Quality, Environment and Safety

Calendar: 6th semester

Contact Hours: TP – 45,0; OT – 7,5

Scientific Area: Engenharia Química Industrial

Learning outcomes of the curricular unit
Interpret and apply the ISO Quality, Safety and Environment.
Apply procedures for quality management.
Apply procedures for safety management.
Apply environmental management procedures.
Identify and characterize the occupational hazards in industrial environments.
Establish procedures for the industrial licensing.

Syllabus
1. Standard Management Systems for Quality, Environment and Safety.
2. Quality Management.
2.1 Implementation of a QMS to the case study.
2.2 Technical and Quality Tools.
2.3 Statistical Process Control.
2.4 Metrology and Calibration.
2.5 Quality Costs.
3. Environmental Management.
3.1 Implementation of an EMS to the case study.
3.2 Waste Management.
3.3 Wastewater Management. 3.4 Emissions Management.
3.5 Management of Environmental Noise.
3.6 Environmental Regulations / Licensing
3.7 Rationalization energy.
4. OSH management.
4.1 Implementing an OHSMS.
4.2 Basic Concepts of Hygiene at Work.
4.3 Legislation, Regulations and Standards for OHS.
4.4 Evaluation and Control of Occupational Risks.
5. Integrated Systems.
5.1 Fundamentals of Design, Implementation and Performance Evaluation of SI.
5.2 Design and Implementation of SI to the case study.

Demonstration of the syllabus coherence with the curricular unit's objectives
The content of this curricular unit is focused on: the standards of quality management systems for environment and safety; tools/methods to ensure the quality; inherent statistical control. 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.

Teaching methodologies:
This curricular unit includes a theoretical and a practical component. The theoretical component is taught by PowerPoint computer presentations. The practical component includes exercise solving under the teacher's supervision.

Demonstration of the coherence between the teaching methodologies and the learning outcomes.
The lecture method with student intervention, adopted for the lectures is appropriate for the presentation of the content covered in the curricular unit. The exercises solved in practical classes serve to help understand some concepts that may be difficult to understand in the theoretical exposition. The written tests during the semester allow students to consolidate the knowledge acquired by steps during the course classes.