University of Kashmir, Srinagar-6, J&K

NAAC Accredited Grade "A"

P.G. Department of Geography & Regional Development

(DST-FIST Sponsored and UGC-SAP Assisted Department)

COURSE STRUCTURE

FOR

CHOICE BASED CREDIT SYSTEM

(CBCS)

OF

M.A. /M. Sc. DISASTER MANAGEMENT

(2015)

M. A/ M. Sc. Programme in Disaster Management

Choice Based Credit System (CBCS) 2015

M. A. / M. Sc. Disaster Management is a two year Post Graduate Programme comprising of four semesters. The students are offered (31) papers comprising of (11) Core Courses, along with (12) Discipline Centric Elective Theory Courses, and (4) Generic Elective Courses and (4) Open Elective courses. Every core course is based on (4) credits. The Discipline Centric Elective, Generic elective and open elective courses are comprised of three credits.

The M. A. / M. Sc. Post Graduate Programme in Disaster Management is based on 96 credits with six different components viz., (I) Teaching (II) Tutorial (III) Practical, (IV) Seminar, (V) Field studies and (VI) project work (dissertation) in fourth semester.

- A candidate compulsorily has to obtain 24 credits per semester *i.e*., 48 credits in one year programme (2 semesters), 96 credits in two year programme (4 semesters).
- A candidate has to obtain minimum of 24 credits in a semester; 12 credits compulsorily are to be opted from "Core Courses", while the remaining 12 credits can be obtained in either of the following two ways:
- 2-6 credits are to be obtained from Discipline centric courses. At least 4 credits are to be obtained from a pool of "Generic Electives offered by the concerned Faculty. However, a minimum of 4 credits from (Open) Electives are to be obtained by a candidate from outside the Department/faculty in any semester while pursuing the programme; or
- A candidate has a provision to go with a slow pace of as low as 20 credits per semester or with an accelerated pace of as high as 28 credits per semester, so as to earn minimum required 96 credits in 2-year programme (4 semesters).

Note:

- There shall be two faculty members in charge of field studies course (DM-15303) in the 3rd semester to be conducted within state. In the field studies course, each student shall have to prepare a report as per nature and purpose of the field. ***The student shall have to deposit an amount of Rs. 15,000/- as a part of fee towards the field studies over and above the prescribed fee for the course fixed by the University.***
- All the faculty members shall provide supervision /guidance to the students for the preparation of the field study report (DM-15303). A faculty member shall have to supervise a maximum of three students of the same batch for preparation of the field report.
- In the project work/ dissertation course (DM-15402) every faculty member shall have to supervise / guide a maximum of three students of the same batch.

MA/M.Sc Disaster Management: 1st Semester

Course	Course Title	Category	Hours per week			Credits
			Lectures	Tutorials	Practical	
DM-CR-15101	Introduction to Natural and Man Induced Disasters	Core	4	2	0	4
DM-CR-15102	Remote Sensing, GIS and GPS-I	Core	4	2	0	4
DM-CR-15103	Remote Sensing, GIS and GPS-II	Core	0	0	8	4
DM-DCE-15104	Fundamentals of Disaster Management	Discipline Centric Elective	3	2	0	3
DM-DCE-15105	Understanding Geophysical Environment	Discipline Centric Elective	3	2	0	3
DM-DCE-15106	Disaster Preparedness and Mitigation	Discipline Centric Elective	3	2	0	3
DM-GE-15107	Population and Society	Generic Elective	2	2	0	2
DM-OE-15108	Regional Hazard and Disaster Management Scenario	Open Elective	3	2	0	3
Total Contact hours = 44		**Total credits=26**				

MA/M.Sc Disaster Management: 2nd Semester

Course	Course Title	Category	Hours per week			Credits
			L	T	P	
DM-CR-15201	Disaster Response	Core	4	2	0	4
DM-CR-15202	Reconstruction, Rehabilitation and Recovery	Core	4	2	0	4
DM-CR-15203	Geoinformatics for Disaster Management	Core	0	0	8	4
DM-DCE-15204	Institutional Structure for Disaster Management	Discipline Centric Elective	3	2	0	3
DM-DCE- 15205	Statistical Techniques in Disaster Management	Discipline Centric Elective	3	2	0	3
DM-DCE-15206	Disaster Management in India	Discipline Centric Elective	3	2	0	3
DM-GE-15207	Waste and Debris Management	Generic Elective	2	2	0	2
DM-OE-15208	Disaster Profile of India	Open Elective	3	2	0	3
Total Contact hours=44		**Total credits=26**				

MA/M.Sc Disaster Management: 3rd Semester

Course	Course Title	Category	Hours per week			Credits
			L	T	P	
DM- CR-15301	Vulnerability Assessment	Core	**4**	**2**	**0**	**4**
DM-CR-15302	Disaster Risk Assessment	Core	**4**	**2**	**0**	**4**
DM- CR-15303	Field Studies for Disaster Management	Core	**0**	**0**	**8**	**4**
DM- DCE-15304	Disaster Risk Reduction and Development Planning	Discipline Centric Elective	**3**	**2**	**0**	**3**
DM-DCE-15305	Environmental Impact Assessment and Disasters	Discipline Centric Elective	**3**	**2**	**0**	**3**
DM- DCE-15306	Disaster Sensitive Land use Planning	Discipline Centric Elective	**3**	**2**	**0**	**3**
DM- GE-15307	Research Methods in Disaster Management	Generic Elective	**3**	**2**	**0**	**3**
DM- OE-15308	Geomorphology	Open Elective	**3**	**2**	**0**	**3**
Total Contact hours=45		**Total credits=27**				

MA/M.Sc Disaster Management: 4th Semester

Course	Course Title	Category	Hours per week			Credits
			L	T	P	
DM-CR-15401	Crisis and IRS Management	Core	**4**	**2**	**0**	**4**
DM- CR-15402	Disaster Initiatives & Legal Provisions	Core	**4**	**2**	**0**	**4**
DM- CR-15403	Project work/ Dissertation	Core	**4**	**4**	**4**	**4**
DM- DCE-15404	Conflicts and Geo-Political Issues in Disaster Management	Discipline Centric Elective	**3**	**2**	0	3
DM-DCE-15405	Emergency Medicine	Discipline Centric Elective	**3**	**2**	**0**	**3**
DM-DCE-15406	Man-Environment Interactions	Discipline Centric Elective	**3**	**2**	**0**	**3**
DM- GE-15407	Human trafficking and drug related hazards	Generic Elective	**3**	**2**	**0**	**3**
DM- OE-15408	Climatology	Open Elective	**3**	**2**	**0**	**3**
Total Contact hours=49		**Total credits=27**				

DM-CR-15101: INTRODUCTION TO NATURAL & MAN INDUCED DISASTERS

Credit-I

1. Introduction to Hazards and Disasters
2. Hazards- Meaning, characteristics
3. Types, causes and effects of Hazards
4. Disaster Statistics

Credit -II

1. Hydro-meteorological Hazards
2. Floods and Flash Floods, Droughts
3. Tropical Cyclones , Tsunami & Snow Avalanches
4. Climate Change

Credit –III:

1. Geological Hazards
2. Earthquakes
3. Volcanic Eruption
4. Landslides

Credit -IV

1. Understanding Human Hazards
2. Nuclear, Biological and Chemical hazards
3. Air and water pollution & oil spills
4. Forest, coal, and oil Fires

Suggested Readings:

- Bryant Edwards (2005): Natural Hazards, Cambridge University Press, U.K
- Carter, W. Nick, 1991: Disaster Management, Asian Development Bank, Manila
- Firefly Guide to Global Hazards, Robert Louis Kovach, Bill McGuire, Firefly Books, 2004
- H.K. Gupta (2003) Disaster management
- Jolly., Surface History of the Earth
- Natural disasters, Patrick L. Abbott, McGraw-Hill Higher Education, 2004

DM-CR-15102: REMOTE SENSING, GIS AND GPS-I

Credit-I

1. Fundamental of Remote Sensing
2. Electromagnetic Spectrum (EMS)
3. Energy interactions with earth surface features and atmosphere
4. Image Interpretation, Digital Image Processing

Credit-II

1. Remote Sensing Systems
2. EO space programmes
3. Platforms – Spaceborne / Airborne, Sensors-Active/ Passive, Multispectral and Hyperspectral Systems
4. RADAR and LIDAR Systems

Credit-III

1. Introduction to Geographic Information System
2. Components of GIS
3. Spatial and Non-spatial data
4. Data Models- Raster and Vector, processing and analysis/modeling
5. Data dissemination and information presentation

Credit-IV

1. Introduction to GPS systems
2. Applications of GPS
3. GPS-segments
4. Fundamentals of GPS positioning, receivers and limitations

Suggested Readings:

- Environmental Modelling with GIS and Remote Sensing, Andrew Skidmore – 2003
- GIS Cartography: A Guide to Effective Map Design,Gretchen N. Peterson – 2009.
- GIS Solutions in Natural Resource Management, Stan Marany, Onward Press, USA, 1999
- Integration of GIS and Remote Sensing Victor Mesev – 2008
- Remote Sensing and Image Interpretation, Thomas Martin Lillesand, Ralph W. Kiefer, Jonathan W. Chipman – 2004
- Floyd F. Sabins Jr. Remote Sensing, Principles and interpretation. W.H. Freemanes & Co., New York, 2nd Edition, 1987
- Remote Sensing and Global Environmental Change, Sam J. Purkis, Victor V. Klemas - 2011
- Remote Sensing and GIS in Ecosystem Management , Al Sample – 1994.
- Remote Sensing of the Environment: An Earth Resource ..., John R. Jensen – 2009

DM-CR- 14103: Remote Sensing, GIS and GPS-II

Credit-I

1. Introduction to Remote Sensing software's
2. Data standards, formats and exchange
3. Image enhancement
4. Interpretation of satellite data, Classification-supervised and unsupervised
5. Accuracy assessment.

Credit-II

1. Introduction to GIS software's
2. GIS Mapping- vector layer (point, line, polygon) creation
3. Attaching attribute data, overlay analysis
4. Network analysis multi-criteria analysis
5. Map designing

Credit-III

1. Working with 3D data
2. Data sources, interpolating point/line elevation data
3. Digital Elevation Model (DEM) - creation methods
4. Terrain Analysis using DEM- landform analysis, derivation of slope/aspect
5. Watershed delineation, drainage morphometric analysis, hypsometric and bathymetry analysis

Credit-IV

1. Introduction to Global Positioning System (GPS) Survey
2. Handling and operation of GPS
3. Data collection using -autonomous & differential mode
4. Post processing of GPS data

Suggested Readings:

- ***Environmental*** Modelling with GIS and ***Remote Sensing***, Andrew Skidmore – 2003
- ***GIS*** Cartography: A Guide to Effective ***Map*** Design,Gretchen N. Peterson – 2009
- GIS Solutions in Natural Resource Management, **Stan Marany,** Onward Press, USA, 1999
- Integration of ***GIS*** and ***Remote Sensing*** Victor Mesev – 2008
- ***Remote Sensing*** *and Image Interpretation*, Thomas Martin Lillesand, Ralph W. Kiefer, Jonathan W. Chipman – 2004
- Floyd F. Sabins Jr. **Remote Sensing, Principles and interpretation**. W.H. Freemanes & Co., New York, 2nd Edition, 1987
- ***Remote Sensing*** and Global ***Environmental*** Change, Sam J. Purkis, Victor V. Klemas - 2011

DM-DCE 15104 FUNDAMENTALS OF DISASTER MANAGEMENT

Credit-I

1. Disaster Management- Meaning & Definition
2. Elements of disaster management
3. Approaches Scope and Significance
4. Disaster Management Cycle

Credit -II

1. Yokohama Declaration, Objectives of International Decade for Natural Disaster Reduction (IDNDR)
2. Hyogo Framework of action
3. Disaster Management Policy , Principles & Significance of disaster management policy
4. Essential components of disaster management policy- Formulation & execution

Credit -III

1. Case study of:
   i) Disaster Management Policy in United States of America
   ii) Disaster Management Policy in Bangladesh
   iii) Disaster Management Policy in India

Suggested Readings:

- Carter, W. Nick, 1991: Disaster Management, Asian Development Bank, Manila
- Firefly Guide to Global Hazards, Robert Louis Kovach, Bill McGuire, Firefly Books, 2004
- Fundamentals of Disaster Management, Society of Critical Care Medicine, 01-Jan-2003
- Introduction to International *Disaster Management*, Damon P. Coppola - 2010
- Disaster management, H.K. Gupta (2003)
- H.K. Gupta (2003) Disaster management
- Jolly., Surface History of the Earth
- Natural disasters, Patrick L. Abbott, McGraw-Hill Higher Education, 2004

DM-DCE- 15105 UNDERSTANDING GEOPHYSICAL ENVIRONMENT

Credit-I

1. Geomorphology- Nature and scope Geomorphology
2. Role of Geomorphology in understanding Disaster profile of a region
3. Concept of Landform Evolution & earth movements
4. Geomorphic Agents and Processes
5. Configuration of oceans and continents-their role in global distribution of population

Credit-II

1. Hydrosphere
2. Introduction to oceanography& Ocean bottom topography
3. Coastal geomorphology, Ocean currents and their importance
4. Role of oceans in shaping the geo ecology of surrounding land-masses
5. Elnino-southern oscillations, sea waves and storm surges

Credit- III

1. Fundamentals and importance of climatology
2. Atmosphere- structure and composition
3. Insolation, heat-balance of the earth.
4. Extreme weather events- cyclones, thunder storms, lightning, hail storms, windstorms and cloud bursts
5. Green House effect and global climate change

Suggested Readings:

- Alam Clowes & Comfort., Processes and Landforms.
- Bloom, A.L., Geomorphology-A systematic Analysis of Late Cenozoic Landforms
- *Hydrology***:** An Introduction, Wilfried Brutsaert – 2005
- Steers, J.A., Unstable Earth
- Strahler, A.H. & Strahler, A.H., Elements of Physical Geography
- Thornbury, W.D., Principles of Geomorphology

DM-DCE-15106: DISASTER PREPAREDNESS AND MITIGATION

Credit-I

1. Disaster Preparedness: Concept and significance
2. Disaster preparedness measures
3. Disaster preparedness Plan
4. Institutional mechanism for disaster preparedness

Credit-II

1. Disaster Preparedness for people with special needs and vulnerable group (women, children, disabled children)
2. Preparedness with reference to housing and infrastructure.
3. Community based disaster preparedness-need and significance

Credit-III

1. Role of communication, Education and training
2. Role of government
3. Special agencies and forces
4. Role of international agencies and NGOs

Suggested Readings:

- Managing Disaster Risk in Emerging Economies". Arnold, Margaret and Kreimer, Alcira (eds.)
- Disaster Management and Preparedness, Collins Larry R. and Schneid Thomas D., Taylor and Francis 2000
- Sahni, Pardeep et.al. (eds.) 2002, Disaster Mitigation Experiences and Reflections, Prentice Hall of India, New Delhi
- White, G.F, 1974, Natural Hazards: Local, National, Global, Oxford University Press, New York
- White, Gilbert F. and J. Eugene Hass, 1975, Assessment of Research on Natural Hazards, Cambridge, the MIT Press, MA

DM-GE- 15107: POPULATION AND SOCIETY

Credit-I

1. Relationship between Demography, Society and Economy
2. World population growth and its distribution
3. Population Dynamics of developed and developing countries
4. Concept of population Resources relationship
5. Urbanization and impact

Credit-II

1. Fertility
2. Mortality
3. Migration
4. Population Structures-age and gender
5. Concept of Demographic Transition and population stabilization

Books Recommended:

- American Association for the Advancement of Science, 1974. Culture and Population Change. Washington.
- Bose, A. et. al. 1970. (ed.). Studies in Demography. LondonAllen & Unwin, (Relevant Chapters).
- Bose, A. et. al. 1974 (ed.). Population in India: Development. 1947-2000, Delhi: Vikas Publishing House. (Relevant Chapters).
- Mandelbaum, David. 1974. Human Fertility in India: Social Components and Policy Perspectives. Berkeley: University of California Press.
- Peterson, W. 1967. Population. (2nd ed.). London: Collier Macmillan.
- Jackson, J.A. (ed.). 1969. Migration. Cambridge University Press, (Relevant Chapters).
- UNO, 1973. The Determinants and Consequences of Population Trend. Vol. I, New York. (Relevant portions in Chapters 3, 4, 5 and 6).

DM-EO-15108 REGIONAL HAZARD AND DISASTER MANAGEMENT SCENARIO

Credit-I

1. Historical Disaster Scenario Jammu and Kashmir
2. Historical Evaluation of Regional extreme events
3. Floods, Earthquakes Impact and adaptation strategies
4. Case Study/examples from recent disasters-2005 earthquake, 2014 Flood

Credit-II

1. Hazard and Vulnerability Scenario of Jammu and Kashmir
2. J&K as multi-hazard zone
3. Vulnerability scenario in J & K (Floods, Landslides and Earthquakes)

Credit-III

1. Disaster Management in Jammu and Kashmir
2. State Disaster Management Policy
3. SDMA structure
4. SDRF and its role in Disaster Management

Suggested Readings:

- *Geography* **of** *Jammu* **and** *Kashmir***, Majid Husain – 1998**
- ***Geography*** of ***Jammu*** and ***Kashmir***, A. N. Raina – 1981
- Systematic ***Geography*** of ***Jammu*** and ***Kashmir***, S.A. Qazi – 2005
- Disaster Management Policy of Jammu and Kashmir-Document -2012

MA/M.Sc Disaster Management: 2nd Semester

Course	Course Title	Category	Hours per week			Credits
			L	T	P	
DM-CR-15201	Disaster Response	Core	4	2	0	4
DM-CR-15202	Reconstruction, Rehabilitation and Recovery	Core	4	2	0	4
DM-CR-15203	Geoinformatics for Disaster Management	Core	0	0	8	4
DM-DCE-15204	Institutional Structure for Disaster Management	Discipline Centric Elective	3	2	0	3
DM-DCE- 15205	Statistical Techniques in Disaster Management	Discipline Centric Elective	3	2	0	3
DM-DCE-15206	Disaster Management in India	Discipline Centric Elective	3	2	0	3
DM-GE-15207	Waste and Debris Management	Generic Elective	2	2	0	2
DM-OE-15208	Disaster Profile of India	Open Elective	3	2	0	3
Total Contact hours=44		**Total credits=26**				

DM-CR-15201 DISASTER RESPONSE

Credit-I

1. Response: Essential Components
2. Disaster Response Plan
3. Communication, Participation and Activation of Emergency Preparedness Plans,
4. Search, Rescue, Evacuation and other logistic management
5. Immediate Needs Assessment, ICS/IRS Disaster Response

Credit-II

1. Stakeholders Co-ordination in Disaster Response
2. Central, State, District and Local Administration
3. Armed Forces in Disaster Response: Role and Responsibility
4. Community as first responder
5. Role of NGOs and Government Agencies

Credit-III

1. Human Behaviour and Response Management
2. Psychological Response and Psychological Rehabilitation
3. Trauma and Stress Management, Rumour and Panic Management
4. Medical and Health Response to Different Disasters
5. Role of Information and Communication Technology in Response Management

Credit-IV

1. Relief Measures-Minimum Standard of Relief
2. Relief Management- essential components
3. Funding Relief- short term and long term
4. Disaster Site Management and Law & order issues

Suggested Readings:

- ***Disaster Response*** and Homeland Security, James F. Miskel – 2008.
- ***Disaster response***: principles of preparation and coordination,Erik Auf der Heide – 1989.
- **Principles of Incident Response and Disaster Recovery,** Michael Whitman, Herbert Mattord, Andrew Green, 2013.

DM-CR 15202: RECONSTRUCTION, REHABILITATION AND RECOVERY

Credit-I

1. Recovery and reconstruction
2. Introduction, medium term and long term recovery aspects
3. Community participation in defining objectives
4. Priorities in recovery

Credit -II

1. Rehabilitation: Physical and social infrastructure
2. Relocation and reconstruction of housing
3. Public buildings, roads, bridges, dams
4. Archives and monuments

Credit -III

1. Services such as water supply & electricity
2. Waste management
3. Communication
4. Capacity building for self help construction

Credit -IV

1. Social and economic rehabilitation
2. Capacity building for reconstruction and rehabilitation
3. Skill enhancement for livelihood development
4. Training and awareness programs
5. Medical aid therapy and counseling- Psycho-social issues

Suggested Readings:

- ***Disaster*** Management and ***Rehabilitation***, Rajdeep Dasgupta – 2007.
- Post-Earthquake ***Rehabilitation*** and ***Reconstruction***, F.Y. Cheng, Y.Y. Wang – 1996

DM-CR 15203: GEOINFORMATICS FOR DISASTER MANAGEMENT

Credit-I

1. Use of Earth Observation data and field data for GIS-database development (6 exercises)
2. Hazards and Vulnerability modeling

Credit-II

1. Risk Assessment using GIS software's (10 exercises).

Credit-III

1. Damage and Loss Assessment (DALA), using satellite data (10 exercises).

Credit-IV:

1. Geoinformatics aided Disaster Mitigation system.

Suggested Readings:

- ***Geo***-information for ***Disaster Management***, Peter van Oosterom, Siyka Zlatanova, Elfriede Fendel – 2006
- **Comprehensive** *Disaster Management* **and Development: The Role ...,Leonard James Huggins – 2007**
- *Geoinformatics* **For** *Disaster Management***, Rao, K V G – 2010**

DM-DCE-15204 INSTITUTIONAL STRUCTURE FOR DISASTER MANAGEMENT

Credit-I

1. International Agencies: United Nations and its specialized agencies like UNDP, UNISDR
2. International Federation of Red Cross and Red Crescent Societies (IFRC), GFDRR
3. WHO
4. World Bank
5. IPCC

Credit-II

1. National Agencies**:** Disaster Management Division (Ministry of Home Affairs, Govt. of India)
2. National Institute of Disaster Management
3. Indian Red Cross Society
4. Planning Commission
5. National Civil Defense Organization.
6. NPDRR, NDMA, NDRF

Credit-III

1. State and District Level Agencies:
2. Disaster Management Authorities at state level and District level
3. District Magistrate office

Suggested Readings:

- ***Disaster Management*** Handbook, Jack Pinkowski – 2008
- ***Disaster Management*** and Rehabilitation, Rajdeep Dasgupta, 2007
- ***Disaster Management***: Text and Case Studies, D.B.N. Murthy - 2007

DM-DCE-15205 STATISTICAL TECHNIQUES IN DISASTER MANAGEMENT

Credit –I

1. Relevance of Statistics in Disaster Management
2. Measures of Central Tendency
3. Measures of Dispersion
4. Measures of Skewness and Kurtosis
5. Quartile Deviation and Coefficient of Variation

Credit-II

1. Correlation, types of correlation
2. Forms of relation and measuring the strength of association and relation. Construction and meaning of Scatter Diagram
3. Karl Person's Coefficient of Correlation
4. Rank Correlation
5. Method of concurrent Deviation

Credit-III

1. Regression Analysis. Coefficient of Regression
2. Scattered Diagram
3. Linear Regression Equation, Least Square Method
4. Coefficient of Determination
5. Sampling and its Types

Suggested Readings:

- Basic ***Statistics***,B L Agarwal – 2006
- Fundamental ***Statistics*** for the Behavioral Sciences, David Howell – 2010
- Principles of ***Statistics***, M. G. Bulmer –1979
- Introductory ***Statistics***, Sheldon M. Ross - 2010

DM-DCE-15206 DISASTER MANAGEMENT IN INDIA

Credit-I

1. HPC 1999, Disaster Management Act 2005
2. Constitution, power and functions
3. National Disaster Management Authority (NDMA), Central Ministries
4. National Disaster Response Force (NDRF) and National Crisis Management Committee (NCMC)
5. National Executive Committee (NEC) and Indian Meteorological Department (IMD)
6. National Institute of Disaster Management (NIDM)

Credit-II

1. International cooperation-Overview IDNDR
2. Yokohama, Hyogo framework for action
3. United Nations International Strategy for Disaster Reduction (UNISDR)
4. Global Facility for Disaster Risk Reduction (GFDRR)

Credit III

1. National forecasting and early warning system
2. Hazards Exposure and Vulnerability Scenario of India
3. Historical Extreme Events of India
4. NGOs and faith based organizations

Suggested Readings:

- Contemporary Natural and Manmade Disaster. Master of Disaster Mitigation. World Institution Building Programme Centre, 2004
- Disaster Management in India – A Status Report. National Disaster Management Division, Ministry of Home Affairs, Govt. of India, 2004
- Sharma, Vinod K. Disaster management, NCDM, IIPA, New Delhi, 1994
- National Disaster Response Plan, NCDM, New Delhi, 2001.
- Mathur, G.C. Housing in Disaster prone areas, National Building Organization and U.N. Regional Centre. ESCAP, New Delhi, 1986
- Mishra, P.K. Transforming adversity into opportunity: experiences from Gujarat earthquake reconstruction program World congress on Natural disaster mitigation proceedings, February 2004Taori, K (2005) Disaster Management through Panchayati Raj, Concept, Publishing Company, New Delhi

DM-GE 15207 Waste and Debris Management

Credit- I

1. Waste Management as an interdisciplinary field subject
2. Sources of solid waste generation
3. Types of waste
4. Factors effecting magnitude of solid waste generation
5. Components of integrated solid waste management: segregation, collection, transportation and disposal :crude dumping, sanitary landfills, incineration, composting and recycling

Credit-II

1. Impacts of solid waste on environment
2. Community participation in solid waste management
3. Policy and legislation (CPCB solid waste handling rules)
4. Solid waste management scenario in Srinagar city
5. Application of geospatial technology for sustainable solid waste management

Suggested Readings:

- Municipal ***Solid Waste Management***: Processing - Energy , P. Jayarama Reddy – 2011
- Improving Municipal ***Solid Waste Management*** in ***India***: A , P U Asnani, Chris Zurbrugg - 2007

DM-OE-15208 DISASTER PROFILE OF INDIA

Credit-I Geological and Mountain Disasters in India

1. Historical overview of Earthquake in India
2. Earthquake distribution and zonation
3. Earthquake vulnerability scenario of Himalayan cities
4. Land slides: implications and zonation in northern India
5. Snow avalanche- causes and implications

Credit-II Wind and Water Related Natural Disaster in India

1. Floods- distribution causes and consequences
2. Cloudburst- causes and consequences
3. Drought scenario of India
4. Cyclones and their implications in coastal India.
5. Tsunami vulnerability scenario of India

Credit-III Man Made Disasters in India

1. Understanding Man-Made Disasters
2. Fires and Forest Fires
3. Nuclear, Biological and Chemical disaster
4. Road Accidents and Building collapses
5. Ecological imbalances- Aravallis and Western Ghats

MA/M.Sc Disaster Management: 3rd Semester

Course	Course Title	Category	Hours per week			Credits
			L	T	P	
DM- CR-15301	Vulnerability Assessment	Core	**4**	**2**	**0**	**4**
DM-CR-15302	Disaster Risk Assessment	Core	**4**	**2**	**0**	**4**
DM- CR-15303	Field Studies for Disaster Management	Core	**0**	**0**	**8**	**4**
DM- DCE-15304	Disaster Risk Reduction and Development Planning	Discipline Centric Elective	**3**	**2**	**0**	**3**
DM-DCE-15305	Environmental Impact Assessment and Disasters	Discipline Centric Elective	**3**	**2**	**0**	**3**
DM- DCE-15306	Disaster Sensitive Land use Planning	Discipline Centric Elective	**3**	**2**	**0**	**3**
DM- GE-15307	Research Methods in Disaster Management	Generic Elective	**3**	**2**	**0**	**3**
DM- OE-15308	Geomorphology	Open Elective	**3**	**2**	**0**	**3**
Total Contact hours=45		**Total credits=27**				

DM-CR-15301 VULNERABILITY ASSESSMENT

Credit-I

1. Vulnerability: Concept
2. Perception of Vulnerability
3. Physical, social and economic Vulnerability

Credit-II

1. Vulnerability Analysis
2. Vulnerability Assessment methods
3. Indicators of Vulnerability

Credit-III

1. Spatio-temporal Dynamics of Vulnerability
2. Vulnerability Mapping
3. Vulnerability of Shanty Towns

Credit-IV:

1. Planning for Vulnerability Reduction
2. Development and Vulnerability
3. Vulnerability status of India

Suggested Readings:

- Mapping ***Vulnerability***: "***Disasters***, Development and People",Greg Bankoff, Georg Frerks - 2013
- NOAA Coastal Services Center, "Linking People Information and Technology,: "Risk and Vulnerability Assessment Tool"-
- Measuring ***Vulnerability*** to Natural Hazards: towards ***disaster*** ..., Birkmann - 2007 -
- ***Disaster*** Risk and ***Vulnerability***: Mitigation Through ...,David Etkin, Chowdhury Emdadul Haque – 2012.

DM-CR 15302 DISASTER RISK ASSESSMENT

Credit-I

1. Introduction to risk
2. Definition of risk and fundamentals of risk
3. Understanding current situations needs and gaps

Credit-II

1. Basic methodology in risk assessment
2. Hazard assessment
3. Risk analysis techniques
4. loss/impact analysis

Credit-III

1. Design of Risk management program
2. Utilization of risk analysis for DRR planning
3. Formulation of DRR strategies

Credit-IV:

1. Risk data and information collection
2. Risk profiling and evaluation
3. Tools for risk assessment

Suggested Readings:

- ***Disaster Risk*** Reduction in South Asia, Pardeep Sahni, Madhavi Malalgoda Ariyabandu - 2003
- Community-Based ***Disaster Risk*** Reduction, Rajib Shaw - 2012
- Natural ***Disaster Risk*** Management and Financing ***Disaster*** ..., Reinhard Mechler – 2004.
- ***Disaster Risk*** Management Systems Analysis: A Guide Book, Stephan Baas – 2008.

DM-CR 15303 FIELD STUDIES FOR DISASTER MANAGEMENT

In the field studies course each student shall have to prepare a brief field report as per nature and purpose of the field.

Credit-I

1. **Activities**- Preparation of field visit plan
2. Application of Spatial tool
3. Validation and interpretation of satellite data in the field
4. GPS field data collection and mapping

Credit-II

1. **Activities**- Identification and interpretation of geological structures and major geomorphic features in the field
2. Interpretation of landslide surface morphology
3. Visit to flood prone areas and inundation assessment
4. Field evaluation of environmental factors responsible for snow avalanche occurrence

Credit-III

1. **Activities**- Questionnaire designing
2. Collection of socio-economic data in the field
3. Collection of data pertaining to-vulnerability and hazards.

Credit- IV

1. **Activities-** Visit to disaster hit areas
2. Report writing
3. Questionnaire Designing

Suggested Readings:

- Handbook of ***Disaster Research***, Havidan Rodriguez, Enrico L. Quarantelli, Russell Dynes – 2007
- ***Methods*** of ***Disaster Research***, Robert A. Stallings – 2003
- The ***Field Guide*** to Geology, David Lambert – 2007

DM-DCE-15304 DISASTER RISK REDUCTION AND DEVELOPMENT PLANNING

Credit-I

1. Concept of Developmental Planning
2. Disaster Risk Reduction (DRR)
3. DRR initiatives at national and international level
4. Developmental planning in context of DRR

Credit-II

1. Disaster-development relationship-
2. Positive and negative aspects of development
3. Development in relation to capacity and vulnerability

Credit-III

1. Development strategies for DRR
2. linking of relief and rehabilitation with development
3. sustainable community development

Suggested Readings:

- *Disaster* **and** *Development***, Andrew E. Collins – 2009**

DM-DCE-15305 ENVIRONMENTAL IMPACT ASSESSMENT AND DISASTERS

Credit-I

1. Concept of Disaster-Environment Matrix
2. Environmental impact assessment (EIA)
3. Concept and historical development of EIA
4. EIA capability and limitations

Credit-II

1. Methodologies of EIA
2. Measurement of environmental impact
3. Matrices, Networks, Cost-benefit analysis, overlay maps
4. EIA report and its contents

Credit-III

1. Plan for mitigation of adverse impact on environment
2. Options for mitigation of impact on water, air and land, flora and fauna
3. Addressing the issues related to the Project Affected People
4. Legal provisions on EIA

Suggested Readings:

- Introduction To ***Environmental Impact Assessment***,John Glasson, Riki Therivel, Andrew Chadwick - 2013
- ***Environmental Impact Assessment***: A Guide to Best ...,Charles H. Eccleston - 2011
- The International Law of ***Environmental Impact Assessment***, Neil Craik - 2010
- ***Environmental Impact Assessment***: Cutting Edge for the 21st ...,Alan Gilpin – 1995

DM-DCE-15306 DISASTER SENSITIVE LAND USE PLANNING

Credit-I

1. Land use Planning in relation to Disasters- Concept & Objectives
2. Land use Planning Techniques and Methods
3. Basic principles of land use planning
4. Land use planning in India: a historical overview

Credit-II

1. Concept of Land and Land use
2. Factors governing land utilization
3. Drivers of land use changes
4. Land use zoning and land suitability

Credit-III

1. Ownership, occupancy and government control on Land use
2. Impact of changes in the urban and rural land use
3. Integrated (Rural-Urban) Land use Planning

Suggested Readings:

- Environmental ***Land Use Planning*** and Management, John Randolph – 2004
- ***Land Use Planning*** Made Plain, Hok-Lin Leung – 2003
- Landscape Ecology Principles in Landscape Architecture and ...,Wenche E. Dramstad – 1996

DM-GE- 15307 RESEARCH METHODS IN DISASTER MANAGEMENT

Credit-I

1. Introduction to Research – definition, scope and objective types ,approaches, significance
2. The research process – the broad problem area ,preliminary data collection, problem, selection and definition
3. Theoretical framework, research questions, hypothesis development and elements of research design.
4. Experimental design – the laboratory experiment, variables, validity, types of experimental designs

Credit-II

1. Data collection – sources of data
2. Data collection methods: interviewing, questionnaires, other methods of data collection.
3. Data processing and analysis
4. Review of statistical data analysis

Credit-III

1. Sampling Introduction
2. Need and purpose of sampling
3. Population and sample, population frame
4. Sampling theory – sampling distributions parameter estimation
5. Hypothesis testing. Sampling designs – probability and non-probability sampling

Suggested Readings:

- ***Methods*** of ***Disaster Research***, Robert A. Stallings – 2003

DM-OE-15308 GEOMORPHOLOGY

Credit-I

1. Fundamental Concepts in Geomorphology
2. Concept of Landform Evolution
3. Principles of uniformitarianism
4. Cycle of Erosion - concepts of Davis and Penck

Credit-II

1. Earth Movements- Isostasy – Doctrine of Isostasy, Views of Airy and Pratt
2. Continental Drift Theory – concept of Wegener
3. Plate Tectonics

Credit-III

1. Exogenic Processes-weathering and Erosion
2. Fluvial process and resultant landforms
3. Glacial process and resultant landforms
4. Dynamics of Aeolian process and resultant landforms

Suggested Readings:

- Alan Clowes & Comfort., 1987. Processes and Landforms.
- Bloom, A.L., 2003. Geomorphology-A systematic Analysis of Late Cenozoic Landforms.
- Steers, J.A.,1983. Unstable Earth: Some recent views in Geomorphology.
- Strahler, A.H. & Strahler, A.H., 1991. Elements of Physical Geography
- Thornbury, W.D., 2004. Principles of Geomorphology, Second Edition.

MA/M.Sc Disaster Management: 4th Semester

Course	Course Title	Category	Hours per week			Credits
			L	T	P	
DM-CR-15401	Crisis and IRS Management	Core	**4**	**2**	**0**	**4**
DM- CR-15402	Disaster Initiatives & Legal Provisions	Core	**4**	**2**	**0**	**4**
DM- DCE-15403	Project work/ Dissertation	Core	**4**	**4**	**4**	**4**
DM- DCE-15404	Conflicts and Geo-Political Issues in Disaster Management	Discipline Centric Elective	**3**	**2**	0	3
DM-DCE-15405	Emergency Medicine	Discipline Centric Elective	**3**	**2**	**0**	**3**
DM-GE-15406	Man-Environment Interactions	Discipline Centric Elective	**3**	**2**	**0**	**3**
DM- OE-15407	Human trafficking and drug related hazards	Generic Elective	**3**	**2**	**0**	**3**
DM- OE-15408	Climatology	Open Elective	**3**	**2**	**0**	**3**
Total Contact hours=49		**Total credits=27**				

DM-CR-15401 CRISIS MANAGEMENT AND IRS

Credit-I

1. Disasters Issues and Crisis Management
2. Impact of globalization on crisis and disasters
3. IRS mechanism in India

Credit-II

1. Crisis Management Preparedness: Preparing the plan
2. Training and Testing
3. Crisis communication
4. Crisis operational guidelines

Credit-III

1. The Disaster Recovery Planning
2. Emergency management teams
3. National and International disaster recovery policies
4. Managing the economy and essential services in emergencies
5. Managing the media and popular conscience

Credit-IV

1. Identifying Potential Crisis Situations
2. Discuss selected case studies to analyze the potential impact of disasters
3. Prepare a sound crisis management plan

Suggested Readings

- ***Crisis Management***: Master the Skills to Prevent Disasters, SURESH GOEL – 2009
- ***Crisis Management*** Planning and Execution, Edward S. Devlin – 2006
- Risk Issues and ***Crisis Management*** in Public Relations: A ...Michael Regester, Judy Larkin – 2008

DM-CR-15402 DISASTER INITIATIVES & LEGAL PROVISIONS

Credit-I

1. Evolution of International Initiatives in Disaster Management.
2. Kyoto Protocol 1997.
3. Hyogo Framework 2005-2015.
4. Sendai Framework for Disaster Risk Reduction (2015-2030).
5. International Disaster Response Laws, Rules & Principles (IDRL).

Credit-II

1. International Health Regulations (2005).
2. Convention on Maritime Traffic (1965).
3. Nuclear Accident Convention (1986).
4. Tampere Convention (1998).
5. Convention on Oil Pollution (1990).

Credit-III

1. Constitutional Provisions for Disaster Management in India.
2. National Disaster Management Act (2015).
3. National Green Tribunal Act (2010).
4. National Building code of India. (2005).
5. Dam Safety Bill 2010 & Indian Standards on Earthquake Engineering.

Credit-IV:

1. National Disaster Management Guidelines of :
    a. Earthquakes b. Floods c. Landslides.
2. J & K State Disaster Management Plan (SDMP).
3. J & K Pollution Control Board.
4. Urban Ceiling Act.

Suggested Readings:

- H.K. Gupta (2003) Disaster management
- ***Disaster*** Medicine, Gregory R. Ciottone – 2006.
- Risk Issues and ***Crisis Management*** in Public Relations: A..Michael Regester, Judy Larkin – 2008
- Managing Disaster Risk in Emerging Economies". Arnold, Margaret and Kreimer, Alcira (eds.).

DM-CR-15403 PROJECT WORK/DISSERTATION:

Credits: 04

The student has to prepare the dissertation on any of the topics selected in consultation with the concerned supervisor/guide. The dissertation shall cover the following components:

1. Statement of the Problem
2. Conceptual Framework
3. Objectives
4. Hypothesis/ Research Questions
5. Literature Survey
6. Methodology
7. Data Sources (based on primary sources, secondary sources and laboratory work)
8. Results and Discussion
9. Conclusion
10. References

DM-DCE-15404 CONFLICTS AND GEO-POLITICAL ISSUES IN DISASTER MANAGEMENT

Credit-I

1. Transboundary Disasters and their Management, Relief and Response constraints in Transboundary Disasters
2. Concept of uni-polar and bi-polar world
3. Buffer zones: Evolution and Dynamics
4. Boundary disputes in South Asia and West Asia
5. Role and mandate of UNHCR, UNICEF, ICRC in geo-political conflicts

Credit-II

1. Conflicts and their implications on people and their economy : case studies of
    a. Vietnam Conflict
    b. Afghan Conflict
    c. Gulf Conflict

Credit-III

1. Refugee problems and their implication; case studies of :
    a. South Asia
    b. West Africa
    c. Central Africa

Suggested Readings:

- Introduction to ***Geopolitics***, Colin Flint – 2012
- Modern ***Geopolitics*** and Security: Strategies for Unwinnable ...,Amos N. Guiora – 2013
- The New ***Geopolitics***, Michael Don Ward – 1992

DM-DCE- 15405 EMERGENCY MEDICINE

Credit-I

1. Understanding Emergency Medicine
2. Epidemiological Study of Disasters
3. Prevention of Risk,
4. Medical Preparedness Plan
5. Logistics Management, Remote Area Planning

Credit-II

1. Education and Training in Health Management during Disasters
2. Disaster Site Management
3. Mass Casualty Management
4. Community Health Management

Credit-III

1. Medical and Health Response to different Disasters
2. Role of Information and Communication Technology in Health Response

Suggested Readings:

- ***Disaster*** Medicine, Gregory R. Ciottone – 2006.
- Singleton.R.A.Jr, and Straits B. C. (1999). Approaches to Social Research. Oxford University Press, New York.
- Vohra N.D. (2003) Quantitative Techniques in Management Tata McGraw Hill.

DM-DCE-15406 MAN - ENVIRONMENT INTERACTIONS

Credit-I

1. Biosphere meaning definition
2. Ecosystem and its types
3. Structure ,types and Components of environment
4. Man environment interaction

Credit-II

1. Social development and environment
2. Relationships between population, consumption rate, technology and environmental problems
3. Concept of green economy
4. Ecological footprint
5. Global sustainability

Credit-III

1. Human Impact on environment-Global warming
2. Biodiversity loss, Environmental Degradation
3. Land use/land cover dynamics
4. Natural resources depletion
5. Ecological imbalances

Suggested Readings:

- ***Man*** And ***Environment***, M.L. Narasaiah – 2004
- ***Man*** & ***Environment***: A Health Perspective, Anne Nadakavukaren – 1990

DM-GE- 15407 HUMAN TRAFFICKING AND DRUG RELATED HAZARDS

Credit I

1. Drugs and Narcotics a brief introduction
2. Drug addiction and illegal use of substances: National and International Scenario
3. Causes and Consequences of Drug addiction

Credit II

1. Smuggling of Narcotics and drug trafficking; case Studies of:
    a. Central and south America.
    b. South Asia.
    c. Africa.

Credit III

1. Human trafficking as a social hazard: Causes and consequences, Case study of South-Asia and South-west Asia with special reference to:
    a. Children
    b. Women
    c. Drug addiction scenario in India and J & K.

Suggested readings:

- Child Exploitation and ***Trafficking***: Examining the Global ... ,Virginia M. Kendall, T. Markus Funk - 2012

DM-OE-15408 CLIMATOLOGY

Credit-I

1. Role of Climatology in understanding various natural disasters
2. Atmosphere: evolution, Structure, composition and its role
3. Insolation, heat-balance of the earth
4. Green House effect and climate change : adaptation and mitigation

Credit-II

1. Distribution of atmospheric pressure
2. Generic circulation system
3. Humidity and its measurement
4. Precipitation; types and its distribution
5. Monsoons and their importance

Credit-III

1. Cyclones, and anticyclones
2. Thunder storms, lightening, cloud bursts, flashfloods and snow storms.
3. Global warming and its implications

Suggested Readings:

- ***Climatology*** Robert V. Rohli, Anthony J. Vega – 2011.
- Ecological ***Climatology***: Concepts and Applications, Gordon B. Bonan – 2002.