

Strategic competences of UdL according to the “*Plan Director de Docencia*” approved by the Council of Government of UdL in July 10th, 2007

UdL1 Appropriate skills in oral and written language.

UdL2 Command of a foreign language.

UdL3 Mastering ICT's.

UdL4 To respect the fundamental rights of equality between men and women, the promotion of the Human Rights and the principles of a culture of peace and democratic values.

Cross-disciplinary competences approved by the Plenary Commission of the Degrees of Industrial Engineering, Computer Engineering and Building Engineering, gathered on June 16th, 2008

EPS1. Capacity to solve problems and prepare and defence arguments inside the area of studies.

EPS2. Capacity to gather and interpret relevant data, within the area of study, to judge and think about relevant subjects of social, scientific and ethical nature.

EPS3. Capacity to convey information, ideas, problems and solutions to both a specialized and no specialized public.

EPS4. To have the skills required to undertake new studies or improve the training with self-direction.

EPS5. Capacity of abstraction and of critical, logical and mathematical thinking.

EPS6. Capacity of analysis and synthesis.

EPS7. Capacity to work in situations with a lack of information and/or under pressure.

EPS8. Capacity of planning and organizing the personal work.

EPS9. Capacity for unidisciplinary and multidisciplinary teamwork.

EPS10. Capacity to take part in the structure of a company.

EPS11. Capacity to understand the needs of the user expressed in a no technical language.

EPS12. To be motivated for the quality and steady improvement.

EPS13. Capacity to consider the socioeconomic context as well as the sustainability criteria in engineering solutions.

Specific competences that the students have to obtain according to ORDER ECI/3855/2007, of December 27th

Module of basic training

GEE1. Aptitude to apply the knowledge related with numerical and infinitesimal calculus, linear algebra, analytical and differential geometry, techniques and probabilistic methods and statistical analysis.

GEE2. Applied knowledge of the principles of general mechanics, the statics of structural systems, the geometry of masses, the principles and methods of analysis of the elastic behaviour of the solid.

GEE3. Capacity to apply the spatial representation methods, the development of the sketch, the proportionality, the language and the techniques of graphic representation of the elements and constructive processes.

GEE4. Knowledge of the chemical characteristics of the materials used in the building process, its preparation procedures, the test methodology to determine their characteristics, its geological origin, its environmental impact, the recycling and waste management.

GEE5. Knowledge of the theoretical basics and basic principles applied to construction, of the fluid mechanics, the hydraulic, the electricity and the electromagnetism, the calorimetry and hightermia, and the acoustics.

GEE6. Good understanding of the concept of company, its institutional framework, organizational models, planning, control and strategic decisions making in environments of certainty, risk and uncertainty; systems of production, costs, planning, funding sources and preparation of financial plans and budgets.

GEE7. Capacity to manage small companies, and to take part as a member of a multidisciplinary team in big companies.

GEE8. Basic knowledge of the legal system of the Public Administration and the contracting and procurement procedures.

Module of specific training

GEE9. Capacity to interpret and prepare the graphical documentation of a project, taking data, making the graphic design and the geometrical control of the work units.

GEE10. Knowledge of the procedures, computer graphic methods and cartographic methods in the field of construction.

- GEE11.** Aptitude to work with the topographical instrumentation and proceed to the graphic design of sites and buildings, and to set it out in the field.
- GEE12.** Manufactured or traditional constructive systems and materials knowledge, its varieties and physics and mechanical characteristics that define them.
- GEE13.** Capacity to adapt the materials of construction to the typology and use of buildings; manage the reception and the quality control of the materials, its use in the building works, the execution control of the units of work and the performance of tests and final proofs.
- GEE14.** Knowledge of the historical evolution of the techniques and constructive elements and the structural systems that have given origin to the stylistic forms.
- GEE15.** Aptitude to identify the elements and constructive systems, define their function and compatibility, and his use in the building process. Pose and solve constructive details.
- GEE16.** Knowledge of the specific control procedures for the building works.
- GEE17.** Capacity to give advice on the causes and evidences of the building injuries, to be able to offer solutions to avoid or amend their pathologies, and analyse the life cycle of the elements and constructive systems.
- GEE18.** Aptitude to take part in the rehabilitation, restoration and conservation of the built heritage.
- GEE19.** Capacity to develop maintenance plans and handbooks and manage its implementation in the building.
- GEE20.** Knowledge of the environmental impact evaluation for building and demolition process, of sustainability in buildings, and of the procedures and techniques to determine the energy efficiency in buildings.
- GEE21.** Capacity to apply technical rules to the building process, and produce documents of technical specification of the procedures and constructive methods of buildings.
- GEE22.** Aptitude to apply specific rules on the installations of the building process.
- GEE23.** Aptitude for the pre-dimensioning, design, calculation and test of structures and to manage its execution.
- GEE24.** Capacity to constructively develop the facilities of the building, control and schedule its execution and verify the service reception test, as well as his maintenance.
- GEE25.** Capacity to schedule and manage the building process, the work teams, and the technical and human means for maintenance and execution.
- GEE26.** Knowledge of building legislation, contractual relationships in the different phases of a building process. Furthermore, knowledge of the legislation and other specific rules regarding security and occupation healthcare issues in buildings.
- GEE27.** Aptitude to write studies, basic studies and security and labour health plans, and coordinate the security in a project and executive phases of a construction work.
- GEE28.** Capacity for the quality management in construction works, the writing, application, implantation and update of manuals and quality plans, to perform quality management audits in companies and to edit the book of the building.
- GEE29.** Aptitude to analyse, design and execute solutions that allow the universal access to buildings and surroundings.
- GEE30.** Knowledge of professional work organization and studies organization, offices and professional societies, the regulation and the legislation related with the functions that develop a Building Engineer and the legal framework of responsibility associated to the activity.
- GEE31.** Capacity to calculate basic, auxiliaries, unitary and decomposed prices of the units of work; analyse and control costs during a building process; to be able to do budgets.
- GEE32.** Skills to develop market studies, assessments and evaluations, viability studies, expert witness and economic evaluation of risks and damages in a building.
- GEE33.** Capacity to analyse and make projects of evacuation of buildings.
- GEE34.** Knowledge of the legal management frame and the legal urban frame.
- GEE35.** Capacity to apply advanced tools needed to compose the different parts of a technical project and its management.
- GEE36.** Skills to write technical projects of building sites and constructions that do not require architectural projects such us projects of demolition and decoration.
- GEE37.** Skills to write documents that are part of the executive project created in a multidisciplinary way.
- GEE38.** Capacity to analysis executive projects and its use in the execution of works.
- GEE39.** Knowledge of the roles and responsibilities of the agents that take part in the building process and his professional or business organisation. The administrative procedures, of management and processing.
- GEE40.** Knowledge of the professional organization and the basic procedures in the field of building and promotion.
- Module of Bachelor's Project
- GEE41.** Presentation and defence in front of a university court of a Bachelor's project, based in an exercise of integration of the formative contents received and the skills acquired.