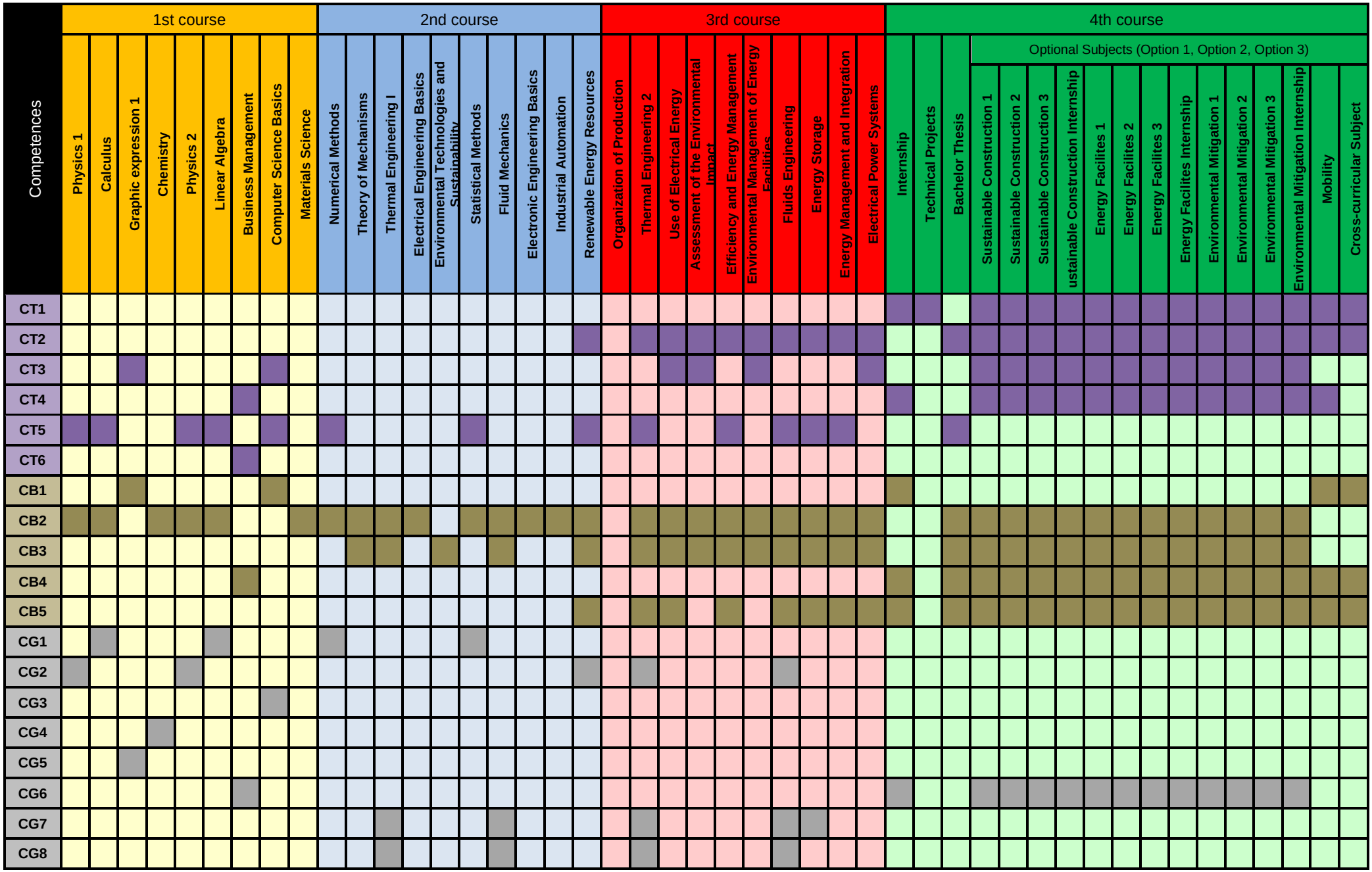
DEGREE IN ENERGY AND SUSTAINABILITY ENGINEERING

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Transversal competences (UdL)

CT1 Acquiring adequate comprehension and oral and written Catalan and Spanish.
CT2 Master a foreign language, especially English.
CT3 Acquire training in the use of new technologies and information and communication technologies
CT4 To acquire basic knowledge of entrepreneurship and professional environments.
CT5 To acquire essential notions of scientific thinking
CT6 Apply the gender perspective to the tasks of the professional field .

Basic competences .

CB1 That students have demonstrated to possess and understand knowledge in an area of study that starts from the base of general secondary education, and is usually found at a level that, although supported by advanced textbooks, also includes some aspects that imply knowledge coming from the vanguard of his/her field of study.
CB2 That students know how to apply their knowledge to their work or vocation in a professional way and possess the skills that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study.
CB3 That students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant issues of a social, scientific or ethical nature.
CB4 That students can transmit information, ideas, problems and solutions to a specialized and non-specialized public
CB5 That the students have developed those learning skills necessary to undertake further studies with a high degree of autonomy.

General competences

Module of basic training

CG1 Have the ability to solve mathematical problems that may arise in engineering, and the ability to apply knowledge about: linear algebra; geometry; differential geometry; differential and integral calculus; differential equations and partial derivatives; numerical methods; numerical algorithmic; statistics and optimization.
CG2 Understand and master the basic concepts of the general laws of mechanics, thermodynamics, fields and waves, and electromagnetism and their application to solve engineering problems.
CG3 Have basic knowledge about the use and programming of computers, operating systems, databases and computer programs with applications in engineering.
CG4 Have the ability to understand and apply the principles of basic knowledge of general chemistry, organic and inorganic chemistry and their applications in engineering.
CG5 Have the capacity for spatial vision and knowledge of graphic representation techniques, both by traditional methods of metric geometry and descriptive geometry, as well as through computer-aided design applications.
CG6 Have adequate knowledge of the concept of the company, the institutional and legal framework of the company and the organization and management of companies.

Module of common training to the industrial branch

CG7 Have knowledge in applied thermodynamics and heat transfer, basic principles, and its applicationin solving engineering problems
CG8 Have knowledge of the basic principles of fluid mechanics and their application to problem solving in the field of engineering and know how to calculate pipes, channels and fluid systems.
CG9 Have knowledge of the fundamentals of science, technology and chemistry of materials and understand the relationship between microstructure, synthesis or processing and the properties of materials.
CG10 Have knowledge and use of the principles of circuit theory and electrical machines.
CG11 Have knowledge of the fundamentals of electronics.
CG12 Have knowledge about the fundamentals of automatisms and control methods.
CG13 Have knowledge of the principles of machine and mechanism theory.
CG14 Have knowledge and use of the principles of resistance of materials.
CG15 Have basic knowledge of production and manufacturing systems.
CG16 Have basic knowledge and application of environmental technologies and sustainability.
CG17 Have applied knowledge of business organization.
CG18 Have knowledge and skills to organize and manage projects and know the organizational structure and functions of a project office.

Specific competences

CE1 Have knowledge and skills to apply graphic engineering techniques.
CE2 Have applied knowledge of thermal engineering.
CE3 Have applied knowledge of the fundamentals of fluid-mechanical systems and machines.
CE4 Have knowledge and skills for the application of materials engineering.
CE5 Have the capacity to calculate and design electrical machines.
CE6 Have the capacity to calculate and design low and medium voltage electrical installations.
CE7 Have the ability to calculate and design power lines and transport of electrical energy.
CE8 Have knowledge about electrical power systems and their applications.
CE9 Have applied knowledge of power electronics.
CE10 Have knowledge of the principles of automatic regulation and its application to industrial automation.
CE11 Have the capacity to design power plants.
CE12 Have applied knowledge about renewable energies.
CE13 Acquire knowledge and capacity for modeling and simulation of systems.
CE14 Acquire the ability to design industrial automation and control systems.
CE15 Acquire the ability to understand, interpret and apply the legislation on energy and environment.
CE16 Acquire capacity to assess the impacts of energy resources through knowledge of the naturalenvironment and conduct energy and environmental audits.
CE17 Acquire the ability to identify, evaluate and quantify available energy resources
CE18 Acquire the ability to calculate and design energy storage systems
CE19 Acquire capacity for the control of installations and energy systems and their energy efficiency

Module of Work End of Degree

CE20 To be able to develop an original and individual project, and to present and defend it in front of a university court, consisting of a project in the field of energy and sustainability of a professional nature, in which all the competences are integrated and synthesized.