



UNIVERSITÀ DEGLI STUDI DI PALERMO

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| DEPARTMENT | Ingegneria |
| ACADEMIC YEAR | 2020/2021 |
| BACHELOR'S DEGREE (BSC) | SAFETY ENGINEERING |
| SUBJECT | SAFETY MANAGEMENT SYSTEMS |
| TYPE OF EDUCATIONAL ACTIVITY | B |
| AMBIT | 50300-Ingegneria gestionale |
| CODE | 19488 |
| SCIENTIFIC SECTOR(S) | ING-IND/35 |
| HEAD PROFESSOR(S) | MONTANA MASSIMO Cultore della Materia Univ. di PALERMO |
| OTHER PROFESSOR(S) | |
| CREDITS | 6 |
| INDIVIDUAL STUDY (Hrs) | 96 |
| COURSE ACTIVITY (Hrs) | 54 |
| PROPAEDEUTICAL SUBJECTS | |
| MUTUALIZATION | |
| YEAR | 2 |
| TERM (SEMESTER) | 2° semester |
| ATTENDANCE | Not mandatory |
| EVALUATION | Out of 30 |
| TEACHER OFFICE HOURS | MONTANA MASSIMO Thursday 13:00 14:00 Aula USCR, Edificio 9, chiamare al 3665747862 |

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| <p>PREREQUISITES</p> | <p>Basic concepts on legislation on workplace safety.</p> |
| <p>LEARNING OUTCOMES</p> | <p>Knowledge and ability to understand At the end of the course the student will have acquired knowledge and understanding skills in relation to: - recognition of sources of danger and harmfulness in the workplace and of workers at risk of injury and of occupational disease; - estimation methods of the risk index; - choice of prevention and protection measures, including personal protective equipment; - identification of the subjects responsible for the adoption of technical, organizational or procedural measures. To achieve these objectives, the course includes lectures, discussion of case studies and guided exercises, also through photographic and video supports and specialized software. The verification of these objectives is foreseen during the final assessment of the learning process.</p> <p>Application of knowledge and understanding At the end of the course the student will be able to apply his / her own knowledge and understanding to start the risk assessment process through the following actions: - characterizing the sources of danger and harmfulness in the workplace; - identifying workers at risk of injury and of occupational disease; - forecasting the damage to the psychophysical health and wellness; - estimating the risk index; - recognizing the most effective prevention and protection measures; - assigning the priority between technical, organizational or procedural measures and in the choice of personal protective equipment; - enhancing the procedures for the adoption and implementation of the measures; - ascribing the competent subjects to manage the improvement program over time. To achieve these objectives the course includes lectures, discussion of case studies, guided exercises, also through photographic supports and videos. In-depth studies are planned through simulation of written reports on the "non-compliance" detectable in the workplace and drafts of risk level management procedures. The verification of these objectives is foreseen during the final assessment of the learning process.</p> <p>Autonomy of judgment At the end of the course the student will have acquired the ability to: - processing any data for the risk assessment; - formulating independent judgments on the effectiveness of the various prevention and protection measures; - providing for emergency planning, including by means of a risk compensation solution; - imputing responsibility and competence to the subjects involved in the risk assessment, also with the help of the jurisprudential guidelines. To achieve these objectives the course includes lectures, discussion of case studies (example: judgments of Cassation or accident prevention investigations), guided exercises, also through photographic and video supports, simulation of reports of "non-compliance" detectable in the workplace . The verification of these objectives is foreseen during the final assessment of the learning process.</p> <p>Communication skills At the end of the course the student will have acquired the ability to communicate with competence and language skills on the various issues and issues related to: - protection of the psychophysical integrity of the worker, to the responsibilities among the company subjects that must guarantee adequate levels of safety and hygiene at work; - interaction with public subjects related to prevention and vigilance in the workplace; - technical-economic solutions. To achieve this goal the course includes lectures, discussion of case studies, simulation of meetings between subjects of corporate prevention (role-playing) or exposure before authorities, also taking a cue from photographic and video media. The objective verification is scheduled within the oral examination.</p> <p>Learning ability At the end of the course the student will have acquired awareness about:</p> |

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| | <ul style="list-style-type: none"> - liability and damage both for company and “national system” due to failing risk assessment or to ineffective implementation of protection and prevention measures; - responsibility of every corporate in the lack of prevention of accidents and technopathies; - indispensability of a continuous and autonomous study due to the constant evolution of legislation and regulations, in order to approach the best measures available to be implemented in the company. <p>Therefore, he will be able to continue his engineering studies with greater autonomy, awareness and discernment, recognizing that autonomous learning will characterize the whole of professional life.</p> <p>To achieve these objectives the course includes lectures, discussion of case studies, guided or autonomous exercises, simulations, also taking a cue from photographic and video supports.</p> <p>The verification of these objectives is foreseen within the oral exam.</p> |
| ASSESSMENT METHODS | <p>The final assessment of the learning is carried out through an examination consisting of a practical test and an oral test on the entire program of the course:</p> <ul style="list-style-type: none"> - the practical test, lasting one hour, consists of a ten-question test, of which seven questions are multiple-choice and three questions are open-ended; - the oral exam consists of an interview during which the student will have to answer at least three open-ended questions. <p>Both tests are compulsory and aim, in particular, to assess the student's ability to resolve critical issues concerning health and safety at work.</p> <p>Written and oral exam looks at:</p> <ul style="list-style-type: none"> - the degree of knowledge and understanding of topics and methods for assessing risks about accident and illness; - the ability to apply the knowledge gained with competence, consistency, efficiency and independence of judgment, to solve problems or applications related to course and/or related contexts; - the ability to reprocess the knowledge and skills acquired by identifying disciplinary and interdisciplinary links; - the clearness capacity and correct use of language. <p>The final assessment will be formulated taking into account both the written exam and the oral one; the evaluation is done at the end of the exam depending of the overall results achieved according to what follows:</p> <ul style="list-style-type: none"> - 28-30/30 e lode <p>The student demonstrates a very good / excellent knowledge and understanding of the course contents, which declines in absence of errors and with selfcorrection of some inaccuracies; the answers to the questions posed are organized with a rigorous approach by providing complete solutions and demonstrating good / excellent application capabilities with a high degree of autonomy. The ability to communicate is characterized by very good / excellent clearness, fluency and use of language and articulated arguments which show a full ability to rielaborate and make judgments both in the same discipline and in interdisciplinary fields.</p> <ul style="list-style-type: none"> - 24-27 <p>The student demonstrates a satisfactory / good knowledge and understanding of the course contents, which declines with few minor errors or omissions partially corrected or integrated by means the professor guide; the answers to the questions posed are basically correct, showing a satisfactory / good ability of independent analysis. The ability to communicate is characterized by a satisfactory / good consistency in connecting the concepts both in the same discipline and in interdisciplinary fields; adequate clearness and substantially correct use of language.</p> <ul style="list-style-type: none"> - 18-23 <p>The student demonstrates a sufficient/decent knowledge and understanding of discipline contents, which declines with no several and critical errors and/or omissions; the answers, even if adequate, are characterize by a limited level of autonomy and effectiveness. The ability to communicate is of acceptable level of clearness, fluency and use of language, but with some limitations of concepts reinterpretation and connection in disciplinary context.</p> <ul style="list-style-type: none"> - below 18 <p>The student shows to have not reached the minimum level of learning outcomes. Insufficient knowledge, with many several and significant errors or inaccuracies; insufficient capacity in the analysis and resolution of the problems, lack of autonomy in the methodological approach, inability to orient in an autonomous way or to conduct disciplinary and interdisciplinary links; deficient presentation skills and argumentation, unclear and inadequate use of language.</p> |
| EDUCATIONAL OBJECTIVES | <p>Aim of the course is to provide the student with knowledge, understanding, application skills, independence of judgment and communication skills in the field of occupational safety and hygiene in relation to the binding legislation and applicable legislation.</p> |

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| | A further objective consists of acquiring awareness of the social and industrial consequences of accidents and technopathies, of the deontological need to operate a continuous and autonomous study throughout the future of professional activity, due to the constant evolution of legislation to also contribute to the progress of society. |
| TEACHING METHODS | Lectures, exercises, case studies analysis and classroom discussion, use of softwares, simulations. Teaching activities are organized to help the achievement learning outcomes and educational objectives. The course is characterized by theoretical contents and practical aspects; it is done in order to stimulate the participation of students by providing interactive lectures, in which priority is given not only to the connections among topics of the same course, but even those interdisciplinary. During exercises and discussion of case studies, the student is encouraged to critically analyze the issues proposed by developing their skills of analysis, of independent evaluation, communication, argumentation and of use of language, being called to deal with the professor and other students. Considering the type of course (professional) special attention is devoted to the application in order to provide tools and their correct methods of use, since these are the elements that will characterize the professional activities of an engineer. |
| SUGGESTED BIBLIOGRAPHY | <ul style="list-style-type: none"> - R. Guariniello: "Il T.U. Sicurezza sul lavoro commentato con la giurisprudenza", Editore Ipsoa, Anno 2017 - A. Pais: "Testo unico per la salute e sicurezza nei luoghi di lavoro", EPC, 2017 - M. R. Solombrino: "Compendio di sicurezza sul lavoro", Edizioni Giuridiche Simone, 2017 - M. D'Apote, A. Oleotti: "Manuale per l'applicazione del D.Lgs. 81/2008. Guida operativa all'interpretazione e all'applicazione di ciascun titolo", EPC, 2017 - Linee guida UNI-INAIL per un sistema di gestione della salute e sicurezza sul lavoro - Linee di indirizzo per l'implementazione dei sistemi di gestione per la salute e la sicurezza nelle imprese a rete - P. Clerici, A. Guercio, L. Quaranta: "La gestione dell'elemento umano nelle organizzazioni per la salute e sicurezza sul lavoro", INAIL 2016 - S. Massera, A. Terracina: "Il sistema di gestione della sicurezza sul lavoro", EPC Editore - Dispense del docente su specifici argomenti. |

SYLLABUS

| Hrs | Frontal teaching |
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| 1 | Approach to prevention in Legislative Decree 81 / 2008 (so called "Unified Code, U.C.). The philosophy of the U.C. in reference to the managerial - organizational character. The vigilance and assistance system. The subjects of the corporate prevention system. |
| 8 | Risk assessment process Concepts of danger, risk, damage, prevention and protection. Nature of risks: physical, chemical, biological, ergonomic, organizational. Precautionary principle: attention to pregnant workers, to gender differences, to age, to origin from other countries and to specific type of contract through which the work performance is rendered. Analysis of accidents at work: causes, occurrence methods, indicators, statistical analysis and trend over time, accident register, "near miss". Analysis of occupational diseases: causes, methods of occurrence, indicators, statistical analysis and trend over time. Statistical sources: availability tools and information materials. Evaluation of risks: methodologies and criteria for risk assessment. Stages and activities of the evaluation process. Context of application of standardized procedures. Contents, frame and organization of the risk assessment document. The assessment of the risks from interference and the management of procurement, work or supply contracts. |
| 10 | Risk assessment techniques. Accident risk: mechanical, machines, plants, equipment, goods handling. Risks of an ergonomic nature: manual handling of loads, equipment equipped with video terminals. Psycho-social risks: work-related stress, bullying, burn-out syndrome. Physical, chemical, carcinogenic, mutagenic and biological agents. Risks related to the intake of drugs, psychotropic substances, alcohol. Risks connected to particular activities (waste management, confined environments, road activities). |
| 4 | Application of risk assessment and organizational implications. The classification of specific risks in relation to the health and safety regulations. Safety signs. Personal protective equipment: selection and use criteria. Emergency management. Fire risk: characteristics and management procedures. The emergency and first aid plan: areas and applications. Health surveillance. Objectives, obligations, protections for working mothers, minors, disabled, medical examinations and assessments of suitability, appeals. |

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| Hrs | Frontal teaching |
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| 10 | <p>Information and training of the subjects specially mentioned in Legislative Decree 81 / 2008 (U.C.). The role of information and training.</p> <p>From risk assessment till to the preparation of information and training plans in the company (Legislative Decree 81/2008 and other European directives).</p> <p>Information sources on health and safety at work.</p> <p>Methods for correct information in the company (meetings, specific work groups, conferences, information seminars, etc.).</p> <p>Information tools on health and safety at work (circulars, posters, brochures, audiovisuals, notices, news, networked systems, etc.).</p> <p>Training: the concept of learning.</p> <p>Active teaching methods: analysis and presentation of the main methodologies used in andragogy.</p> <p>Elements of didactic planning: analysis of the needs, definition of the didactic objectives, selection of the contents according to the objectives, didactic methodologies, systems of evaluation of the results of the training in the company.</p> |
| 6 | <p>Business consultation of the security and the relationships between the subjects of the prevention system.</p> <p>Relationship system: RLS, employer, qualified doctor, workers, public bodies, suppliers, self-employed workers, contractors, etc.</p> <p>Features and objectives that affect relationships.</p> <p>Role of communication in different work situations.</p> <p>Identification of consensus points and disagreement to mediate the various positions.</p> <p>Overview of methods, techniques and tools of communication.</p> <p>Communication network in the company.</p> <p>Management of work meetings and periodic meetings.</p> <p>Closing of the meeting and planning of activities.</p> <p>Post-meeting activity.</p> <p>Individual perception of risks.</p> <p>Trade union aspects. Negotiation and management of union relations, relationship between safety management and trade union aspects: critical issues and strengths.</p> |
| 4 | <p>Safety culture: analysis of the business climate, fundamental elements for understanding the role of needs in motivating the workers.</p> <p>Organizational well-being: motivation, collaboration, relationship analysis, conflict management.</p> <p>Team building: methodological aspects aimed at organizational well-being.</p> |
| 6 | <p>Organization and management systems.</p> <p>Risk assessment as: - prevention planning process; - knowledge of the company organization system as a basis for the identification and analysis of risks with particular reference to duty, accountability and functional proxy; - elaboration of methods for checking the effectiveness and efficiency over time of the security measures adopted.</p> <p>Safety management system: UNI-INAIL guidelines, integration and comparison with other norms and standards (OSHAS 18001, ISO, etc.).</p> <p>Process of continuous improvement.</p> <p>Organization and integrated management: - synergies between quality management systems (ISO 9001), environment (ISO 14001), safety (OHSAS 18001); - simplified procedures (Ministerial Decree 13/02/2014); - technical administrative activities (specifications, administrative paths, economic aspects); - program, planning and organization of ordinary and extraordinary maintenance.</p> |
| Hrs | Practice |
| 4 | Case studies related to risk analysis, development of risk assessment documents, development of procedures. |
| Hrs | Others |
| 1 | Presentation of course, objectives, exams outline, texts. |