



# UNIVERSITÀ DEGLI STUDI DI PALERMO

Department: Engineering

A.Y. 2019/2020

## DEGREE COURSE IN SAFETY ENGINEERING

### Characteristics



Class of Bachelor's Degree  
(BSc) on Industrial  
engineering (L-9)



3 YEARS



PALERMO



PLANNED ACCESS



2210

### Educational objectives

The specific educational objective of this course is the education of a professional profile who is alternative and transversal to the traditional engineering ones, who is able to plan and manage the safety aspects placing systematizing them with the production processes of goods and services, in the industrial field, in construction sites and workplaces in general.

This professionals are capable of identifying risk factors, analysing and evaluating them both in industrial processes and plants, construction sites and workplaces at large, identifying prevention and protection measures for people, goods and resources, which must be integrated with the means, tools, machines and systems necessary to carry out any activity effectively, efficiently and economically, through the design and management of safety in standard systems with methodological rigor, in synergy with other professionals assigned to the production processes of goods and at large.

To educational programme is structured in such a way to provide students with adequate preparation in the basic disciplines (mathematics, physics, chemistry, geometry), as well as general engineering knowledge and context related skills (computer-aided design, construction theory, electrical engineering, technical physics and thermotechnical systems, safety legislation and an elective course chosen from within a group of related optional activities). They are joined by specialized engineering related to the methodological techniques for identifying, analysing and evaluating risks, identifying preventive and organizational, managerial, technical and technological protective measures to minimize risks and achieve high safety conditions in the production processes of goods and services, on work sites and in work environments in general (Electrical systems and safety, Safety management systems, Construction site safety and an elective course chosen in a group of class specific optional activities).

The course also includes:

- a curricular internship during which students carry out a professionalizing training project making also use of the specific tutor skills;
- elective activities, allowing the deepening and/or expansion of knowledge and skills in the field of safety, or the integration of training with disciplines related to other scientific-engineering fields and the acquisition of knowledge and context skills useful to fit into the labour market.

Graduates in Safety Engineering will therefore have suitable knowledge and skills for immediate access into the labour market, being able to carry out activities both as freelancers in Agencies, public and private companies and in the public administration

### Professional opportunities

Profile:

Safety Engineer

Functions:

Graduates in Safety Engineering are capable of carrying out the identification of risk factors, and to the analysis and evaluation of these in industrial processes and plants as well as in yards and workplaces at large, the identification of prevention measures – namely of organisational and procedural ones – the protection of people, assets and resources, which must integrate with the means, tools, machines and equipment needed to perform any activity, in effective, efficient and economic ways, carrying out the design and management of safety in standard systems with methodological rigour, under a holistic perspective and in synergy with the other professionals implied in the production of goods and services at large.

Their cultural and professional profiles characterised by a coherent and balanced combination of basic and engineering knowledge and skills enabling them to work as safety planners/managers; this profile is based upon sound interdisciplinary groundings consisting of basic industrial engineering subjects, general engineering and specialist subjects related to the

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methodological risk analysis and assessment techniques, organisational and managerial subjects related to the most adequate safety measures – under a technical and technological perspective – to use in order to obtain high safety levels.

Graduates in “Safety Engineering” are also capable of facing safety issues in intrinsically multidisciplinary contexts, being therefore able to relate both as a member and as a team leader, with other professionals competent and specialist in other disciplines, who are involved, in various capacities, in the production of goods and services.

Safety Engineers possess specific abilities enabling them to promptly fit in a wide range of professional contexts, working as an expert of safety planning and management.

#### Skills:

- Identification of risk factors;
- Risk analysis and assessment;
- Identification and definition of preventive and protective measures;
- Planning, implementation and management of safety measures (safety planning and management);
- Promotion of a managerial approach to prevention, based on techniques of communication, relation, group management, negotiation in potentially conflictual fields, problem solving, in order to create involvement, motivation and active participation of all the actors of the safety system.

The educational programme is designed in a way to provide all the skills needed to obtain professional certification for the following positions:

- Safety manager, in the design and implementation of works as per Title IV of the Legislative Decree n.81/2008 and subsequent amendments;
- Official in charge of the Prevention and Protection Service provided for by Legislative Decree no. 81/2008 and subsequent amendments, in compliance with the provisions of the agreement of the Permanent Conference for Relations among the State, the Regions and the Autonomous Provinces of Trento and Bolzano of 7 July 2016, n.128/CSR.

#### Professional opportunities:

The knowledge and skills of graduates in Safety Engineering enable them to work:

- As freelance professionals (after passing the national qualification examination and enrolling in the professional Board) and expert safety consultants;
- Expert of safety management in industrial facilities, installations and infrastructures of various kinds;
- Head of the prevention and protection service (RSPP) of public and private companies and agencies and public administration;
- Safety coordinator in the design and execution phase of works (after having gained the necessary field experience required by Legislative Decree no. 81/2008 and subsequent amendments and partly also acquired during the internship, if carried out in the construction sector);
- Manager of the design of safety, control and monitoring systems of factories, industrial and service companies, yards;

Professional opportunities might be found, therefore:

- In public and private companies;
- In public and private companies/institutions;
- In the public administration;
- In the private practice.

#### Final examination features

To be admitted to the final examination, students must have acquired all the credits provided by the course, except the three credits attributed to the final test, which will be acquired by passing the test itself. The final test has the objective of assessing the level of maturity and critical skills of the undergraduate, with respect to learning and to the acquired knowledge, on completion of the activities provided by the course syllabus. The final examination consists of a written or oral test, in accordance with the rules fixed by the Degree Course Regulations for the final examination, respecting and consistent to the calendar, the ministerial requirements and to the relevant Guidelines of the University. (Rector’s Decree 3688 of 20/10/2015 following the resolution of the Academic Senate of 16/09/2015)

Subjects 1 ° year	CFU	Sem.	Val.	SSD	TAF
02605 - COMPUTER AIDED DESIGN <i>Marannano(PA)</i>	9	1	V	ING-IND/15	B
03675 - GEOMETRY <i>Rizzo(AR)</i>	6	1	V	MAT/03	A
19109 - MATHEMATICAL ANALYSIS - INTEGRATED COURSE	12	Ann.	V		
- MATHEMATICAL ANALYSIS - MODULE 1 <i>Bongiorno(PA)</i>	6	1		MAT/05	A
- MATHEMATICAL ANALYSIS - MODULE 2 <i>Bongiorno(PA)</i>	6	2		MAT/05	A
04677 - ENGLISH LANGUAGE	3	1	G		E
01788 - CHEMISTRY <i>Saccone(RD)</i>	9	2	V	CHIM/07	A

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Subjects 1 ° year	CFU	Sem.	Val.	SSD	TAF
15540 - PHYSICS I <i>Lorenzo(PA)</i>	9	2	V	FIS/03	A

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Subjects 2 ° year	CFU	Sem.	Val.	SSD	TAF
02965 - ELECTRICAL DEVICES AND CIRCUITS <i>Ala(PO)</i>	6	1	V	ING-IND/31	B
06313 - MECHANICS OF MATERIALS AND THEORY OF STRUCTURES <i>Zingales(PO)</i>	9	1	V	ICAR/08	B
07870 - PHYSICS II <i>Palma(PO)</i>	6	1	V	FIS/01	A
20473 - WORKPLACE AND YARD SAFETY REGULATIONS - INTEGRATED COURSE	15	Ann.	V		
- LABOUR SAFETY LEGISLATION <i>Bologna(PA)</i>	6	1		IUS/07	C
- YARD SAFETY <i>Pennisi(PA)</i>	9	2		ICAR/11	B
19489 - ELECTRICAL PLANTS AND SAFETY <i>Favuzza(PO)</i>	6	2	V	ING-IND/33	B
19488 - SAFETY MANAGEMENT SYSTEMS <i>Nastasi(PC)</i>	6	2	V	ING-IND/35	B
19490 - TECHNICAL PHYSICS AND THERMO-TECHNICAL PLANTS <i>D'Amico(RD)</i>	6	2	V	ING-IND/11	C
Optional subjects	6				C
Optional subjects II	6				B

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Subjects 3 ° year	CFU	Sem.	Val.	SSD	TAF
01192 - OTHER EDUCATIONAL ACTIVITIES	1	1	G		F
07553 - PROFESSIONAL PRACTICE	50	1	G		S
05917 - FINAL EXAMINATION	3	2	V		E
Free subjects	12				D

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## OPTIONAL SUBJECTS

Optional subjects	CFU	Sem.	Val.	SSD	TAF
07173 - ENVIRONMENTAL CONTROL TECHNIQUE <i>Guarino(RD)</i>	6	1	V	ING-IND/11	C
19483 - ENVIRONMENTAL SAFETY <i>Viviani(PQ)</i>	6	1	V	ICAR/03	C
03956 - INFRASTRUCTURES FOR MOBILITY AND TRANSPORTATION <i>Grana'(PO)</i>	6	1	V	ICAR/04	C
19484 - QUALITY AND SAFETY MEASUREMENTS <i>D'Acquisto(PO)</i>	6	2	V	ING-IND/12	C
19485 - WORKPLACE HYGIENE AND SANITARY PREVENTION <i>Firenze(PA)</i>	6	1	V	MED/42	C

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## OPTIONAL SUBJECTS

Optional subjects II	CFU	Sem.	Val.	SSD	TAF
19482 - PRINCIPLES OF INDUSTRIAL SAFETY <i>Grisafi(PA)</i>	6	2	V	ING-IND/25	B
06426 - SAFETY AND RISK ANALYSIS <i>Giardina(PA)</i>	6	2	V	ING-IND/19	B

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