



Gyanmanjari
Innovative University

Course Syllabus
Gyanmanjari Institute of Technology
Semester-4

Subject: Disaster Management – BETCV14310

Type of course: Minor Stream

Prerequisite: NA

Rationale:

This subject is conceptual applications of principles of management to mitigate various disasters. The purpose of disaster management is to reduce the negative effects of disasters and to help people affected by them resume their lives as quickly as possible.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks					Total Marks
CI	T	P	C	Theory Marks		Practical Marks		CA	
				ESE	MSE	V	P	ALA	
3	0	0	3	60	30	10	0	50	150

Legends: CI-ClassRoom Instructions; T – Tutorial; P – Practical; C – Credit; ESE - End Semester Examination; MSE- Mid Semester Examination; V – Viva; CA - Continuous Assessment; ALA- Active Learning Activities.

Course Content:

Sr. No	Course Content	Hrs.	% Weightage
1	Introduction Introduction Disasters, Introduction the Concepts and definitions of Disaster, Hazard, Vulnerability, Risk, Capacity– Disaster and Development, and disaster management	9	20



2	Types and Effects of Disaster Types, Trends, Causes, Consequences and Control of Disasters, Geological Disasters (earthquakes, landslides, tsunami, mining); Hydro-Meteorological, Disasters (floods, cyclones, lightning, thunder-storms, hail storms, avalanches, droughts, cold and heat waves); Biological Disasters (epidemics, pest attacks, forest fire); Technological Disasters (chemical, industrial, radiological, nuclear) and Manmade; Disasters (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	9	20
3	Disaster Management Cycle and Framework Disaster Management Cycle and Framework, Disaster Management Cycle, Paradigm Shift in Disaster Management Pre-Disaster, Risk Assessment and Analysis, Risk Mapping, zonation and Micro zonation, Prevention and Mitigation of Disasters, Early Warning System, Preparedness, Capacity Development, Awareness During Disaster– Evacuation– Disaster Communication– Search and Rescue– Emergency Operation Centre– Incident Command System– Relief and Rehabilitation, Post-disaster– Damage and Needs Assessment, Restoration of Critical Infrastructure– Early Recovery– Reconstruction and Redevelopment, IDNDR, Yokohama Strategy and Hyogo Framework of Action	9	20
4	Disaster Management in India Evolution and development in E-commerce, paper vs paperless contracts E-Commerce models- B2B, B2C, E security. Business, taxation, electronic payments, supply chain, EDI, E-markets, Emerging Trends	9	20
5	Applications of Science and Technology for Disaster Management and mitigation Applications of Science and Technology for Disaster Management & Mitigation Geo-informatics in Disaster Management (RS, GIS and GPS) Disaster Communication System (Early Warning and It Dissemination), Land Use Planning and Development Regulations Disaster Safe Designs and Constructions Structural and Non-Structural Mitigation of Disasters S&T Institutions for Disaster Management in India	9	20

Continuous Assessment:

Sr. No	Active Learning Activities	Marks
1	Risk Assessment and Vulnerability Analysis: Students will conduct site-specific risk assessments using real-world data. They will identify hazards, vulnerabilities, and capacities for a given region, focusing on aspects such as population density, infrastructure, and natural resources. Students will submit a detailed report on their findings on the GMIU Web Portal.	10
2	Disaster Communication System Simulation: Students will engage in a simulation where they'll design and implement a disaster communication plan for an emergency scenario. Students will evaluate the effectiveness of their communication strategies through peer review and will present their results in class and will submit a report on the GMIU Web Portal.	10
3	Emergency Evacuation Drill and Evaluation: Students will participate in a mock emergency evacuation drill designed to simulate a disaster scenario such as an earthquake or flood. They will analyze the steps involved in the evacuation and assess the effectiveness of the procedures in place. Following the drill, students will prepare a detailed evaluation report and submit it on the GMIU Web Portal.	10
4	Damage and Needs Assessment Post-Disaster: Students will work in teams to simulate a post-disaster assessment following a major disaster event. They will evaluate the damage to infrastructure, assess the immediate needs of the affected population, and develop a recovery plan. The focus will be on key elements such as critical infrastructure restoration, housing needs, and medical assistance. Students will submit a comprehensive recovery report on the GMIU Web Portal.	10
5	Structural and Non-Structural Mitigation Planning: Students will create a disaster mitigation plan focused on both structural and non-structural strategies for reducing disaster risk. The activity will require students to identify key vulnerabilities in a community or region and develop a comprehensive plan that addresses these vulnerabilities through design improvements. Students will present their mitigation strategies in a class discussion and submit their plans as a report on the GMIU Web Portal.	10
Total		50



Suggested Specification table with Marks (Theory):60

Distribution of Theory Marks (Revised Bloom's Taxonomy)						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage %	10%	50%	30%	10%	-	-

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.

Course Outcome:

After learning the course, the students should be able to:	
CO1	Understand the Fundamental Concepts of Disasters
CO2	Analyze Various Types of Disasters and Their Impact
CO3	Apply Disaster Management Cycle in Real-World Scenarios
CO4	Evaluate Disaster Management Frameworks in India
CO5	Utilize Science and Technology for Disaster Mitigation

Instructional Method:

The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

From the content 10% topics are suggested for flipped mode instruction.

Students will use supplementary resources such as online videos, NPTEL/SWAYAM videos, e-courses, Virtual Laboratory.

The internal evaluation will be done on the basis of Active Learning Assignment.

Practical/Viva examination will be conducted at the end of semester for evaluation of performance of students in laboratory.



\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