



# GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC

Subject Code: 2920601

**SUBJECT NAME: DISASTER MANAGEMENT**

**Semester II**

**Type of course: Mandatory**

**Prerequisite: NA**

**Rationale:** This subject is conceptual applications of principles of management to mitigate various disasters.

**Teaching and Examination Scheme:**

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE(E)	PA	ESE (V)	PA(I)	
2	0	0	2	50	--	--	--	50

**Content:**

Sr. No.	Content	Total Hrs	% Weightage
1	<b>Understanding Disasters</b>  Understanding the Concepts and definitions of Disaster, Hazard, Vulnerability, Risk, Capacity – Disaster and Development, and disaster management	02	10
2	<b>Types, Trends, Causes, Consequences and Control of Disasters</b>  <b>Geological Disasters</b> - earthquakes, landslides, tsunami, mining; <b>Hydro-Meteorological Disasters</b> - floods, cyclones, lightning, thunder-storms, hail storms, avalanches, droughts, cold and heat waves; <b>Biological Disasters</b> - epidemics, pest attacks, forest fire; <b>Technological Disasters</b> - chemical, industrial, radiological, nuclear and <b>Man-made Disasters</b> -building collapse, rural and urban fire, road and rail accidents, nuclear, radiological, chemicals and biological disasters; Global Disaster Trends – Emerging Risks of Disasters – Climate Change and Urban Disasters	04	15
3	<b>Disaster Management Cycle and Framework</b>  Disaster Management Cycle <b>Pre-Disaster Management</b> – Risk Assessment and Analysis, Risk Mapping, Prevention and Mitigation of Disasters, Early Warning System; Preparedness, Capacity Development; Awareness <b>Management during Disaster</b> – Evacuation – Disaster Communication – Search and Rescue – Emergency Operation Centre – Incident Command System – Relief and Rehabilitation –	08	30



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	<b>Post-Disaster Management</b> – Damage and Needs Assessment, Restoration of Critical Infrastructure – Early Recovery – Reconstruction and Redevelopment;		
4	<b>Disaster Management in India</b> Disaster Profile of India – Mega Disasters of India and Lessons Learnt, Disaster Management Act 2005 – Institutional and Financial Mechanism, National Policy on Disaster Management, National Guidelines and Plans on Disaster Management; Co-ordination of Stakeholders during Disaster, Role of Government (local, state and national), Non-Government and Inter-Governmental Agencies	06	15
5	<b>Introduction to Applications of Science and Technology for Disaster Management &amp; Mitigation</b> S&T Institutions for Disaster Management in India Geo-informatics in Disaster Management (RS, GIS, GPS and RS) Disaster Communication System (Early Warning and Its Dissemination) Land Use Planning and Development Regulations Disaster Safe Designs and Constructions Structural and Non Structural Mitigation of Disasters	08	30

## Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10%	50%	30%	10%	0	0

**Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)**

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

## Reference Books:

- 1 Coppola D P, 2007. Introduction to International Disaster Management, Elsevier Science (B/H), London.
2. Manual on natural disaster management in India, M C Gupta, NIDM, New Delhi
3. An overview on natural & man-made disasters and their reduction, R K Bhandani, CSIR, New Delhi
4. World Disasters Report, 2009. International Federation of Red Cross and Red Crescent, Switzerland
5. Encyclopedia of disaster management, Vol I, II and III. Disaster management policy and administration, S L Goyal, Deep & Deep, New Delhi, 2006
6. Disasters in India Studies of grim reality, Anu Kapur & others, 2005, 283 pages, Rawat Publishers, Jaipur
7. Management of Natural Disasters in developing countries, H.N. Srivastava & G.D. Gupta, Daya Publishers, Delhi, 2006, 201 pages



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8. Natural Disasters, David Alexander, Kluwer Academic London, 1999, 632 pages
9. Disaster Management Act 2005, Publisher by Govt. of India
10. Publications of National Disaster Management Authority (NDMA) on Various Templates and Guidelines for Disaster Management
11. NIDM Publications
12. National Disaster Management Policy, 2009, GoI
13. Disaster Preparedness Kit, American Red Cross
14. Bryant Edwards (2005): Natural Hazards, Cambridge University Press, U.K.
15. Roy, P.S. (2000): Space Technology for Disaster management: A Remote Sensing & GIS Perspective, Indian Institute of Remote Sensing (NRSA) Dehradun.
16. Sharma, R.K. & Sharma, G. (2005) (ed) Natural Disaster, APH Publishing Corporation, New Delhi.
17. Taori, K (2005) Disaster Management through Panchayati Raj, Concept Publishing Company, New Delhi.

**Course Outcomes: After learning the course the students will able to**

Sr. No.	CO statement	Marks % weightage
CO-1	Classify & Differentiate various disasters, disaster preparedness and mitigation measures	30
CO-2	Organize roles & responsibilities of various stakeholders during pre-disaster, during disasters & post-disaster stages	30
CO-3	Summarize Disaster Management Cycle & DM Institution along with structural and nonstructural mitigation of disasters	15
CO-4	Exemplifying the role of IT, remote sensing, GIS and GPS in risk reduction	15
CO-5	Infer disaster management acts & guidelines	10

**List of Open Source Software/learning website:**

1. [www.gsdma.org](http://www.gsdma.org)
2. [www.iirs.nrsa.org](http://www.iirs.nrsa.org)
3. <http://quake.usgs.gov>
4. [www.nidmindia.nic.in](http://www.nidmindia.nic.in)
5. <http://nptel.ac.in>
6. [www.nicee.org](http://www.nicee.org)
7. <http://www.earthquakeinfo.org>
8. [www.eeri.org](http://www.eeri.org)
9. [www.GIS.Development.net](http://www.GIS.Development.net)