

School			
Major	Masters of Science in Computer and Communications Engineering		
Major Requirements			
Code	Title	Credits	Description
CENG557	Advanced Network Architectures	3	After introducing the basic network architecture terms represented by the TCP/IP stack in CENG415 (Communication networks) course, student needs a deeper look to the backbone terminologies of communication networks. The main objective of Advanced Network Architectures course is to describe the different network technologies that are used by the service providers (mainly of the Internet) in order to build an international communication network. The student will be first introduced to the major access technologies that run nowadays to help the end user accessing international networks. Then, an inside look to the core network architecture technologies such as SONET/SDH, ATM and MPLS will be given. The course will also provide the student with an outstanding knowledge about the Quality of Service and Quality of Experience as a major need in the communication networks.
CENG695A	Master Thesis Project(Part I)	3	Supervisor mentored engineering project.
EENG537	Digital Communications	3	The course is an introduction to modern digital communications at a graduate/senior undergraduate level. The coverage 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 knowledges, some design and simulation examples using Matlab are covered.
CENG695B	Master Thesis Project(Part II)	3	Supervisor mentored engineering project.

CENG685	Information Security	3	This course provides a thorough understanding of the modern advancements in information security, state-of-the-art techniques, standards and best practices for establishing trust in the digital space. Topics include: Identity and access management; Software development security; Security engineering; Security operations; Asset security; Risk management; Security assessment and testing; Trusted computing & multilevel security.
Core Requirements			
Code	Title	Credits	Description
ENGG515	Advanced Engineering Mathematics	3	This course covers core mathematical theories required by upper undergraduate and 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.