# COURSE DELIVERY PLAN–THEORY

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| **DEPARTMENTOF****CIVIL ENGINEERING** | TPCDateRev.No | :0:0:3::00 |
| CourseRegulationCourse Code Course Name | : CIVIL ENGINEERING:R-20:R:DISASTER MANAGEMENT |
| **Class** | **Course****Coordinator** | **Section** | **Name of the Faculty** |
| **III B.TECH II SEM** | CH. SAI KIRAN | CIVIL ENGINEERING | CH. SAI KIRAN |

**COURSEOUTCOMES:**

**After successful completion of the course, the student will be able to,**

**CO1: Understand** andaffirm the usefulness of integrating management principles in disaster mitigation work**. (K2)**

**CO2: Analyze and** Distinguish between the different approaches needed to manage pre- during and post disaster periods. **(K3)**

**CO3: Understand** the process of risk management **(K2)**

**CO4: Understand** the role of technology in disaster management. **K2)**

**CO5: Understand** the application of Disaster Concepts to Management **(K2)**

**Bridge Course**

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| **S. No.** | **Topic Discussed** |
| **1** | Introduction - Concepts and definitions: disaster, hazard, vulnerability, capacity, impact, prevention, mitigation |
| **2** | Disaster Impacts - Disaster impacts (environmental, physical, social, ecological, economic, political, etc |

**UNIT 1: Natural Hazards and Disaster Management**

Introduction of DM – Inter disciplinary nature of the subject– Disaster Management cycle – Five priorities for action. Case study methods of the following: Vegetal Cover floods, droughts – Earthquakes – landslides – global warming, cyclones & Tsunamis – Post Tsunami hazards along the Indian coast.

**Objective:**

The students are to be exposed to the concept of various usefulness of integrating management principles in disaster mitigation work.

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| **Session No** | **Topics to be Covered** | **Reference** | **Teaching Aids/Class****Methods** |
| 1 | Introduction of DM – Inter disciplinary nature of the subject |  | BB, Chalk, Duster |
| 2 | Disaster Management cycle |  | BB, Chalk, Duster |
| 3 | Five priorities for action |  | BB,Chalk,Duster |
| 4 | Case study methods of the following: Vegetal Cover floods, droughts |  | BB,Chalk,Duster |
| 5 | Earthquakes – landslides – global warming |  | BB,Chalk,Duster |
| 6 | cyclones & Tsunamis |  | BB, Chalk, Duster |
| 7 | Post Tsunami hazards along the Indian coast |  | BB, Chalk, Duster |
| 8 | Revision |  | BB, Chalk, Duster |
| 9 | Revision |  | BB, Chalk, Duster |
| 10 | Revision |  | BB, Chalk, Duster |
| Content beyond syllabus covered(if any):1.2. |

**UNITII: Man Made Disaster and Their Management Along With Case Study Methods Of The Following:** Fire hazards – transport hazard dynamics – solid waste management – post disaster – bio terrorism -threat in mega cities, rail and aircraft accidents, ground water, industries - Emerging infectious diseases and Aids and their management.

**Objective:**

The students are to be concept of Analyze andDistinguish between the different approaches needed to manage pre- during and post disaster periods

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| **Session No** | **Topics to be Covered** | **Reference** | **Teaching Aids/Class** **Methods** |
| 11 | hazards – transport hazard dynamics |  | BB, Chalk, Duster |
| 12 | solid waste management – post disaster |  | BB, Chalk, Duster |
| 13 | bio terrorism -threat in mega cities, rail and aircraft accidents |  | BB, Chalk, Duster |
| 14 | ground water, industries |  | BB, Chalk, Duster |
| 15 | Emerging infectious diseases and Aids and their management. |  | BB, Chalk, Duster |
| 16 |  |  |  |
| 17 | Revision |  |  |
|  | Content beyond syllabus covered(if any):1. 2. |

**UNIT III**

**Risk and Vulnerability:** Building codes and land use planning – Social Vulnerability –

Environmental vulnerability – Macro-economic management and sustainable development, Climate change risk rendition – Financial management of disaster – related losses.

**Objective:**

The students are to be exposed to the concepts of Understand the process of risk management

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| **Session No** | **Topics to be Covered** | **Reference** | **Teaching Aids/Class****Methods** |
| 18 | Risk and Vulnerability: Building codes and land use planning |  | BB, Chalk, Duster |
| 19 | Social Vulnerability |  | BB, Chalk, Duster |
| 20 | Environmental vulnerability |  | BB, Chalk, Duster |
| 21 | Macro-economic management and sustainable development |  | BB, Chalk, Duster |
| 22 | Climate change risk rendition |  | BB, Chalk, Duster |
| 23 | Financial management of disaster – related losses |  | BB, Chalk, Duster |
| 24 | Revision |  |  |
| 25 | Revision |  |  |
| 26 | Revision |  |  |
|  | Content beyond syllabus covered (if any):1. 2. |

**UNIT IV**

**Role of Technology in Disaster Managements**: Disaster management for infra structures, taxonomy of infra structure – treatment plants and process facilities-electrical substations- roads and bridges- mitigation programme for earth quakes – flowchart, geospatial information in agriculture drought assessment - Multimedia Technology in disaster risk management and training - Transformable Indigenous Knowledge in disaster reduction – Role of RS & GIS.

**Objective:**

The students are to be exposed to the concepts of Understand the role of technology in disaster management.

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| **Session No** | **Topics to be Covered** | **Reference** | **Teaching Aids/Class****Methods** |
| 27 | Disaster management for infra structures |  | BB, Chalk, Duster |
| 28 | taxonomy of infra structure  |  | BB, Chalk, Duster |
| 29 | treatment plants and process facilities |  |  |
| 30 | electrical substations- roads and bridges |  | BB, Chalk, Duster |
| 31 | mitigation programme for earth quakes |  |  |
| 32 | flowchart, geospatial information in agriculture drought assessment |  | BB, Chalk, Duster |
| 33 | Multimedia Technology in disaster risk management and training |  | BB, Chalk, Duster |
| 34 | Transformable Indigenous Knowledge in disaster reduction |  | BB, Chalk, Duster |
| 35 | Role of RS & GIS. |  | BB, Chalk, Duster |
| 36 | Revision |  |  |
| 37 | Revision |  |  |
| 38 | Revision |  |  |
|  | Content beyond syllabus covered (if any):1. 2. |

**UNIT V**

**Multi-sectional Issues, Education and Community Preparedness:** Impact of disaster on poverty and deprivation - Climate change adaptation and human health - Exposure, health hazards and environmental risk-Forest management and disaster risk reduction -The Red cross and red crescent movement - Corporate sector and disaster risk reduction- Education in disaster risk reduction- Essentials of school disaster education - Community capacity and disaster resilience-Community based disaster recovery - Community based disaster management and social capital-Designing resilience- building community capacity for action.

**Objective:**

The students are to be exposed to the concepts of disaster preparedness and communities for disaster management.

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| **Session No** | **Topics to be Covered** | **Reference** | **Teaching Aids/Class****Methods** |
| 39 | Impact of disaster on poverty and deprivation - |  | BB, Chalk, Duster |
| 40 | Climate change adaptation and human health |  |  |
| 41 | Exposure, health hazards |  | BB, Chalk, Duster |
| 42 | environmental risk |  |  |
| 43 | Forest management and disaster risk reduction  |  | BB, Chalk, Duster |
| 44 | The Red cross and red crescent movement |  |  |
| 45 | Corporate sector and disaster risk reduction |  | BB, Chalk, Duster |
| 46 | Education in disaster risk reduction |  |  |
| 47 | Essentials of school disaster education  |  | BB, Chalk, Duster |
| 48 | Community capacity and disaster resilience |  |  |
| 49 | Community based disaster recovery |  | BB, Chalk, Duster |
| 50 | Community based disaster management and social capital |  | BB, Chalk, Duster |
| 51 | Designing resilience |  | BB, Chalk, Duster |
| 52 | Building community capacity for action. |  | BB, Chalk, Duster |
| 53 | Revision |  | BB, Chalk, Duster |
| 54 | revision |  | BB, Chalk, Duster |
|  | Content beyond syllabus covered (if any):1. 2. |

**Session Duration: 50 Minutes**

**Total No. of Sessions required: 54**

**COURSE OUTCOMES**

Student should be able to,

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| --- | --- | --- | --- |
| **CO1** | **Understand** andaffirm the usefulness of integrating management principles in disaster mitigation work | Understand | K2 |
| **CO2** | **Analyze and** Distinguish between the different approaches needed to manage pre- during and post disaster periods | Analyze | K3 |
| **CO3** | **Understand** the process of risk management | Understand | K2 |
| **CO4** | **Understand** the role of technology in disaster management | Understand | K2 |
| **CO5** | **Understand** the application of Disaster Concepts to Management | Understand | K2 |

**PROGRAM OUTCOMES**

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| --- | --- | --- | --- |
| S. No |  Graduate Attributes | Action Verbs | Level |
| 1 | Engineering Knowledge | Understand | K2 |
| 2 | Problem Analysis | Understand | K2 |
| 3 | Design Development Of Solutions |  |  |
| 4 | Investigation Of Complex Problems | Analyze | K3 |
| 5 | Modern Tool Usage | Understand | K2 |
| 6 | Engineer and Society | Understand | K2 |
| 7 | Environment and Sustainability |  |  |
| 8 | Ethics |  |  |
| 9 | Individuals and Team Work | Understand | K2 |
| 10 | Communication | Understand | K2 |
| 11 | Life Long Learning |  |  |
| 12 | Project Management and Finance |  |  |

**PROGRAM SPECIFIC OUTCOMES**

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| **PSO1** | Graduates will have an ability to design components of diverse civil structures like buildings, roads, bridges, hydraulic structures etc. |
| **PSO2** | Graduates will have an ability to understand the materials and processes involved in various domains of civil engineering using codes of practices. |

**Mapping of CO-PO-PSO**

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|  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 |
| CO1 | 3 | 2 |  |  | 3 | 3 |  |  |  | 2 |  |  |  |  |
| CO2 | 3 | 2 |  | 2 | 3 | 2 |  |  | 2 | 2 |  |  |  |  |
| CO3 | 3 | 2 |  |  | 1 | 2 |  |  |  |  |  |  |  |  |
| CO4 | 3 | 2 |  |  | 2 | 1 |  |  | 1 | 2 |  |  |  |  |
| CO5 | 3 | 1 |  |  | 1 | 3 |  |  | 2 | 2 |  |  |  |  |

1: Weekly Mapped 2: Mapped 3: Strongly Mapped

# REFERENCES:

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| **Text books:** |
| 1. An Introduction of Disaster Management- Natural Disasters & Vulnerable Hazards– S.Vaidyanathan: CBS Punblishers & Distributors Pvt. Ltd.
2. Natural Hazards & Disaster Management, Vulnerability and Mitigation by RB Singh- Rawat Publications
3. ‘Disaster Science & Management’ by Tushar Bhattacharya, Tata McGraw Hill Education Pvt. Ltd., New Delhi.
4. ‘Disaster Management – Future Challenges and Opportunities’ by Jagbir Singh (2007), I K International Publishing House Pvt. Ltd.
 |
| **Reference Books :** |
| 1. Disaster Management’ edited by H K Gupta (2003), Universities press.
2. ‘Disaster Management – Global Challenges and Local Solutions’ by Rajib shah & R R Krishnamurthy (2009), Universities press.
3. R. Nishith, Singh AK, “Disaster Management in India : Perspectives, Issues and strategies” New Royal Book Company.”
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| Prepared By | Signatures | Approved By | Signature |
| CH. SAI KIRAN |  | HOD |  |
| PRINCIPAL |  |