

School			
Major	Masters of Science in Electrical Engineering		
Major Requirements			
Code	Title	Credits	Description
EENG695A	Master Thesis Project(Part I)	3	The master thesis project is a six-credit research and application course that spans over two semesters. Students are expected to develop a theoretical or an applied model in their respective field of specialization. Students should write a thesis describing the research methodology, implementation and results. The developed model might be a valid numerical simulation, a well-functioning prototype or a well-supported mathematical or scientific model.
EENG655	Electric Drives	3	this course examines the basic characteristics of DC and AC motors and their control parameters, describes the various methods of control, and also covers the four-quadrant drives and their control requirements
EENG561	Power Generation and Control	3	This course provide students with a complete picture of the techniques used in modern power system operation.
EENG571	Power System Modeling	3	This course examines the power modeling of transmission lines equivalent circuit, load modeling concepts, modeling of excitation systems and the description of power flow problem and its numerical solution.
EENG511	Power System Analysis and Design	3	This course discuss the unbalances and faults in a system, Symmetrical components, Basic electrical protection equipments, Control strategies against short circuits, power flow, Economic dispatch, Transient operation and stability in a Power system.
EENG521	Power Distribution Systems	3	The aim of this course is to provide the students with a deeper understanding of the design and calculation of the general infrastructure network of electrical power distribution system for towns.
EENG500L	Industrial Systems Automation and Control Lab	1	This lab introduces the Programmable Logic Controllers (PLC) in both simulation and experimental environments. Starting from the basics (ON/OFF contacts, impulse relays, rising edge, falling edge, and negated coil) in addition to the different connection that can be done (series and parallel connections). Moreover, it will be introducing the use of latching circuits, timers, counters, comparators and so on
EENG500	Industrial Systems Automation and Control	3	This course covers the fundamentals, concepts, and design of PLC (Programmable Logic Controllers) based systems. The students gain knowledge of PLC programing and automation process control within industrial environment. The students get an overview of electrical distribution and hardware, industrial hardware, I/O modules, industrial networks systems, and SCADA (Supervisory control and data acquisition) systems. The students get an overview of the PLC’s typical applications in the manufacturing industry in addition to hand-on design projects.
EENG695B	Master Thesis Project(Part II)	3	The master thesis project is a six credits research and application course that spans over two semesters. Students are expected to develop a theoretical or an applied model in their respective field of specialization. Students should write a thesis describing the research methodology, implementation and results. The developed model might be a valid numerical simulation, a well-functioning prototype or a well-supported mathematical or scientific model.
EENG515	Introduction to renewable Energy	3	This course covers the main renewable energy sources and compares them to fossil fuels. It gives elementary understanding of how power plants work. It is designed for students of engineering/science background in electronics. The content covers the potential of the available energy sources, the technologies used to extract them, their design rules, and their environmental impact.
EENG565	Power Electronics II	3	This course introduces a comprehensive overview of different power electronics components and applications. Their structures, switching techniques, harmonic content and performances are discussed

EENG565L	Power Electronics II Lab	1	This lab introduces experiments to examine power devices and power conversion techniques; power diodes and circuits, diode rectifiers, power transistors, DC-DC converters (choppers), DC-AC converters (PWM inverters), thyristors and resonant pulse inverters.
EENG640	Power System Protection & Switchgear	3	Study of power system faults and application of relays for power system protection, review of symmetrical components as applied fault currents
EENG611	Power Transmission Systems	3	This course is divided into two parts: electrical and mechanical design and analysis. The electrical part includes topics such as basic concepts, extended review of overhead transmission line parameters and steady state performance, underground cables and gas-insulated lines, power transmission by means of direct current. In the mechanical part, special attention is given to the construction of overhead transmission lines. Sag and tension of the cables are also included in the analysis.
EENG655L	Electric Drives Lab	1	This lab introduces experiments to complete controlled rectifiers, AC voltage controllers and static switches. In addition it covers DC drives (single phase, three phase and DC-DC converter drives and control of DC drives), AC drives (Induction motor drives, control of induction motors, synchronous motor drives, control of synchronous motors and stepper motor control) and gate drive circuits.
EENG691	Graduate Seminar	1	The Graduate Seminar, EENG691, is designed to provide opportunities for professional development of graduate students.