

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

934E904: Specialization Courses in Disaster Management

Subject Code	Subject Name	Category	L	T	P	O	Credits	Inst. Hours	Marks		
									CIA	External	Total
934E904A	Basics of Disaster Management	Elective	3	-	-	-	3	45	25	75	100
934E904B	Disaster Risk Governance	Elective	3	-	-	-	3	45	25	75	100
934E904C	Disaster Preparedness and Decision Making	Elective	3	-	-	-	3	45	25	75	100
934E904D	Ecosystems and Habitat	Elective	3	-	-	-	3	45	25	75	100
934E904E	Environmental Economics and Management	Elective	3	-	-	-	3	45	25	75	100
934E904F	Principles of Remote Sensing and GIS	Elective	3	-	-	-	3	45	25	75	100
934E904G	Crisis Management	Elective	3	-	-	-	3	45	25	75	100
934E904H	Geology and Meteorology	Elective	3	-	-	-	3	45	25	75	100
934E904I	Disaster Mitigation	Elective	3	-	-	-	3	45	25	75	100
934E904J	Geoinformatics in Disaster Mitigation	Elective	3	-	-	-	3	45	25	75	100
934E904K	Climate Change and Disaster Management	Elective	3	-	-	-	3	45	25	75	100
934E904L	Psycho-social Ramifications and Resource Mobilization	Elective	3	-	-	-	3	45	25	75	100
934E904M	Disaster Economics and Financing	Elective	3	-	-	-	3	45	25	75	100
934E904N	Preventive Laws In Disaster Management	Elective	3	-	-	-	3	45	25	75	100
934E904O	Disaster Response	Elective	3	-	-	-	3	45	25	75	100
934E904P	Disaster Recovery	Elective	3	-	-	-	3	45	25	75	100

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME
SYLLABUS WITH EFFECT FROM 2023-2024

Subject Code	Subject Name	Category	L	T	P	O	Credits	Inst. Hours	Marks		
									CIA	External	Total
934E904A	Basics of Disaster Management	Elective	3	-	-	-	3	45	25	75	100
Course Objectives											
C1	To familiarize the students on the basic concepts of disaster management										
C2	To create awareness on types of natural disasters										
C3	To throw light on manmade disasters and provide relevant case studies										
C4	To elucidate on risk disaster and vulnerability										
C5	To provide insights on approaches on measuring risk disaster and vulnerability										
SYLLABUS											
UNIT	Details							No. of Hours	Course Objectives		
I	Introduction: Concepts and definitions- Disaster, Hazard, Vulnerability, Resilience and Risks. Disaster management: Meaning, Nature, Importance, Dimensions & Scope- Disaster Management Cycle.							9	C1		
II	Natural disasters: Natural Disasters- Meaning and nature of natural disasters, their types and effects. Hydrological Disasters - Floods, Droughts, Cloud bursts. Geological Disasters- Earthquakes, Tsunamis, Landslides, Volcanic eruptions. Wind related- Cyclones, Storms, Storm surges, Tidal waves, Heat and cold Waves. Climate change- Global warming- Sea level rise- Ozone Depletion. Case studies: Floods- Chennai floods 2015, Kerala floods 2018. Cyclones – Odisha 1999, Gaja 2018. Famines and drought- Great Bengal famine in the year of 1876-1878 and 1943, Maharashtra drought 2013.Earthquake- Nepal 2015, Gujarat, Bhuj 2001. Tsunami- Indian Ocean Tsunami2004.							9	C2		
III	Man-made disasters: CBRN – Chemical disasters, biological disasters, radiological disasters, nuclear disasters. Fire – building fire, coal fire, forest fire, Oil fire. Pollution - air pollution, water pollution. Deforestation, Industrial waste, Desertification, Mine and Quarries. Soil erosion, groundwater depletion, saltwater intrusion, biodiversity loss and biological warfare. Case studies: Kumbakonam School fire 2004, The Bhopal Gas Tragedy 1984, Fukushima Daiichi nuclear disaster, Japan							9	C3		

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

	2011. Biological disasters – Swine flu 2009.War- Atomic bombings of Hiroshima and Nagasaki1945.		
IV	Disaster risk and vulnerability - vulnerability as a cause and consequence of disasters, components of vulnerability, vulnerability poverty and development, links to development perspectives: Sen’s work on famine and entitlements	9	C4
V	Disaster Risk and vulnerability assessment approaches: approaches and methods to measuring disaster risk and vulnerability- qualitative and quantitative methods. Indicators of disaster risk and vulnerability.	9	C5
	Total	45	
Course Outcomes			
Course Outcomes	On completion of this course, students will;	Program Outcomes	
CO1	Possess knowledge of the basic concepts of disaster management	PO1, PO2, PO3	
CO2	To create awareness of types of natural disasters	PO1, PO2, PO3	
CO3	Learn and understand the various scenarios of manmade disasters	PO1, PO2, PO5, PO8	
CO4	Have a better understanding on risk disaster and vulnerability	PO1, PO2, PO8	
CO5	Have insights on approaches on measuring risk disaster and vulnerability	PO1, PO2, PO3, PO8	
Reading List			
1.	Disasters – Wiley Online Library		
2.	Disaster Management - A Disaster Manager’s Handbook, W. Nick Carter, Asian Development Bank		
3.	International Journal of Disaster Risk Science, Springer		
4.	Disaster Prevention and Management, Emerald		
References Books			
1.	Alexander, D., & Alexander, D. E., Confronting catastrophe: new perspectives onnatural disasters. USA: Oxford University Press, 2000		
2.	Andharia, J, Vulnerability and disasters: Conceptual contours of a people-centred view. In: S. Parasuraman & Unni Krishnan (ed.) India Disaster Report II: Redefining Disasters. Delhi: Oxford University Press, 2013		
3.	Blaikie, P., Cannon, T., Davis, I., & Wisner, B., At risk: natural hazards, people's vulnerability and disasters. Routledge, 2014		
4.	Edward A. Keller and Robert. H. Blodgett, Natural Hazards. Pearson Prentice Hall.USA, 2008		
5.	Goel. S.L, Disaster Administration and Management, New Delhi: Deep & Deep publication, 2007		
6.	Gupta Anil K, Sreeja S. Nair, Environmental Knowledge for Disaster Risk		

UNIVERSITY OF MADRAS
MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME
SYLLABUS WITH EFFECT FROM 2023-2024

	Management, New Delhi: National Institute of Disaster Management, 2011
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	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	3	3	2					
CO 2	3	3	3					
CO 3	2	3			3			3
CO 4	3	2						2
CO 5	2	3	3					3

3-Strong

2-Medium

1-Low

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Subject Code	Subject Name	Category	L	T	P	O	Credits	Inst. Hours	Marks		
									CIA	External	Total
934E904B	Disaster Risk Governance	Elective	3	-	-	-	3	45	25	75	100
Course Objectives											
C1	To provide insights on theories of disaster governance										
C2	To throw light on disaster governance institutions and networks at multiple scales										
C3	To familiarize on policy and institutional arrangements for disaster management in India										
C4	To create awareness on role of NGO and community in disaster management										
C5	To elucidate on policy and institutional arrangements for disaster management										
SYLLABUS											
UNIT	Details							No. of Hours	Course Objectives		
I	Understanding Institutions and governance- Theories and Concepts of Governance- Defining disaster governance- Application of the concept of governance to disaster and risk. Factors affecting disaster governance.							9	C1		
II	Disaster governance institutions and networks at multiple scales (international, national and reginal and local scales): United Nations International Strategy for Disaster Reduction (UNISDR), Hyogo Framework for Action (HFA) 2005, Sendai Framework 2015. Disaster Management Framework.							9	C2		
III	Policy and institutional arrangements for disaster management in India– Disaster Management Act 2005; National Policy on Disaster Management 2009; Disaster Management Authority responsibilities of government. Important statutes with provisions relevant to Disaster Management							9	C3		
IV	Role of NGO coordination and community processes in disaster management. Governance challenges in the context of disasters.							9	C4		
V	Policy and institutional arrangements for disaster management in Tamil Nadu- disaster management authority at state, district and local level.							9	C5		
	Total							45			

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Course Outcomes		
Course Outcomes	On completion of this course, students will;	Program Outcomes
CO1	Have insights on theories of disaster governance	PO2, PO3, PO4
CO2	Possess knowledge on disaster governance institutions and networks at multiple scales	PO1, PO2, P04, P05
CO3	Learn and understand policy and institutional arrangements for disaster management in India	PO1, PO2, PO4, PO6
CO4	Aware on role of NGO and community in disaster management	PO1, PO2, PO4, PO6, PO8
CO5	Have better understanding on policy and institutional arrangements for disaster management	PO1, PO2, PO4, PO6, PO7, PO8
Reading List		
1.	International Journal of Disaster Risk Science, Springer	
2.	International Journal of Disaster Risk Reduction, Elsevier	
3.	Disaster Prevention and Management, Emerald	
4.	International Journal of Geo-Information, MDPI	
References Books		
1.	Alemanno, A. (Ed.), Governing disasters: the challenges of emergency risk regulation. Edward Elgar Publishing, 2011	
2.	Chakrabarty, B., & Bhattacharya, M. (Eds.), The governance discourse: a reader, USA: Oxford University Press, 2008	
3.	Chatterjee, P, The politics of the governed: reflections on popular politics in most of the world. Columbia University Press, 2004	
4.	Kundu, A., & Dubey, M. (Eds.), India, Social Development Report USA: Oxford University Press, 2006	
5.	North, D, Institutions, institutional change and economic performance, New York: Cambridge University Press, 1990	
6.	Ostrom, E, A Polycentric Approach for Coping with Climate Change. Background Paper to the 2010 World Development Report (Policy Research Working Paper 5095, 2010	

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1		3	3	2				
CO 2	3	2		3	3			
CO 3	2	3		3		2		
CO 4	3	3		2		3		2
CO 5	3	2		3		3	2	3

3-Strong 2-Medium 1-Low

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Subject Code	Subject Name	Category	L	T	P	O	Credits	Inst. Hours	Marks		
									CIA	External	Total
934E904C	Disaster Preparedness and Decision Making	Elective	3	-	-	-	3	45	25	75	100
Course Objectives											
C1	To familiarize the students on disaster principles and preparedness										
C2	To provide insights on disaster planning and emergency service systems										
C3	To throw light on conceptual and applied Issues in emergency management										
C4	To elucidate on principles of natural hazard reduction, toxicology and biohazards in emergency management										
C5	To create awareness on terrorism preparedness and community relations										
SYLLABUS											
UNIT	Details							No. of Hours	Course Objectives		
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.							9	C1		
II	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 .							9	C2		
III	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 ,							9	C3		

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

	Logistic support system, Computer Applications in Emergency Management .		
IV	Principles of natural hazard reduction, Toxicology and Biohazards in Emergency Management: Critical Infrastructure and Emergency Management ,Emergency Preparedness, Response, and Planning for Hazardous Materials,,Contingency Planning, Contingency Planning for Business and Industry, International Disasters.	9	C4
V	Terrorism Preparedness and Community Relations: Emergency Management for Terrorism, WMD, and other contemporary Issues, Incident Management Systems and Emergency Operations Center, Community Emergency Response Team, Community Relations for Environmental and Emergency Managers ,	9	C5
	Total	45	
Course Outcomes			
Course Outcomes	On completion of this course, students will;	Program Outcomes	
CO1	Possess the knowledge on disaster principles and preparedness	PO1, PO2, PO4	
CO2	Have insights on disaster planning and emergency service systems	PO1, PO2, PO4, P08	
CO3	Learn about conceptual and applied Issues in emergency management	PO1, PO2, PO4, P08	
CO4	Possess knowledge on principles of natural hazard reduction, toxicology and biohazards in emergency management	PO1, PO2, PO4, PO6, P08	
CO5	Have a better understanding on terrorism preparedness and community relations	PO1, PO2, PO4, PO5, P08	
Reading List			
1.	Difficult Decisions in Disaster Risk and Environmental Management – Special Issue – MDPI		
2.	Decision Support Systems for Disaster Management – JSTOR		
3.	Journal of Natural Disaster Science, J-Stage		
4.	Disasters – Wiley Online Library		
References Books			
1.	Goel S.L. and Kumar Ram, Disaster Management, Deep and Deep Publications, 2001		
2.	Parasuraman S., India Disasters Report: Towards a Policy Initiatives, Oxford University Press, 2004		
3.	Collins Larry R. and Schneid Thomas D., Disaster Management and Preparedness Taylor and Francis 2000		
4.	Living With Risk: A global Review Of Disaster Reduction Initiatives 2004 Vision, United Nations, 2004.		
5.	Arnold, Margaret and Kreimer, Alcira (eds.), “Managing Disaster Risk in		

UNIVERSITY OF MADRAS
MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME
SYLLABUS WITH EFFECT FROM 2023-2024

	Emerging Economies", Disaster Risk Management Series No. 2, World Bank, Washington, D.C., 2000.
6.	Nidhi Gauba Dhawan, Ambrina Sardar Khan - Disaster Management And Preparedness–,CBS Publishers & Distributors,–2012

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	2	3		3				
CO 2	3	2		2				3
CO 3	3	3		3				2
CO 4	3	2		3		3		2
CO 5	2	3		2	3			3
	3-Strong			2-Medium		1-Low		

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Subject Code	Subject Name	Category	L	T	P	O	Credits	Inst. Hours	Marks		
									CIA	External	Total
934E904D	Ecosystems and Habitat	Elective	3	-	-	-	3	45	25	75	100
Course Objectives											
C1	To provide insights into ecosystems and habitats										
C2	To throw light on aquatic ecosystem and habitat										
C3	To familiarize on the types of terrestrial ecosystems										
C4	To create awareness of nature conservation Acts in India										
C5	To elucidate on Conservation vs. livelihood.										
SYLLABUS											
UNIT	Details							No. of Hours	Course Objectives		
I	Introduction to ecosystems and habitats- definition, classification, similarities and differences. Introduction to Ecology - cycling of materials; water, carbon, nitrogen and phosphorus. Trophic pyramids and food webs; Alterations of ecosystem function: acid rain, nuclear winter, global warming and ozone hole, origin of life on earth; changes in earth’s Atmosphere.							9	C1		
II	Aquatic ecosystem and habitats: Introduction to – hydrosphere – hydro- cycle- aquatic systems- subdivisions – Freshwater (rivers and lakes) –Wetlands - Estuarine and marine ecosystems.							9	C2		
III	Terrestrial Ecosystems: Tropical forest types- Rain forests and monsoon forests semi-evergreen, deciduous forests, tropical dry evergreen forests and mangroves. Animal life: Richness, diversity and carrying capacity. Niches in the forests and their utilization by animals.							9	C3		
IV	Nature conservation in India: Legal measures- Brief history of forest conservation in India; Forest Rights Act 2006, Wildlife Protection Act 1972, Environmental Protection Act 1986, Convention on International Trade in Endangered Species (CITES); Conservation vs. development: Costal Regulation Zone Notification (CRZ) 1991 and subsequent amendments, CRZ Notification 2011 and CRZ Notification 2019.							9	C4		
V	Conservation vs. livelihood: Sea Turtle Conservation in Odisha- Gahirmatha Marine Wildlife Sanctuary, Gulf of							9	C5		

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

	Mannar Marine National Park and Biosphere Reserve in Tamil Nadu, Mudumalai National Park and Wildlife Sanctuary.		
	Total	45	
Course Outcomes			
Course Outcomes	On completion of this course, students will;	Program Outcomes	
CO1	Have insights on ecosystems and habitats	PO2, PO8	
CO2	Possess knowledge on aquatic ecosystem and habitat	PO2, PO5, PO8	
CO3	Have better understanding on the types of terrestrial ecosystems	PO2, PO5, PO8	
CO4	Have awareness of nature conservation Acts in India	PO2, PO3, PO4, PO8	
CO5	Have better understanding on Conservation vs. livelihood.	PO2, PO3, PO4, PO8	
Reading List			
1.	Protection and Management of Species, Habitats, Ecosystems and Landscapes, Special Issue - MDPI		
2.	Ecosystems and People, Taylor & Francis		
3.	Frontiers in Ecology and the Environment - ESA		
4.	Journal of Ecology – British Ecological Society		
References Books			
1.	Singh, J.S., Singh, S.P and S. R. Gupta, Ecology, Environment and Resource Conservation, New Delhi: Anamaya Publications, 2006		
2.	Krebs, C.J, Ecology: The Experimental Analysis of Distribution and Abundance,Benjamin Cummings Publications, 2008		
3.	Miller. G.T, Environmental Science. Thomson, California. USA, 2004		
4.	Mills, D.H, An Introduction to Freshwater Ecology, Edinburg: Liver & Boyd, 1972		
5.	Russell K. Monson, Ecology and the Environment. New York: Springer Dordrecht, Heidelberg, 2014		
6.	Chapman, J.L & M.J. Reiss, Ecology: Principles and Applications. Cambridge University Press. UK, 1998		

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1		3						2
CO 2		2			3			3
CO 3		3			2			3
CO 4		3	3	3				2
CO 5		2	2	3				3

3-Strong 2-Medium 1-Low

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME
SYLLABUS WITH EFFECT FROM 2023-2024

Subject Code	Subject Name	Category	L	T	P	O	Credits	Inst. Hours	Marks		
									CIA	External	Total
934E904E	Environmental Economics and Management	Elective	3	-	-	-	3	45	25	75	100
Course Objectives											
C1	To familiarize the students on economics and environment										
C2	To provide insights on environmental policies and Issues										
C3	To throw light on approaches to environmental valuation										
C4	To elucidate on common property resource management										
C5	To create awareness on environmental movements and environmentalism										
SYLLABUS											
UNIT	Details							No. of Hours	Course Objectives		
I	Introduction: Economics and environment- Circular flow model; Material balance model. Sustainability-meaning; different paradigms.							9	C1		
II	Environmental Policies and Issues: Environmental Externalities – public goods and private goods; Design of Environmental Policy– Quantity Based Instruments – Market based Instruments – Pigouvian tax and Subsidy Approach, Emission/effluent charges; Non-Market Instruments: Command and Control – Mixed Instruments – Marketable permits – Tradeable Pollution Permits - Bargaining Solution – Property rights and Coase Theorem.							9	C2		
III	Approaches to Environmental Valuation: Contingent Valuation Method, Travel Cost Method, Hedonic Pricing Method– Social Cost Benefit Analysis.							9	C3		
IV	Common Property Resource (CPR) Management: Tragedy of the Commons-Hardin; Governing the Commons- Elinor Ostrom; CPRs and Rural Poor in India.							9	C4		
V	Environmental movements and environmentalism: Environmentalism of the poor. Grass Root Movements- Chipko Movement, Save Silent Valley Movement, Narmada Bachao Andolan.							9	C5		
	Total							45			
Course Outcomes											

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Course Outcomes	On completion of this course, students will;	Program Outcomes
CO1	Possess the knowledge on on economics and environment	PO2, PO8
CO2	Have insights on environmental policies and Issues	PO2, PO5, PO8
CO3	Possess knowledge on approaches to environmental valuation	PO2, PO5, PO8
CO4	Learn about common property resource management	PO2, PO3, PO4, PO8
CO5	Have better understanding on environmental movements and environmentalism	PO2, PO3, PO4, PO8
Reading List		
1.	Journal of Environmental Economics and Management, Elsevier	
2.	Environmental Economics and Management, Frontiers	
3.	Environmental and Resource Economics, Springer	
4.	Review of Environmental Economics and Policy, The University of Chicago Press Journals	
References Books		
1.	Baviskar, Amita, In the Belly of the River: Tribal Conflicts over Development in theNarmada Valley, New Delhi: Oxford University Press, 1995	
2.	Callan & Thomas, Environmental Economics and Management: Theory, Policy andApplications, (6 th ed.), Cengage Learning, 2013	
3.	Hanley, Nick & Edward Barbier, Pricing Nature: Cost-Benefit Analysis and Environmental Policy. Edward Elgar, 2009	
4.	Kolstad, Intermediate Environmental Economics (2 nd ed.), London International:Oxford University Press, 2011	
5.	Tietenberg, Tom & Lewis, Lynne, Environmental and Natural Resource Economics.Routledge. UK, 2011	
6.	Venkatachalam L, Economic Valuation of Ecosystem Services: A Case Study of Ousteri wetland, Puducherry, Research Report submitted to GIZ MoEF, Madras Institute of Development Studies, Chennai, 2015	

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1		3						2
CO 2		2			3			3
CO 3		3			2			3
CO 4		3	3	3				2
CO 5		2	2	3				3

3-Strong 2-Medium 1-Low

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Subject Code	Subject Name	Category	L	T	P	O	Credits	Inst. Hours	Marks		
									CIA	External	Total
934E904F	Principles of Remote Sensing and GIS	Elective	3	-	-	-	3	45	25	75	100
Course Objectives											
C1	To provide insights to the concepts and principles of remote sensing										
C2	To throw light on data acquisition types and characteristics										
C3	To familiarize on the satellite data products and their characteristics										
C4	To create awareness on GIS and development of GPS										
C5	To elucidate on GIS software and Geo-databases										
SYLLABUS											
UNIT	Details							No. of Hours	Course Objectives		
I	Introduction: Remote sensing – definition, history & development, concept and principles, Cartography - General Cartography, Types of Maps, Technologies in cartography, Map composition. Concept of Electromagnetic Radiation (EMR) - EMR Spectrum and its properties, EMR wavelength regions and their applications, Atmospheric windows, Interaction of EMR with matter, Spectral signatures.							9	C1		
II	Data Acquisition: Platforms – types and their characteristics, Satellites and their characteristics – geo-stationary and sun-synchronous, Earth Resources Satellites -LANDSAT, SPOT, IRS, IKONOS satellite series, High Resolution Satellites- Geoeye; Cartosat. Meteorological satellites – INSAT, NOAA,GOES.							9	C2		
III	Data analysis: Satellite data products and their characteristics, Image processing, Data pre-processing, Atmospheric, Radiometric, Geometric corrections, Basic principles of visual interpretation, Equipment for visual interpretation.							9	C3		
IV	Basic Concepts: mapping concepts, definition of GIS, Components of GIS, Variables - points, lines, polygon, Areas of GIS application, Advantage and Limitation of GIS, Spatial and attribute data. Global Positioning System (GPS)- Definition- Development of GPS, GPS – Satellite Systems, GPS Satellite Navigation System and their Segments, Applications of GPs.							9	C4		
V	Data acquisition and analysis: GIS Software, Open							9	C5		

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

	source GIS software, fileorganization and formats, Geo-database, Rectification, Digitization and map composition.		
	Total	45	
Course Outcomes			
Course Outcomes	On completion of this course, students will;	Program Outcomes	
CO1	Have insights to the concepts and principles of remote sensing	PO1, PO2, PO4	
CO2	Possess knowledge on data acquisition types and characteristics	PO1, PO2, PO4	
CO3	Have better understanding on the satellite data products and their characteristics	PO1, PO2, PO4, PO5	
CO4	Learn about on GIS and development of GPS	PO1, PO2, PO4, PO5, PO6, PO7	
CO5	Learn and understand GIS software and Geo-databases	PO1, PO2, PO4, PO5, PO6, PO8	
Reading List			
1.	Journal of Remote Sensing & GIS, Walsh Medical Media		
2.	Journal of Remote Sensing GIS & Technology, MAT Journals		
3.	Remote Sensing, MDPI		
4.	Transactions on Geoscience & Remote Sensing, IEEE		
References Books			
1.	Drury, S.A., Image Interpretation in Geology, UK: Allen and Unwin, 1987		
2.	Gibson, P.J, Digital Image Processing. London: Routledge Publication, 2000		
3.	Gupta, R.P, Remote Sensing Geology, Germany: Springer Verlag, 1990		
4.	Joseph, G, Fundamentals of Remote Sensing, Hyderabad, India: Universities Press, 2004		
5.	Campbell, J, Introduction to Remote Sensing, London: Taylor & Francis, 2002		
6.	Anji Reddy, M, Textbook of Remote Sensing and Geographic Information System, Hyderabad: B.S. Publication, 2008		

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	3	3		2				
CO 2	3	2		3				
CO 3	2	3		3	3			
CO 4	3	2		2	3	3	3	
CO 5	2	3		3	3	2		3

3-Strong

2-Medium

1-Low

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME
SYLLABUS WITH EFFECT FROM 2023-2024

Reading List

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME

SYLLABUS WITH EFFECT FROM 2023-2024

1.	Journal of Contingencies and Crisis Management, Wiley Online Library
2.	Crisis Response Journal, CRJ
3.	International Journal of Crisis Response and Management, IGI Global
4.	Disaster Recovery Journal, DRJ
References Books	
1.	Mutchopadhyaya, A.K, Crisis and disaster management tuberlance and aftermath”, Newage International Publications, New Delhi, 2005
2.	Manager's Guide to Crisis Management, Jonathan Bernstein, Briefcase Books, 2011
3.	Crisis Management - Resilience and Change, Sarah Kovoov-Misra, Sage Publications, 2019
4.	Crisis Management - Master the Skills to Prevent Disasters – Harvard Business Press, 2004
5.	Crisis Management: How to develop a powerful program, Regina Phelps, 2018
6.	Crisis Management - Planning for the Inevitable – Steven Fink, Backinprint.com, 2000

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	2	3		3				
CO 2	3	2		2				3
CO 3	3	3		3				2
CO 4	3	2		3		3		2
CO 5	2	3		2	3			3

3-Strong 2-Medium 1-Low

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Subject Code	Subject Name	Category	L	T	P	O	Credits	Inst. Hours	Marks		
									CIA	External	Total
934E904H	Geology and Meteorology	Elective	3	-	-	-	3	45	25	75	100
Course Objectives											
C1	To provide insights into geology and its sub-divisions										
C2	To throw light on rock formation and types of rocks										
C3	To familiarize on types of volcanos and earthquakes										
C4	To create awareness on the importance of structural geology										
C5	To elucidate on objectives of meteorology										
SYLLABUS											
UNIT	Details							No. of Hours	Course Objectives		
I	Geology – Introduction, sub-divisions and relations to other branches of science, Earth, Origin, age, major surface features, continents, ocean basins and there evaluation.							9	C1		
II	Rock formation, types of rock, and Geological actions by rivers, wints and glaciers and their associated land forms.							9	C2		
III	Types and distribution of Volcano's, causes of earth quacks, earth quack belt, zones of earthquakes, seismic wave study, earth internal constitution							9	C3		
IV	Structural geology: Definition and scope of structural Geology: primary and secondary Structure; Concept of non-diastraphic and diastraphic structure; Concept of stress and strain; Mohr’s stress circle; Diastraphic structure: planer and linear structure; Basic concept of lineation foliation fold faults and joints							9	C4		
V	Meteorology: Definition, and Scope, Aims and Objectives of Meteorology. Primary Meteorological Parameters and their Measurement—Temperature, Wind Direction and Wind Speed. Secondary Meteorological Parameters and their Measurement—Humidity, Relative Humidity, Absolute Humidity, Pressure and Solar Radiation. Collection and Analysis of Wind Data, Wind Roses, Plotting of Wind Roses and Pollution Roses. Effects of Meteorological Parameters on Air Pollution.							9	C5		
	Total							45			

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Course Outcomes		
Course Outcomes	On completion of this course, students will;	Program Outcomes
CO1	Have insights into geology and its sub-divisions	PO2, PO8
CO2	Possess knowledge on rock formation and types of rocks	PO2, PO5, PO8
CO3	Learn about the types of volcanos and earthquakes	PO2, PO5, PO8
CO4	Have better understanding on structural geology	PO2, PO3, PO4, PO8
CO5	Learn and understand the objectives of meteorology	PO2, PO3, PO4, PO8
Reading List		
1.	Geology and Meteorology, Nature	
2.	Geoscience Data Journal, Royal Meteorological Society	
3.	International Journal of Geography, Geology and Environment, AkiNik Publications	
4.	Journal of Geological Research, Open Access	
References Books		
1.	Berry,B.J.L. and Chorley, P.J. Atmosphre weather and climate, routledge, London and new york, 1993	
2.	Critchfield , J.S. General climatology prentice Hall , India, 1993	
3.	Peterson, Introduction to meteorology McGraw Hill Book London, 1969	
4.	General Meteorology: H. R. Byers, Tata McGraw Hill Publications, New Delhi	
5.	General Meteorology: H. R. Byers (Tata Mc Grew – Hill Publications, New Delhi)	
6.	Meteorology: Dr. S.R. Gadekar, Agromate Publishers, Nagpur 2000	

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1		3						2
CO 2		2			3			3
CO 3		3						3
CO 4		3	3	3				2
CO 5		2	2	3				3

3-Strong

2-Medium

1-Low

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Subject Code	Subject Name	Category	L	T	P	O	Credits	Inst. Hours	Marks		
									CIA	External	Total
934E904I	Disaster Mitigation	Elective	3	-	-	-	3	45	25	75	100
Course Objectives											
C1	To familiarize the students on understanding disaster risk and its implication for sustainable development										
C2	To provide insights on development planning along with the institutional framework										
C3	To throw light on prospective disaster risk management and sustainable development										
C4	To elucidate on mitigation strategies										
C5	To create awareness on the approaches to disaster risk reduction										
SYLLABUS											
UNIT	Details							No. of Hours	Course Objectives		
I	Understanding disaster risk and its implication for sustainable development: Risk and linkages between social, economic and environmental vulnerabilities; Disaster risks in the rural/urban setting and trans-boundary contexts; Disaster risks and livelihood security							9	C1		
II	Development planning along with the institutional framework and processes involved in the context of village/ town/ city/ district/ state/ national planning; Planning in neoliberal framework and its critic; planning as driven by bilateral and multilateral agencies.							9	C2		
III	Disaster risk: Challenges and possibilities for development planning; Prospective disaster risk management and sustainable development; People Centre development and risk mitigation: Social capital for DRR,Community led planning process, participatory planning.							9	C3		
IV	Mitigation strategies: Coping strategies- flood, famine, earthquake, drought, desertification. Food security and coping strategies. Livelihood, employment and coping strategies.							9	C4		
V	Approaches to disaster risk reduction (DRR): Mainstreaming DRR, Ecosystem and DRR, Flagship programmes and social protection schemes, Livelihood approaches to DRR and Key legislation relevant to DRR.							9	C5		
Total								45			

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Course Outcomes		
Course Outcomes	On completion of this course, students will;	Program Outcomes
CO1	Possess knowledge on understanding disaster risk and its implication for sustainable development	PO1, PO2, PO4
CO2	Have insights on development planning along with the institutional framework	PO1, PO2, PO4, P08
CO3	Learn and understand prospective disaster risk management and sustainable development	PO1, PO2, PO4, P08
CO4	Learn about on mitigation strategies	PO1, PO2, PO4, PO6, P08
CO5	Have better understanding on the approaches to disaster risk reduction	PO1, PO2, PO4, PO5, P08
Reading List		
1.	International Journal of Disaster Risk Reduction, Elsevier	
2.	International Journal of Disaster Risk Science, Springer	
3.	Journal of Emergency Management and Disaster Communications, Open Access	
4.	Disaster Prevention and Management, Emerald	
References Books		
1.	Pelling, Mark (eds), Natural Disasters and Development in a Globalizing World. Routledge. New York, 2002	
2.	Environmental Guidance Note for Disaster Risk Reduction: Healthy Ecosystems for Human Security, International Union for Conservation of Nature and Natural Resources, 2009	
3.	Kundzewicz, & Zbigniew W, Non-structural Flood Protection and Sustainability, USA: Water International, 2009	
4.	Pradeep Sahni, Alka Dhameja, Uma Medury, Disaster Mitigation: Experiences and Reflections, PHI, 2004	
5.	R B Singh, Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, 2006	
6.	Arnold, Magret, Development for disaster reduction: the role of the World Bank. Australian Journal of Emergency Management, 2002	

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	2	3		3				
CO 2	3	2		2				3
CO 3	3	3		3				2
CO 4	3	2		3		3		2
CO 5	2	3		2	3			3

3-Strong 2-Medium 1-Low

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Subject Code	Subject Name	Category	L	T	P	O	Credits	Inst. Hours	Marks		
									CIA	External	Total
934E904J	Geoinformatics in Disaster Mitigation	Elective	3	-	-	-	3	45	25	75	100
Course Objectives											
C1	To provide insights on the Importance of RS and GIS for disaster mitigation										
C2	To throw light on flood, cyclone and Tsunami										
C3	To familiarize on drought and fire and management using GIS										
C4	To create awareness on the potential of RS and GIS applications in disaster mapping										
C5	To elucidate on Spatial Data Infrastructure to facilitate disaster management										
SYLLABUS											
UNIT	Details							No. of Hours	Course Objectives		
I	Introduction: Importance of RS and GIS for disaster mitigation, forecast, forewarning system, disaster preparedness with respect to different disasters - Earthquake, volcanoes and landslides: RS and GIS in earthquake prediction and post-quake rehabilitation, GIS for earthquake disaster management, mapping tectonic features, RS of geothermal field, mapping lava flows, volcano hazard management, RS and GIS for zonation, monitoring and management of landslides.							9	C1		
II	Flood, cyclone and Tsunami: Flooding potential zonation mapping, flood hazard assessment, ice cover monitoring and its role in flooding; Cyclone monitoring using INSAT, ERS-1, NOAA and DMSP satellites, RS and GIS in cyclone mapping and mitigation, damage assessment, warning; RS and GIS for Tsunamic warning, damage assessment and rehabilitation.							9	C2		
III	Drought and Fire: Delineation of drought vulnerable areas, drought monitoring, GIS based drought analysis, desertification factors, monitoring vegetative biomass; Forest Fire – causes, management using GIS, risk zonation mapping, forecasting system							9	C3		
IV	Data management: Hazard evaluation – Zonation – Risk assessment and vulnerability, Damage assessment – Land use planning and regulation for sustainable development, Potential of RS and GIS applications in disaster mapping– Disaster management plan.							9	C4		

UNIVERSITY OF MADRAS
MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME
SYLLABUS WITH EFFECT FROM 2023-2024

V	Spatial Data Infrastructure (SDI) to facilitate Disaster Management, GIS based Decision Support Systems (DSS) for disaster management, Satellite surveillance for disaster mitigation.	9	C5
	Total	45	
Course Outcomes			
Course Outcomes	On completion of this course, students will;	Program Outcomes	
CO1	Have insights on the Importance of RS and GIS for disaster mitigation	PO1, PO2, PO4	
CO2	Possess knowledge on flood, cyclone and Tsunami	PO1, PO2, PO4	
CO3	Have better understanding on drought and fire and management using GIS	PO1, PO2, PO4, PO5	
CO4	Possess knowledge on potential of RS and GIS applications in disaster mapping	PO1, PO2, PO4, PO5, PO6, PO7	
CO5	Learn and understand Spatial Data Infrastructure to facilitate disaster management	PO1, PO2, PO4, PO5, PO6, PO8	
Reading List			
1.	Disaster Management and Geospatial Information, MDPI		
2.	Natural Hazards and Earth System Sciences, European Geosciences Union		
3.	International Journal of Geo-Information, MDPI		
4.	Geoscience Data Journal, Royal Meteorological Society		
References Books			
1.	Roy, P.S, Natural Disaster and their mitigation. Published by Indian Institute of Remote Sensing (IIRS), 2000		
2.	Bhattacharya, Tushar, Disaster Science and Management, USA: McGraw Hill, 2012		
3.	Sisi Zlatanova& Andrea Fabbri Jonathanli, Geometrics solutions for Disaster management, Springer Verlag, 2007		
4.	Murthy, D.P.N, Disaster Management, India: Deep & Deep Publication, 2008		
5.	Orhan, R., Backhaus, P.,Boccardo, S.,Zlatanova, Geoinformation for Disaster and Risk Management Examples and Best Practices, Joint Board of GeospatialInformation Societies and United Nations Office for Outer Space Affairs, Denmark, 2010		
6.	Singh, R.B, Space Technology for Disaster Monitoring and Mitigation in India, International Center for Disaster-Mitigation Engineering, 1994		

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	3	3		2				
CO 2	3	2		3				
CO 3	2	3		3	2			
CO 4	3	2		2	3	3	3	
CO 5	2	3		3	3	2		3

3-Strong

2-Medium

1-Low

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Subject Code	Subject Name	Category	L	T	P	O	Credits	Inst. Hours	Marks		
									CIA	External	Total
934E904K	Climate Change and Disaster Management	Elective	3	-	-	-	3	45	25	75	100
Course Objectives											
C1	To familiarize the students on global climate change trends and impacts										
C2	To provide insights on impact of climate change in agriculture										
C3	To throw light on adaptation and water resources										
C4	To elucidate on adaptation in Coastal Zones										
C5	To create awareness on the importance of governance and policies for adaptation in disaster risk management										
SYLLABUS											
UNIT	Details							No. of Hours	Course Objectives		
I	Global climate change trends and impacts: Meaning of adaptation to climate change- Vulnerability to climatic changes - Linking adaptation to development -Adaptation at the international level - Governance and policies for adaptation - Integrating adaptation into development planning - Moving ahead on adaptation in India.							9	C1		
II	Adaptation in Agriculture: Impact of climate change in agriculture- Themeaning of adaptation in agriculture- Governance and policies for adaptation in agriculture- Adaptation options in agriculture – Linking adaptation and mitigation.							9	C2		
III	Adaptation and water resources: Impact of climate change in water resources- The meaning of adaptation in water resources management- Governance and policies for adaptation in water resources management- Adaptation options in water resources management- Linking adaptation and mitigation.							9	C3		
IV	Adaptation in Coastal Zones: Climate change impact in coastal zones- The meaning of adaptation in coastal zones- Governance and policies for adaptationin coastal zones- Adaptation options in coastal zones- Linking adaptation and mitigation.							9	C4		
V	Adaptation in Disaster Risk Management: How does climate change impactdisaster risks? What does adaptation in disaster risk management mean?							9	C5		

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

	Governance and policies for adaptation in disaster risk management- Adaptationoptions in disaster risk management- Linking adaptation and mitigation.		
	Total	45	
Course Outcomes			
Course Outcomes	On completion of this course, students will;	Program Outcomes	
CO1	Possess the knowledge on global climate change trends and impacts	PO1, PO2, PO3	
CO2	Have insights on impact of climate change in agriculture	PO1, PO2, PO3	
CO3	Possess knowledge on adaptation and water resources	PO1, PO2, PO5, PO8	
CO4	Learn about adaptation in Coastal Zones	PO1, PO2, PO8	
CO5	Have better understanding on governance and policies for adaptation in disaster risk management	PO1, PO2, PO3, PO8	
Reading List			
1.	Economics of Disasters and Climate Change, Springer		
2.	Climate Change and Sustainable Disaster Management, MDPI		
3.	Disasters – Wiley Online Library		
4.	International Journal of Climate Change Strategies and Management, Emerald		
References Books			
1.	Byravan, S. and Sudhir ChellaRajan, An Evaluation of India’s National Action Plan for Climate Change, IFMR: Chennai, 2012		
2.	Dubash K.Navroz (ed), India in a Warming World: Integrating Climate and Development, Oxford University Press. London, 2019		
3.	Food and Agricultural Organisation of the United Nations (FAO), Adaptation to climate change in agriculture, forestry and fisheries: Perspective, framework and priorities, 2007		
4.	N Mani, Environment, Climate Change & Disaster Management, New Century Publications, 2017		
5.	Alka Chauhan, Pawan Kumar Bharti, Climate Change, Disaster Management and Environment Discovery Publishing House Pvt Ltd, 2016		
6.	Stéphane Hallegatte, Natural Disasters and Climate Change - An Economic Perspective, Springer, 2014		

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	3	3	2					
CO 2	3	2	3					
CO 3	2	3			3			3
CO 4	3	2						2
CO 5	2	3	3					3

3-Strong 2-Medium 1-Low

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Subject Code	Subject Name	Category	L	T	P	O	Credits	Inst. Hours	Marks		
									CIA	External	Total
934E904L	Psycho-social Ramifications and Resource Mobilization	Elective	3	-	-	-	3	45	25	75	100
Course Objectives											
C1	To provide insights to identifying socio-psychological Needs in Mass Emergency										
C2	To throw light on the training in humanitarian professionalism										
C3	To familiarize on the individual empowerment										
C4	To create awareness on the importance of community building in developing local resilience to disasters										
C5	To elucidate on economic impact of disasters										
SYLLABUS											
UNIT	Details							No. of Hours	Course Objectives		
I	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							9	C1		
II	Training in Humanitarian Professionalism: Professionalism and Humanitarian Responses, Short term support, Long term support, Conducting workshops and case analysis.							9	C2		
III	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,							9	C3		
IV	Community Empowerment: Community building in developing local resilience to disasters: developing seed leaders, communication networks and personal commitments.							9	C4		
V	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							9	C5		
	Total							45			

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Course Outcomes		
Course Outcomes	On completion of this course, students will;	Program Outcomes
CO1	Have insights to identifying socio-psychological Needs in Mass Emergency	PO1, PO2, PO4
CO2	Possess knowledge on the training in humanitarian professionalism	PO1, PO2, PO4
CO3	Have better understanding on the individual empowerment	PO1, PO2, PO4, PO5
CO4	Possess knowledge about community building in developing local resilience to disasters	PO1, PO2, PO4, PO5, PO6, PO7
CO5	Learn and understand economic impact of disasters	PO1, PO2, PO4, PO5, PO6, PO8
Reading List		
1.	Review of General Psychology, Sage	
2.	Annual Review of Sociology, Annual Reviews	
3.	American Journal of Sociology, JSTOR	
4.	American Journal of Community Psychology, Springer	
References Books		
1.	OHO Lerbinger, The Crisis Manager, Facing risk and responsibility, Lawrence Erlbaum associates, 1986	
2.	Peter, K. Hodgkinson, Copying with Catastrophe, A handbook of post disaster psychological after care. Routledge, 1998	
3.	Horowitz, M, Stress response syndranes, Northvale, N.J. Armson, 1986	
4.	Kazimiera Adamowski, Creating Excellence in Crisis Care, Johnwiley & Sons Inc., 1998	
5.	Katja Hujo, The Politics of Domestic Resource Mobilization for Social Development, Springer, 2020	
6.	Girishwar Misra, Psychosocial Interventions for Health and Well-Being, Springer, 2018	

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	3	3		2				
CO 2	3	2		3				
CO 3	2	3		3	2			
CO 4	3	2		2	3	3	3	
CO 5	2	3		3	3	2		3

3-Strong 2-Medium 1-Low

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Subject Code	Subject Name	Category	L	T	P	O	Credits	Inst. Hours	Marks		
									CIA	External	Total
934E904M	Disaster Economics and Financing	Elective	3	-	-	-	3	45	25	75	100
Course Objectives											
C1	To familiarize the students with imperfect information and adverse selection										
C2	To provide insights on impact of disaster										
C3	To throw light on principles for public intervention in the catastrophe insurance markets										
C4	To elucidate on India’s disaster financing framework and policy										
C5	To create awareness on the role of international financial institutions in disaster finance										
	SYLLABUS										
UNIT	Details							No. of Hours	Course Objectives		
I	Economics of Information- Imperfect Information-the market for lemons- Akerlof’s Model- Adverse Selection- Moral Hazard- Signalling and screening- Transaction cost- the Principal-Agent Model.							9	C1		
II	Impact of Disaster: Humanitarian impact; economic impact. Direct and Indirect Costs; Tangible and Intangible Costs. Damage assessment methods: Damage Loss and Needs Assessment; Risk identification and assessment.							9	C2		
III	Risk aversion- Arrow-Lind measure of risk aversion; Disaster risk financing: Market imperfections and catastrophe insurance- Principles for public intervention in the catastrophe insurance markets- Risk transfer: Alternative risk transfer instruments: Catastrophe bonds, weather derivatives, contingent credit and catastrophe swap.							9	C3		
IV	India’s disaster financing framework and policy. Disaster financing in India- trends and magnitude over the years. Finance Commission- role and functions.							9	C4		
V	The role of international financial institutions in disaster finance. Disaster and development- disaster and international finance capital in the neoliberal world							9	C5		
	Total							45			

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Course Outcomes		
Course Outcomes	On completion of this course, students will;	Program Outcomes
CO1	Possess the knowledge on imperfect information and adverse selection	PO2, PO3, PO4
CO2	Have insights on impact of disaster	PO1, PO2, P04, P05
CO3	Possess knowledge on principles for public intervention in the catastrophe insurance markets	PO1, PO2, PO4, PO6
CO4	Learn about India’s disaster financing framework and policy	PO1, PO2, PO4, PO6, PO8
CO5	Have better understanding on the role of international financial institutions in disaster finance	PO1, PO2, PO4, PO6, PO7, PO8
Reading List		
1.	Disaster Risk Financing A Global Survey of Practices and Challenges, OECD	
2.	Economics of Disasters and Climate Change, Springer	
3.	Review of Environmental Economics and Policy, The University of Chicago Press Journals	
4.	International Journal of Humanities Social Science and Management , Open Access	
References Books		
1.	Bardhan, Pranab, The Economic Theory of Agrarian Institutions, UK: Clarendon, 1991	
2.	Benson Charlotte, & Clay Edward, Understanding the Economic and Financial Impacts of Natural Disasters, Disaster Risk Management Series No.4, Chapter 3 PublicFinance and Disasters, World Bank, 2004	
3.	Cunnins, David J and Oliver Mahul, Catastrophe Risk Financing in Developing Countries: Principles for Public Action, The World Bank: Washington, D.C, 2009	
4.	Eric, C. Jones; Arthur, D. Murphy, A. (Ed), The Political Economy of Hazards andDisasters, Altamira Press, USA, 2009	
5.	Goodwin, Barry K; Vincent H. Smith, The Economics of Crop Insurance and DisasterAid. AEI Press. USA, 1995	
6.	Hochrainer, Stefan, Macroeconomic Risk Management Against Natura Disasters Analysis focussed on Governments in Developing Countries. Dissertation Universitat Wien, 2006	

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1		3	3	2				
CO 2	3	2		3	3			
CO 3	2	3		3		2		
CO 4	3	3		2		3		2
CO 5	3	2		3		3	2	3

3-Strong

2-Medium

1-Low

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Subject Code	Subject Name	Category	L	T	P	O	Credits	Inst. Hours	Marks		
									CIA	External	Total
934E904N	Preventive Laws In Disaster Management	Elective	3	-	-	-	3	45	25	75	100
Course Objectives											
C1	To familiarize the students with the role of the union and the states in disaster management										
C2	To provide insights on Important statutes with provisions relevant to disaster management										
C3	To throw light on planning and disaster vulnerability										
C4	To elucidate on local administration and disaster risk reduction										
C5	To create awareness of fire safety norms										
	SYLLABUS										
UNIT	Details							No. of Hours	Course Objectives		
I	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)							9	C1		
II	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.							9	C2		
III	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							9	C3		

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

	the Constitution, Municipalities: Article 243 W read with 12th Schedule of the Constitution, Model Town and Country Manning Act, 1960.		
IV	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,	9	C4
V	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	9	C5
	Total	45	
Course Outcomes			
Course Outcomes	On completion of this course, students will;	Program Outcomes	
CO1	Possess the knowledge on role of the union and the states in disaster management	PO1, PO2, PO4	
CO2	Have insights on Important statutes with provisions relevant to disaster management	PO1, PO2, PO4, P08	
CO3	Possess knowledge on planning and disaster vulnerability	PO1, PO2, PO4, P08	
CO4	Learn about local administration and disaster risk reduction	PO1, PO2, PO4, PO6, P08	
CO5	Have better understanding on fire safety norms	PO1, PO2, PO3, PO4, PO5, P08	
Reading List			
1.	Disaster Management in India, Ministry of Home Affairs, Government of India		
2.	International Journal of Humanities Social Science and Management , Open Access		
3.	The Handbook on Law and Disaster Risk Reduction, International Federation of Red Cross and Red Crescent Societies (IFRC)		
4.	Disaster Prevention and Management, Emerald		
References Books			
1.	Dr. Priya R. Futane , Law Relating to Disaster Management, Regal Publications, 2019		
2.	Prakash V. Dhopatkhar, The Disaster Management Act, 2005 with Rules, Regulations and Notifications with Special Reference to COVID-19: Disaster Management Act, 2005, Notion Press, 1st Edition, 2021		
3.	Lexis, The Disaster Management Act, 2005- Bare Act, Universal/LexisNexis, 2021		
4.	Pradeep Sahni, Alka Dhameja, Uma Medury, Disaster Mitigation: Experiences and Reflections, PHI, 2004		

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME

SYLLABUS WITH EFFECT FROM 2023-2024

5.	R B Singh, Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, 2006
6.	Chakrabarty, B., & Bhattacharya, M. (Eds.), The governance discourse: a reader, USA: Oxford University Press, 2008

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	2	3		3				
CO 2	3	2		2				3
CO 3	3	3		3				2
CO 4	3	2		3		3		2
CO 5	2	3	3	2	3			3
	3-Strong		2-Medium		1-Low			

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Subject Code	Subject Name	Category	L	T	P	O	Credits	Inst. Hours	Marks		
									CIA	External	Total
934E904O	Disaster Response	Elective	3	-	-	-	3	45	25	75	100
Course Objectives											
C1	To provide insights to the students on best practices in relief operations and response management										
C2	To throw light on the humanitarian supply chain management system.										
C3	To familiarize on coordination in disaster response										
C4	To create awareness of quick disaster response										
C5	To elucidate on managing relief, funding relief, recovery.										
SYLLABUS											
UNIT	Details							No. of Hours	Course Objectives		
I	Key Response functions -Warning and public evacuation, Post Disaster Need Assessment, Estimation of basic needs- Food, Water, Health, Shelter etc., Concept of Relief- policy, relief delivery and management. Standards and Best Practices in Relief operations-SPHERE standards. Response Management - Emergency Planning, Coordination, Information management, Resource management, Contingency planning, Business Continuity Plans.							9	C1		
II	Supply Chain Management, Logistics and Logistics functions. Five Key Building Blocks (Human Resources, Knowledge Management, Logistics, Financial Resources, Community). The humanitarian supply chain management system, its distinctiveness, Principles. Management of relief material and maintenance of essential services. Characteristics of Humanitarian Supply Chain and flows.							9	C2		
III	Coordination in Disaster Response: Disaster response organization, Disaster response & administration - Central, State, District and Local, Disaster Response: Policy & Other organization, Role of multiple stakeholders in Disaster Response NDRF, SDRF, ITBP, CRPF, SRPF, EMS.							9	C3		

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

IV	Quick Disaster Response: First responder, medical first aid, life saving techniques, Golden time. Search & Rescue equipment- Search & Rescue equipment for different disasters, its use, procurement, maintenance, management & other teams.	9	C4
V	Individual and Group behaviour, Psychological Response, Trauma & Stress Management, Rumour & Panic Management Relief measures, Minimum standards of relief, managing relief, Funding relief, Recovery.	9	C5
Total		45	
Course Outcomes			
Course Outcomes	On completion of this course, students will;	Program Outcomes	
CO1	Have insights to the students on best practices in relief operations and response management	PO2, PO3, PO4	
CO2	Possess knowledge on the humanitarian supply chain management system.	PO1, PO2, P04, P05	
CO3	Learn about coordination in disaster response	PO1, PO2, PO4, PO6	
CO4	Possess the knowledge on quick disaster response	PO1, PO2, PO4, PO6, PO8	
CO5	Have better understanding on managing relief, funding relief, recovery.	PO1, PO2, PO4, PO6, PO7, PO8	
Reading List			
1.	Disaster Management & Response, Elsevier		
2.	International Journal of Disaster Response and Emergency Management, IGI Global		
3.	Crisis Response Journal, CRJ		
4.	International Journal of Crisis Response and Management, IGI Global		
References Books			
1.	Chopra, S., Meindl, P. and Kalra, D.V, Supply Chain Management: Strategy, Planningand Operation, 2007		
2.	Goel S.L. and Kumar Ram, Disaster Management, Deep and Deep Publications, 2001		
3.	Bollin, C. &Khanna, S, “Review of Post Disaster Recovery Need Assessment Methodologies”, Report commissioned by UNDP, 2007		
4.	Collins Larry R. and Schneid Thomas D., Disaster Management and Preparedness Taylor and Francis 2000		
5.	David A. McEntire , Disaster Response and Recovery: Strategies and Tactics for Resilience, Wiley; 2nd edition, 2015		

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME

SYLLABUS WITH EFFECT FROM 2023-2024

6.	Bowersox, J.D and Closs, D.J, Logistical Management: The integrated supply chainprocess, New Delhi: Tata McGraw Hill, 2008
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	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1		3	3	2				
CO 2	3	2		3	3			
CO 3	2	3		3		2		
CO 4	3	3		2		2		2
CO 5	3	2		3		3	2	3

3-Strong

2-Medium

1-Low

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Subject Code	Subject Name	Category	L	T	P	O	Credits	Inst. Hours	Marks		
									CIA	External	Total
934E904P	Disaster Recovery	Elective	3	-	-	-	3	45	25	75	100
Course Objectives											
C1	To familiarize the students on concepts of recovery, rehabilitation and reconstruction										
C2	To provide insights on recovery context; competing values in models of recovery-										
C3	To throw light on elements of recovery plan										
C4	To elucidate on mitigating disaster risk during recovery										
C5	To create awareness of disaster recovery processes										
SYLLABUS											
UNIT	Details							No. of Hours	Course Objectives		
I	Concepts of Recovery, Rehabilitation and Reconstruction- Impact of Disaster: Societal changes-displacement; livelihood; infrastructural; public health; environmental changes; political and organizational changes; psychological impact; changes in business environment							9	C1		
II	Recovery context; competing values in models of recovery-restore existing or reimagined community, Challenges in recovery processes. Phases of Recovery. Laws and Policies.							9	C2		
III	Elements of recovery plan. Community participation in planning process. Role of planning experts, community leaders and other interest groups. Role of NGO, CBO and FBO in recovery process, Role of Media.							9	C3		
IV	Mitigating disaster risk during recovery- land use, livelihood, risk assessment methods; choices under uncertainty. Financing of recovery projects, Recovery management approaches- centralized versus decentralized,community as participants.							9	C4		
V	Case studies of disaster recovery processes: Indian Ocean Tsunami 2004, Gaja Cyclone 2018, Kerala flood 2018.							9	C5		
Total								45			

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Course Outcomes		
Course Outcomes	On completion of this course, students will;	Program Outcomes
CO1	Possess the knowledge on concepts of recovery, rehabilitation and reconstruction	PO1, PO2, PO4
CO2	Have insights on recovery context; competing values in models of recovery-	PO1, PO2, PO4, P08
CO3	Possess knowledge on elements of recovery plan	PO1, PO2, PO4, P08
CO4	Learn about mitigating disaster risk during recovery	PO1, PO2, PO4, PO6, P08
CO5	Have better understanding on disaster recovery processes	PO1, PO2, PO4, PO5, P08
Reading List		
1.	Disaster Recovery Journal, DRJ	
2.	International Journal of Disaster Recovery and Business Continuity, SERSC	
3.	International Journal of Disaster Response and Emergency Management, IGI Global	
4.	Journal of Emergency Management and Disaster Communications, Open Access	
References Books		
1.	Amaratunga, D. and Haigh, R, (eds) Post Disaster Reconstruction of the Built Environment, Wiley-Blackwell, 2011	
2.	David A. McEntire , Disaster Response and Recovery: Strategies and Tactics for Resilience, Wiley; 2nd edition, 2015	
3.	Collins Larry R. and Schneid Thomas D., Disaster Management and Preparedness Taylor and Francis 2000	
4.	Goel S.L. and Kumar Ram, Disaster Management, Deep and Deep Publications, 2001	
5.	Nidhi Gauba Dhawan, Ambrina Sardar Khan - Disaster Management And Preparedness–,CBS Publishers & Distributors,–2012	
6.	Goel. S.L, Disaster Administration and Management, New Delhi: Deep & Deep publication, 2007	

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	2	3		3				
CO 2	3	2		2				3
CO 3	3	3		3				2
CO 4	3	2		3		3		2
CO 5	2	3		2	3			3

3-Strong 2-Medium 1-Low

UNIVERSITY OF MADRAS
MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME
SYLLABUS WITH EFFECT FROM 2023-2024