

Syllabi for generic Elective courses (Part-II)  
**OFFERING DEPARTMENT: DEPARTMENT OF INDUSTRIAL CHEMISTRY**  
**PART II – GENERIC ELECTIVE-I**  
**SEMESTER-V**

<b>16UICGE01</b>	<b>DISASTER MANAGEMENT</b>	<b>02 HRS/WK</b>	<b>02 CREDIT</b>
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**OBJECTIVES:**

1. Understand challenges and impact posed by disasters.
2. Understand types of disaster, disaster preparedness and mitigation measures.
3. Understand role of GIS in risk reduction.
4. Understand disaster management acts and guidelines along with role of various stack-holders during disasters.
5. Application of disaster concepts to management.

**UNIT-I Introduction to Disasters (04 HRS)**

- Understanding the Concepts and definitions Hazard, Risk,
- Vulnerability,
- Disaster,
- Disaster Management,
- Nature, Importance & Scope of Disaster Management,
- Disaster Management Cycle

**UNIT-II Types, Trends, Causes, Consequences (04 HRS)**

- Geological Disasters: earthquakes, landslides, tsunami, mining;
- Hydro-Meteorological Disasters: floods, cyclones, lightning, thunder-storms, hail storms, avalanches, droughts, and cold and heat waves;
- Biological Disasters: epidemics, pest attacks, forest fire;
- Technological Disasters: chemical, industrial, radiological, nuclear
- Manmade Disasters: building collapse, rural and urban fire, road and rail accidents, nuclear, radiological, chemicals and biological disasters.

**UNIT-III Disaster Management In India (04 HRS)**

- 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.

**UNIT-IV Geographical Information System (Gis) (06 HRS)**

- Introduction,
- Definition of GIS,
- GIS hardware and software,

- Data spatial and non-spatial maps,
- Concept of space, domains of spatial information system,
- Components of GIS (end use/management, data acquisition, data input, data storage & retrieval, data processing and analysis/modeling),
- Information presentation,
- Internet based GIS.

**UNIT-V Disaster Preparedness Plan**

**(06 HRS)**

- Concept and Significance,
- Disaster Preparedness Plan essentials,
- Community Based Disaster Preparedness plan,
- Prediction, Early Warnings and Safety Measures of Disaster.

**TEXT BOOKS:**

1. Goel S. L (2007), *Disaster Administration and Management*, Deep & Deep Publications Pvt Ltd, ISBN-978-81-8450-033-2.
2. Shrivastava G. S, (2005) *An Introduction to Geoinformatics*, McGraw Hill Education (India) Pvt Ltd.
3. Singh R.B (2006), *Natural Hazards & Disaster Management*, Rawat Publication, ISBN- 8131600335, 9788131600337.

**REFERENCE BOOKS:**

1. Coppola D. P. (2007), *Introduction to International Disaster Management*, Elsevier Science (B/H), London, ISBN-978-0-12-382174-4
2. Gunn A. M. (2008), *Encyclopaedia of Disasters – Environmental Catastrophes and Human Tragedies*, Vol. 1 & 2, Greenwood Press, ISBN-13:978-0-313-34002-4.
3. Srivastava H. N. & Gupta G. D. (2006), *Management of Natural Disasters in developing countries*, Daya Publishers, ISBN-81-7035-425-0.

**OFFERING DEPARTMENT: DEPARTMENT OF INDUSTRIAL CHEMISTRY**

**PART II – GENERIC ELECTIVE-II  
SEMESTER-VI**

<b>16UICGE02</b>	<b>INDUSTRIAL HYGIENE &amp; SAFETY</b>	<b>02 HRS/WK</b>	<b>02 CREDITS</b>
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**Course Objectives**

1. Gain knowledge about occupational health, industrial hygiene, and accidental prevention techniques to the students.
2. Make the student aware about safety auditing and management systems, pollution prevention techniques etc.
3. Provide guidance and significant support to the organization in which they work through the advancement of health and safety in the workplace.
4. Execute basic terms and technical concepts integral to the practice of industrial hygiene.

**Unit - I Introduction to the development of industrial safety (04 hrs)**

History and development of Industrial safety: Implementation of factories act, Formation of various councils, Safety and productivity, safety committee structure, Roll of management and roll of Govt. in industrial safety, safety analysis.

**Unit-II Accident preventions, protective equipment and the Acts: (04 hrs)**

Personal protective equipment, Survey the plant for locations and hazards, Part of body to be protected, Education and training in safety, Prevention causes and cost of accident, Housekeeping, Fire fighting equipment, Accident reporting, Investigations, Industrial psychology in accident prevention, Safety trials.

**Unit –III Radiation and Industrial Hazards: (04 hrs)**

Types and effects of radiation on human body, Measurement and detection of radiation intensity. Effects of radiation on human body, Measurement – disposal of radioactive waste, Control of radiation.

**Unit –IV First aid & antidotes: (06 hrs)**

Fundamentals of first – aid burns, fractures, suffocation, toxic ingestion – bleeding wounds artificial respiratory, techniques – Bandaging, Antidotes. Industrial toxicology, local, systemic and chronic effects, temporary and cumulative effects, carcinogens entry into human systems.

**Unit –V Fire Hazards: (06 hrs)**

General causes and classification of fire, Detection of fire, extinguishing methods, fire fighting installations with and without water, Machine guards and its types, automation. High pressure hazards.

**Text Books:**

1. Barbara A. Plog ,Patricia J. Quinlan ,*Fundamentals of Industrial Hygiene*,ISBN-10: 0879123125
2. Amit Gupta,(2006) *Industrial Safety and Environment*, Fire wall Media Publisher, ISBN 8170089387

**Reference Books:**

1. R.K.Jain and Sunil S. Rao, (2006), *Industrial Safety, Health and Environment Management Systems*, Khanna publishers, New Delhi ISBN-13. 978-81-7409-210-2
2. John Willey and Sons, (1983), *Handbook of Occupational Safety and Health*, 2<sup>ND</sup> Edition, NY. ISBN: 978-0-471-16017-5