Quality, Environment and Safety in the Petroleum Industry

Calendar: 6th day semester

Contact Hours: TP 60,0h; OT 7,5h

Scientific Area: Chemical Industrial Engineering

Intended learning outcomes (knowledge, skills and competences to be developed by the students):

This curricular unit gives students a thorough introduction to the principles of environmental, quality and safety in the oil industry. After completing this course students should be able to:

1) To be familiarize with issues related to occupational health and industrial hygiene

2) To get acquainted with risk assessment, process safety auditing and management systems

Syllabus:

1. Introduction: Types of hazards, analysis of hazards, precautions & preventions, grades of hazards, Safety methods, Safety measures. IS 18001:2000/9001:2000 ISO 14001:1996

2. Fire and other Hazards: Causes and classification of fire, Grades of fire hazard, Classification of buildings/structures/materials/chemicals. Fire hazard analysis, Detection of fire, extinguishing methods, fire fighting installation, automation. High-pressure hazards, safety, emptying, inspecting, repairing, hydraulic and nondestructive testing, hazards and control in refinery industry.

3. Industrial Hazards: i) radiation ii) noise iii) hazardous chemicals iv) different air pollutants in industries, v) vibration vi) industrial hygiene.

4. Protection and Prevention measures of accidents/hazards: Protection and prevention measures of accidents/hazards, transportation and storage of chemicals, leakage and accident prevention. Industrial risk and disaster management, safety control systems, pollution control practices.

Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:

The content of this course is focused on: the standards of quality management systems for environment and safety in de petroleum industry. Students also study the management of wastes, effluents and emissions and environmental noise. It addresses the basic concepts of occupational hygiene, respective laws and students learn to make an assessment and control of occupational hazards. Finally, students study integrated systems.

The contents are discussed based on a dynamic display of matter and solving practical exercises.

References:

[1]. R.K. Jain and Sunil S.Rao, Industrial Safety, Health and Environment Management Systems, Khanna publishers, New Delhi, 2006

[2]. Goetsch D.L., "Occupational Safety and Health for Technologists", Engineers and Managers", Prentice Hall, 1999

[3]. Slote. L, Handbook of Occupational Safety and Health, John Willey and Sons, New York

[4]. National Safety Council and Associate (Data) Publishers Pvt. Ltd., "Industrial Safety and Pollution Control Handbook, 1991

[5]. Frank P Lees - Loss prevention in Process Industries, Vol. 1 and 2, Butterworth-Heinemann, 1991