

## Course Syllabus: IE 615 Industrial Hygiene and Occupational Health

**Semester: Spring 2024**

**Instructor:** Prakash Kothari, CIH, CSP, [pak24@njit.edu](mailto:pak24@njit.edu)

**Textbook:** Fundamentals of industrial hygiene, 6th Ed., Barbara A. Plog (Ed.), National Safety Council, 2012.

**Reference book:** Recognition of health hazards in industry, 2nd Ed., William A. Burgess, NY: John Wiley & Sons, 1995

**Class Schedule: Friday - 6:00-9:05 p.m., Room CKB 212.**

**Course description:** An introduction to industrial hygiene is presented. Recognition, evaluation and control of human exposure to noise, heat, bio-hazards, chemicals, radiation and improper lighting are discussed. Government standards, field measurements, work practices, engineering designs and the effects of excessive exposure on worker health and productivity are addressed.

**Learning Objectives:** At the end of this course, the student will be able to:

- Describe the legal, professional, and ethical framework for the practice of industrial hygiene.
- Define basic terms and technical concepts integral to the practice of industrial hygiene.
- Explain the differences between chemical (gases/vapors, dusts/mists/fumes), physical, and biological agents in the workplace.
- Calculate time-weighted averages.
- Convert between various units of exposure (for example, mg/m<sup>3</sup> to ppm).
- Calculate and interpret noise exposures and doses.
- Identify the basic concepts of workplace exposure assessment.
- Describe the hierarchy of controls and how it applies to hazard control.
- Integrate various concepts into a broader occupational/ environmental health practice.

### Course Schedule:

DATE	TOPIC	READINGS
1/19	Industrial Hygiene Overview Occupational Health and Safety	Chps. 1 For more see Appendix A and Part VI
1/26	Industrial Toxicology	Chap 6
2/2	The Respiratory System; Particulates; Diseases of the Lungs	Chap 2, 7 & 8
2/9	The Ear, Industrial Noise	Chap 4 & 9
2/16	The Skin, Occupational Dermatoses; Temperature Extremes	Chap 3 & 12

2/23	Non-Ionizing Radiation; The Eye; Ionizing Radiation	Chap 5, 10 & 11
3/8	<b>MIDTERM EXAM</b>	
3/15	<b>SPRING RECESS</b>	
3/22	Ergonomics	Chap 13
3/29	Evaluation of Industrial Hazards: The Survey	Chap 15
4/05	Air Sampling and Analysis	Chap 16 & 17
4/12	Control of Industrial Hazards Methods of Control	Chap 18
4/19	Ventilation	Chap 19, 20 & 21
4/26	Biological Hazards Respiratory Protection	Chap 14 & 22
5/3	Reading Day	
5/10	<b>FINAL EXAM</b>	
5/11	Grades Posted	

**Grading:** Midterm 25%; Final exam 25%; Quizzes 35%; Outlines 15%