

CURRICULUM FOR ENVIRONMENT AND SAFETY ENGINEERING

INSTITUTE OF CHEMICAL ENGINEERING AND TECHNOLOGY

Faculty of Engineering & Technology

University of the Punjab, Lahore

Program	BSc (Engg):	Course	Dr. Niaz Ahmad/ Mr.
	Chemical Engineering	Instructors	Waheed Afzal
Years/Semester	Third Professional Year	E-Mail	waheed@iqtm.pu.edu.pk
Name of the Course	Environment and Safety Engineering		
Name of Sub-Module:	Environmental Engineering		
Course No			
Class duration	Contact hours: 2 per week		
Prerequisites	2 nd Professional year of BSc (Engg)		
Follow up	none		
Category	Auxiliary course		
Aims	The Course will provide an over view of discipline of environmental engineering and identify the ways and means (both engineering/technological and managerial) available with engineers to protect environment from pollution caused from human activities.		
Objectives:	The students after attending this course will; • Understand that business survival is dependent on the protection of environment. • Develop a systematic and critical understanding of theories, concepts, principles, issues, debates and new insights relating to Environmental Engineering. • Demonstrate self-direction, autonomy and originality in tackling tasks and solving managerial problems related to environment. • Acquire a comprehensive understanding of research techniques including the ability to evaluate critically methodologies and where appropriate, propose new hypotheses test, design and implement Environmental Management System. • Be good at the operations and maintenance of conventional environmental/ waste treatment technologies, • Get awareness of advanced environmental technologies to mitigate complex environmental problems.		

- Get awareness of environmental protection laws in the country.
- Design industrial work places for quality, productivity, safety, health and environment for the benefits of entrepreneur, organizations and society.

Topics to be covered:

Minor Topics:

- Business and environmental protection.
- Introduction to environmental engineering.
- Research methodologies to evaluate environmental and safety risks in chemical process industry.
- Environmental Problems of Pakistan.
- Environmental laws in Pakistan
- Life cycle assessment.
- Environmental Impact analysis.
- Waste and energy audits.

Major topics:

- Chemistry for Environmental Engineering
- Water and waste water treatment
- Air pollutions and its control
- Solid and hazardous waste management
- Environmental management
- EMS ISO 14001:2004 documentations and implementations.

Term Paper/ Mini Project:

This work will enable the students to understand the research methodologies and application in the fields of health, safety and environmental management. Students are supposed to work on an assigned project named “Evaluation of Environmental and Safety Risks in Chemical Units” all the students are instructed to gather in small groups and select any chemical process organization(s) and collect the data asked. Their work will include the followings.

Data Collection, Data Analysis, Chemicals/Engineering Data Analysis, Safety Survey Analysis.

All such activities will enable the instructors to evaluate the *Sectional Performance*, which contains a reasonable proportion of marks.

Teaching Strategies

- i) Lecturing.
- ii) Group work.

- iii) Topic discussion.
- iv) Term Paper/ Mini Project
- v) Class presentations.
- vi) Questioning and explanation.

**Examinations and
Awards**

Means of Assessment

Weightage

Sessional Assessment (Sessional tests/ quizzes, reading assignments, regularity, Term paper/ Mini project and presentations)	20%
Third Professional year Annual Examination	80%