# DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING
## Bangladesh University of Business and Technology

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| S/No | Course Code and Course Title | CLOs | PLOs | CLOs Modifications |
|---|---|---|---|---|
| 01 | EEE 482: Power System Protection Lab | CLO1 | PLO3 | Construct and Analyze power system protection schemes using relays, CTs and CBs and timers and evaluate the performance of designed schemes. |
| | | CLO2 | PLO4 | Examine the operation of relays and summarize the benefits of implementing relays in protection schemes. |
| | | CLO3 | PLO5 | Design innovative projects and devices using modern hardware and software tools. |
| | | CLO4 | PLO6 | Assess societal, health, safety, legal and cultural issues involved with the mini project |
| | | CLO5 | PLO7 | Realize the impact of societal, environmental and sustainable development issues for the design solution of mini projects. |
| | | CLO6 | PLO8 | Apply professional ethics and responsibilities in the implementation of mini projects. |
| | | CLO7 | PLO9 | Work individually and in a team . |
| | | CLO8 | PLO10 | Communicate and share knowledge, data, information, results etc. with others |
| | | CLO9 | PLO11 | Apply engineering project management knowledge and skill to implement the mini project. |
| | | CLO10 | PLO12 | Gather and apply knowledge, data and information from various multidisciplinary sources to analyze, design and implement the mini project. |
| 02 | EEE 478: Power Electronics Lab | CLO1 | PLO3 | Construct different types of power electronics to solve engineering problems to meet the requirements of modern day application. |
| | | CLO2 | PLO4 | Analyze and interpret the data collected from investigation and carry out proper comparison and read valid conclusions. |
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| 03 | EEE 306: Power System Lab | CLO1 | PLO3 | Analysis and investigation of a real life Cost effective Power system network on the basis of knowledge achieved by the Course. |
| | | CLO2 | PLO4 | Measure and investigate the different parameters like voltage, current, and Power at different Points in Power system networks. |
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| 04 | EEE 210: Electrical Machines Lab | CLO1 | PLO3 | Analysis of AC and DC machines. |
| | | CLO2 | PLO4 | Examine the operation and characteristics of AC and DC machines. |
| | | CLO3 | PLO5 | Design innovative projects and devices using modern hardware and software tools. |
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| 05 | CE 302: Engineering Service Design | CLO1 | PLO3 | Draw any type of Engineering Layout in AutoCAD and calculate the Electrical Load and select Breaker and Cable size and type. |
| | | CLO2 | PLO4 | Calculate Electrical Fixture quantity and prepare Electrical Fixture Layout of any building. |
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| 06 | EEE 464: Microwave Engineering Lab | CLO1 | PLO3 | Simulate and implement various microwave antennas under various Conditions |
| | | CLO2 | PLO4 | Examine and evaluate the operation of various microwave antennas |
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| 07 | EEE 314: Digital Signal Processing I Lab | CLO1 | PLO3 | Analyze & develop a system to study digital signal processing |
| | | CLO2 | PLO4 | Evaluate and characterize the output of various digital signals |
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| 08 | EEE 308: Telecommunication Engineering Lab | CLO1 | PLO3 | Measure and investigate the performance of different analog and digital modulation and demodulation schemes using different modules of Communication systems. |

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| | | CLO2 | PLO4 | Examine the analog to digital and digital to analog Conversion process and summarize the benefits of digital Communications. |
| | | CLO3 | PLO5 | Design innovative projects and devices using modern hardware and software tools. |
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| 09 | PHY 104: Physics Lab | CLO1 | PLO3 | To apply the various procedures and techniques for the experiments, mathematical equations, and graphical analysis to the experimental data to obtain quantitative results. |
| | | CLO2 | PLO4 | To develop intellectual Communication skills through working in groups in performing laboratory experiments and by interpreting the experimental results. |
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| 10 | EEE 446: VLSI Circuits II Lab (Ele) | CLO1 | PLO3 | Construct and Analyze CMOS Combinational and sequential logic circuits with hardware description language at different levels of abstraction. |
| | | CLO2 | PLO4 | Test and evaluate CMOS Combinational and sequential logic circuits developed by hardware description language. |
| | | CLO3 | PLO5 | Design innovative projects and devices using modern hardware and software tools. |
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| | | CLO10 | PLO12 | Gather and apply knowledge, data and information from various multidisciplinary sources to analyze, design and implement the mini project. |
| 11 | EEE 430: VLSI Circuits I lab (Ele) | CLO1 | PLO3 | Construct and analyze CMOS Combinational and sequential logic circuits at transistor level including mask layout. |
| | | CLO2 | PLO4 | Test and evaluate the CMOS design layers in process sequence, resulting device structures and output performance. |
| | | CLO3 | PLO5 | Design innovative projects and devices using modern hardware and software tools. |
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| 12 | EEE 302: Modern Control System Lab | CLO1 | PLO3 | Construct and analyze closed-loop and open-loop Control systems for various engineering applications. |
| | | CLO2 | PLO4 | Test and evaluate various closed-loop and open-loop Control systems to justify the performance. |
| | | CLO3 | PLO5 | Design innovative projects and devices using modern hardware and software tools. |
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| 13 | EEE 320: Microprocessor and Interfacing Lab | CLO1 | PLO3 | Apply assembly language programming to solve various mathematical and engineering problems. |
| | | CLO2 | PLO4 | Implement various circuits with 8086 |
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| | | CLO3 | PLO5 | Design innovative projects and devices using modern hardware and software tools. |
| | | CLO4 | PLO6 | Use simulation tool i.e. emulator 8086, Proteus, IDE for simulation based works |
| | | CLO5 | PLO7 | Realize the impact of societal, environmental and sustainable development issues for the design solution of mini project. |
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| | | CLO9 | PLO11 | Apply engineering project management knowledge and skill to implement the mini project. |
| | | CLO10 | PLO12 | Gather and apply knowledge, data and information from various multidisciplinary sources to analyze, design and implement the mini project. |
| 14 | EEE 304: Digital Electronics Lab | CLO1 | PLO3 | Construct and varify of general digital logic circuits. |
| | | CLO2 | PLO4 | Examine and evaluate the operation of general digital logic circuits |
| | | CLO3 | PLO5 | Design a digital logic IC based project using modern hardware and software tools and devices. |
| | | CLO4 | PLO6 | Assess societal, health, safety, legal and cultural issues involved with the mini project |
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| | | CLO9 | PLO11 | Apply engineering project management knowledge and skill to implement the mini project. |
| | | CLO10 | PLO12 | Gather and apply knowledge, data and information from various multidisciplinary sources to analyze, design and implement the mini project. |
| 15 | EEE 208: Electronic Circuits Lab | CLO1 | PLO3 | Construct and develop electronic basic application circuits for realization of various electronic devices and instruments. |
| | | CLO2 | PLO4 | Test and evaluate electronic basic application circuits to justify the performance. |
| | | CLO3 | PLO5 | Design innovative projects and devices using modern hardware and software tools. |
| | | CLO4 | PLO6 | Assess societal, health, safety, legal and cultural issues involved with the mini project |
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| | | CLO10 | PLO12 | Gather and apply knowledge, data and information from various multidisciplinary sources to analyze, design and implement the mini project. |
| 16 | EEE 104: Electrical Circuits Lab | CLO1 | PLO3 | Use the various procedures and techniques for getting experimental knowledge on electrical circuits. |
| | | CLO2 | PLO4 | Verify different electrical laws and theorems on DC and AC circuits by conducting experiments and applying mathematical equations, graphical analysis to the data obtained from those experiments. |
| | | CLO3 | PLO5 | Select and use modern hardware and software tools and devices. |
| | | CLO4 | PLO6 | Assess societal, health, safety, legal and cultural issues involved with the mini project. |
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| | | CLO9 | PLO11 | Apply engineering project management knowledge and skill to implement the mini project. (K6; P1) |
| | | CLO10 | PLO12 | Gather and apply knowledge, data and information from various multidisciplinary sources to analyze, design and implement the mini project. |
| 17 | EEE 400: Final Year Capstone Project | CLO1 | PLO1 | Identify and apply multidisciplinary concepts and methods to undergo problem analysis and design solutions of the engineering project assigned. |
| | | CLO2 | PLO2 | Analyze assigned problems based on the multidisciplinary concepts and methods and conclude a substantial solution path. |
| | | CLO3 | PLO3 | Design and/or implement the problem solution of the given assignment to meet the specific goals and concerns. |
| | | CLO4 | PLO4 | Investigate the design solution with appropriate methods and conclude a justified result. |
| | | CLO5 | PLO5 | Apply appropriate tools and techniques to design, implement and investigate the complex engineering solution. |
| | | CLO6 | PLO6 | consider and assess societal, health, safety, legal and cultural issues in the engineering design solution. |
| | | CLO7 | PLO7 | Realize the impact of societal, environmental and sustainable development issues in the engineering design solution. |
| | | CLO8 | PLO8 | Apply professional ethics and responsibilities in the realization of engineering design solution. |
| | | CLO9 | PLO9 | Work effectively as a team member or individually in a complex engineering environment. |
| | | CLO10 | PLO10 | communicate and share complex engineering knowledge, information and data to others verbally and documentarily. |
| | | CLO11 | PLO11 | Apply project management knowledge and techniques to handle the complex engineering activities in a multidisciplinary environment. |

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| | | CLO12 | PLO12 | Gather and apply updated knowledge, information and technology from various multidisciplinary sources to undergo problem analysis and solution design of the assigned engineering project. |
| 18 | CSE 202: Structured Programming Language Lab | CLO1 | PLO1 | Demonstrate basic structure of C programming, declaration and logic development. |
| | | CLO2 | PLO2 | Implement basic programming knowledge to solve various topics related problems such as condition, loop, function, array, string, file handling, structure, and union etc. efficiently. |
| | | CLO3 | PLO3 | Design innovative projects and devices using modern hardware and software tools. |
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| 19 | MAT 302: Numerical Methods for Electrical Engineering Lab | CLO1 | PLO1 | Explain the basic concepts of different numerical analysis methods. |
| | | CLO2 | PLO2 | Identify and solve the linear, nonlinear and ordinary differential equations related to electrical and electronic engineering problems. |
| | | CLO3 | PLO3 | Apply numerical differentiation, integration and curve fitting methods for the solution of different electrical and electronic engineering problems. |
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