

## Courses Description

**College:** Engineering

**Department:** Electrical Engineering

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**Couse ID:** 409200      **Description:** Engineering Maths

**Full Course Description:** Complex numbers, First order differential equations (DE). Second order DE. Higher order DE. Laplace transform and applications. Power series solution of DE. Introduction to partial DE.

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**Couse ID:** 409201      **Description:** Electrical Circuits (1)

**Full Course Description:** Units, definitions, independent sources, dependent sources, Ohm's law, Kirchoffe's laws, division rule. Nodal analysis, Mesh Analysis, Linearity and superposition, Thevenin's and Norton's theorems. Inductance and capacitance, source free RL and RC circuits, unit-step forcing function, RLC circuits.

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**Couse ID:** 409202      **Description:** Engineering Analysis

**Full Course Description:** Orthogonal coordinate systems and transformation: Cartesian, cylindrical and spherical coordinate systems. Linear algebra: matrices, vectors, and linear system of equations. Matrix eigenvalue problems; vector differential calculus: gradient, divergence and curl differential operators, vector integral calculus .

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**Couse ID:** 409203      **Description:** Electrical Circuits (2)

**Full Course Description:** Sinusoidal steady-state response, phasor concept, A.C power analysis. Three phase circuits, magnetically coupled circuits, complex frequency, circuit analysis in s-domain, Bode plot, one-port and two-port networks, passive filters.

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**Couse ID:** 409204      **Description:** Introduction to Electrical and Electronic Circuits

**Full Course Description:** a

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**Couse ID:** 409205      **Description:** Electrical and Electronic Circuits Lab.

**Full Course Description:** a

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**Couse ID:** 409209      **Description:** Electrical Circuits Lab for non EE Students

**Full Course Description:** Equipment familiarization. Measurements and DC circuits. Techniques of circuit analysis. Basic laws on AC circuits. Step response of first and second order circuits. Voltage and current relationship in R, L, C circuits. Passive filters. Delta-star three phase measurements. RLC response.

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**Couse ID:** 409220      **Description:** Signals and Systems

**Full Course Description:** Classification of signals and systems, time-domain representations of continuous time signals, time-domain analysis of continuous LTI systems, frequency-domain representations of continuous time signals, frequency-domain analysis of continuous LTI systems, system analysis, time domain representation of discrete time signals, time domain analysis of discrete LTI systems.

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**Couse ID:** 409221      **Description:** Electromagnetics (1)

**Full Course Description:** Review of vector analysis, Divergence and Stokes's theorem, electrostatic fields, Coulomb's law, unbound electric fields, electrostatic boundary-value problems, Magnetostatic fields, Maxwell's equations for static EM fields. Magnetic force, Torque, and Moment. Magnetic materials, magnetic devices. Faraday's law, Displacement current, Time varying potentials, and Maxwell's equations for time varying fields.

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**Couse ID:** 409240      **Description:** Electronics (1)

**Full Course Description:** Introduction to semiconductor materials, pn- junction diode, DC analysis and models, zener diods, Schottky diods, diode circuits: rectifiers, regulators, clippers, clampers, and multiple diode circuits; BJT transistors: DC analysis, biasing, configurations, applications, The field-effect transistor: DC analysis, and JFET MOSFET, configurations, applications.

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**Couse ID:** 409241      **Description:** Microcomputer Systems

**Full Course Description:** a

## Courses Description

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**Couse ID:** 409242      **Description:** Microcomputer Lab.

**Full Course Description:** a

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**Couse ID:** 409304      **Description:** Electronics Lab for non EE Students

**Full Course Description:** Diode characteristics, diode applications, zener diode as voltage regulator, transistor characteristics and DC biasing, JFET, MOSFET characteristics. Multistage transisitors.

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**Couse ID:** 409320      **Description:** Data Communications

**Full Course Description:** Analog and digital transmission; modulation and demodulation; protocol architecture, data transmission, transmission media; data encoding, synchronous and asynchronous transmission; digital carriers; link protocols; error control; multiplexing; circuit and packet switching, open system standards.

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**Couse ID:** 409321      **Description:** Probability and Random Processes

**Full Course Description:** Probability axioms, random variables, operations on one random variable, multiple random variables, operations on multiple random variables, random processes: temporal characteristics, and spectral characteristics, linear systems with random inputs, Markov chains, queuing theory.

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**Couse ID:** 409322      **Description:** Analog Communication Parallel

**Full Course Description:** Review of continuous-time signals and systems, AM modulation and demodulation schemes, angle modulation ( FM and PM) and demodulation, performance of analog communication systems under noise, sampling theorem, quantization, PCM and delta modulation systems, introduction to digital transmission, scrambling techniques.

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**Couse ID:** 409323      **Description:** Digital Communications

**Full Course Description:** Review of signals. Source coding techniques: Huffman coding, Shanon-Fano algorithm, Lembel-Ziv algorithm. Digital bandpass modulation: amplitude shift-keying (ASK), frequency shift-keying (FSK), phase shift-keying (PSK), quadrature amplitude modulation (QAM). Introduction to information theory, channel capacity and channel coding.

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**Couse ID:** 409324      **Description:** Electromagnetic (2)

**Full Course Description:** Wave propagation in lossy dielectrics, plane waves in lossless dielectrics, plane waves in free space, power and poynting vector, reflection of plane waves at normal incidence, reflection of plane waves at oblique incidence, transmission lines: parameters, equations, and applications. Smith chart. Waveguides: rectangular waveguides, TE and TM modes. Introduction to antennas.

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**Couse ID:** 409341      **Description:** Electronics (2)

**Full Course Description:** Basic BJT amplifiers: amplifier configurations, multistage amplifiers, basic FET- amplifiers: amplifier configurations, multistage amplifiers; Frequency response of transistor amplifiers; Operational amplifier: characteristics, application; Differential amplifiers.

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**Couse ID:** 409342      **Description:** Electronics Lab

**Full Course Description:** Diode characteristics, diode applications, zener diode as a voltage regulator, BJT characteristics and DC biasing, operational amplifier characteristics, and applications, amplifier frequency response, multistage amplifier, JFET amplifier.

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**Couse ID:** 409343      **Description:** Digital Electronics

**Full Course Description:** Diode and transistor models (Ebers-Moll model), resistor-transistor logic (RTL), diode-transistor logic (DTL), transistor-transistor logic (TTL), Schottky TTL, emitter-coupled logic (ECL), MOSFET digital circuits, resistor-loaded NMOS logic, CMOS logic, PLA and memory devices: ROM, PROM, EPROM, SRAM, and DRAM, waveform generation: monostable, a stable, and Schmitt trigger circuits, analog-to-digital and digital-to-analog conversion.

## Courses Description

**College:** Engineering

**Department:** Electrical Engineering

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**Couse ID:** 409344      **Description:** Instrumentation and Measurement

**Full Course Description:** Static, dynamic, and probabilistic characteristics of measuring System loading effects of measuring instrument. types of transducers: resistor, capacitor , inductance, piza electric , electrical -chemical, electromagnetic. optical and ultrasonic measuring instruments instrument, signal matching and signal processing systems .

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**Couse ID:** 409345      **Description:** Control and Measurement Lab

**Full Course Description:** Experimentation with open loop and closed loop control systems, Familiarization with different types of Transducers and sensors Knowledge of calibration techniques of different measuring instrument

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**Couse ID:** 409346      **Description:** Instrumentation and Measurement

**Full Course Description:** a

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**Couse ID:** 409347      **Description:** Control and Measurement Lab.

**Full Course Description:** a

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**Couse ID:** 409361      **Description:** Electical Machines (1)

**Full Course Description:** Introduction to machinery principles, magnetic field, Induced e.m.f, transformers: Equivalent circuit, Transformer tests, Current transformer; DC machines: construction, armature windings, Armature reaction. DC generators, DC motors, three-phase induction motor.

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**Couse ID:** 409362      **Description:** Control Systems

**Full Course Description:** a

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**Couse ID:** 409400      **Description:** Training Prereq

**Full Course Description:** The BSc degree in ECE, requires 8 weeks of continuous training inside Jordan, or six weeks of continuous training outside Jordan. The training must be conducted within private or public sectors working in the ECE fields, which requires the approval of the department. A final report is required.

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**Couse ID:** 409421      **Description:** Communication Lab

**Full Course Description:** Introduction to spectrum analyzer operation. AM modulation/demodulation. FM modulation/demodulation. PM modulation/demodulation, Noise effect on AM, FM, and PM. Sample and hold, aliasing effect, pulse code modulation, delta modulation, signal to noise ratio, and signalling techniques: PSK, FSK, DPSK, QPSK, and MSK

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**Couse ID:** 409422      **Description:** Digital Signal Processing

**Full Course Description:** Analog to digital conversion and sampling theorem, discrete-time signals and systems, z-transform, Fourier analysis, discrete Fourier transform (DFT) , fast Fourier transform ( FFT), design of Finite Impulse Response (FIR) and Infinite Impulse Response (IIR) filters. Applications to speech, audio processing and image processing.

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**Couse ID:** 409423      **Description:** Information Theory and Coding

**Full Course Description:** Channel models and Shannon coding theorem, techniques of coding and decoding for reliable transmission over nois channels, linear algebra, linear block codes, hamming codes, cyclic codes, BCH and Reed-Solomon codes, convolutional codes, Viterbi decoding algorithm, performance of coded communication systems

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**Couse ID:** 409424      **Description:** Digital Communication networks

**Full Course Description:** Review of digital data transmission, OSI model, TCP/IP model, switched networks (circuit, packet, frame relays, ATM), local area networks(LAN): architecture and topologies, metropolitan area networks (MAN), wide area networks (WAN), Optical Networks (SONET), integrated service digital networks (ISDN), wireless IANS, performance analysis of a communication network.

## Courses Description

**College:** Engineering

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**Couse ID:** 409425      **Description:** Optical Communication

**Full Course Description:** Review of wave propagation in medium space, wave guides and resonators, optical fiber, components of optical communication systems. Introduction to SONET and DWDM systems

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**Couse ID:** 409426      **Description:** Communication Electronics

**Full Course Description:** Analysis and design of various analog and digital communication circuits including RF amplifiers, oscillators and mixers. AM transmitters and receivers, AM suppressed carrier circuits, FM transmitters and receivers, TV transceiver, A/D and D/A converters, sample and hold circuits, quantizers, encoders.

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**Couse ID:** 409427      **Description:** Wireless Communication

**Full Course Description:** Introduction to wireless communication systems and standards, principles of wireless communications, cellular concept, North American cellular system, GSM, spread spectrum, system design fundamentals (grade of survice, channel capacity), mobile radio propagation (path loss models), fading and multipath, equalization and diversity, modulation performance in fading and multipath channels. A term project including a final report and a presentation is required.

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**Couse ID:** 409428      **Description:** Satellite Communications

**Full Course Description:** Orbits and related issues, baseband signals and quality of service, up/down link, intersatellite link and overall link performance, multiple access, Earth stations, Reliability of satellite communications.

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**Couse ID:** 409429      **Description:** Antennas and Wave Propagation

**Full Course Description:** Review of electromagnetic fundamentals, antennas and radio wave propagation. Antenna fundamentals, antenna radiation characteristics, Hertizian or short dipole, half wavelength dipole, monopole antenna, loop antenna, horn Antenna, patch antenna, antenna arrays, aperture antenna, friis transmission formula. Electromagnetic waves and its properties, propagation of waves, modes of propagation, waves attenuation and absorption, ground waves, sky waves space wave, radio VHF/UHF and microwave wave propagation, Wave guides. Terrestrial fixed links, link budgets.

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**Couse ID:** 409430      **Description:** Special Topics in Communication Engineering

**Full Course Description:** a

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**Couse ID:** 409441      **Description:** VLSI Design

**Full Course Description:** Introduction to analog VLSI design. Basic MOS design physics. Single-stage amplifier, differential amplifier, transconductance amplifier, and current mirrors. Elements of physical design: CMOS layers, layout of basic structures, CMOS gates, and designing CMOS circuits. Design flows, clocking schemes, power distribution, I/O and packaging issues, verification and testing. VHDL language and synthesis. A term project including a final report and presentation is required

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**Couse ID:** 409442      **Description:** Opto-Electronics

**Full Course Description:** Interaction of optics, lasers, mechanics, electronics, and programming. Design methodology; team dynamics. Review of optical detection, modulation, light sources, and detectors. Selected optoelectronic devices and applications such as CD-players, DVD, display systems, laser printers, barcode scanners, digital cameras. A term project including a final report and presentation is required.

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**Couse ID:** 409443      **Description:** Microwave Electronics

**Full Course Description:** Waveguides: modes and cutoff frequency, group and phase velocity, impedance matching, power coupling, Striplines and Microstrips. Passive components: Microwave solid state devices: Transistors, Gun devices, IMPATT diodes, PIN diodes, Varactor diodes, Yttrium-Iron Garnet, dielectric resonators. Microwave tubes, Microwave antennas, Radar, Doppler radar, Transponders.

## Courses Description

**College:** Engineering

**Department:** Electrical Engineering

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**Couse ID:** 409444      **Description:** Analog Filter Design

**Full Course Description:** Filter Fundamentals, classification of filters according to frequency range, order, characteristics, active-and passive- filters, active-filters using op-amps, second-order and high-order filter realizations, Effect of op-amp, Characteristics on the performance of active-Filters, Active-filters using other types of active elements: OTA-C filters, CC-Based Active filters MOSFET-C active filters.

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**Couse ID:** 409445      **Description:** Electronics (3)

**Full Course Description:** Power amplifiers: classifications, operation, and conversion efficiencies; Feedback amplifiers. Oscillators, timing circuits, active filters: low-pass filters, high-pass filter, band-pass filters and band-stop filters.

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**Couse ID:** 409446      **Description:** Solid State Electronics

**Full Course Description:** a

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**Couse ID:** 409447      **Description:** Special Topics in Electronics Engineering

**Full Course Description:** a

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**Couse ID:** 409460      **Description:** Power Electronics

**Full Course Description:** Power semiconductor devices: Diodes, Thyristors, Controllable switches such as GTO, MOSFETS, protection of devices and circuits, single-phase and three-phase uncontrolled and phase-controlled rectifiers, dc-dc switch mode convertor, dc-ac inverters.

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**Couse ID:** 409461      **Description:** Electrical Power System

**Full Course Description:** Fundamentals of power systems generation, transmission, and distribution. Transformer principles, synchronous machines, transmission line parameters and calculations. Types of conductors, series resistance, series inductance of three-phase transmission lines and capacitances. Short, medium and long models, symmetrical components and unsymmetrical fault analysis.

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**Couse ID:** 409462      **Description:** Electrical Machines Lab

**Full Course Description:** Transformers: open circuit test, short circuit test, autotransformers and three phase transformers. Dc motors: shunt motor and series motor. Dc motor: separately excited generator and shunt Generator. Induction motor: open circuit test and short circuit test. And the Synchronous generator.

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**Couse ID:** 409463      **Description:** Energy Conversion

**Full Course Description:** Energy units and energy carriers, energy sources and solar spectrum, direct sun energy . Major topics spans: photovoltaic (potential of solar radiation, pn-junction ,pn junction solar cell under illumination , current voltage characteristics of solar cells, equivalent circuit of solar cell , technologies of solar cells, modules, photovoltaic system); Solar thermal (solar collectors , pipes, thermal storage, and solar thermal systems ); Indirect sun energy (wind power utilization , various wind energy systems, and electrical power systems concepts).

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**Couse ID:** 409464      **Description:** Electrical Machines (2)

**Full Course Description:** Poly-phase rotating machines, A.C winding, induction machines, gage winding, slip-rotor winding, motor starting, torque, motor speed, synchronous generator, synchronous motor, speed control.

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**Couse ID:** 409465      **Description:** Single-Phase Motors

**Full Course Description:** Induction motors, starting characteristics, capacitor induction motor, commutator motors, linear induction motors, permanent-magnet motors, hysteresis motors, single-phase synchronous motors, stepper motors.

## Courses Description

**College:** Engineering

**Department:** Electrical Engineering

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**Couse ID:** 409466      **Description:** Power System Analysis

**Full Course Description:** Admittance model and network calculations, Y-bus build up and modification, power flow solutions: Gauss Seidel, Newton Raphason, fast decoupled method, power flow studies and analysis in design and operation as well as short circuit calculations.

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**Couse ID:** 409467      **Description:** Power System Protection

**Full Course Description:** Protection principles relays; directional power protection, differential, distance and pilot protection. Protection of power system elements including: generator transformer, bus, motors, and. Earth fault zero sequence, capacitors, reactors, and fuses. System grounding, low impedance grounding protection principles, synchronization principles.

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**Couse ID:** 409468      **Description:** Powr System Reliability

**Full Course Description:** Reliability definition and measures. Probability concepts and Markov chains. Failure models and availability models. Generator system reliability. Loss of load probability method. Evaluation of transmission network reliability. Analysis of electric power system reliability.

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**Couse ID:** 409469      **Description:** Special Topics in Power Engineering

**Full Course Description:** a

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**Couse ID:** 409480      **Description:** Electrical Engineering Design Lab

**Full Course Description:** The course aim to reinforce student previous theoretical Knowledge on various Electrical Engineering fields, component design, and builds the students confidence in working with electronic components and measuring equipment. Course covers the following topics: Introduction to general engineering process, Process design., Problem statement and system specification., Design methodologies and selection criteria., Design block diagram and system simulation techniques, Cost estimation., Proto-typing and implementation., Verification and validation, Performance assessment and characterization criteria , Multi-discipline projects, And applied to system components

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**Couse ID:** 409483      **Description:** Electrical Engineering Design

**Full Course Description:** a

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**Couse ID:** 409486      **Description:** Engineering Economics and Project Management

**Full Course Description:** a

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**Couse ID:** 409499      **Description:** Spiceal Topics in Electrical Eng

**Full Course Description:** This course covers recent topics in electrical engineering covered by a visiting professor or a department faculty member.

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**Couse ID:** 2409200      **Description:** Engineering Mathematics

**Full Course Description:** a

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**Couse ID:** 2409203      **Description:** Electrical Circuits (2)

**Full Course Description:** a

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**Couse ID:** 2409220      **Description:** Signals and Systems

**Full Course Description:** a

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**Couse ID:** 2409221      **Description:** Electromagnetic (1)

**Full Course Description:** a

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**Couse ID:** 2409300      **Description:** Electrical Circuits Lab.

**Full Course Description:** a

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**Couse ID:** 2409322      **Description:** Analog Communications

**Full Course Description:** a

## Courses Description

**College:** Engineering

**Department:** Electrical Engineering

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<b>Couse ID:</b> 2409323	<b>Description:</b> Digital Communications
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**Full Course Description:** a

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<b>Couse ID:</b> 2409324	<b>Description:</b> Electromagnetic (2)
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**Full Course Description:** a

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<b>Couse ID:</b> 2409341	<b>Description:</b> Electronics (2)
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**Full Course Description:** a

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<b>Couse ID:</b> 2409342	<b>Description:</b> Electronics Lab.
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**Full Course Description:** a

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<b>Couse ID:</b> 2409361	<b>Description:</b> Electrical Machines (1)
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**Full Course Description:** a

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<b>Couse ID:</b> 2409400	<b>Description:</b> Practical Training
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**Full Course Description:** a

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<b>Couse ID:</b> 2409421	<b>Description:</b> Communications Lab.
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**Full Course Description:** a

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<b>Couse ID:</b> 2409422	<b>Description:</b> Digital Signal Processing
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**Full Course Description:** a

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<b>Couse ID:</b> 2409423	<b>Description:</b> Information Theory and Coding
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**Full Course Description:** a

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<b>Couse ID:</b> 2409424	<b>Description:</b> Digital Communication Networks
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**Full Course Description:** a

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<b>Couse ID:</b> 2409425	<b>Description:</b> Optical Communications
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**Full Course Description:** a

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<b>Couse ID:</b> 2409426	<b>Description:</b> Communication Electronics
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**Full Course Description:** a

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<b>Couse ID:</b> 2409427	<b>Description:</b> Wireless Communications
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**Full Course Description:** a

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<b>Couse ID:</b> 2409428	<b>Description:</b> Satellite Communications
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**Full Course Description:** a

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<b>Couse ID:</b> 2409429	<b>Description:</b> Antennas and Wave Propagation
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**Full Course Description:** a

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<b>Couse ID:</b> 2409441	<b>Description:</b> VLSI Design
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**Full Course Description:** a

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<b>Couse ID:</b> 2409442	<b>Description:</b> Opto-Electronics
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**Full Course Description:** a

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<b>Couse ID:</b> 2409443	<b>Description:</b> Microwave Electronics
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**Full Course Description:** a

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<b>Couse ID:</b> 2409444	<b>Description:</b> Analog Filter Design
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**Full Course Description:** a

Courses Description

College: Engineering  
Department: Electrical Engineering

Couse ID: 2409445	Description: Electronics (3)
Full Course Description: a	
Couse ID: 2409460	Description: Power Electronics
Full Course Description: a	
Couse ID: 2409461	Description: Electrical Power Systems
Full Course Description: a	
Couse ID: 2409462	Description: Electrical Machines Lab.
Full Course Description: a	
Couse ID: 2409463	Description: Energy Conversion
Full Course Description: a	
Couse ID: 2409464	Description: Electrical Machines (2)
Full Course Description: a	
Couse ID: 2409465	Description: Single-Phase Motors
Full Course Description: a	
Couse ID: 2409466	Description: Power System Analysis
Full Course Description: a	
Couse ID: 2409467	Description: Power System Protection
Full Course Description: a	
Couse ID: 2409468	Description: Power System Reliability
Full Course Description: a	
Couse ID: 110409201	Description: Electrical Circuits (1)
Full Course Description: a	
Couse ID: 110409203	Description: Electrical Circuits (2)
Full Course Description: a	
Couse ID: 110409240	Description: Electronics (1)
Full Course Description: a	
Couse ID: 110409260	Description: Fundamentals of Electrical Circuits Lab.
Full Course Description: rf	
Couse ID: 110409300	Description: Electrical Circuits Lab
Full Course Description: a	
Couse ID: 110409321	Description: Probability & Random Processes
Full Course Description: a	
Couse ID: 110409324	Description: Electromagnetic (2)
Full Course Description: a	
Couse ID: 110409326	Description: Applied Electromagnetic
Full Course Description: 1	
Couse ID: 110409341	Description: Electronics (2)
Full Course Description: a	



## Courses Description

**College:** Engineering

**Department:** Electrical Engineering

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**Couse ID:** 110409342      **Description:** Electronics Lab

**Full Course Description:** a

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**Couse ID:** 110409343      **Description:** Digital Electronics

**Full Course Description:** a

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**Couse ID:** 110409344      **Description:** Electronics Fundamentals Lab

**Full Course Description:** 1

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**Couse ID:** 110409348      **Description:** Introduction to Electronics

**Full Course Description:** 1

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**Couse ID:** 110409361      **Description:** Electrical Machines (1)

**Full Course Description:** a

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**Couse ID:** 110409363      **Description:** Principles of Electrical Machines

**Full Course Description:** 1

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**Couse ID:** 110409364      **Description:** Electronics and Electrical Machines Lab.

**Full Course Description:** 1

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**Couse ID:** 110409400      **Description:** Practical Training

**Full Course Description:** a

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**Couse ID:** 110409421      **Description:** Communications Lab

**Full Course Description:** a

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**Couse ID:** 110409422      **Description:** Digital Signal Processing

**Full Course Description:** .

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**Couse ID:** 110409424      **Description:** Digital Communication Network

**Full Course Description:** a

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**Couse ID:** 110409431      **Description:** Special Topics in Communication and Electronics Engineering

**Full Course Description:** a

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**Couse ID:** 110409432      **Description:** Digital Communications

**Full Course Description:** a

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**Couse ID:** 110409433      **Description:** Wireless Communications Systems

**Full Course Description:** a

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**Couse ID:** 110409444      **Description:** Analog Filter Design

**Full Course Description:** a

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**Couse ID:** 110409445      **Description:** Electronics (3)

**Full Course Description:** a

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**Couse ID:** 110409448      **Description:** Microwave Electronics Systems

**Full Course Description:** a

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**Couse ID:** 110409461      **Description:** Eletrical Power Systems

**Full Course Description:** a

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**Couse ID:** 110409464      **Description:** Electrical Machines (2)

**Full Course Description:** a

## Courses Description

**College:** Engineering

**Department:** Electrical Engineering

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**Couse ID:** 110409466      **Description:** Power System Analysis

**Full Course Description:** a

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**Couse ID:** 110409470      **Description:** Electrical Machines & Electrical Power Systems Lab

**Full Course Description:** a

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**Couse ID:** 110409520      **Description:** Cmmunications Electronics

**Full Course Description:** a

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**Couse ID:** 110409540      **Description:** Opti-Electronics

**Full Course Description:** a

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**Couse ID:** 110409541      **Description:** Solid State Electronics

**Full Course Description:** a

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**Couse ID:** 110409560      **Description:** Power Electronics

**Full Course Description:** a

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**Couse ID:** 110409561      **Description:** Renewable Power Generation

**Full Course Description:** a

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**Couse ID:** 110409562      **Description:** Power System Relibaility

**Full Course Description:** a

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**Couse ID:** 110409563      **Description:** Smart Grid Technology

**Full Course Description:** a

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**Couse ID:** 110409564      **Description:** Power System Stability

**Full Course Description:** A

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**Couse ID:** 110409565      **Description:** Special Topics in Power Engineering

**Full Course Description:** A

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**Couse ID:** 110409566      **Description:** Advanced Smart Grid Technology

**Full Course Description:** A

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**Couse ID:** 110409567      **Description:** Power System Protection

**Full Course Description:** a

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**Couse ID:** 110409568      **Description:** Electric Drive

**Full Course Description:** a

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**Couse ID:** 110409581      **Description:** Graduation Project (1)

**Full Course Description:** a

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**Couse ID:** 110409582      **Description:** Graduation Project (2)

**Full Course Description:** a

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**Couse ID:** 150409400      **Description:** Practical Training

**Full Course Description:** ُ

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**Couse ID:** 2004091400      **Description:** Practical Training

**Full Course Description:**

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**Couse ID:** 2104091201      **Description:** Linear Algebra and Engineering Analysis

**Full Course Description:**

## Courses Description

**College:** Engineering

**Department:** Electrical Engineering

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<b>Couse ID:</b> 2104091221	<b>Description:</b> Electromagnetic (1)
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**Full Course Description:**

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<b>Couse ID:</b> 2104091322	<b>Description:</b> Signals and Systems
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**Full Course Description:**

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<b>Couse ID:</b> 2104091325	<b>Description:</b> Analog Communications
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**Full Course Description:**

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<b>Couse ID:</b> 2104091344	<b>Description:</b> Digital Electronics lab
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**Full Course Description:**

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<b>Couse ID:</b> 2104091352	<b>Description:</b> electronic circuit lab
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**Full Course Description:**

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<b>Couse ID:</b> 2104091425	<b>Description:</b> Optical Communication
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**Full Course Description:**

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<b>Couse ID:</b> 2104091428	<b>Description:</b> Satellite Communication
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**Full Course Description:**

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<b>Couse ID:</b> 2104091429	<b>Description:</b> Antennas and Wave Propagation
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**Full Course Description:**

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<b>Couse ID:</b> 2104091480	<b>Description:</b> Instrumentation and Measurements
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**Full Course Description:**

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<b>Couse ID:</b> 2104091521	<b>Description:</b> Advanced Wireless Communications
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**Full Course Description:**

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<b>Couse ID:</b> 2104091522	<b>Description:</b> Introduction to Internet of Things
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**Full Course Description:**

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<b>Couse ID:</b> 2104091571	<b>Description:</b> Power System Operation and Control
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**Full Course Description:**

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<b>Couse ID:</b> 2104091572	<b>Description:</b> Power System Economics and Management
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**Full Course Description:**

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<b>Couse ID:</b> 2104091573	<b>Description:</b> Power Transmission and Distribution
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**Full Course Description:**

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<b>Couse ID:</b> 2104091574	<b>Description:</b> High Voltage Engineering
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**Full Course Description:**

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<b>Couse ID:</b> 2104091575	<b>Description:</b> Power Systems Modelling and Analysis
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**Full Course Description:**

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<b>Couse ID:</b> 2104091580	<b>Description:</b> Introduction to Machine Learning
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**Full Course Description:**