

Techno India NJR Institute of Technology



Course File

DISASTER MANAGEMENT (5CE5-12)

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For Techno India NJR Institute of Technology
पंकज पोखराल
Dr. Pankaj Kumar Porwal
(Principal)



RAJASTHANTECHNICALUNIVERSITY,KOTA

Syllabus

3rdYear-V Semester: B.Tech. (Civil Engineering)

5CE5-12: DISASTERMANAGEMENT

Credit:2
2L+0T+0P

Max.Marks:100(IA:20,ETE:80)
End Term Exam: 2Hours

| SN | Contents | Hours |
|----|--|-----------|
| 1 | Introduction: Objective, scope and outcome of the course. | 1 |
| 2 | Introduction: Understanding the Concepts and definitions of Disaster, Hazard, Vulnerability, Risk, Natural and Manmade Disasters, Disaster and Development, and Climate Change. | 2 |
| 3 | Types of Disasters, their occurrence/ causes, impact and preventive measures: Geological Disasters: earthquakes, landslides, tsunami, mining; | 4 |
| | Hydro-Meteorological Disasters: floods, cyclones, lightning, thunderstorms, hailstorms, avalanches, droughts, cold and hetwaves. | 3 |
| | Biological Disasters: epidemics, pest attacks, forest fire.; | 3 |
| | Technological Disasters: chemical, industrial, radiological, nuclear. | 3 |
| | Manmade Disasters: building collapse, rural and urban fire, road And rail accidents. | 2 |
| | Disaster profile of Indian continent, Mega Disasters of India and Lessons Learnt. Risk mapping. | 3 |
| 4 | DisasterManagementCycle: DisasterManagementCycleanditscomponents: Predisasterandpostdisaster,ParadigmShiftin Disaster Management. Safety tips for various types of disasters. | 3 |
| 5 | DisastermanagementsysteminIndia: DisasterManagementAct2005,NationalGuidelinesandPlansonDisasterManagement;RoleofGovernment(local ,stateandnational),Non-GovernmentandInter-Governmental Agencies. | 4 |
| | TOTAL | 28 |

Office of Dean Academic Affairs
Rajasthan Technical University, Kota

Syllabus of 3rd Year B. Tech. (CE) for students admitted in Session 2021-22 onwards.

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Course Overview:

The course is intended to provide a general concept in the dimensions of disasters caused by nature beyond the human control as well as the disasters and environmental hazards induced by human activities with emphasis on disaster preparedness, response and recovery.

The course focuses on natural disasters the problem is addressed in a holistic cross-sectoral and cross-disciplinary manner, including all stages of disaster management cycle: mitigation, preparation, response and recovery. Starting with theory, main definitions and concepts, the course considers other aspects of Disaster Management cycle along with Local National & State policies, to counter disaster, as per act of 2005.

Course Outcomes:

| CO.NO. | Cognitive Level | Course Outcome |
|--------|-----------------|---|
| 1 | Understand | Understand how the disasters are being categorized, depending on the conditions under which disaster happened.. |
| 2 | Apply | Differentiate what are disasters, how to approach the vulnerability and risk involved. |
| 3 | Analyze | Pre & post disaster measures and how to ensure safety. |
| 4 | Understand | Local National & State policies, to counter disaster, as per act of 2005. |
| 5 | Remember | Case Study of different disaster happened in past to understand the preservative measure. |

Prerequisites:

- 1) Understand the types of disaster under various conditions.
- 2) To measure the risk involved due to disaster at remote areas.
- 3) Pre & post disaster measures and how to ensure safety.
- 4) To understand the policies given by national and state to counter disaster.

Course Outcome Mapping with Program Outcome:

| 8TT6-60.2 Disaster Management | | | | | | | | | | | | | | | |
|-------------------------------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| Course Outcome | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO1 0 | PO1 1 | PO1 2 | PSO 1 | PSO 2 | PSO 3 |
| CO482.1 | 3 | 1 | 2 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| CO482.2 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| CO482.3 | 3 | 1 | 2 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| CO482.4 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 2 | 1 | 1 |
| CO482.5 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 2 | 1 | 1 |
| CO481 (AVG) | 2.2 | 1.2 | 1.6 | 1 | 1 | 1.8 | 1.8 | 1 | 1.4 | 1.4 | 1 | 1.6 | 1.4 | 1 | 1 |

Course Coverage Module Wise:

| Lecture No | Topic | Comments |
|------------|--|----------|
| 1 | Introduction: Objective, scope and outcome of the course. | |
| 2 | Introduction: Understanding the Concepts and definitions of Disaster, Hazard, Vulnerability, Risk, | |
| 3 | Natural and Manmade Disasters, Disaster and Development, and Climate Change. | |
| 4 | Geological Disasters: earthquakes | |
| 5 | Geological Disasters: landslides | |
| 6 | Geological Disasters: tsunami | |
| 7 | Geological Disasters: mining. | |
| 8 | Hydro-Meteorological Disasters: floods, cyclones, lightning | |
| 9 | Hydro-Meteorological Disasters: hail storms, avalanches | |
| 10 | Hydro-Meteorological Disasters: droughts, cold and heat waves. | |
| 11 | Biological Disasters: epidemics | |
| 12 | Biological Disasters: pest attacks | |

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| | | |
|----|--|--|
| 13 | Biological Disasters: forest fire | |
| 14 | Technological Disasters: chemical | |
| 15 | Technological Disasters: industrial | |
| 16 | Technological Disasters: radiological, nuclear. | |
| 17 | Manmade Disasters: building collapse, rural and urban fire | |
| 18 | Manmade Disasters: road and rail accidents. | |
| 19 | Disaster profile of Indian continent, Mega Disasters of India and Lessons Learnt. | |
| 20 | Disaster profile of Indian continent, Mega Disasters of India and Lessons Learnt. 2 | |
| 21 | Risk mapping. | |
| 22 | Disaster Management Cycle: Disaster Management Cycle and its components: Pre disaster and post disaster. | |
| 23 | Paradigm Shift in Disaster Management. | |
| 24 | Safety tips for various types of disasters. | |
| 25 | Disaster management system in India: Disaster Management Act 2005, | |
| 26 | National Guidelines and Plans on Disaster Management; Role of Government (local, state and national) | |
| 27 | Non-Government and Inter-Governmental Agencies. | |
| 28 | Review | |

Reference Books:

1. “Natural Hazards and Disaster Management: Vulnerability and Mitigation” by R B Singh
2. “Disaster Education and Management” by Rajendra Kumar Bhandari
3. “Disaster Management” by R. Subramanian
4. Disaster Management act 2005

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Assessment Methodology:

- 1) Assignments one from each unit.
- 2) Midterm subjective paper where they have to write About Construction Technology and Equipments (Twice during the semester).
- 3) Final paper at the end of the semester subjective.

NPTEL Courses:

1. [NPTEL :: Architecture - NOC:Disaster Recovery And Build Back Better](#)
2. [NPTEL :: Civil Engineering - Non-natural Hazards - Part-1](#)
3. <https://cdn.s3waas.gov.in/s365658fde58ab3c2b6e5132a39fae7cb9/uploads/2018/04/2018041720.pdf>

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**B. E. (Eighth Semester) Examination,
April-May 2019
(New Scheme)**

(AEI, Bio Tech, Chem., Civil, CSE, Elect., EEE, EI,
ET&T, IT, Mech., Mining, Metallurgy,
Mechatronics, Prod., Automobile Branch)

DISASTER MANAGEMENT

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : All the questions are compulsory. Part (a) of each question is compulsory and answer any two parts out of (b), (c) & (d) of each question.

Unit-I

1. (a) What do you mean by Disaster? 2
- (b) Describe about the concept of earthquakes; its solution and causes. 7

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- (c) What are Hazards? How can it be classified? Explain its various types. 7
- (d) Write short notes on : 7
- (i) Cyclones
 - (ii) Fire and other environmental disasters.

Unit-II

2. (a) Write the name of states in India which are prone to drought. 1
- (b) What is Disaster Zoning? How can it be helpful to reduce the effect of any disaster? 1
- (c) Describe about the concept of environmental impact assessment. 1
- (d) Write short notes on Hazard Assessment. 1

Unit-III

3. (a) Write two causes of man-made disaster. 1
- (b) Explain the disaster risk reduction using : 7
- (i) Preparedness
 - (ii) Mitigation

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- (c) What are the methods of mitigating damage during disasters? 7
- (d) What are the risk reduction measures for cyclonic wind storms before and after and during disaster? 7

Unit-IV

4. (a) What is IMD and CWC? 2
- (b) Explain the construction technology which are safe in earthquake prone areas. 7
- (c) Write a detailed note on management systems during disasters. <http://www.csvtuonline.com> 7
- (d) Describe in detail about the construction technology required for mitigation of damage of structures. 7

Unit-V

5. (a) Which sector is responsible for infrastructure development? 2
- (b) What do you mean by long-term relief measures? Explain any two sector use vulnerability reduction measures in India. 7

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[4]

- (c) Discuss the salient features of short term relief measures. 7
- (d) What are the short term goals if the size hazard took place in any residential building? 7

<http://www.csvtuonline.com>

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