

BUBT EEE ALUMNI ASSOCIATION

Bangladesh University of Business & Technology (BUBT)

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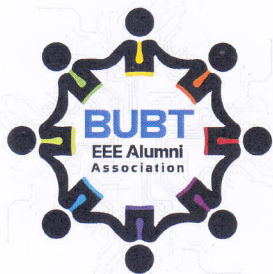
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Date: 05.02.25

<u>Curriculum Evaluation by Alumni Association</u>		
Course Code	COs	CO Statements
EEE 101 (Electrical ckt I)	CO1	Explain basic laws, circuit theorems and methods in electric circuits.
	CO2	Apply the knowledge of engineering fundamentals to the elementary electric circuits to identify and formulate mathematical problems.
	CO3	Analyze and solve electric and magnetic circuits using different known methods.
EEE 201 (Electronic ckt I)	CO1	Explain the basic knowledge of semiconductor diodes, BJT and FET.
	CO2	Analyze electronic circuits based on diodes, BJT and FET.
	CO3	Design simple electronic circuits using diode, BJT and FET.
EEE 103 (Electrical ckt II)	CO1	Apply basic concepts and theories to demonstrate AC electrical and magnetic circuits.
	CO2	Design circuits of basic ac devices
	CO3	Analyze 1-phase and 3-phase AC electrical circuits to determine voltage, current, power and losses.
EEE 203 (Energy conversion I)	CO1	Explain and demonstrate the basic principle and construction of the transformers and induction motors.
	CO2	Analyze & determine the performance of the transformer: equivalent model, voltage regulation, efficiency, all day efficiency.
	CO3	Analyze & determine the slip, starting & running torque, conditions for maximum starting and running torque, various types of losses and power flow through an induction motor.
EEE 207 (Electronic ckt II)	CO1	Demonstrate the basic knowledge of analog electrical devices, particularly operational amplifiers and their applications
	CO2	Apply op-amp fundamentals in design and analysis of op-amps applications
CSE 201 (Structural programming language)	CO1	Define the basic programming concepts and terms related to structured programming languages.
	CO2	Explain different conceptual programming problems such as flow control, function and array etc.
	CO3	Analyze different problem scenario to solve them.

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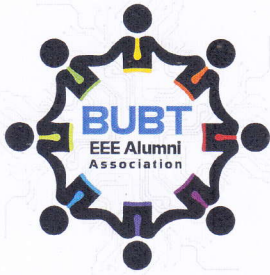
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	CO4	Apply different programming syntax and structure to solve different types of basic problems.
EEE 209 (Energy conversion II)	CO1	Explain the basic concepts and theories of electromagnetic machine.
	CO2	Analyze the working of dc machines as generators and motors.
	CO3	Analyze the features of synchronous machines and to solve problems associated with them.
EEE 211 (Engineering electromagnetics)	CO1	Apply the fundamental principles of electromagnetic waves, electrostatics and magnetostatics.
	CO2	Analyze electrical & magnetic properties in Electrostatic and magnetostatic systems.
	CO3	Evaluate the engineering applications using Maxwell's equations, electromagnetic circuit theory and electromagnetic wave propagation in transmission lines.
EEE 301 (Continuous signals & linear systems)	CO1	Explain and classify the continuous-time and discrete-time signals and systems
	CO2	Identify, formulate and solve the problems related to LTI systems.
	CO3	Analyze LTI systems using Fourier Series, Fourier Transform, and Laplace Transform.
EEE 303 (Digital electronics)	CO1	Explain the fundamental concepts and techniques used in combinational and sequential logic circuits.
	CO2	Design various combinational and sequential circuits such as decoder, encoder, multiplexer, demultiplexer, register, counter etc.
	CO3	Investigate and evaluate various combinational and sequential circuits.
EEE 305 (Power system I)	CO1	Apply basic concepts and analytical tools for assessing electrical power system networks.
	CO2	Analyze electrical power system network for normal power flow condition.
	CO3	Apply basic concepts and models to electrical power system networks for various fault conditions.
EEE 307 (Telecommunication engineering)	CO1	Define, explain and characterize the basic concepts and theories of communication systems.
	CO2	Apply and analyze communication theories for problems solving.
	CO3	Analyze features of digital communication systems and to solve problems related to digital communications.
EEE 309 (Electronic)	CO1	Apply basic concepts and theories of crystal structure, quantum mechanics and energy band for electrical and electronic materials.

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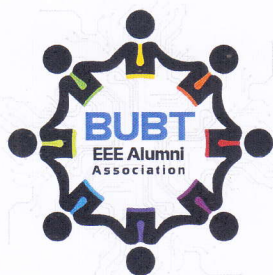
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properties of materials)	CO2	Analyze electrical and electronic materials and devices in terms of dielectric, magnetic and superconducting properties.
	CO3	Characterize electrical and electronic materials for appropriate application in electronic devices
EEE 313 (Digital signal processing I)	CO1	Interpret and describe discrete-time signals, systems mathematically and graphically and apply convolution and difference equation solving techniques to calculate system outputs.
	CO2	Perform z-transform and Fourier transform to analyze signals and systems.
	CO3	Design Finite Impulse Response (FIR) and Infinite Impulse Response (IIR) filters to meet expected system specifications.
EEE 319 (Microprocessor & interfacing)	CO1	Demonstrate by explaining different features, advantages and disadvantages of the 8086 microprocessor architecture and its instruction set
	CO2	Formulate solution to various mathematical and engineering problems in 8086 assembly language
	CO3	Analyze the connections, parallel data transfer methods, handshaking and interfacing of peripheral I/O devices with the 8086 microprocessor.
EEE 329 (VLSI ckt I)	CO1	Demonstrate the basic operation of MOSFETs, different devices based on CMOS technology and fabrication process
	CO2	Analyze different types of devices based on various MOS technology, their circuit characteristics and performances
	CO3	Design various logic circuits using CMOS technology
EEE 355 (Optical fiber communication)	CO1	Explain, characterize and classify the basic concepts and theories of the fundamental elements of optical fiber communication system.
	CO2	Identify, formulate and solve the problems related to dielectric waveguides, optical fibers, and semiconductor devices.
	CO3	Analyze and determine the dielectric waveguides, LEDs, photodetectors and power budget.
EEE 363 (Microwave engineering)	CO1	Explain, characterize, and classify the microwave components, waveguides, microwave tube generators and amplifiers etc.
	CO2	Identify, formulate, characterize and evaluate the problems related to microwave transmission line parameters and antenna.
	CO3	Analyze impedance matching network and smith chart.

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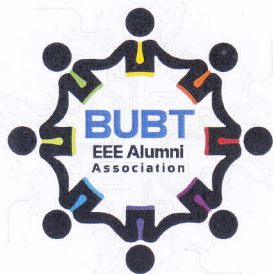
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EEE 377 (Power electronics)	CO1	Explain, characterize, and classify different types of power electronics circuits rectifier, chopper, inverter and motor driver to students.
	CO2	Identify, formulate and solve the problems related to the mathematical modeling of different types of power electronics circuits to students.
	CO3	Analyze different types of power electronics circuits such as but not limited to, rectifier and inverter, smart inverter, solar cell etc.
EEE 401 (Control system design)	CO1	Demonstrate the basic understanding of dynamic systems i.e., the systems that evolves with time, the differences between open-loop and closed-loop (feedback) control systems; how input affects output, represent systems in various forms like block diagram, signal flow graph and determine transfer function of control systems.
	CO2	Develop the mathematical models (in ODE and SS) of physical systems in forms suitable for use in the analysis and design of control systems.
	CO3	Analyze the time and frequency-domain responses of first and second order systems to standard input signals (such as step and sinusoidal (and to some extent, ramp) inputs; analyze the performance and stability of control systems; design systems that will demonstrate desired behavior.
EEE 421 (Numerical analysis for electrical engineering)	CO1	Explain the basic concepts of different numerical analysis methods.
	CO2	Apply numerical methods to solve the linear, nonlinear and ordinary differential equations related to electrical and electronic engineering problems.
	CO3	Analysis numerical differentiation, integration and curve fitting methods for the solution of different electrical and electronic engineering problems.
EEE 433 (Semiconductor devices)	CO1	Illustrate the various properties, physical phenomena & quantities of Semiconductor materials and devices.
	CO2	Apply standard device model to analyze the different types of semiconductor junctions.
	CO3	Investigate the governing equations and functional parameters of BJT, FET & MOS structures.
EEE 435 (Optoelectronics)	CO1	Explain, characterize and classify the basic concepts and theories of the fundamental elements of optoelectronic devices and optical fiber communication system.
	CO2	Identify, formulate and solve the problems related to dielectric waveguides, optical fibers, and semiconductor devices.

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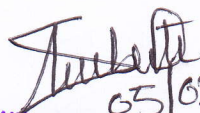
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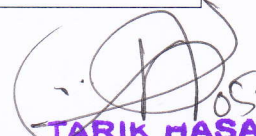


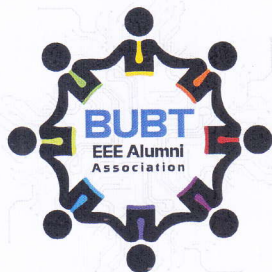
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	CO3	Analyze and determine the dielectric waveguides, LEDs, photodetectors and power budget.
EEE 445 (VLSI ckt II)	CO1	Interpret different types of CMOS combinational and sequential circuit, their performance and robustness
	CO2	Analyze trade-offs between speed, density, programmability, ease of design, and other variables for datapath and array subsystems
	CO3	Design finite state machine and different subsystems of digital processor
EEE 471 (Renewable Energy)	CO1	CO1: Thoroughly understand principle of operation of solar cells and solar panels with their characteristics.
	CO2	Design of small and large scales solar PV system through simulation software
	CO3	Develop knowledge on other renewable on other renewable, sources and their applications is generating energy.
EEE 475 (Power plant engineering)	CO1	Estimate working parameters and output performance of various electrical power plants.
	CO2	Analyze performance of electrical power plants for variable load conditions.
	CO3	Apply various analytical methods to estimate costing, tariff and power factor of electrical power generation.
EEE 481 (Power system protection)	CO1	Describe the basic concepts, and principles of protection including protective devices, surge diverters, surge absorbers, neutral grounding in a protection system.
	CO2	Analyze the basic characteristics of the various protective device, and surge voltage
	CO3	Design a simple protection system using CT, PT, relay, and CB in order to protect the rotating machines, busbars, transformers, transmission lines, and distribution network
EEE 493 (Measurement & instrumentation)	CO1	Explain the physics of pressure, temperature, level and flow measurement, mechanical and electrical aspects of instruments used to control dynamics of processes.
	CO2	Analyze the operation of different measurement instruments for measuring electrical power, energy, voltage, current, resistance, capacitance, and inductance.
	CO3	Analyze the operation of transducers for strain, pressure, temperature and fluid flow measurement.
	CO4	Analyze the components of basic analog and digital data acquisition systems.


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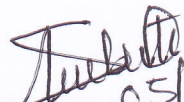
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ME 201 (Mechanical engineering fundamentals)	CO1	Analyze the fundamental concepts, laws, modes and devices related to thermodynamic, heat engine and heat transfer.
	CO2	Diagnose the laws, formulas and devices related to thermodynamics, internal and external combustion engines, and thermodynamic cycles. Steam boilers mountings and accessories, Refrigeration and air conditioning.
	CO3	Examine basic concepts, formulas and processes of fluid mechanics, flow through pipes, Bernoulli's Equation, Hydraulics and pneumatics, pumps and compressors.
EEE 400 (Capstone project)	CO1	Identify, analyze and characterize a problem to realize effective design and implementation technique for the solution through subjective knowledge, skill and life-long learning aptitude.
	CO2	Design, implement and evaluate an engineering system, process, or component to solve the problem using modern software & hardware engineering tools individually or in a team with proper engineering management and financial consideration.
	CO3	Realize and assess sustainability, societal, environmental & safety issues and impact considering professional ethics and responsibilities while design and implement an engineering project.
	CO4	Communicate engineering activities including information, data and results of engineering solution through regular meetings, technical documentations, oral presentations and demonstrations.


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