Kadi Sarva Vishwavidyalaya, Gandhinagar

M.E. (Civil Infrastructure Engineering) Semester: I

(w.e.f. Academic Year 2017-18)

Subject Name: Disaster Management

Subject code: MECV106-N-A

A. Learning objectives

The objective of this course is

- To provide conceptual understanding of disasters and its relationship with development.
- To Prevent and control public health consequences of disasters.
- To understand medical and psycho-social responses to disasters.

B. Teaching Scheme (Credits and Hours)

Teaching Scheme				Credit Scheme			Evaluation Scheme				
Lect (Hrs)	Tu (Hrs)	Prac. (Hrs)	Total (Hrs)	Theory	Pra/TW	Total	UE	IE	CIA	Prac/Viva	Total
03	00	00	03	03	00	03	70	30	20	00	120

C. Detailed Syllabus

Unit No. **Topics**

1. **Understanding Disasters**
   Understanding the Concepts and definitions of Disaster, Hazard, Vulnerability, Risk, Capacity – Disaster and Development, and disaster management.

2. **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 Man- made 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.

3. **Disaster Management Cycle and Framework**
   Disaster Management Cycle – Paradigm Shift in Disaster Management Pre-Disaster – Risk Assessment and Analysis, Risk Mapping, zonation and Microzonation, 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, Hyogo Framework of Action.

4. **Disaster Management in India**
   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; Role of Government (local, state and national),Non-Government and Inter-Governmental Agencies

5. **Applications of Science and Technology for Disaster Management & Mitigation**
   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 S&T Institutions for Disaster Management in India.

D. Lesson Planning

Unit No.	Topics	Hours	Weightage (%)
1.	Understanding Disasters	4	10
2.	Types, Trends, Causes, Consequences and Control of Disasters	8	20
3.	Disaster Management Cycle and Framework	8	20
4.	Disaster Management in India	10	20
5.	Applications of Science and Technology for Disaster Management and Mitigation	15	30
	Total	**45**	**100**

E. Instructional Method and Pedagogy (Continuous Internal Assessment (CIA) Scheme)

- Attendance is compulsory in lectures which carries 05 Marks.
- At regular intervals assignments is given to all students which carries 10 marks. Evaluation of these assignments will be observed under Daily Homework Daily Assessment (DHDA) System.
- One internal exam of 30 marks is conducted as a part of internal theory evaluation.

F. Students Learning Outcomes:

After learning the course the students should be able to:

- Understand disasters, disaster preparedness and mitigation measures.
- Understand role of IT, remote sensing, GIS and GPS in risk reduction.
- Understand disaster management acts and guidelines along with role of various stack-holders during disasters.

G. Text Books & 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. Encyclopedia of Disasters – Environmental Catastrophes and Human Tragedies, Vol. 1 & 2,Angus M. Gunn, Greenwood Press, 2008.
7. Management of Natural Disasters in developing countries, H.N. Srivastava & G.D. Gupta, Daya Publishers, Delhi, 2006, 201 pages
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.