



## M.B.A. (Disaster Management)

### FIRST SEMESTER

Code No.	Paper	INT.	EXT.	TOTAL
<b>CORE</b>				
DMW 101	Introduction and Dimensions of Natural and Anthropogenic Disasters	40	60	100
DMW 102	Management and Organisational Behaviour	40	60	100
DMW 103	Geoinformatics in Disaster Management	40	60	100
DMW 104	Operation Management	40	60	100
DMW 105	Communication Systems	40	60	100
<b>PRACTICALS</b>				
DMW(P) 103	Geoinformatics in Disaster Management	60	40	100
DMW(P) 105	Communication Systems	60	40	100
Total :		320	380	700

\* Non-university Exam. System.

SECOND SEMESTER

Code No.	Paper	INT	EXT	TOTAL
<b>CORE</b>		40	60	100
DMW 106	Disaster Preparedness and Decision Making	40	60	100
DMW 107	Natural and Manmade Disaster Studies	40	60	100
DMW 108	Informatics for Disaster Management	40	60	100
DMW 109	Disaster Management Policy	40	60	100
<b>PRACTICALS</b>				
DMW(P) 107	Natural and Manmade Disaster Studies	60	40	100
DMW(P) 108	Informatics for Disaster Management	60	40	100
	<b>Total :</b>	<b>320</b>	<b>380</b>	<b>700</b>

Third SEMESTER

Code No.	Paper	INT	EXT	TOTAL
<b>CORE</b>				
DMW 111	Quantitative Techniques for Disaster Management	40	60	100
DMW 113	Research Methods in Disaster Management	40	60	100
DMW 114	Preventive Laws in Disaster Management	40	60	100
DMW 115	Banking, Finance and Insurance in Disaster Management	40	60	100
<b>PRACTICALS</b>				
DMW(P) 113	Research Methods in Disaster Management	60	40	100
Total :		220	280	500

Fourth Trimester

Code No.	Paper	INT	EXT	TOTAL
	<b>CORE</b>			
DMW 201	Crisis Management	40	60	100
DMW 202	Risk Assessment	40	60	100
DMW 203	Psycho-social Ramifications and Resource Mobilization	40	60	100
DMW 204	Public Health In Disaster Management	40	60	100
DMW 205	Environmental Impact Assessment (EIA) and Disaster Management	40	60	100
DMW 206	Cyber Terrorism and Information Warfare	40	60	100
	<b>TUTORIAL/PRACTICAL</b>			
	<b>ELECTIVES</b>			
DMW	Elective - I	40	60	100
DMW210	Dissertation*/ Seminar and Progress Reports Comprehensive Viva*	50	50	200 50 50
	<b>Total :</b>	<b>330</b>	<b>470</b>	<b>1000</b>

## M.B.A. (DISASTER MANAGEMENT)

### *List of Electives*

#### University School of Management Studies

Credits

DMW: 301 Agencies in Disaster Management

DMW: 302 Micro Financing for Rehabilitation and Resettlement

#### University School of Environment Management

DMW: 303 Environment Impact Assessment & Disaster Management

DMW: 304 Environmental Modelling

#### University School of Information Technology

DMW: 305 Cyber Terrorism and Information Warfare

DMW: 306 Network Security

#### University School of Law & Legal Studies

DMW: 307 Environmental Law and Protection

DMW: 308 Rule of Law in Times of Crisis

#### Built Environments: "Engineering & Architects"

DMW: 309 Strength of Materials

DMW: 310 Optimisation of Construction Techniques

In the second year, the student will have to select three electives out of total five different specializations, one elective in fourth trimester and two electives in fifth trimester. The electives will be offered based on the request and choice of the students and also keeping in view the minimum numbers of students in each electives.

## **MBA (DISASTER MANAGEMENT)**

### **Introduction And Dimensions Of Natural And Anthropogenic Disasters**

Course Code: DMW: 101

**Objectives:** The course is intended to provide a general insight in the dimensions of disasters caused by nature beyond the human control as well as the disasters and environmental hazards induced by human developmental activities.

#### **UNIT-1**

Structure of the atmosphere; Pressure, temperature, precipitation, Cloud classification and formation; Coriolis force; El Nino phenomenon; Western disturbances; Energy model and budget of the earth. Primary differentiation and formation of core, mantle, crust, atmosphere and hydrosphere; magma generation and formation of igneous rock; weathering; erosion; transportation and deposition of earth's material by running water; river meandering and formation of ox-bow lake.

#### **UNIT-2**

Depletion of natural capital; development as causes of disasters; rapid population growth, environmental pollution; epidemics; industrial accidents and chemical releases; multipurpose project and resettlement issues; humanitarian assistance in emergencies.

#### **UNIT-3**

Floods – flood plains, drainage basins, nature and frequency of flooding, flood hazards, urbanization and flooding, flood hydrographs, Dams barrages and river diversions, creation of reservoir, influence on micro-climate, impact on flora and fauna.

Land slides – Landslide analysis, determination of stability and safety factor.

Coastal hazards – tropical cyclone, coastal erosion, sea level changes and its impact on coastal areas and coastal zone management.

Climate change-Emissions and Global warming, impact on sea level in south Asian region Environmental disruptions and their implications

#### **UNIT-4**

Earth quakes - Preliminary concepts, seismic waves, travel-time and location of epicenter, nature of destruction, a seismic designing, quake resistant buildings and dams.

Tsunamis – causes and location of tsunamis; disturbance in sea floor and release of energy, travel time and impact on fragile coastal environment

Volcanoes- Causes of volcanism, volcanic materials, geographic distribution of volcanoes

**References:**

1. William H. Dennen and Bruce R. Moore, WCB Publishers, Iowa, 1986.
2. John M. Wallace and Peter V. Hobbs, Atmospheric Science: An Introductory Survey, Academic Press, New York, 1977.
3. Egbort Bocker and Rienk Van Grondille, Environmental Physics, John Wiley & Sons Ltd., 1999.
4. Barbar W. Murk et. al., Environmental Geology, John Wiley & Sons, New York, 1996.
5. Bohle, H. G., Downing, T. E. and Watts, M. J. Climate change and social vulnerability: the sociology and geography of food insecurity, Global Environmental Change. No.4, pp. 37-48.

## MBA (DISASTER MANAGEMENT)

### Management & Organizational Behavior

Course Code: DMW: 102

L-3 P-0 C-3

**Objectives:** The objective of this course is to help the students learn and explore the procedure of Management and Organizational Behavior, as applicable for effective disaster management.

#### UNIT-1

Management and Planning: Nature and Scope; Management Process, Roles, Skills and competencies, as they concern disaster management. Pre-Disaster Management activities including: Hazard and vulnerability analysis, capability assessment, emergency / contingency planning and post-disaster management activities; Development planning, planning environment, types of plans, MBO, SWOT analysis; Decision-making models and processes.

Controlling: Control systems, Budgetary control measures related to Disaster Management activities.

#### UNIT-2

Organizing: Organizational structure and design, Authority, Delegation and Decentralization issues related to organizations engaged in Disaster Management activities.

#### UNIT-3

Group Dynamics and Controlling: Nature, approach and attitudes required to establish effective, autonomous work groups. Understanding the concept of team-building; Motivation theories and applications.

#### UNIT-4

Leadership and organizational behavior: Study of interpersonal relationship and Organizational Behavior as they apply to emergency/disaster administration and operations: Leadership, Conflict management.

Organization Development and Change: Procedures necessary to enable relief agency or any organization related to disaster management activities, to anticipate and implement changes in an organization or project, Change-process, Types of change, Environment for change. Communication and public relations.



**References:**

1. James A.f. Stoner, R. Edward Freeman and Daniel. R. Gilbert, Jr. Management, 6<sup>th</sup> edition, Prentice Hall, Inc., 1995.
2. Stephen P. Robbins. David A. Decenzo, Fundamentals of Management, 3<sup>rd</sup> edition, Pearson Education (Singapore) Pte. Ltd. 2001.
3. John r. Schermer horn, James G.ttant, Richard N. Osborn, Organizational Behavior, 7<sup>th</sup> edition John Wiley & Sons, 2001.
4. Simon Lilley, Liz Fulop and Stephen Linstead, Management and Organization, Palgrave Mc Millan, 2004.

## **MBA (DISASTER MANAGEMENT)**

### **Geoinformatics In Disaster Management**

Course Code: DMW:103

L -3 P-1 C-4

**Objectives:** The technological advances in geoinformatics (space, GIS and GPS) have established its capability in dealing with several disasters. The aim of this course is to appraise the benefits of geoinformatics in disaster management and provide direction to take up research on thrust / gap areas for future development in geoinformatics and its application in disaster management.

#### **UNIT-1**

Remote Sensing: Fundamental of Remote Sensing, platform and sensors, image interpretation, digital image processing, microwave remote sensing, remote sensing application, Indian space programme, future satellites for disaster management; Case studies - (Practicals)

#### **UNIT-2**

GIS: Introduction, definition of GIS, GIS and other information system, maps and spatial information, concept of space and spatial data, domains of spatial information system, elements of GIS (hardware, software, data and liveware), components of GIS (end use/management, data acquisition, data input, data storage & retrieval, data processing and analysis/modelling), information presentation, internet based GIS; Case studies - (Practicals)

#### **UNIT-3**

GPS: Introduction, description of GPS system (Space segment, control segment, user segment), observation principal and signal structure; GPS receivers, realities and limitations; GPS application; Case studies - (Practicals)

#### **UNIT-4**

Remote Sensing and GIS for Disaster Management : Geological and human made disasters; flooding, earthquakes, tsunamis, cyclones, volcanic, thermal, landslides, wildfires (urban and forest), coalfires, droughts, land degradation, deforestation, coastal hazards, air and water pollution, oil spills in water.

**References:**

1. Floyd F. Sabins Jr. Remote Sensing, Principles and interpretation. W.H. Freeman & Co., New York, 2<sup>nd</sup> Edition, 1987.
2. Lillesand T.M. & Kiefu R.W. Remote Sensing and Image Interpretation, John Wiley and Sons, New York, 1994.
3. Stan Marany, GIS Solutions in Natural Resource Management, Onward Press, USA, 1999.

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**Operation Management**

Course Code: DMW:104

L-2 P-0 C-2

**Objective:** The objective of the course is to provide a comprehensive analysis of the principles and practice of operation management in disaster management.

**UNIT-1**

Introduction to operation management, Nature and scope of operation management, Current issues facing operation management, Relevance of operation management in disasters.

**UNIT-2**

Supply Chain Management – Concepts, issues in supply chain management types of intermediaries, Channel objective & constraints, Channel selection & management. Managing supply chain in disaster situation.

**UNIT-3**

Logistics framework – Concept, objective & scope, transportation, warehousing, inventory management. Role of logistics in disaster.

**UNIT-4**

Recent trends in operation management in operation management, automation, computer application, Automated Guided Vehicle (AGV), robotics, flexible manufacturing system, material handling equipment. Use of technology in disaster management.

**Text Book:**

1. Krajewski & Ritzman “Operation Management Strategy & Analysis”, Prentice Hall of India.
2. S.N. Chary “Production & Operation Management”, Tata McGraw Hill, 2005.
3. William H. Dennen and Bruce R Moore, WCB Publishers, IOWA, 1986.

**References:**

1. Ebert “Production & Operation Management”.

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**Communication Systems**

Course Code: DMW: 105

L -3 P-1 C-4

**Objectives:** To give adequate information and practical know how to present day communication technologies and sensitize them of the very important role communication systems play in giving logistic support and in creating ad-hoc communication links during Disasters and also in particular supporting early warning systems in disaster mitigation.

**UNIT-1**

**Introduction to Telecommunications**

- Communications Principles & Systems
- Analog Vs. Digital Communications
- Satellite Vs. Terrestrial Communications
- Practical Vs. Ideal Channels: Distortion & Noise Effects
- Overview of transmission media used
- Concept of Modulation: Baseband Vs. Pass band Transmission
- Amplitude, Phase & Frequency Modulation Techniques (AM/PM/FM)

**Radio Broadcast Systems**

- AM Radio Systems

**Telecommunications Networks**

- POTS
- Local loops
- Switched telephone and data networks
- Switching methods

**UNIT-2**

**Multiple Access & Multiplexing**

- Multiple Access Vs. Multiplexing
- Frequency Division Multiplexing / Frequency Division Multiple Access (FDM / FDMA)
- Time Division Multiplexing / Time Division Multiple Access (TDM/TDMA)
- Code Division Multiplexing / Code Division Multiple Access (CDM/CDMA)

**Electronic Warning Systems**

- Electronic Warning systems: Sensors, Alarms & Information Networks
- Role of Communications Systems in Prediction / Early Warning of Impending Disasters

- Effect of disasters on wire line and wireless communication links under catastrophe.
- Post-disaster management through establishment of fresh / emergency communication links

### **UNIT-3**

#### **Wireless Voice Centric Communications**

- Mobile Vs. Cellular Telecommunications
- Concept of cells, frequency reuse & handoffs
- Channel transmission mechanisms: LOS, Reflection, Refraction, Diffraction & Scattering
- IG/2G/3G voice oriented wireless technology

### **UNIT-4**

#### **Satellite Communications**

- Concept of satellites as repeaters in space: downlink / uplink channels & transponders
- Satellite Vs. Conventional Terrestrial Systems
- Orbital laws, beam switching, satellite footprints & diversity concepts
- LEO Vs MEO Vs GEO satellites
- Mobile satellite telecommunications
- Role of satellite communication links in disaster management

#### **Reading List**

1. Communication Systems by Kennedy (Publishers: TMH)
2. Data Communications and Networking by Forouzan, 2<sup>nd</sup> edition (TMH).
3. Electronic Communication Systems by Tomasi, 4<sup>th</sup> edition (Pearson Education).
4. Satellite Communication Engineering by Gagliardi (Publishers: John Wiley)

## MBA (DISASTER MANAGEMENT)

### Disaster Preparedness And Decision Making

Course Code:DMW: 106

L-3 P-0 C-3

**Objectives:** The course would cover disaster preparedness, monitoring and issues in emergency management. It will also deal with contingency planning for business, industry, community and international disasters.

#### UNIT-I

Global Disaster: Science and Policy, Institutional framework for disaster preparedness and mitigation- Global and Indian scenario, Managing natural and anthropogenic disasters , risk assessment and analysis, Principles and Practice of disaster response operations and management , Disaster Planning , Public Administration/Policy and Emergency Management, , Incident Command Centre, Training Need Analysis and Human Resource Development Plan, corporate/public agency coordination, the human element in preparedness planning , Current trends in disaster preparedness.

#### UNIT-2

Hazard monitoring, tracking and modeling, Early warning systems, warning protocols, India Disaster Resource Network, Environmental Hazards, public health aspects of disaster management and emergency services systems, urban hazards and disasters: an introduction to disaster planning, fire services preparedness , Emergency Sanitation/Shelter environments .

#### UNIT-3

Conceptual and Applied Issues in Emergency Management: Operational decision making, Introduction to Emergency Management and planning, organization and structure for Emergency Management , Emergency Management research - Methods/Analysis , Public Information for Emergency Management, Principles and Practice of Disaster Relief and Recovery , Logistic support system, Computer Applications in Emergency Management .

#### UNIT-4

Principles of natural hazard reduction, Toxicology and Biohazards in Emergency Management , Terrorism Preparedness: Critical Infrastructure and Emergency Management ,Emergency Preparedness, Response, and Planning for Hazardous Materials, Terrorism, WMD, and other contemporary Issues, Incident Management Systems and Emergency Operations Center ,Contingency Planning, Community Emergency Response Team, Community Relations for Environmental and Emergency Managers , Contingency Planning for Business and Industry, International Disasters.

### **Text Books**

1. Collins Larry R. and Schneid Thomas D., Disaster Management and Preparedness Taylor and Francis 2000
2. Goel S.L. and Kumar Ram, Disaster Management, Deep and Deep Publications, 2001

### **References:**

1. Living With Risk: A global Review Of Disaster Reduction Initiatives 2004 Vision, United Nations, 2004.
2. Parasuraman S., India Disasters Report: Towards a Policy Initiatives, Oxford University Press, 2004.
3. Arnold, Margaret and Kreimer, Alcira (eds.), "Managing Disaster Risk in Emerging Economies", Disaster Risk Management Series No. 2, World Bank, Washington, D.C., 2000.



## **MBA (DISASTER MANAGEMENT)**

### **Natural And Manmade Disaster Studies**

Course Code: DMW: 107

L -3 P-1 C-4

**Objective:** This course is designed to appraise the participants about various disasters, their characteristics, causes and impacts. Considerable understanding has then gained in recent times on the evaluation and characteristic features of various disasters. Historical data of past events have been studied to gain insight into the processes involved in the genesis and development of disaster events. This course is responding to such events and draw a long term plan to minimize the impact of various disasters.

#### **UNIT - I**

**Earthquakes:** Introduction, general characteristics, mechanism, causes and effects, prediction, seismic zones, seismic waves, vulnerability, damage potential – magnitude and intensity, geological and geographical analysis, epicenter, characteristics of general motion & attenuation.

**Landslide and Land Degradation:** Causes, tectonic conditions, erosion, avalanches, rockfall, damage assessment.

**Floods:** General characteristics, causes, geomorphology and floods, flood forecasting, river and coastal floods, flash floods, lake outburst, risks, environmental planning, flood control and management.

**Fire :** Urban area fire : building construction and structural fire protection, electric hazard shock and protection; Aircraft fire : action required for rescue and fire fighting in aircraft and airports; forest fire, explosives, fire hazard and protection in special risk areas, coal fire.

#### **UNIT - 2**

**Cyclones and Tsunamis :** Structure and nature of cyclones & tsunamis, characteristics, hazard donation, factors, hazard potential, impact assessment.

**Coastal and Marine Environment Pollution and Control :** Marine environment, environment degradation, landuse changes in coastal zone, waves, tidal storms, erosion, habitat pollution, sediment discharge and control.

**Water and Air Pollution :** Air quality, urban air pollution, pollutants, sources, ground water pollution sources & hazards of pollution.

**Oil Spills in Water :** Sources and hazards.

#### **UNIT - 3**

**Droughts :** Droughts, causes, vulnerability, types, famines, deserts and desertification.

**Biodiversity Extinction and Deforestation :** Biodiversity, species at risks, loss of

biodiversity, management of species diversity, deforestation its causes & adverse effects.

Green House Effects and Global Climate Changes : Green house gases, effects, global warming & its effects, ozone depletion, changes in carbon-di-oxide; impact on ecosystem.

Mining : Mining and environment, land & environment degradation and management, mined land reclamation.

#### **UNIT - 4**

Industrial Disasters : Manmade hazards, toxic chemicals, noise pollution, environment and ground water pollution and management, solid waste management.

Epidemics : Health risks, chemicals, diseases, future diseases, medical aid, vulnerability analysis, preparedness, rehabilitation.

War and Chemicals : Hazardous wastes, reactivity, toxicity, nuclear war, biological weapons, armed conflicts, land mines etc.

Case Studies - (Practicals)

#### **References**

1. World Institution Building Programme Centre for Institutional Material preparation and Development (2004), Masters of Disaster Mitigation, Papers 1-16.
2. Disaster Prevention and Mitigation 1984 : UNDRO Publications, Geneva.
3. World Disaster Report 1993, International Federation of Red Cross.
4. Alexander, D. 1993, Natural Disaster, UCL Press Ltd., London.
5. Collins Larry R. and Scheind Thomas D. (2000). Disaster Management and Preparedness. Taylor and Francis, 2000.

## MBA (DISASTER MANAGEMENT)

### Informatics for Disaster Management

Course Code: DMW: 108

L -3 P-1 C-4

**Objectives:** The course will introduce the participants about the fundamentals of computers, data storage, data representation and introduction to programming etc. It will also cover the needs, usage and implementation of disaster information network.

#### UNIT-1

Introduction to Computers

Introduction to computer, its components and functions, applications in various fields of science and management.

Data Storage: Primary and Secondary storage, Introduction to various computer devices such as keyboard, mouse, printers, disk files, floppies etc.

Data representation: Number systems, character representation codes, binary, hex, octal codes and their inter conversions. Binary arithmetic, Floating point arithmetic, signed and unsigned numbers. Concepts of the finite storage, bits, bytes, kilo, mega and gigabytes, Concepts of character representation.

Concept of computing, contemporary, operating systems such as DOS, Windows'95, UNIX etc. (only brief user level description).

Introduction to Internet and it's use.

#### UNIT-2

Use of MS-Office packages

Introduction to Programming: Concept of algorithms, flow charts, example of algorithms such as how to add ten numbers, roots of a quadratic equation. Concept of sequentially following up the steps of a algorithm. Notion of program, programmability and programming languages, Structure of programs, object codes, compilers. Writing a simple program in a language like "C".

#### UNIT-3

Role of Information in Disaster Management: Federal role in disasters and disaster information, disaster information and management community, conceptual flow of disaster-related information.

Needs of the users of Disaster Information: Background, capturing user needs, current environment.

Disaster Information Provider: Responsibilities of the provider community, functions of the provider community, information generation, recent changes.

Disaster Information Infrastructure: Information infrastructure needs by disaster phase, modes of communication, future of the disaster information infrastructure.

#### **UNIT-4**

Moving to a Disaster Information Network (DIN) for the Future: Background, findings, foundation for addressing needs, vision for a future disaster information network, fundamental need to Involve stakeholders.

Recommendation and Action Plan: Policy and organization implementation, phased approach: The global extension, analysis of the ratio of costs to benefits.

Global Considerations: Global phase, GDIN international goals, priorities, GDIN international model, possible GDIN management packages, possible GDIN partners.

#### **Reference:**

1. Gary B. Shelley, Thomas I Cashmar, Mistry E. Vermoat Discovering Computers 2005: A gateway to information.

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**Disaster Management Policy**

Course Code: DMW: 109

L-3 P-0 C-3

**Objective:** At the end of the course students are expected to appreciate the significance of disaster management, various approaches, elements and tools of disaster management. They should appreciate the importance of policy in disaster management and various dimensions of a sound disaster management policy.

**UNIT-1**

Disaster Management : Meaning, Approaches and Scope, Elements of disaster management.

**UNIT-2**

Disaster Management Policy: Significance of disaster management policy, Principles of disaster management policy, Policy options and approaches in disaster management, Essential components of disaster management policy, Formulation and execution of disaster management policy, Command and coordination in disaster management.

**UNIT-3**

Case study I: Disaster Management Policy in United States of America, Disaster Management Policy in Bangladesh.

**UNIT-4**

Case Study II: Disaster Management Policy in South Africa, Disaster Management Policy in India.

**References:**

1. H.K. Gupta (2003) Disaster management

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**Term Paper-I**

Course Code: DMW: 110

Self Study C-2

**Objectives:** Each student will be required to select a topic of current development and submit a report on the same.

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**Quantitative Techniques for Disaster Management**

Course Code: DMW: 111

L-3 P-0 C-3

**Objective:** The aim of this course is to exemplify and illustrate the use of Quantitative Techniques in a Disaster Management Scenario or real life situation.

**UNIT-1**

Introduction to Decision Theory, Decision under certainty, risk and uncertainty, Decision tree Analysis, Marginal Analysis, Case discussions on Decision theory involving disaster scenario.

**UNIT-2**

Game Theory: Characteristics, Two Person Zero Sum Game, Pure and Mixed Strategy, Law of Dominance, Modified Dominance, Graphical Method. Case discussion on game theory and application.

**UNIT-3**

Transportation Problem: Initial Basic feasible solution, Test for Optimality, Application in Disaster Scenario, Case Studies.

Assignment Problem: Hungarian Method, Multiple, Unbalanced and Maximization. Case Discussion on Assignment problems and Application.

**UNIT-4**

Network Analysis: PERT and CPM, Concepts of Slack, floats, crashing, Application of network techniques, Case Discussion

*Note: As a part of internal assessment each student is required to submit an assignment by applying methods of quantitative technique in disaster Scenario or real life problems of organizations.*

**Text Books:**

1. Hillier, F.S. & Hillier, M.S. (2005) Introduction to Management Science, Tata McGraw Hill.
2. Vohra N.D. (2003) Quantitative Techniques in Management Tata McGraw Hill.

**References:**

1. Kottegoda, N.T. and Rosso, R. (1998). Statistics, Probability and Reliability for Civil and Environmental Engineers. McGraw-Hill, New York.
2. Johnson, R.A. (1999). Miller and Freund's Probability and Statistics for Engineers. Prentice-Hall of India Pvt. Ltd, New Delhi.
3. Manly, B.F.J. (1994). Mutivariate Statistical Methods. A Primer. Chapman and Hall, London.
4. Manly, B.F.J. (2001). Statistics for Environmental Science and Management. Chapman and Hall, London.



## MBA (DISASTER MANAGEMENT)

### Research Methods in Disaster Management

Course Code: DMW: 113

L -3 P-1 C-4

**Objective:** The aim of the course is to create a background and awareness of the nature of research process and inquiry. It will expose the student to the methodological problems encountered in interdisciplinary research. The course will provide a comprehension of basic principles of research design and strategy, including an understanding of how to formulate and execute researchable problems.

#### UNIT-1

Introduction Research – definition, scope and objective, types, approaches, significance; scientific investigation.

The research process – the broad problem area, preliminary data collection, problem, selection and definition, theoretical framework, hypothesis development and elements of research design. Experimental design – the laboratory experiment, variables, validity, types of experimental designs.

#### UNIT-2

Data measurement, collection, processing and analysis

Measurement – measurement in research, operational definition, measurement scales, scaling, scaling techniques, reliability and validity.

Data collection – sources of data; data collection methods: interviewing, questionnaires, other methods of data collection.

Data processing and analysis – review of statistical data analysis.

#### UNIT-3

Sampling

Introduction - Need and purpose of sampling, population and sample, population frame, sampling with and without replacement, population parameters.

Sampling theory – sampling distributions, parameter estimation, hypothesis testing.

Sampling designs – probability and non-probability sampling

#### UNIT-4

Interpretation and Report Writing

Interpretation – meaning, need, technique.

Report writing – the research proposal, the report, integral parts of the report, steps involved in report writing, types of reports, oral presentation, conclusions.

#### Reading List

1. Singleton.R.A.Jr, and Straits B. C. (1999). Approaches to Social Research. Oxford University Press, New York.
2. Moore, D.S. (1999). The Basic Practice of Statistics. W.H. Freedman, NY.

3. De Vaus, D.A. (1995). *Surveys in Social Research*. Allen & Unwin, Sydney, NSW, 1995.
4. Foddy, W. (1994). *Constructing Questions for Interviews and Questionnaires*. Cambridge University Press, Cambridge,.
5. Scarbrough E., E. Tanenbaum (1998) *Research Strategies in the Social Sciences*. Oxford University Press. Oxford.

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## MBA (DISASTER MANAGEMENT)

### Preventive Laws In Disaster Management

Course Code: DMW: 114

L -3 P-0 C-3

**Objectives:** At the end of the course students are expected to appreciate the significance of law in disaster management particularly in risk reduction. They should know the role of the Union government, the State governments, local administration and local bodies in disaster management. Further they should know important statutory provisions of various legislations, which may be relevant to disaster management more particularly disaster risk reduction.

#### UNIT-1

Role of the Union and the States in Disaster Management: Article 246 of the Constitution: Distribution of legislative and administrative powers between the Union and the States with special reference to following entries of Seventh Schedule,

Union List : Entry Nos. 6, 7, 15, 22, 53, 54, 55

State List : Entry Nos. 1, 2, 5, 6, 25

Concurrent List : Entry Nos. 18, 19, 29, 36

Functions of designated ministries (MoH as the nodal agency)

#### UNIT-2

Important statutes with provisions relevant to Disaster Management: Role of legislations in Disaster Management, Scope of Disaster Management Law with reference to Disaster, Management Bill 2005, Disaster Management Laws in Bihar and Gujarat, Essential Services Maintenance Act, Environment Protection Act, 1986, including Hazardous Substances Rules, Explosives Act, 1872, Explosive Substances Act, 1908, Mines and Minerals (Regulation and Development) Act, 1957, Insecticides Act, 1968, Atomic Energy Act, 1962, Factories Act, 1948, WMD Bill, 2005.

#### UNIT-3

Planning and disaster vulnerability: Planning Commission in Disaster Management, Part IX A : Local bodies (Municipalities and Panchayati Raj Institutions), Panchayats: Article 243 G read with Eleventh Schedule of the Constitution, Municipalities: Article 243 W read with 12<sup>th</sup> Schedule of the Constitution, Model Town and Country Manning Act, 1960.

#### **UNIT-4**

Local Administration and disaster risk reduction: Municipalities Legislations with reference to DMC Act, 1957, Power and functions of local administration with reference to following matters and case studies, Building byelaws: Ahmedabad building collapses in 2001 Gujarat earthquake, Fire safety norms : Uphaar Cinema and Tamilnadu School fire tragedies, Municipal services : Plague in Surat, Crowd Management: Satara Stampede, NOC for industrial undertakings : Bhopal Gas Tragedy.

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## MBA (DISASTER MANAGEMENT)

### Banking, Finance & Insurance in Disaster Management

Course Code: DMW: 115

L-3 P-0 C-3

**Objective:** This course will enable the students learn and understand the basic concepts and principles of Banking, Finance and Insurance and helps them linking the theory with practice by applying them in Disaster Management context.

#### UNIT-1

Introduction to Banking & Finance: Theory of money & credit, money and banking systems; Bank credit and clearing operations; Banking law; Bank operations analysis; Tax administration; Public budgeting and finance systems; state and local finances.

#### UNIT-2

Insurance and Risk Management: Introduction to risk, risk identification and evaluation; property loss exposures; Life, health and loss of income exposures; Risk management techniques; insurance principles and policy provisions; insurance industry and regulatory framework.

#### UNIT-3

Welfare Economics: Public goods; Private goods; Demand revealing mechanism; Externalities; Solution to the problem of externalities; Command and control approach; Market based approach; Taxes and subsidies; Tradable permits.

#### UNIT-4

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; Case Studies and review of Disaster insurance models.

#### References:

1. National Disaster Response Plan, NCDM, New Delhi, 2001.
2. Contemporary Natural and Manmade Disaster. Master of Disaster Mitigation. World Institution Building Programme Centre, 2004.

## **MBA (DISASTER MANAGEMENT)**

### **Crisis Management**

Course Code: DMW: 201

L -3 P-0 C-3

**Objective:** The goal is to improve the disaster, emergency, and crisis management plans, actions and decisions of government, corporate, and not-for-profit organizations by transforming theory into practice. The objectives are to create and teach courses in crisis, disaster, and risk management; conduct research, and create knowledge through its research activities; and disseminate knowledge through educational programs, professional forums, and workshops.

#### **UNIT-1**

Disasters Issues and Crisis Management: Definitions and Overview of risks and dangers, Impact of globalization on crisis and mass disasters.

#### **UNIT-2**

Identifying Potential Crisis Situations: Discuss selected case studies to analyze the potential impact of disasters, Prepare a foundation of a sound crisis management plan.

#### **UNIT-3**

Crisis Management Preparedness: Preparing the plan, Training and Testing, Crisis communication, Stress management, Crisis operation guidelines.

#### **UNIT-4**

The Disaster Recovery Planning: Emergency management teams, National and International disaster recovery policies, Managing the economy and essential services in emergencies, Managing the media and popular conscience.

#### **References:**

1. Mutchopadhyaya, A.K. , 2005, Crisis and disaster management tuberlance and aftermath”, Newage International Publications, New Delhi.

## MBA (DISASTER MANAGEMENT)

### Risk Assessment

Course Code: DMW: 202

L-2 P-1 C-3

**Objectives:** The Course will provide the methods for undertaking the risk assessment and would introduce the techniques for understanding and assessing the hazards. It would give an insight into the concept of vulnerability factor, industrial hazard and operability study.

#### UNIT-1

Introduction to risk evaluation; Definition of risk and fundamentals of risk analysis, environmental hazards, exposure and risk assessment, risk evaluation and management, Basic methodology in risk assessment, hazard identification, dose response assessment, exposure assessment, and risk characterization.

#### UNIT-2

The assessment for different disaster types, the extreme event analysis, hazard ecology, chemical load and environmental health risk, carcinogenic materials and environment, impact on immune, reproduction and nervous system, risk adjustment, choice and loss acceptance; spectacular deaths and carcinogens.

#### UNIT-3

The collection of data and information, Quantified risk assessment for industrial accidents; release of toxics products, Dispersion analysis, and HAZOP study. Risk assessment applications for disaster mitigation and management problems.

#### UNIT-4

Design of Risk management program, methodology of stocktaking, concept of vulnerability and analysis, exposure, preparedness, prevention and response analysis.

#### References:

1. Freeman, H. M. (ed.), 1989, Standard Handbook of Hazardous Waste treatment and Disposal, McGraw H, New York.
2. William, P. L.; and J. L. Burson, 1985, Industrial Toxicology, Safety and Health Applications in the work place, Van Nostrand Reinhold, New York.
3. Willson , R; and E. A. C.Crouch, 1987, Risk assessment and comparisons: An Introduction, Science 17, 1987, pp 267-270.
4. Petak, W. J. and Atkisson, A, A. Natural Hazard Risk Assessment and Public Policy: Anticipating and Unexpected, Springer; New York. 1982.

## MBA (DISASTER MANAGEMENT)

### Psycho-social Ramifications and Resource Mobilization

Course Code: DMW: 203

L-2 P-0 C-2

**Objective:** The objective of the course is to develop a model for psychological, economic and social support in situations of mass emergency. On site preparation requires academic inputs. The paper looks into preventive, collective and long-term needs.

#### UNIT-1

Identifying Socio-Psychological Needs in Mass Emergency: Global assessment of Needs and Priorities, Area specific requirements, Psychological Characteristics of Disaster Management, Different psychological considerations in natural and man made disasters.

#### UNIT-2

Training in Humanitarian Professionalism: Professionalism and Humanitarian Responses, Short term support, Long term support, Conducting workshops and case analysis.

#### UNIT-3

Community and Individual Empowerment: Study of social domains, movements of actors negotiating the conditions and effects of vulnerability and disaster, Max Weber's notion of calculability in handling crisis, Community building in developing local resilience to disasters: developing seed leaders, communication networks and personal commitments.

#### UNIT-4

Operative and Strategic Management: Economic Impact of Disasters, Role of NGOs, Role of Education, Role of Agencies: National and International, The methods and tools for analyzing potential investment decisions in hazard prone areas and alternative development strategies

#### References:

1. OHO Lerbinger, (1986), The Crisis Manager, Facing risk and responsibility, Lawrence Erlbaum associates.
2. Horowitz, M (1986), Stress response syndranes, Northvale, N.J. Armson.
3. Peter, K. Hodgkinson, (1998), Copying with Catastrophe, A handbook of post disaster psychological after care. Routledge.
4. Kazimiera Adamowski (1998), Creating Excellence in Crisis Care, Johnwiley & Sons Inc.



## **MBA (DISASTER MANAGEMENT)**

### **Public Health in Disaster Management**

Course Code: DMW: 204

L -3 P-0 C-3

**Objective:** Health Care Facility and emergency management is an essential curriculum for the disaster management studies. The course will cover issues relating to public health, health policy and health management etc.

#### **UNIT-1**

Public Health and its role in Disaster Management: Public health systems, Health promotion and disaster prevention, Integrated approach.

#### **UNIT-2**

Areas of Public Health: Community and Family Health, Global Health, Environmental and Occupational Health, Epidemics.

#### **UNIT-3**

Health Policy and Management: Public Health Practices, Public Health Emergencies in large populations.

#### **UNIT-4**

Health Management and Leadership: Study Peer Reviewed Competency for effective emergency response by health care personnel, Preparation and knowledge skills in new health threats like bio-defense and bio-terrorism, Training in leadership, learning to manage finances, insurance claims etc.

## **MBA (DISASTER MANAGEMENT)**

### **Environmental Impact Assessment (EIA) And Disaster Management**

Course Code: DMW: 205

L -3 P-0 C-3

**Objectives:** The Course will provide the fundamentals of EIA and different techniques and tools, which can appropriately be utilized for disaster management study. The course will also introduce the modern tools of GIS in assessing the impact of post disaster situations.

#### **UNIT-1**

**Introduction To EIA:** Purpose of EIA; Environmental components, projects and its environmental impacts, Environmental impact statement; Projects screening and scoping; Environmental baseline study.

#### **UNIT-2**

**Impact Assessment Procedure:** Applications of Matrices; Networks and Overlay maps; Environmental evaluation system; Transnational effects of projects; Impact identification; Impact prediction; Evaluation and mitigation; Monitoring and Environmental auditing; Regional and strategic EIA, Environmental management plan; Cost benefit analysis and its dimensions; Problems of EIA in developing countries; Public participation in environmental decision making, presentation and review; EIA report and its contents.

#### **UNIT-3**

**GIS In Disaster Management:** GIS as effective tool in Disaster management and planning, response requirement study, alternate route for sending relief and shortest evacuation routes. Display and identification of damaged and unsafe structures. Map creation for action plan identification of risk and planning needs.

#### **UNIT-4**

**Case Studies:** River valley projects; opencast mining projects; urbanization and high way project

#### **References:**

1. John Glasson, Riki Therivel and Andrew Chadwick, Introduction to Environmental Impact Assessment, 2<sup>nd</sup> Ed., UCL Press, Philadelphia, USA, 1994
2. Singh, R. B. Space technology for Disaster Monitoring and Mitigation in India, INCEDE, University of Tokyo.
3. Larry W. Canter, Environmental Impact Assessment, 2<sup>nd</sup> Ed., McGraw Hill, New York, 1996.
4. Richard K. Morgan, Environmental Impact Assessment : A methodological perspective, Kluwar Academic Publications, Boston, 1998.

## MBA (DISASTER MANAGEMENT)

### Cyber Terrorism and Information warfare

Course Code: DMW: 206

L -3 P-0 C-3

**Objectives:** The course will focus areas like cyber terrorism, Cyber Crime, Cyber Law, Cyber Security, Cyber disaster, Disaster Recovery, Information warfare, Risk Assessment.

#### UNIT-1

Concept of Information Society, Knowledge Society, Cyber Space, Digital Economy, Critical infrastructure. Critical Information Infrastructure, Internet as Global Information Infrastructure.

#### UNIT-2

Cyber Terrorism, Terrorist Atrocities, The Role of IT by Terrorist, The Power of Cyber terrorism, Characteristic of Cyber Terrorism, Factors Contributing to the Existence of Cyber terrorism, Real Examples of Cyber Terrorism, Political Orientation of Terrorism, Economic consequences.

#### UNIT- 3

Cyber crime, Types of cyber crime: Hacking, Virus, Worm, Trojan Horse, mail ware, Fraud and theft, cyber homicide, Current Cyber Attack methods, Criminal threats to IT infrastructure, Web security, Basic cyber forensics, Internal Penetration, External penetration, your Role on Cyber attacks. Cyber crime and Law, Cyber Jurisdiction, Indian IT ACT.

#### UNIT-4

Fundamental Concepts of Information Security, Information warfare, Levels of Information war, Cost of Information Warfare, Cyber disaster, disaster planning, Why disaster planning, Company Wide disaster planning, Business Impact analysis.

#### UNIT-5

Threat, Vulnerability and Risk, best practices in security policies, Formulate a security policy and identify security policy categories, Fundamental Concepts of Risk Analysis, Risk analysis Factors, Risk Analysis: An ongoing process, analyzing economic impacts, How to minimize Risk, Important of ongoing risk analysis and define incident handling procedure.

#### References:

1. Walter Laqueur, Yohana Alexander, "The terrorism Reader: A historical methodology".
2. "Cyber Terrorism and information warfare: Threats and responses" By Yohana Alexander & Michael S. Swethan.
3. "International Terrorism: National Regional and Global Perspective."

## MBA (DISASTER MANAGEMENT)

### Micro Financing for Rehabilitation and Resettlement

Course Code: DMW: 207

L-3 P-0 C-3

**Objective:** This course is intended to make the students realize the potential of Micro finance in disaster prevention, mitigation and post disaster economic rehabilitation, particularly of the poor and the vulnerable, and to enable them appreciate different aspects of Micro finance so that such schemes can be effectively designed and implemented in the context of disaster management.

#### UNIT 1

Introduction to Micro Finance: Definition of Micro finance, Evolution of Micro finance as a means of development, context of evolution and role of Micro finance institutions in poverty alleviation, food security and alternate livelihood support systems.

#### UNIT 2

Micro finance Models & Institutions: Bangladesh Grameen Bank Model, SHG – Bank linkage model, Community Banking, credit unions and co-operatives, SHG-NGO-Bank linkage model, success stories: NABARD, MYRADA, SEWA, PRADAN village bank of FINCA (Latin America), SANASA of Sri Lanka. Not for profit MFI's (NGO – MFI's and Non-Profit Companies), MACS (Mutually Aided Co-operatives Societies). For Profit MFIs, NBFCs.

#### UNIT 3

Role of Different Agencies: International Agencies, World Bank, ADB, DFID & International NGO's; National Agencies: NABARD, RBI, RMK, Ministry of Rural Development, State Government Agencies, RRB's & Co-operatives & National & Local NGO's.

#### UNIT 4

Micro finance in Disaster Management: Micro finance based community development projects; water shed management schemes, forest conservation, coast line plantation, community afforestation, case studies.

#### Readings:

1. Hulme, David and Paul Mosley, "Finance against Poverty", Routledge London, 1996.
2. Meyer, Richard L, "Micro finance, Poverty alleviation and Improving Food Security: Implications for India" in Food Security and Environmental Quality, CRC Pres LLC, Boca Raton, FL. 2002.
3. ADB, "Finance for the Poor: Micro finance Development Strategy", Asian Development Bank, Manila, 2000.
4. Bouman, FJA, "Small, Short and Unsecured: Informal Rural Finance in India", Oxford University Press, Delhi, 1989.

## **MBA (DISASTER MANAGEMENT)**

### **Agencies in Disaster Management**

Course Code: DMW: 208

L-3 P-0 C-3

**Objective:** After pursuing this course, the student is expected to know different international, national and local agencies involved in disaster management and their specific mandate with emphasis on their operations in situation of disaster.

#### **UNIT-1**

International Agencies: United Nations and its specialized agencies like UNDP, FAO, WHO AEC (Atomic Energy Commission), United Nations Disaster Management Cell, New Delhi. International Federation of Red Cross and Red Crescent Societies (IFRC) and National Red Cross/Red Crescent Societies.

#### **UNIT-2**

National Agencies: Disaster Management Cell (Ministry of Home Affairs, Govt. of India), National Institute of Disaster Management, Indian Red Cross Society, Planning Commission, National Civil Defense Organization, Bharat Scouts and Guides. Military and Para-Military Forces; Corporate Bodies etc.

#### **UNIT-3**

State and District Level Agencies: Disaster Management cells at state level and District level, District Magistrate office, Role and Responsibilities of DM in prevention, preparedness, mitigation, relief and rehabilitation; local bodies and role of different functionaries-

#### **UNIT-4**

Civil Society Agencies: NGOs, Religious and Cultural Organizations, Community based organizations, political parties and their affiliates, Philanthropic organizations, Recent case studies on the role played by various civil society organizations during disasters.

#### **Readings:**

1. Disaster Management in India – A Status Report. National Disaster Management Division, Ministry of Home Affairs, Govt. of India, 2004.

## MBA (DISASTER MANAGEMENT)

### Environmental Modelling

Course Code: DMW: 209

L-3 P-0 C-3

**Objective:** The course is aimed to provide a framework to understand the fundamentals and applications of environmental models in an overall environmental quality management systems context.

#### UNIT-1

Fundamentals: Environmental systems - an introduction; Introduction to modelling; An overview of mathematical models applied to various environmental issues; Concept, need, scope and objectives of environmental modelling; Role of mathematical Models in environmental quality management; Fundamentals of mathematical modelling; Fundamental of environmental processes.

#### UNIT-2

Air Quality Modelling: Air Quality Modelling – Historical perspective; Air quality models - objectives and aim of modelling, approaches to model building, elements of air quality models, classification of models; Gaussian Plume model – Point, line, area and multiple source models; Model performance, accuracy and utilization.

#### UNIT-3

Water Quality Modelling: Water quality modelling – historical perspective; Fundamentals of water quality modelling - completely mixed system (mass balance approach, different types of loading, feed forward and feedback systems of reactors), incompletely mixed system (steady and unsteady-state system); Surface water quality modelling - river and streams, estuaries and lakes; Dissolved oxygen models - DO sag model, BOD model, Streeter Phelps equation for point and distributed sources; Eutrophication models for lakes and flowing water; Elements of ground water modelling - brief overview.

#### UNIT-4

Hazardous Substance Modelling: Toxic chemicals and trace metal modelling.

#### References:

1. Chapra, S.C. (1997). Surface Water-Quality Modelling. McGraw-Hill International Edition.
2. Schnelle, K. B. and Dey, P.R. (1999). Atmospheric Dispersion Modelling Compliance Guide. McGraw-Hill.
3. Schnoor, J.L. (1996). Environmental Modelling. John Wiley & Sons, Inc., New York.
4. Turner, D.B. (1994). Workbook of Atmospheric Dispersion Estimates 2<sup>nd</sup> ed., Ann Arbor, MI: Lewis Publishers.

**MBA (DISASTER MANAGEMENT)**

**Term Paper-II**

Course Code: DMW: 211

Self Study C-3+1

**Objectives:** Each student will be required to select a topic and submit a report on the same

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## **MBA (DISASTER MANAGEMENT)**

### **Reconstruction and Rehabilitation**

Course Code:

L -3 P-0 C-3

**Objective:** The objective of the course is to understand the challenges and issues which may be encountered in post event management / recovery/ rehabilitation, and will offer a number of strategies which can be used to resolve them successfully.

#### **UNIT-1**

Recovery and reconstruction: Introduction, medium term and long term recovery aspects, community participation in defining objectives and their priorities,

#### **UNIT-2**

Rehabilitation: Physical and social infrastructure: Relocation and reconstruction of housing, public buildings, roads, bridges, dams, archives and monuments, services such as water supply, electricity, waste management, communication, capacity building for self help construction,

#### **UNIT-3**

Social and economic rehabilitation: Capacity building for reconstruction and rehabilitation, Skill enhancement for livelihood development, training and awareness programs, medical aid therapy and counseling, agricultural aids

#### **UNIT-4**

Repair and retrofitting: Superficial repair, structural repair, structural strengthening of habitable spaces, public buildings, roads, bridges, dams, culverts etc.

#### **References:**

1. Sharma, Vinod K. Disaster management, NCDM, IIPA, New Delhi, 1994
2. Mathur, G.C. Housing in Disaster prone areas, National Building Organization and U.N. Regional Centre. ESCAP, New Delhi, 1986
3. Mishra, P.K. Transforming adversity into opportunity: experiences from Gujarat earthquake reconstruction program World congress on Natural disaster mitigation proceedings, February 2004



## **MBA (DISASTER MANAGEMENT)**

### **Disaster Mitigation**

Course Code:

L-2 P-0 C-2

**Objective:** The course would cover disaster preparedness, immediate response to disaster, policy implications, setting priorities, initiatives, perspective on regulations and humanitarian assistance to societies with case studies.

#### **UNIT – 1**

Disaster Mitigation through Development: Disaster Mitigation: Basic Concepts, Structured and Non Structured Mitigation, Relationship between Disaster and Development, Sustainable Development for Disaster Mitigation.

#### **UNIT – 2**

Inter-development Corporation for Disaster Mitigation: Coordination, Planning and Networking, Coordination with Civil Authorities including Community and NGOs representations NCC, NSS and Civil Defence, Armed and Para Military Forces, Concept of Trigger Mechanism, Prerequisites for Trigger Mechanism, Trigger Mechanism as a tool in Disaster Mitigation.

#### **UNIT – 3**

Information and Communication in Disaster Mitigation: Information Technology and Disaster Mitigation, Role of database in Disaster Mitigation, GIS and GPS applications.

#### **UNIT – 4**

Forestry for Disaster Mitigation: Existing Forest Scenario, Pressure on Forest & Forest Degradation, Deforestation, Environmental Degradation and Disasters, Insurance in Disaster Mitigation, Life Insurance, Structure Damage insurance, Crop/Cattle Insurance, Re-insurance.

#### **References:**

- i) Carter, W.N. Disaster Management: A Disaster Manager's Handbook, Asian Development Bank, Manila, 1992.
- ii) UNDRO, Managing Natural Disasters – A Manual for Policy Makers and Planners, New York, 1991.
- iii) Sharma, V.K. (ed): Disaster Management, Indian Institute of Public Administration, New Delhi, 1995.
- iv) Report of the High Powered Committee (HPC) on Disaster management, NCDM, New Delhi, 2001.
- v) National Disaster Response Plan, NCDM, New Delhi, 2001.

## **MBA (DISASTER MANAGEMENT)**

### **Elective - II**

Paper Code:

L -3 P-0 C-3

In the second year, the student will have to select the electives Paper-II, out of total five different specializations. The electives will be offered based on the request and choice of the students and also keeping in view the minimum numbers of students in each elective.

## **MBA (DISASTER MANAGEMENT)**

### **Elective - III**

Paper Code:

L -3 P-0 C-3

In the second year, the student will have to select the electives Paper-III, out of total five different specializations. The electives will be offered based on the request and choice of the students and also keeping in view the minimum numbers of students in each elective.

## MBA (DISASTER MANAGEMENT)

Paper Code: DMW: 210

Credits – 26+4+4 = 34

### Dissertation\*

**Objectives:** Students are required to select a topic of their interest and prepare a dissertation on it in sixth trimester.

The student will submit a synopsis on the beginning of the trimester for approval from the School Project Committee in a specified format. Synopsis must be submitted within *two weeks*. The first defence, for dissertation work, should be held within a month. Dissertation report must be submitted in a specified format to the School for evaluation purpose.

### Seminar and Progress Reports\*

**Objectives:** The student will have to present the progress of the dissertation work through seminars and progress reports, at an interval of *four weeks* during the trimester. Minimum two seminars will be held during the trimester to assess the progress of dissertation work.

### Comprehensive Viva\*

**Objectives:** Students are required to give viva-voce exam after the submission of dissertation.

\*Non-university Exam. System.

ELECTIVES

SunRise University

## **MBA (DISASTER MANAGEMENT)**

### **Agencies in Disaster Management**

Course Code: DMW: 208

L -3 P-0 C-3

**Objective:** After pursuing this course, the student is expected to know different international, national and local agencies involved in disaster management and their specific mandate with emphasis on their operations in situation of disaster.

#### **UNIT-1**

**International Agencies:** United Nations and its specialized agencies like UNDP, FAO, WHO AEC (Atomic Energy Commission), United Nations Disaster Management Cell, New Delhi. International Federation of Red Cross and Red Crescent Societies (IFRC) and National Red Cross/Red Crescent Societies.

#### **UNIT-2**

**National Agencies:** Disaster Management Cell (Ministry of Home Affairs, Govt. of India), National Institute of Disaster Management, Indian Red Cross Society, Planning Commission, National Civil Defense Organization, Bharat Scouts and Guides. Military and Para-Military Forces; Corporate Bodies etc.

#### **UNIT-3**

**State and District Level Agencies:** Disaster Management cells at state level and District level, District Magistrate office, Role and Responsibilities of DM in prevention, preparedness, mitigation, relief and rehabilitation; local bodies and role of different functionaries-

#### **UNIT-4**

**Civil Society Agencies:** NGOs, Religious and Cultural Organizations, Community based organizations, political parties and their affiliates, Philanthropic organizations, Recent case studies on the role played by various civil society organizations during disasters.

#### **Readings:**

1. Disaster Management in India – A Status Report. National Disaster Management Division, Ministry of Home Affairs, Govt. of India, 2004.

## MBA (DISASTER MANAGEMENT)

### Network Security

Course Code: DMW: 306

L -3 P-1 C-4

**Objectives:** The objective of the course is to introduce the basic concepts to network security as applied to disaster management. Various case studies will be taken to understand the application of networking in mitigating disaster.

#### UNIT – 1

Introduction: Codes and Ciphers – Some Classical systems – Statistical theory of cipher systems – Complexity theory of Crypto systems – Stream ciphers, Block ciphers.

Stream Ciphers: Rotor based system – shift register based systems – Design considerations for stream ciphers – Cryptanalysis of stream ciphers – Combined encryption and encoding.

Block Ciphers – DES and variant, modes of use of DES.

#### UNIT – 2

Public Key systems – Knapsack systems – RSK – Diffie Hellman Exchange 0 Authentication and Digital signatures, Elliptic curve based systems.

System Identification and clustering

Cryptology of speech signals – narrow band and wide band systems – analogue & digital systems of speech encryption.

#### UNIT – 3

Network Security: Hash function – Authentication:

Protocols – Digital Signature standards.

Electronics Mail Security – PGP (Pretty Good Privacy) MIME, Data Compression technique.

IP Security: Architecture, Authentication Header, Encapsulating security Payload – Key management.

Web Security: Secure Socket Layer & Transport Layer security, Secure electronic transactions.

Firewalls Design principle, established systems.

**UNIT –4**

Telecommunication Network architecture, TMN management layers, Management information Model, Management servicing and functions, Structure of management information and TMN information model.

**References:**

1. William Stallings, “Network Security Essentials, 2<sup>nd</sup> Edition, 2002.
2. William Stallings, “Cryptography & Network Security”, 3<sup>rd</sup> Edition, 1999.

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## **MBA (DISASTER MANAGEMENT)**

### **Environment Law and Protection**

Course Code: DMW: 307

L -3 P-0 C-3

**Objectives:** The objective is to make students aware of the various provisions with regard to protection of environment and various contingencies to be followed in case of actual disasters.

#### **UNIT-1**

Historical Background: Overview of provisions of Indian Constitution, International Provisions and effects in India, Various Indian Acts with regard to Environment Protection, Laws relating to Environment and Industrial Self Regulation.

#### **UNIT-2**

The Pollution Control Boards of India: Central Level, State Level, Implementation, Level of Compliance.

#### **UNIT-3**

Long Term Implications of Disasters with regard to Law: Crisis Morphology, Long term consequences for the victims, Revising the models of Disaster Management, Policy Implications.

#### **UNIT-4**

Environment Jurisprudence: Case Law, The Public Liability Insurance Act of 1991, Role of Human Rights in Disasters, Public Activism and Role of PIL.

#### **References:**

1. David Shaman, India's Pollution Regulatory Structure and Background, in New Ideas in Pollution Regulation, World Bank Group, January 5, 1996.
2. Andrew Waite, Environmental law : Hand book / Andrew Waite . - London: Butterworths, 1984.
3. Andrew Waite & Tim Jewell (Ed.), Environmental Law in Property Transactions, London: Butterworths, 1997.
4. Diane Warburton, Ed., Community and Sustainable Development : Participation in the future, London: Earthscan Publications Ltd., 1998.

## **MBA (DISASTER MANAGEMENT)**

### **Rule of Law in times of Crisis**

Course Code: DMW: 308

L -3 T-0 C-3

Objective: Upholding the rule of law and provision of justice are fundamental aspects of governance. The paper prepares students ways to implement the rule of law, and protect the vulnerable sections of the society during crisis. The Course will identify such vulnerable groups and ways to ameliorate their plight. \

#### **UNIT-1**

Meaning and Definition of Rule of Law: Historical Background, Civil Liberties and Public Safety, Liability and Indemnification under the Constitution and legislation.

#### **UNIT-2**

Aspects of Good Governance: Civil Services Reforms, Role of Army in large scale disaster management situations, E-Cops Programmes, CVC and Corruption.

#### **UNIT-3**

Broadening the Scope of Rule of Law: Terrorism, Modern Market Economy and Rule of law, Corruption, Employment, Epidemics.

#### **UNIT-4**

Concerns: Delayed Justice Dispensation System, Implementation of Rule of Law in Large Scale emergencies, Seizure of Public Property during disasters.

#### **Readings:**

1. Walter Laqueur, No end to war: terrorism in the twenty-first century. New York: Continuum, 2003.
2. Norman Dorsen, ed., Democracy and the rule of law, Washington, D.C. : CQ Press, 2001.
3. Alexandra George, Property in the human body & its parts : reflections on self-determination in liberal society, Florence : European University Institute, 2001.

## **MBA (DISASTER MANAGEMENT)**

### **Strength of Materials**

Course Code: DMW: 309

L -3 P-0 C-3

Objectives: The objective of the course is to understand the properties and behaviour of common materials and forms under stress and determination of liabilities in selecting materials in civil use.

#### **UNIT-1**

Stress and Strain: Introduction and fundamental concepts, Simple stresses and strains; shear stress compound stresses, analysis of stresses and strains; torsion, Bending moment and shearing force; bending stresses in beams; shearing stresses in beams; slope and deflection of beams.

#### **UNIT-2**

Combined loading and Theories of Elastic Failures: The generalized procedure; bending with tension (or compression); eccentrically loaded member in tension (or compression), torsion and shear; torsion and bending; combined bending, torsion and axial thrust, Theories of failures: maximum principal stress theory, maximum principal strain theory; maximum shear stress theory; maximum strain energy theory; maximum shearing distortion theory; maximum octahedral shearing stress theory; Mohr's theory of failure for brittle materials.

#### **UNIT-3**

Properties and Testing of Materials: Direct tension test, interpretation of tensile failure of materials; direct compression test, ductile materials, brittle materials; determination of elastic constants; transverse testing of materials, modulus of rupture; impact test; Hardness tests; Abrasion tests; torsion test; fatigue test.

#### **UNIT-4**

Building materials: Properties, types and uses of materials used in civil use – stones, bricks and tiles, lime, cement, aggregates, mortars, concrete, timber, metals and other miscellaneous materials.

#### **References:**

1. Popov, E.P. Introduction to Mechanics of Solids. Prentice-Hall of India Pvt. Ltd., New Delhi.
2. Tomoshenko, S.P. and Young, D.H. Elements of Strength of Materials. Affiliated East-West Press Pvt Ltd, New Delhi.
3. Singh, P.N. and Jha, P.K. Elementary Mechanics of Solids. Wiley Eastern Ltd, New Delhi.
4. Singh, S. Engineering Materials. Konark Publishers Pvt. Ltd., New Delhi.

## MBA (DISASTER MANAGEMENT)

### Optimization of Construction Techniques

Course Code: DMW: 310

L-3 P-0 C-3

**Objective:** The objective of the course is to understand low cost shelters and quick reconstruction, non-conventional and rural materials, critical uses, social and physical infrastructure, engineering and architectural aspects for designing / building for disaster resistant structures.

#### UNIT-1

Construction Technology: Conventional technology, modern technology, appropriate technology including quick reconstruction technology, levels of technological intervention in India and the third world

#### UNIT-2

Building Materials: Building materials and techniques for construction, advantages and disadvantages of conventional, indigenous and low cost building materials and products-construction practices using alternative building materials and their applicability

#### UNIT-3

Architectural and planning aspects: Characteristics of various components of physical planning and design of infrastructure – low cost appropriate technologies for infrastructure development; Planning and architectural aspects in disaster prone areas, construction design – special measures as per building bye laws and building codes`

#### UNIT 4

Innovations and initiatives in construction industry: Significance of construction industry, its characteristics and various actors involved. Small-scale enterprises in the construction industry – building material manufacturers, and small contractors. Significance of resources and manpower in construction, self help construction methods, local building artisan and crafts, skills, building trades- durable building materials and techniques for their cost effectiveness. Concept of building centers, Nirmithi Kendras, CBRI extension centers as change agent and capacity building organization.

Case studies; with special reference to earthquake

#### References:

1. Standards and specifications for cost effective innovative building material and techniques, BMTPC, New Delhi
2. Building materials in India: 50 years, BMTPC, New Delhi
3. Proceedings of The International Seminar on Low cost housing and infrastructure, BMTPC, New Delhi.