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## Quality, safety and environmental management

### Finalità

The course means to introduce in the formation of the student a general vision of several the aspects of the Quality, Safety and Environmental in the industrial systems and an information on the problematic about the measuring, monitoring and control of the production processes. In such sense the course is proposed of giving the main references for the planning and management of the Quality, Safety and Environmental in the industrial systems, showing the most important methodologies of analysis and recalling the normative standards and the national and international legislation.

### Programma

#### *Quality management*

Introduction to the Industrial Management System. The Quality Concept Development. The traditional and modern approach to the Quality. Strategy of implementation of the Total Quality Management (TQM). Quality Management in the production processes. Problem solving and Quality statistical Instruments. The continuous improvement. International standards of quality (ISO 9000). Management of the Maintenance. The reliability of the industrial systems. Techniques of risk assessment: FTA, FMECA, HAZOP. Maintenance of the industrial systems and culture of maintenance. The measure of the performances of the system maintenance. Maintenance typologies. The maintenance engineering and the outsourcing of the maintenance of the industrial systems. The global service. The management of the spare parts. The CMMS (Computerized Maintenance Management Systems).

#### *Safety and Environmental Management.*

The environmental risks. The relevant risks in the industrial activities (D.Lgs. 334/99 - "Seveso bis"). Measurement of the Environmental impact. The International Standards for the Safety and the Environmental (ISO 14001, EMAS regulations, BS 8800, OHSAS 18001, OHSAS 18002). Factors of risk in the productive activities. Survey and measure of the risk factors. Dates analyses statistics and interpretation. Maps of risk.

### Attività d'esercitazione

The course will be developed also with practical exercitation.

### Modalità d'esame

Write work with a complementary oral exam.

### Propedeuticità

None

### Testi consigliati

Stamatis, D.H., 1997, TQM Engineering Handbook – Quality and Reliability, Dekker, NY  
Smith, G., 1993, Statistical process control and quality improvement, Macmillan, NY  
Pantries supplied from the teacher