Specific Student Outcomes: Telecommunications Outcomes

	Specific Student Outcomes
CODE	**Telecommunications Outcomes**
CE TEL 01	Ability to independently learn new knowledge and skills adequate for the design, development or utilization of telecommunication systems and services.
CE TEL 02	Ability to use communication and computer applications (office automation, databases, advanced calculus, project management, visualization...) to support the development and utilization of networks, services and telecommunication and electronics applications.
CE TEL 03	Ability to use computer tools to search for bibliographical resources or information related to telecommunications and electronics.
CE TEL 04	Ability to analyze and specify the fundamental parameters of a communication system.
CE TEL 05	Ability to weigh up the advantages and disadvantages of different technological alternatives to deploy or implement communication systems, from the point of view of signal space, perturbations and noise, and analog and digital modulation systems.
CE TEL 06	Ability to design, deploy, organize and manage telecommunication networks, systems, services and infrastructures in residential (home, city and digital communities), business or institutional contexts, including setup, continuous improvement, and understanding of their economic and social impact.
CE TEL 07	Knowledge and use of the principles of programming in telecommunication networks, systems and services.
CE TEL 08	Ability to apply signal analysis and treatment and system modeling tools
CE TEL 09	Ability to understand the mechanisms of electromagnetic and acoustic wave propagation and transmission, as well as corresponding transmitters and receivers.
CE TEL 10	Ability to analyze and design combinational and sequential circuits, synchronous and asynchronous, and to use microprocessors and integrated circuits.
CE TEL 11	Knowledge and application of the fundamentals of hardware description languages.
CE TEL 12	Ability to use different energy sources, especially solar photovoltaic and thermal, as well as the foundations of electro-technics and power electronics.

CE TEL 13	Knowledge and use of the concepts of network architecture, protocols and communication interfaces.
CE TEL 14	Ability to differentiate the concepts of access and transport network, packet and circuit switching network, fixed and mobile network, as well as distributed systems and networked applications, voice, data, audio, video, interactive and multimedia services.
CE TEL 15	Knowledge of network interconnection and routing methods, and of the fundamentals of network planning and dimensioning based on traffic parameters.
CE TEL 16	Knowledge of telecommunication legislation and regulations at the National, European and International levels.