

Module 1 Introduction

Hazard, Risk and Vulnerability, Risk Concepts, Elements Of Risk, Perception of Risk, Acceptable risk, Requirements in Risk assessment

Module 2 Risk Assessment & Reduction

Unit 1 : Risk Reduction-

Mainstreaming “Risk” , Role of science and technology in Disaster Risk Reduction, Strategies of Risk reduction, International Mobilization of Risk reduction

Unit 2 : Risk analysis techniques-

Process of Risk assessment, Analytical systems for risk assessment, Natural hazard/ risk assessment, Understanding climate risk, Mapping of risk assessment, Decision making for risk reduction, Problems in risk assessment

Unit 3 : Participatory 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

Unit 4 : Vulnerability analysis and Risk assessment:

Addressing Semantics, Approaches to vulnerability Analysis, Models of Vulnerability analysis, Quantification of vulnerability, Assessment of Risk Vulnerability and capacity analysis (VCA), Vulnerability of Himalayan Eco- system

Unit 5 : Hazard mapping using GIS, Use of remote sensing and GIS for risk assessment , multi hazard risk analysis using GIS

Module 3 Vulnerability

Unit 1 : Observation and perception of vulnerability- Vulnerability Identification, Vulnerability types and dimensions, Vulnerability- Social factors and economic factors

Unit 2 : Vulnerability to shanty settlements- Vulnerability in the city, Risk in Urban areas, Issues in urban planning, Initiatives for risk reduction in India

Module 4 Strategic development for Vulnerability reduction:

Physical & Social infrastructure for Vulnerability reduction, Interactive areas for Vulnerability reduction & Policy making, Hazard resistant designs and construction, System management Strategic planning for vulnerability reduction

Course outcome: It will help in identifying vulnerable regions and calculating risk associated with the disaster. Minimizing loss due to disasters

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- NIDM, New Delhi
- Disaster Risk Reduction in South Asia- by Pradeep Sahni - Prentice – Hall of India
- Disaster Mitigation and Management Post – Tsunami Perspectives P, Jagadish Gandhi
- Disaster Mitigation – Experiences and reflections – By Pradeep sahani - Prentice – Hall of India

PGDDM Semester I

Course No. DM 107

Paper Title: ENVIRONMENT STUDIES

Total Credits: 4

Total Hours: 48

Learning Objectives:

- To study the ecosystem and various natural sources
- To orient students about the biodiversity in India
- To discuss various issues related to environment and their impact

Module 1: Introduction:

Definition; Scope and importance, Need for public awareness

Module 2 : Natural Resources:

Renewable and non-renewable resources; Natural resources and associated problems;

Unit 1: Forest resources: Use and Over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects

*Unit 2 :*Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams benefits and problems

*Unit 3 :*Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies

*Unit 4 :*Food resources: World food problems, changes caused by agriculture and overgrazing ,effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies

Unit 5 : Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, Case studies

Unit 6: Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification

- Role of an individual in conservation of natural resources

- Equitable use of resources for sustainable lifestyles

Module 3: Ecosystems

Unit 1: Concept of an ecosystem, Structure and function of an ecosystem, Producers, consumers and decomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids.

Unit 2 : Introduction, types, characteristic features, structure and function of the following ecosystem: -

a. Forest ecosystem

b. Grassland ecosystem

c. Desert ecosystem

d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit 3: Biodiversity and its Conservation

- Introduction-Definition: genetic, species and ecosystem diversity

- Biogeographical classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values
- Biodiversity at global, National and local levels
- India as a mega-diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity

Module 4: Social Issues and the Environment

- From Unsustainable to Sustainable development
- Urban problems related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns. Case studies
- Environmental ethics: Issues and possible solutions
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust
- Wasteland reclamation
- Consumerism and waste products
- Environment Protection Act

Course Outcome:

After learning this module student will get familiarize with the ecosystem and issues related to environment system.

Suggested Readings:

1. Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
2. Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad - 380013, India,
3. Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p.
4. Clerk B.S., Marine Pollution, Clarendon Press Oxford (TB).
5. Cunningham, W.P.Cooper, T.H. Gorhani, E & Hepworth, M.T.2001, Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p.
6. De A.K., Environmental Chemistry, Wiley Eastern Ltd.

PGDDM Semester I

Course No. DM 108

Paper Title: Research Methodology in Disaster Management

Total Credits: 4

Total Hours: 48

Learning Objectives:

To instill a comprehensive and step-wise understanding of the research process with a balanced blend of theory and applicative techniques; and also facilitate them to develop insights about basic concepts of research designs and methodology aimed at solving research problems

Module 1 Introduction

Meaning, Concept, nature steps types and characteristics of research, scientific inquiry Philosophical and Sociological foundations of research, Interdisciplinary approach and its implications in various research areas.

Module 2 Methods of Research

Qualitative and quantitative methods of research like Historical, case study, ethnography, ex-post facto, documentary and content analysis, survey (Normative, descriptive, evaluative etc.), field and laboratory experimental studies, Characteristics of methods and their implications in research area.

Module 3 Development of Research Proposal

Research proposal and its elements, Formulation of research problem-criteria of sources and definition, Development of objectives and characteristics of objectives, Development hypotheses and applications.

Module 4 Methods of Data Collection and Analysis

Concept of sampling and other concepts related to sampling. Probability and non-probability samples, their characteristics and implications. Tools of data collections, their types, attributes and uses. Redesigning, research tools-like questionnaire, opinion ire, observation, interviews, scales and tests etc. Analysis of qualitative data based on various tools. Analysis of quantitative data and its presentation with tables, graphs etc. Statistical tools and techniques of data analysis-measuresof central tendency, dispersion. Decision making with hypothesis testing through parametric and non-parametric tests. Validity and delimitations of research findings.

Module 5 Report Writing and Evaluation

Principles of report writing and guide lines according to style manuals, Writing and presentation of preliminary, main body and reference section of report, Evaluation of research report.

Course Outcome:

Course can be an asset to the disaster management team by providing well-equipped and scientifically skilled research professionals and managers for conducting research in every aspect of disaster management.

Suggested readings:

1. Methods of Social Survey and Research- Bajpai S. R. (1975) - Kitabghar, Kanpur
2. Theory and Practice in Social Research - Hans Raj (1988) - Surjeet Publication, Kolhapur
3. Methodology of Research in Social Science - Krishnaswami O. R. (1988) - Himalaya Pub. House
4. Quantitative Technique - Kothari, C. R. (2005) - Vikas Publication House, New Delhi
5. Development of Research tools - Gautam, N. C. (2004) - Shree Publishers- New Delhi
6. Research Methodology and Statistical Techniques - Gupta Santosh (2005) - Deep and Deep Publications

PGDDM Semester - II

PGDDM Semester II

Course No. DM 201

Paper Title: Disaster Preparedness

Total Credits: 4

Total Hours: 48

Learning Objectives

- To teach students preparedness measures for disasters
- To train students in preparing disaster preparedness plan

Module 1 Introduction

Disaster Management Cycle, Disaster Preparedness: concept and significance, Disaster Preparedness Measures, Institutional Mechanism for Disaster Preparedness, Disaster preparedness with special needs/ vulnerable groups, Disaster Preparedness: Policy and Programmes

Module 2 Disaster Preparedness Plan

Concept and Significance, Disaster Preparedness Plan essentials, Community Based Disaster Preparedness plan

Module 3 Disaster Preparation

Unit 1 : Material, relief required- sources of relief, modes and means of transport, medical facility and communication network, Preparation of manpower, awareness of damages, perception, reaction time. Authority: Hierarchy set-up, direction of communication

Unit 2 : Hazard monitoring, tracking and modeling, Early warning systems, warning protocols, India Disaster Resource Network, Emergency Sanitation/Shelter environments, worst scenario analysis, Emergency operation Centre, Role of Information, Education, Communication and Training

Module 4 Emerging Technologies in Disaster Management

Remote sensing, Disaster Mapping, Aerial Photography, land use zoning, Wireless and Radio, HAM radio

Course Outcome

A structure preparedness plan will help in reducing risk associated with disasters.

Suggested Readings:

- Disaster Administration and Management, Text & Case studies- SL Goel-Deep and Deep Publications
- Natural Hazards And Disaster Management : Vulnerability And Mitigation - R B Singh- Rawat Publications
- Disaster Management- G.K Ghosh - A.P.H. Publishing Corporation

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- 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

PGDDM Semester II

Course No. DM 202

Paper Title: Disaster Response

Total Credits: 4

Total Hours: 48

Learning Objectives:

- To orient students about Disaster on site situation
- To teach Disaster response techniques
- To educate students about Disaster response organizations

Module 1 Introduction

Unit 1: Essential Components of Disaster Response, Disaster Response Plan, Resource Management- Financial, Medical, equipments, communication, Human, transportation, Food and essential commodity (Identification, Procuring, Propositioning and deployment), Directing and controlling functions

Unit 2: Communication, Participation & activation of Emergency Preparedness Plan, Logistics Management, Emergency support functions, Need and damage assessment

Module 2 Coordination in Disaster Response

Disaster response organization, Disaster response & administration - Central, State, District and Local , Disaster Response: Policy & Other organization, Role of multiple stakeholders in Disaster Response NDRF, SDRF, ITBP, CRPF, SRPF, EMS

Module 3 Quick Disaster Response

Unit 1: First responder, medical first aid, life saving techniques, Golden time

Unit 2: Search & Rescue equipments- Search & Rescue equipments for different disasters, its use, procurement, maintenance

Unit 3: Search & Rescue Teams- Warning teams, evacuation teams, medical support, logistic management & other teams

Unit 4 : Individual and Group behavior, Psychological Response, Trauma & Stress Management, Rumor & Panic Management

Module 4 Relief Measures

Relief measures, Minimum standards of relief, managing relief, Funding relief, Recovery

Course Outcome:

Trained students can act as a First Respondent and can handle Onsite situations

Suggested Readings:

- Disaster Administration and Management, Text & Case studies- SL Goel-Deep and Deep Publications
- Disaster Planning and Recovery- Levitt, Alan M - John Valley and Sons, New York, 1997.
- National Disaster Response Plan - Ministry of Agriculture and Cooperation, Government of India, New Delhi: 2002

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- National Disaster Response Plan, NCDM, New Delhi, 2001
- Disaster management – S.K.Singh, S.C. Kundu, Shobha Singh A – 119, William Publications, New Delhi.
- Disaster Management – Vinod K Sharma- NIDM, New Delhi

PGDDM Semester II

Course No. DM 203

Paper Title: Recovery, Reconstruction and Rehabilitation

Total Credits: 4

Total Hours: 48

Learning Objectives

- To understand post disaster issues in recovery and rehabilitation
- To undertake reconstruction as an opportunity to build disaster resilient structures and safe habitat

Module 1 Rehabilitation, Reconstruction and Development

Unit 1: Reconstruction Rehabilitation and Development- Concept, Meaning, types of Rehabilitation and Reconstruction, Importance of Disaster Mitigation, Cost – benefit analysis, relationship between vulnerability and development

Unit 2: Damage Assessment- Post Disaster Damage assessment, estimated damage assessment due to probable disasters, Sample Surveys, Epidemiological Surveillance, Nutrition Centered Health Assessment, Remote sensing and Aerial photography, nature and damage to houses and infrastructure due to different disasters

Unit 3: Role of Different organization in Rehabilitation

The Government and Disaster Recovery and rehabilitation; Disaster and Non governmental efforts ; Role of Local Institutions; Insurance, Police , Media

Module 2 Reconstruction

Unit 1: Speedy Reconstructions- Essential services, Social infrastructures, immediate shelters/camps, Contingency plans for reconstructions

Unit 2: Development of Physical and Economic Infrastructure- Developing Physical and Economic Infrastructure, Environmental Infrastructure development,

Unit 3: Disaster resistant House Construction- Guidelines for Disaster resistant construction, traditional techniques, Seismic strengthening of houses in low rain/High rainfall area, earthquake resistant construction technique

Unit 4: Funding arrangements- Funding arrangements at state level and central level, Fiscal discipline, role of International agencies, mobilization of community for resource generation

Module 3 Rehabilitation

Unit 1: Socio- economic Rehabilitation- Temporary Livelihood Options and Socio-Economic Rehabilitation,

Unit 2: Role of Housing / building authorities- Education and awareness and role of Information Dissemination, Participative Rehabilitation

Unit 3: Role of various agencies in Recovery Work- Monitoring and evaluation of rehabilitation work, Rehabilitation process

Module 4 Recovery

Concept of recovery, livelihood and approach to reconstruction, Livelihood restoration, Speedy recovery, Linking Recovery with safe development, Creation of Long-term job opportunities,

Course outcome:

This Course will help students in building safer environment through sustainable development. At the end of this course students are expected to carry out pre and post disaster damage assessment, understand disaster recovery and role of different agencies in the rehabilitation.

Suggested Readings:

- Asian Development Bank, Disaster Mitigation in Asia and the Pacific, Manila ADB, 1991.
- 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.
- Post-Earthquake Rehabilitation and Reconstruction , F.Y. Cheng, Y.Y. Wang, Pergamon Publications

PGDDM Semester II

Course No. DM 204

Paper Title: Project Work

Total Credits: 4

Total Hours: 48

- This is full credit course, being evaluated for 100 marks.
- The student shall choose a Research Topic after consultation with Faculty Research Guide at the end of first semester.
- The student should submit Project report at the mid of second semester, evaluation of the same will be done at the end of second semester. The evaluation scheme is as given below:

EVALUATION SCHEME

A) Problem Statement	05 Marks
B) Literature Review	05 Marks
C) Research Methodology	10 Marks
D) Data Analysis	10 Marks
E) Conclusion	10 Marks
F) Suggestions	10 Marks
G) Presentation	25 Marks
H) Viva Voce	25 Marks

Viva voce shall be conducted by panel of two members; one member would be external expert

Standard Guidelines for the Preparation of Research Project Report Submission

Every Report/Dissertation should contain the following documents in the described sequence and format:

1. Front cover page of glossy photo paper or hard bound rexin cover, which should have printed or embossed descriptions.
2. The First inner cover page should contain the same description printed as in Appendix – 1 but on glossy paper if the cover page is rexin bound and embossed otherwise of on plain paper/ coloured paper
3. The Second inner page must contain the Certificate issued by the supervisor(s) endorsing the originality of the work and the declaration that this piece of work has been carried out under his/her/their supervision and at the deputed place, time, etc. and the endorsement of the HOD /Director to these statements .
4. The Third inner page is the certificate page as issued by the authority, where the student has undertaken the research or practicals etc.
5. The Fourth inner page is the page of Acknowledgement, which the student has to write and acknowledge the thanks, gratitude, obligation etc. for the successful completion of the assignment due to these individuals, authorities or institution or organization etc.
6. The Fifth inner page is the page for dedication in honour, like to - Parents/Teacher/Friend/Wife/Husband /Organization etc. But this page is not a compulsion.
7. The Sixth page is Index/Contents page, which must contain the Serial number, Title of each Chapter/part/prgramme and the page number .
8. The Seventh page should contain the Index of Graphs/supporting documents/survey samples/ tables/pictures/photographs etc., which are used as a part of the report. Each item has to have a title so that these can be prepared in the same manner as the Sixth page (Index/Contents page).
9. Each Chapter should be separated by a Partition page marked/printed with the CHAPTER NO. and CHAPTER TITLE as described in the Index/Contents page above (Point 7).
10. The Report/Dissertation must contain the References/Bibliography pages at the end of the last chapter. The references also should be noted, sequenced and described as per a

standard format and cannot be placed in any personally chosen order or description. It is very significant part of the report/dissertation for evaluation by the examiner. A standard pattern of References' page .

11. Each page should be numbered from the writing page of Chapter – I. Pages of Certificate of the supervisor till partition page of Chapter – I should be numbered in Roman digits (I, ii, iii,...ix,.. xiii etc.).
12. Avoid making underlines for each heading especially to the Capital letters. All headings should be with capital letters and sub-headings with bold small letters. Avoid use of Italics until unless it is required. Similarly, do not use different types of markers/symbols for explaining the content in points; rather follow 1-2 types of these only in consistence.
13. Follow a logical placement of facts, figures and analysis to explain the findings for a Layman understands of your report and accordingly you spell out/order/design the chapters.
14. One must use comprehensive English words to describe the Title of the work and the Chapters. Hence, avoid long expressions for these.
15. It is advisable to take support/help from a good English knowing person to correct the grammatical errors and construction of Active/Passive sentences, use of Phrases/Idioms in your report writing etc.
16. The printing pages should be of uniform page layout conditions and fonts for the total report (Font Size: Times New Roman 12 and for heading- Times New Roman 14; Line spacing 1.5; Page Margin : Left 1.1'' and right 1'')

PGDDM Semester II

Course No.DM 205

Course Title: Managing Human Behaviour

Total Credits: 4

Total Hours: 48

Learning Objectives:

To develop an understanding of the structure and role of human behaviour in disaster management

Module 1 Individual Dimensions of Organizational Behaviour

Nature of Human Behaviour- Concept, Process, Managerial Implications, Individual differences, Perception- Meaning, Perceptual Process, Perceptual Organization, Interpersonal Perception

Attitudes and Values- Formation, Theories of attitude formation, attitude change, Values

Motivation- Motivation and behaviour, Motivation and performance, Theories of motivation,

Module 2 Group Dimensions of Organizational Behaviour I

Group Dynamics- Formal and Informal Groups, Group Behaviour, Group Decision Making

Team dynamics- Types of Teams, Effective Team, Team Creation, Task force, Quality Circle

Leadership- Concept, Leadership Styles, Leadership development, leadership & technology

Module 3 Group Dimensions of Organizational Behaviour II

Conflict-Levels of Conflict, Process, Conflict Management, Negotiation, Grievance management

Stress- Concept, Sources of stress, Stress Management, Stress and Performance

Change- Levels of change, Types of change, Change process, Change management

Module 4 Training and Development

Meaning, Objectives, Training Process, training needs analysis, Training Techniques and Methods, Evaluation, Training Budget, Training outsourcing, E-training, Emerging Trends in Training, Counseling

Module 5 Cases of managing human behaviour in disaster management

Indian cases in natural disasters and man-made disasters

Global cases in natural disasters and man-made disasters

Suggested Readings:-

1. Organizational Behavior, Stephen Robbins, 9th Ed., Prentice Hall International Inc.
2. Organizational Behavior- L. M. Prasad, Sultan Chand & sons publications
3. Organizational Behavior- K. Aswathapa, Himalaya Publishing House

PGDDM Semester II

Course No. DM 206

Paper Title: Finance and Insurance in Disaster Management

Total Credits: 4

Total Hours: 48

Learning Objectives:

To provide the understanding of life & non-life insurance, banking and other related issues pertaining to the finance sector.

Module1 Introduction to Banking & Finance

Concept of Banking, Types of banks, Functions of banks; Tax administration; Public budgeting and finance systems; State and local finances.

Module 2 Central Bank / Reserve Bank

Role and function of central bank, RBI and Monetary Policy

Module 3 Introduction to Insurance

Evolution and Features of Insurance, Classification of Insurance, Conditions relating to risk, selection or Risk

Module 4 Life Insurance & General Insurance

Principles of LIC, Privatization of Life Insurance Business, Role and performance of LIC, Non-life insurance – Fire, Automobile, Marine, Health, Rural, Social and miscellaneous insurances.

Module 5 Insurance Policies for Disaster Management

Evaluation of risk funding and risk transfer policies; Catastrophe insurance pool; Reserve funds and contingent credit policies; Role of Government and market participants; Insurance policy design; Fiscal cost of relief and reconstruction; Grants and low interest loan for reconstruction.

Course Outcome:

Students will be able to understand the role of various financial agencies in providing financial support during disaster.

Suggested readings:

- Money, Banking & Public Finance – T.N.Hajela- Ane Books Pvt ltd-8th Edition.
- Banking and Financial Markets in India – BhasinNiti-New Century Publications-1947 to 2007.
- Banks & Institutional Management- Vasant Desai-Himalaya PublishingHouse-1st Edition.
- Banking theory and practices – K.C.Shekhar, LekshmyShekhar – Vikas Publishing House- 19th Edition.
- Insurance principles & practice –M.N.Mishra, S.B.Mishra -S.Chand Publication- 17th Edition
- Life Insurance in India- H. Sadhak (Response Books) 1stEdition
- Insurance in India- P.S.Palande, R.S.Shah, M.L.Lunawat (Response Books) 6th Edition
- National Disaster Response Plan, NCDM, New Delhi, 2001.

PGDDM Semester II

Course No. DM 207

Paper Title: Industrial Safety Management

Total Credits: 4

Total Hours: 48

Learning Objectives

- To teach students Industrial safety rules and regulations
- To train students on safety investigation, monitoring and Audit

Module 1 Introduction

Need for safety, Safety legislation: Acts and rules, Factory Act 1948, Workman's Compensation Act, 1943, Employees State Insurance Act, 1948, Safety standards and codes, Safety policy: safety organization and responsibilities and authorities of different levels, Safety Management

Module 2 Training for Safety

Importance of training-identification of training needs-training methods – programmes, seminars, conferences, competitions – method of promoting safe practice - motivation – communication - role of government agencies and private consulting agencies in safety training – Safety awareness, Employee Participation, awards, celebrations, safety posters, safety displays, safety pledge, safety incentive scheme, safety campaign – Domestic

Module 3 Accident Investigation and Reporting

Concept of an accident, reportable and non reportable accidents, reporting to statutory authorities – principles of accident prevention – accident investigation and analysis – records for accidents, departmental accident reports, documentation of accidents – unsafe act and condition – supervisory role – role of safety committee –cost of accident.

Module 4 Safety Performance Monitoring and Audit

Unit 1: Safety Performance Monitoring- ANSI (Z16.1) Recommended practices for compiling and measuring work injury experience-permanent total disabilities, permanent partial disabilities, temporary total disabilities - Calculation of accident indices, frequency rate, severity rate, frequency severity incidence, incident rate, accident rate, safety “t” score, safety activity rate – problems.

*Unit 2 Safety Audit-*Components of safety audit, types of audit, audit methodology, non conformity reporting (NCR), audit checklist and report – review of inspection, remarks by government agencies, consultants, experts – perusal of accident and safety records, formats – implementation of audit indication - liaison with departments to ensure co-ordination – check list – identification of unsafe acts of workers and unsafe conditions in the shop floor

Course outcome:

This module will help students in reducing industrial accidents and building safer environment

Suggested readings:

- Heinrich H.W. “Industrial Accident Prevention” McGraw-Hill Company, New York, 1980.
- Krishnan N.V. “Safety Management in Industry” Jaico Publishing House, Bombay, 1997
- Dan Petersen, “Techniques of Safety Management”, McGraw-Hill Company, Tokyo, 1981.
- Blake R.B., “Industrial Safety” Prentice Hall, Inc., New Jersey, 1973
- Slote.L. Handbook of Occupational Safety and Health, John Willey and Sons, New York

PGDDM Semester II

Course No. DM 208

Paper Title: Disaster Management Policy & Administration

Total Credits: 4

Total Hours: 48

Learning Objectives

To ensure efficient mechanism for identification, assessment and monitoring of disaster Risk.
To learn prevention and resilience at all levels through knowledge, innovation and education

Module 1 –Introduction

Disaster Management: Meaning, Concept, Importance, Objectives of Disaster Management Policy, Disaster Risks in India, Paradigm shift in Disaster Management

Module 2 – Disaster Management Policy

Importance of DM Policy, Principles of Disaster management Policy, Features of Disaster Management Policy, Policy Making procedures, Policy Makers, Command and coordination in disaster management

Module 3 Disaster Management Administration

National Disaster Management Policy, Institutional framework for Disaster Management, Existing Institutional arrangement in India, State Disaster management policy, International strategy for Disaster risk reduction, International level organizations involved in disaster management

Module 4 Disaster management and techno legal regime

Study of different measures in different phases of Disasters, Revision of Municipal regulations, Land use planning, Safe Construction practices, Training and capacity development

Module 5 Case studies

Summary of Indian National Policy on Disaster Management, Disaster management policy of Asian/African countries, Disaster management policy of United state of America

Course outcome:

At the end of this course students are expected to analyze Disaster Risk in India, importance of disaster management, institutional framework, policy in disaster management and various dimensions of a sound disaster management policy.

Suggested Readings:

- Disaster Administration and Management, Text & Case studies- SL Goel-Deep and Deep Publications

- Natural Hazards And Disaster Management : Vulnerability And Mitigation - R B Singh- Rawat 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 - H.K. Gupta, 2003
- Disaster Management – Vinod K Sharma- IIPA, New Delhi,1995