



University of Jaén
Jaén Higher Polytechnic School.

MASTER'S DEGREE IN INDUSTRIAL ENGINEERING

SKILLS

BASIC	
Code	Description
CB6	Possess and understand knowledge providing a foundation or opportunity to develop and/or apply ideas in an original manner, particularly in research contexts. Apply the knowledge acquired and develop an ability to solve problems in new or unfamiliar settings within broader (or multidisciplinary) contexts related to the area of study.
CB7	Apply the knowledge acquired and develop an ability to solve problems in new or unfamiliar settings within broader (or multidisciplinary) contexts related to the area of study.
CB8	Integrate knowledge and tackle complex judgements on the basis of information which may be incomplete or limited, including reflections on social and ethical responsibilities linked to the application of these knowledge and judgements.
CB9	Communicate conclusions and knowledge and the underlying reasons informing them to expert and non-expert audiences clearly and unambiguously.
CB10	Self-directed or independent study.

GENERAL	
Code	Description
CG01	Acquire adequate knowledge of the scientific and technological aspects of: mathematical, analytical and numerical methods in engineering, electrical engineering, energy engineering, chemical engineering, mechanical engineering, continuum mechanics, industrial electronics, automation, production, materials, quantitative management methods, industrial computing, urban planning, infrastructure, etc.
CG02	Plan, calculate and design products, processes, installations and factories.
CG03	Lead, plan and supervise multidisciplinary teams
CG04	Conduct research, development and innovation of products, processes and methods.
CG05	Undertake strategic planning and apply it to both construction and production systems for quality and environmental management.
CG06	Manage the technical and economic aspects of projects, installations, plants, companies and technological centres.
CG07	Undertake general, technical and project management of R&D&I projects in factories, companies and technological centres.
CG08	Apply the knowledge obtained and solve problems in new or unfamiliar settings within broader, multidisciplinary contexts.
CG09	Be able to integrate knowledge and tackle complex judgements on the basis of information which may be incomplete or limited and requires reflection on the social and ethical responsibilities linked to the application of these judgements
CG10	Be able to communicate conclusions – and the knowledge and underlying reasons informing them – to expert and non-expert audiences clearly and unambiguously.
CG11	Possess learning skills allowing ongoing self-directed or independent study.
CG12	Possess the knowledge, understanding and skills required to apply the necessary legislation in the professional practice of Industrial Engineering.

SOFT SKILLS	
Code	Description
CT01	Be able to work with, lead and manage conflict in a multidisciplinary group and/or multilingual setting.



MASTER'S DEGREE IN INDUSTRIAL ENGINEERING

CT02	Be able to manage information and apply the necessary technical specifications and legislation to engineering practice.
CT03	Develop entrepreneurial skills and attitudes.
CT04	Respect human rights and seek to tackle discrimination based on gender, place of origin, disability, etc.
CT05	Be able to convey information adapted to a specific audience verbally and in writing

SPECIFIC SKILLS	
<i>Industrial Technologies Module</i>	
Code	Description
CE01	Possess the knowledge and ability to analyse and design systems to generate, transport and distribute electrical energy.
CE02	Posses the knowledge and ability to plan, calculate and design integrated production systems.
CE03	Be able to design and test machines.
CE04	Be able to analyse and design chemical processes.
CE05	Possess the knowledge and ability to design and analyse thermal machines and engines, hydraulic machines and industrial heating and cooling installations.
CE06	Possess the knowledge and ability to understand, analyse, exploit and manage various energy sources.
CE07	Be able to design electronic systems and industrial instruments.
CE08	Be able to design and plan automated production systems and advanced monitoring of processes.
<i>Management Module</i>	
Code	Description
CE09	Possess the knowledge and ability to organise and lead companies.
CE10	Possess the knowledge and ability to develop strategy and planning applied to various organisational structures.
CE11	Be aware of commercial and employment law.
CE12	Be aware of financial and cost accounting.
CE13	Be aware of IT systems for management, industrial organisation, production systems, logistics and quality management systems.
CE14	Be able to organise work and human resource management.
CE15	Possess the knowledge and ability to manage projects in a holistic manner.
CE16	Be able to manage technological research, development and innovation.
<i>Installations, plants and complementary constructions Module</i>	
Code	Description
CE17	Be able to design, construct and exploit industrial plants.
CE18	Be aware of construction, building, installations, infrastructure and urban planning in the field of Industrial Engineering.
CE19	Possess the knowledge and ability to calculate and design structures.
CE20	Possess the knowledge and ability to plan and design electrical and fluid installations, lighting, air conditioning and ventilation, energy saving and efficiency, acoustics, communications, home automation, smart building and security installations.
CE21	Be aware of methods and techniques for industrial transport and maintenance.
CE22	Posses the knowledge and ability to undertake checks and monitoring of installations, processes and products.
CE23	Possess the knowledge and ability to undertake checks, audits tests and reports.
<i>Master's final project</i>	
Code	Description
CE24	Complete an original exercise individually once all of the credits in the study programme have been obtained, consisting of a comprehensive Computer Engineering project of a professional nature, synthesising the skills acquired in the teaching modules, and present and defend it to an university panel.