

New Course

Environment, Climate Change and Occupational Health

Semester -III: July – December

Coordinator	Dr Nikunj Makwana
Credits	4 Credits
Lecturers	Dr Nikunj Makwana + Prof. P K Joshi
Level	M.A.
Host institution	Special Centre for Disaster Research (SCDR), Jawaharlal Nehru University, New Delhi
Course duration	One Semester [July - December]

Summary

This one full semester elective course provides the Master level students of Disaster Studies the basic understanding of environment, climate change and occupation health. It give more emphasis on the occupation health related to on-site hazards, risks and disasters. Besides, it will also introduce students to health-related challenges due to environmental and climate change across the globe. The course will touch upon frameworks at international, national and sub-national contexts. The course includes individual assignments.

Target Student Audiences

Semester - III Students of M.A.

Prerequisites

- Nil

Aims and Objectives

This course has been designed with a view to help students in developing a comprehensive understanding and knowledge of importance of occupation health from the perspective of hazards and disasters. The course work and exercises would ensure capacity development to initiate immediate lifesaving response and awareness for the standard operating procedure to be following during variety of occupation health disasters in different sectors. The main objectives of the course are: (i) to help students in understanding spectral of health issues related to hazards and disasters at work; (ii) to comprehend measures and practices needed for reducing health related; and (iii) to identify and enumerate environment and climate change related health challenges in the India and other countries.



Activities	Learning outcomes	Assessment	Estimated workload (hours)	Self-Study (hours)
In-class activities				
Lectures and Presentations	Occupational Hazards - Physical Hazards, Chemical Hazards and Biological Hazards - Radiation Hazards - Psychological Hazards - Work Related Musculoskeletal Disorders -carpal tunnel syndrome CTS- Tendon pain disorders of the neck- back injuries - Indian Occupational Safety Scenario. (Mining Industry, Construction Industry, Forestry, Agriculture and Allied Sectors)	Mid Semester Examination	06	06
Lectures and Presentations	Concept and spectrum of health - functional units and activities of occupational health services, pre-employment and post-employment medical examinations - occupational related diseases, levels of prevention of diseases, notifiable occupational	Mid Semester Examination	08	08



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	diseases - effects and prevention - cardio pulmonary resuscitation, audiometric tests, eye tests, vital function tests - Industrial toxicology, local, systemic and chronic effects, temporary and cumulative effects, carcinogens entry into human systems. + Agricultural respiratory hazards and diseases, + Corporate and office hazards – Diseases and Human Health			
Lectures and Presentations	Incident Recall Technique (IRT), disaster control, Job Safety Analysis (JSA), safety survey, safety inspection, safety sampling, Safety Audit. Concept of an accident, reportable and non-reportable accidents, unsafe act and condition - principles of accident prevention- Role of safety committee - Accident causation models - Cost of accident. Overall accident investigation process - Response to accidents, India reporting requirement, Planning document, Planning matrix, Investigators Kit, functions of investigator, four types of evidences, Records of accidents, accident reports.	Mid Semester Examination	06	06
Lectures and Presentations	Fire properties of solid, liquid and gases - fire spread - toxicity of products of combustion - theory of combustion and explosion- Sources of ignition - fire triangle - principles of fire extinguishing -active and passive fire protection systems - various classes of fires - types of fire extinguishers - Sprinkler-hydrants-stand pipes - special fire suppression systems.	End Semester Examination	08	08
Lectures and Presentations	Environmental health review of development policies and projects, Environmental safety regulations, Reducing the vulnerability of environmental health infrastructure, Research methods used in the field of environmental health		06	06
Lectures and Presentations	Climate Change and Health, Climate Adaptation for Human Health,	End Semester Examination	06	06



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	Communicating Climate Change and Health; Effect of weather, climate variability and climate change on human health and population health; Mitigation and adaptation policies and measures in health and related sectors; Case studies. Concept and approach of One Health			
Independent work				
Individual Assignments	Industrial visits, deliver first aid and initiate immediate life-saving responses, Awareness regarding related SOPs, Trauma Care and Burn Response, Hazard mitigation strategies, Selected case studies	Individual Presentations	10	10
Total			56	56

Grading

The students' performance will be based on the following:

- Quizzes/Surprise Test – 10%
- Mid Semester Examination – 30%
- End Semester Examination – 50%
- Individual Assignments – 10%

Grade	Grade Point	FGPA	Class/Division
A+	9	8.5 and above	High First Class
A	8	7.5 and above but less than 8.5	Middle First Class
A-	7	6.5 and above but less than 7.5	Lower First Class
B+	6	5.5 and above but less than 6.5	High Second Class
B	5	4.5 and above but less than 5.5	Middle Second Class
B-	4	3.5 and above but less than 4.5	Lower Second Class
C+	3		
C	2		
C-	1		
F	0		

Course Schedule: **Semester-III: July - December**

Course Assignments

The Structure of Individual Assignments will be as follows:

- Conducting Interviews in the field.
- Review of research articles and working paper with given objectives.

Literature

- Climate Change and Human Health Risks and Responses (A.J. McMichael et al), WORLD HEALTH ORGANIZATION, GENEVA, 2003
- Levy, B., Wegman, D., Baron, S., & Sokas, R. (Eds.), Occupational and Environmental Health.: Oxford University Press. Retrieved 5 Mar. 2022, from <https://oxford.universitypressscholarship.com/view/10.1093/oso/9780190662677.001.0001/oso-9780190662677>.
- Yassi, A., Kjellström, T., Kok, T., & Guidotti, T. (2001-05-17). Action to Protect Health and the Environment. In Basic Environmental Health. : Oxford University Press. Retrieved 5 Mar. 2022, from <https://oxford.universitypressscholarship.com/view/10.1093/acprof:oso/9780195135589.001.0001/acprof-9780195135589-chapter-12>.
- Environmental Health, Fourth Edition by Dade W. Moeller, ISBN 9780674047402, Harvard University Press
- Handbook of Occupational Health and Safety, NSC Chicago, 1982
- Derek, James, "Fire Prevention Hand Book", Butter Worths and Company, London, 1986.
- Loss Prevention in Process Industries-Frank P. Less Butterworth-Hein UK 1990 (Vol.!, II Et III)
- The Factories Act 1948, Madras Book Agency, Chennai, 2000
- Health Aspects of Chemical, Biological and Radiological Hazards, Australian Disaster Resilience Handbook Collection
- Knowlton, K., Kulkarni, S., Azhar, G., Mavalankar, D., Jaiswal, A., Connolly, M., ... & Sanchez, L. (2014). Development and implementation of South Asia's first heat-health action plan in Ahmedabad (Gujarat, India). International journal of environmental research and public health, 11(4), 3473-3492.
- Food safety, climate change, and the role of WHO
- Broughton, E. (2005). The Bhopal disaster and its aftermath: a review. Environmental Health, 4(1), 6
- Dhara, V. R., & Dhara, R. (2002). The Union Carbide disaster in Bhopal: a review of health effects. Archives of Environmental Health: An International Journal, 57(5), 391-404.
- Linda Young Landesman, , Robyn R. Gershon, , Eric N. Gebbie, , and Alexis A. Merdjanoff, , "10. Occupational Health in Disasters", Landesman's Public Health Management of Disasters: The Practice Guide, 5th Edition
- WHO (2014). Quantitative risk assessment of the effects of climate change on selected causes of death, 2030s and 2050s.
- WHO EURO (2013). Climate change and health: a tool to estimate health and adaptation costs
- WHO/WMO (2012). Atlas of health and climate
- WHO (2012). Mainstreaming gender in health adaptation to climate change programmes
- WHO (2011). Gender, climate change and health
- World Health Organization. 1992. Our planet, our health: Report of WHO Commission on Health and Environment. Geneva, Switzerland: World Health Organization.



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- 2021 WHO Health and Climate Change Survey Report
- COP26 Special Report on Climate Change and Health
- Compendium of WHO and other UN guidance on health and environment
- Guidance on mainstreaming biodiversity for nutrition and health, WHO Publication
- Connecting global priorities: biodiversity and human health: a state of knowledge review, WHO Publication
- WHO global strategy on health, environment and climate change: the transformation needed to improve lives and wellbeing sustainably through healthy environments
- Occupational safety and health in public health emergencies: A manual for protecting health workers and responders: Geneva: World Health Organization and the International Labour Office, 2018. License: CC BY-NC-SA 3.0 IGO.