

School			
Major		Masters of Science in Computer & Communication Engineering	
Major Requirements			
Code	Title	Credits	Description
CENG557	Advanced Network Architectures	3	This advanced course will provide the student an outstanding knowledge of the most interesting advanced network architectures and technologies used nowadays for providing the different communication services. A good understanding of this course will also provide the student background knowledge on network design. Topics include: SONET/SDH and GFP, ATM Networks, QoS Metrics, IP QoS Generic , IP Intserv & Diffserv, Congestion Control in ATM Networks, Multi-Protocol Label Switching Architecture, Label Distribution Protocols, Optical , D35, Fibers and Components, Wavelength Routing Optical Networks, Optical Burst Switching, Broadband Access Network.
CENG695A	Master Thesis Project(Part I)	3	The Master's Project course is six credits practical and research course. The master project is spread over two semesters. Students are requested to conduct a research relevant to the field of specialty; ending up with a thesis describing methodology; applications and results. The course also includes producing a prototype of the research subject (numerical model, physical application). In addition students seek to spend a period of time in organizations specialized in the research field as a practical training.
EENG537	Digital Communications	3	The course is an introduction to modern digital communications at a graduate/senior undergraduate level. It emphasizes a conceptual understanding of principles, techniques, and fundamental limits in digital communication systems. This course covers modulation for digital communications over additive white Gaussian noise (AWGN) channels; bandpass and lowpass signal representation; signal space representation of waveforms; modulation; demodulation; optimum receivers for AWGN channels; probability of error analysis; channel coding; synchronization; an introduction to digital communication through band-limited channels.
EENG587	Wireless Communication	3	This course introduces the applications and challenges of current and envisioned wireless systems, as well as the fundamental principles underlying wireless communications. Topics include: overview of current wireless standards, wireless channels characteristics and models, path loss, shadowing, noise, interference, link budget, flat and frequency selective properties of multipath fading, capacity limits, diversity and combining techniques, multiple antenna techniques MIMO and space-time coding, multicarrier modulation and orthogonal frequency division multiplexing OFDM, spread-spectrum and frequency hopping techniques, multi-user systems.
EENG527	Digital Signal Processing	3	The objective of this course is to build a good understanding of the principles of Digital Signal Processing starting from the theoretical analysis of Discrete Time Systems up to the design and implementation of Digital Filters. Topics include: Analog to Digital Conversion, sampling, quantization, coding, Z-transform and its applications, structures for FIR and IIR systems, design and implementation of Filters using: window, frequency sampling and equiripple filter. In order to provide students with strong foundation of engineering practices and perform a practical application of the acquired knowledge, some design and simulation examples using Matlab are covered.

CENG695B	Master Thesis Project(Part II)	3	The Master's Project course is six credits practical and research course. The master project is spread over two semesters. Students are requested to conduct a research relevant to the field of specialty; ending up with a thesis describing methodology; applications and results. The course also includes producing a prototype of the research subject (numerical model, physical application). In addition students seek to spend a period of time in organizations specialized in the research field as a practical training.
CENG685	Information Security	3	This course covers core concepts in developing and deploying secure information systems. The course focuses on the concepts described in international standards (such as the ISO/IEC 27000 series) for the definition, deployment, testing and integration of secure information systems. The course also guides the student through the contemporary issues related to privacy and security which are shaping the way information is being sought, created, exchanged, stored and exploited.

Core Requirements

Code	Title	Credits	Description
ENGG515	Advanced Engineering Mathematics	3	This course covers core mathematical theories required by upper undergraduate graduate engineering students. The course covers topics in operations research, graph theory, statistics and statistical inference that have a direct application to engineering applications.
CENG507	Embedded Systems	3	This course introduces the student to the development of embedded systems from the ground up. The student is introduced to advanced microcontrollers (e.g., ARM Cortex-M) platform and related application development tool chain that can be used for creating embedded systems. Design and implementation of real-time embedded systems. This is a practical, project oriented course that allows the student to gain the required skills for creating embedded systems and applications.