

B. Tech. III Semester VI

Subject Name : Fundamentals of Disaster Management **Subject Code:** BTCL15602
Type of course : OE - II
Prerequisite : -
Rationale : Students will be able to understand a general concept in the dimensions of disasters caused by nature beyond human control as well as the disasters and environmental hazards induced by human activities with emphasis on disaster preparedness, response and recovery.

Teaching and Examination Scheme:

Teaching Scheme				Theory Marks			Practical Marks		Total
L	T	P	C	TEE	CA1	CA2	TEP	CA3	100
3	0	0	3	60	25	15	-	-	

CA1: Continuous Assessment (assignments/projects/open book tests/closed book tests **CA2:** Sincerity in attending classes/class tests/ timely submissions of assignments/self-learning attitude/solving advanced problems **TEE:** Term End Examination **TEP:** Term End Practical Exam (Performance and viva on practical skills learned in course) **CA3:** Regular submission of Lab work/Quality of work submitted/Active participation in lab sessions/viva on practical skills learned in course

Content:

Sr. No.	Topics	Teaching Hrs.	Module Weightage
1	Introduction Concepts and definitions: disaster, hazard, vulnerability, resilience, risks severity, frequency and details, capacity, impact, prevention, mitigation. Disasters classification; natural disasters (floods, draught, cyclones, volcanoes, earthquakes, tsunami, landslides, coastal erosion, soil erosion, forest fires etc.); manmade disasters (industrial pollution, artificial flooding in urban areas, nuclear radiation, chemical spills, transportation accidents, terrorist strikes, etc.); hazard and vulnerability profile of India, mountain and coastal areas, ecological fragility.	09	20%
2	Disaster Impacts & Vulnerability Disaster impacts (environmental, physical, social, ecological, economic, political, etc.); health, psycho-social issues; demographic aspects (gender, age, special needs); hazard locations; global and national disaster trends; climate change and urban disasters; Concept of Vulnerability & Its analysis, Strategic Development for Vulnerability Reduction	08	15%
3	Disaster Risk Reduction (DRR) Disaster management cycle-its phases; prevention, mitigation, preparedness, relief and recovery; structural and non-structural measures; risk analysis, vulnerability and capacity assessment; early warning systems, Post disaster environmental response (water, sanitation, food safety, waste management, disease control, security,	10	25%

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	communications); Roles and responsibilities of government, community, local institutions, NGOs and other stakeholders; Policies and legislation for disaster risk reduction, DRR programs in India and the activities of National Disaster Management Authority.		
4	Disaster Preparedness and Response Concept and Nature, Disaster Preparedness Plan, Prediction, Early Warnings and Safety Measures of Disaster, Role of Information, Education, Communication, and Training, Role of Government, International and NGO Bodies, Role of IT in Disaster Preparedness, Role of Engineers on Disaster Management ; Introduction to Disaster Response, Disaster Response Plan, Communication, Participation, and Activation of Emergency Preparedness Plan, Search, Rescue, Evacuation and Logistic Management, Role of Government, International and NGO Bodies, Psychological Response and Management (Trauma, Stress, Rumor and Panic), Relief and Recovery, Medical Health Response to Different Disasters	10	25%
5	Rehabilitation, Reconstruction and Recovery Reconstruction and Rehabilitation as a Means of Development, Damage Assessment, Post Disaster effects and Remedial Measures, Creation of Long-term Job Opportunities and Livelihood Options, Disaster Resistant House Construction, Sanitation and Hygiene, Education and Awareness, Dealing with Victims' Psychology, Long-term Counter Disaster Planning, Role of Educational Institute.	08	15%

Suggested Specification table with Marks (Theory/Practical):

% Distribution of Marks					
R Level	U Level	A Level	N Level	E Level	C Level
25	25	25	10	15	0

Legends: R: Remembrance, **U:** Understanding; **A:** Application, **N:** Analyze, **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 Text Books:

Sr. No.	Title of book /article	Author(s)	Publisher and details	Year of publication	Publication Edition
1.	Disaster Management	Dr. Mrinalini Pandey	Wiley India Pvt. Ltd; ISBN: 9788126549245	2014	1 st
2.	Disaster Science and Management,	T. Bhattacharya	McGraw Hill Education (India) Pvt Ltd Wiley; ISBN: 97812590073 61	2012	1 st

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W.e.f. AY 2021-22

3.	Disaster Management: Future Challenges and Opportunities	Jagbir Singh	I. K. International Publication House Pvt. Ltd.; ISBN: 978-81-89866-46-4	2007	1 st
4.	Disaster Management	J. P. Singhal	Laxmi Publications; ISBN 10:9380386427, ISBN-13 :978-9380386423	2010	1 st
5.	Earth and Atmospheric Disaster Management : Nature and Manmade	C. K. Rajan, Navale Pandharinath	B S Publication, ISBN-10:817800187X, ISBN-13:978-8178001876	2009	1 st

Course Outcome:

Sr. No.	CO Statement After learning this subject, students will be able to	Marks % weightage
CO-1	Summarize basic concepts, challenges and impacts in Disaster Management. (U & R-Cognitive Level)	15
CO-2	Develop competencies in the application of Disaster Concepts to Management. (U, R & A- Cognitive Level)	25
CO-3	Analyzing Relationship between Development and Disasters. (U & N-Cognitive Level)	25
CO-4	Ability to identify categories of Disasters. (U & R- Cognitive Level)	15
CO-5	Realization of the responsibilities to society. (U- Cognitive Level)	20

Mapping with POs:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO-1	2	1	-	-	1	-	1	-	-	1	-	3	1	-	-
CO-2	1	2	3	-	3	-	1	1	1	-	1	1	2	3	1
CO-3	2	3	2	1	2	1	1	-	1	-	1	2	2	2	1
CO-4	1	1	-	2	-	1	2	1	-	1	-	-	3	1	1
CO-5	-	-	2	3	1	3	-	2	3	2	-	-	1	-	3
Rational e*	6	7	7	6	6	5	5	4	5	4	2	6	9	6	6

Rationale*:

The course content covers majority of program outcomes and at the end of program, the specific objectives are also achieved to a considerable extent.

List of Open Source/learning website:

<https://nidm.gov.in/PDF/guidelines/sdmp.pdf>

- Detail of coverage as national Disaster Management Guidelines – NIDM

<http://disaster-relief.org/>

- Detail of coverage as Disaster Relief Resources - Emergencies, Recovery, Conflicts

<https://www.preventionweb.net/risk/datasets>

- Detail of coverage as Datasets Understanding disaster risk data

<https://sahanafoundation.org>

- Sahana Foundation – Open Source Disaster Management ...

List of Open Source Software:

- QGIS
- SAHANA
- FOSS
- InSTEDD
- Frontline SMS
- Open MRS