MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF EEE
REGULATION 2017
B.E EEE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome(CO) Students will be able to	Knowledge Level
MA8353	TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS	CO1: Describe the Partial Differential Equations.	K1
		CO2: Identify the standard types of partial differential equations	K1
		CO3: Explain the differential equation using Fourier series in engineering applications.	K2
		CO4:Use Fourier series to evaluate the Fourier coefficients.	K3
		CO5: Classify the two dimensional heat flow equation and one dimensional wave equations.	K2
		CO5: Find the equations of one dimensional and two dimensional equations.	K4
		CO6:. Explain the mathematical principles on Foruier transforms	K2
		CO7: Use Fourier transforms to solve the problems.	K3
		CO8: Describe the partial differential equations by using Z transforms.	K1
		CO9: Find the partial differential equations by using Z transforms..	K4

CO-PO MAPPING

COs		POs											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
		K3	K4	K5	K5	K3/K5/K6	K4	K2	K3	K3	K2	K3	K3
C2O1.1	K1	1	-	-	-	1	-	-	-	-	-	-	-
C2O1.2	K1	1	-	-	-	1	-	-	-	-	-	-	-
C2O1.3	K2	2	1	-	-	-	-	-	-	-	-	-	-
C2O1.4	K3	3	2	1	1	1	-	-	-	3	-	-	-
C2O1.5	K2	2	1	-	-	-	-	-	-	-	-	-	-
C2O1.6	K4	3	3	2	2	-	-	-	-	-	-	-	-
C2O1.7	K2	2	1	-	-	-	-	-	-	-	-	-	-
C2O1.8	K3	3	2	1	1	1	-	-	-	3	-	-	-
C2O1.9	K1	1	-	-	-	1	-	-	-	-	-	-	-
C2O1.10	K4	3	3	2	2	-	-	-	-	-	-	-	-

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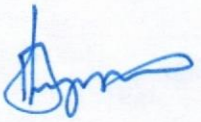
REGULATION 2017
B.E EEE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome(CO) Students will be able to	Knowledge Level
EE8401	Electrical Machines II	CO1: Explain the construction and working principle of synchronous motor and generator, single phase and three phase induction motor	K2
		CO2: Apply the condition of synchronizing for parallel operation of alternators	K3
		CO3: Analyze EMF, MMF, ZPF and A.S.A methods	K4
		CO4: Explain the starting methods of synchronous motor	K2
		CO5: Design equivalent circuit of three phase induction motor by using no load and blocked rotor test	K3
		CO6: Determine performance of three phase induction motor	K3
		CO7: Differentiate the types of starters of three phase induction motor	K2
		CO8: Analyze the braking methods of three phase induction motor	K4
		CO9: Analyze the performance of single phase induction motors	K4
		CO10: Explain the special electrical machines	K2

CO-PO MAPPING

COs		POs											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
		K3	K4	K5	K5	K3/K5/K6	K4	K2	K3	K3	K2	K3	K3
CO1	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO2	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO3	K4	3	3	2	2	-	-	-	-	-	-	-	-
CO4	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO5	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO6	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO7	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO8	K4	3	3	2	2	-	-	-	-	-	-	-	-
CO9		3	3	2	2	-	-	-	-	-	-	-	-

	K4												
CO10	K2	2	1	-	-								



MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF EEE
REGULATION 2017
B.E EEE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome(CO) Students will be able to	Knowledge Level
MA8491	NUMERICAL METHODS	CO1: Define algebraic and Transcendental Equations.	K1
		CO2: Explain the procedure of Gauss Elimination method and eigen value problems	K2
		CO3: Apply the formula for equal and unequal intervals	K4
		CO4: Solve the problems based on Newton's Forward and Backward formulae .	K3
		CO5: Define Newton cote's formula	K1
		CO6: Solve the problems based on Trapezoidal rule and Simpson's rule	K3
		CO7: Explain the procedure of Taylor's series and Runge-kutta method	K2
		CO8: Solve the problems based on Runge-kutta method and Milne's & Adam's method	K3
		CO9: Define the Laplace and Poisson Equations.	K1
		CO10: Solve the problems based on one dimensional wave equation & heat equation	K3

CO-PO MAPPING

COs		POs											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
		K3	K4	K5	K5	K3/K5/K6	K4	K2	K3	K3	K2	K3	K3
C201.1	K1	1	-	-	-	1	-	-	-	-	-	-	-
C201.2	K2	2	1	-	-	-	-	-	-	-	-	-	-
C201.3	K4	3	3	1	2	-	-	-	-	-	-	-	-
C201.4	K3	3	3	-	1	-	-	-	-	-	-	-	-
C201.5	K1	1	1	-	-	-	-	-	-	-	-	-	-
C201.6	K3	3	3	1	1	-	-	-	-	-	-	-	-
C201.7	K2	2	1	-	-	-	-	-	-	-	-	-	-
C201.8	K3	3	3	-	1	-	-	-	-	-	-	-	-
C201.9	K1	1	1	1	1	-	-	-	-	-	-	-	-
C201.10	K3	3	3	1	1	-							

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Course Code	Course Name	Course Outcome(CO) Students will be able to	Knowledge Level
EE8402	Transmission and Distribution	CO1:understand and explain parameters of transmission line and skin effect in transmission line	K2
		CO2: remember the concept of GMD and GMR	K1
		CO3:analyze the performance of transmission lines	K4
		CO4: evaluate voltage regulation and efficiency of transmission line	K5
		CO5: understand various types of insulator	K2
		CO6: design overhead transmission line and tower	K6
		CO7: remember knowledge about underground cabilitys and grading cabilitys	K1
		CO8: evaluate different values of potential gradient and capacitance of transmission line	K5
		CO9: understand the importance of distribution system and substation	K2
		CO10: compare different voltage control techniques	K4

CO-PO MAPPING

COs		Pos											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
		K3	K4	K5	K5	K3/K5/K6	K4	K2	K3	K3	K2	K3	K3
CO1	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO2	K1	1	-	-	-	-	-	-	-	-	-	-	-
CO3	K4	3	3	2	2	-	-	-	-	-	-	-	-
CO4	K5	3	3	3	3	-	-	-	-	-	-	-	-
CO5	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO6	K6	3	3	3	3	-	-	-	-	-	-	-	-
CO7	K1	1	-	-	-	-	-	-	-	-	-	-	-
CO8	K5	3	3	3	3	-	-	-	-	-	-	-	-
CO9	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO10	K4	3	3	-	-	-	-	-	-	-	-	-	-

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REGULATION 2017
B.E EEE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome(CO) Students will be able to	Knowledge Level
EE8451	LINEAR INTEGRATED CIRCUITS AND APPLICATIONS	CO1: Explain the fabrication process for all the circuit components.	K2
		CO2: Identify and differentiate the working of OP-AMP and its characteristics	K2
		CO3: Use the different -AMP IC in recent circuits includes summer, differentiator and integrator.	K3
		CO4: Interpret the amplifier circuit with the analysis of gain and frequency response.	K3
		CO5:Illustrate the concept of instrumentation amplifiers and with its waveform generators.	K2
		CO6: Explain the working principles, characteristics and applications of timers and oscillators.	K2
		CO7: Implement the design of different voltage regulators .	K3
		CO8: Classify the types of feedback regulators.	K2

CO-PO MAPPING

COs		Pos											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
		K3	K4	K5	K5	K3/K5/K6	K4	K2	K3	K3	K2	K3	K3
CO1	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO2	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO3	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO4	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO5	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO6	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO7	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO8	K2	2	1	-	-	-	-	-	-	-	-	-	-

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EE8451 **LINEAR INTEGRATED CIRCUITS AND APPLICATIONS** **L T P C**
3 0 0 3

OBJECTIVES:

To impart knowledge on the following topics

- Signal analysis using Op-amp based circuits.
- Applications of Op-amp.
- Functional blocks and the applications of special ICs like Timers, PLL circuits, regulator Circuits.
- IC fabrication procedure.

UNIT I IC FABRICATION **9**

IC classification, fundamental of monolithic IC technology, epitaxial growth, masking and etching, diffusion of impurities. Realisation of monolithic ICs and packaging. Fabrication of diodes, capacitance, resistance, FETs and PV Cell.

UNIT II CHARACTERISTICS OF OPAMP **9**

Ideal OP-AMP characteristics, DC characteristics, AC characteristics, differential amplifier; frequency response of OP-AMP; Basic applications of op-amp – Inverting and Non-inverting Amplifiers, summer, differentiator and integrator-V/I & I/V converters.

UNIT III APPLICATIONS OF OPAMP **9**

Instrumentation amplifier and its applications for transducer Bridge, Log and Antilog Amplifiers- Analog multiplier & Divider, first and second order active filters, comparators, multivibrators, waveform generators, clippers, clampers, peak detector, S/H circuit, D/A converter (R- 2R ladder and weighted resistor types), A/D converters using opamps.

UNIT IV SPECIAL ICs **9**

Functional block, characteristics of 555 Timer and its PWM application - IC-566 voltage controlled oscillator IC; 565-phase locked loop IC, AD633 Analog multiplier ICs.

UNIT V APPLICATION ICs **9**

AD623 Instrumentation Amplifier and its application as load cell weight measurement - IC voltage regulators –LM78XX, LM79XX; Fixed voltage regulators its application as Linear power supply - LM317, 723 Variability voltage regulators, switching regulator- SMPS - ICL 8038 function generator IC.

TOTAL : 45 PERIODS

OUTCOMES:

- Ability to acquire knowledge in IC fabrication procedure
- Ability to analyze the characteristics of Op-Amp
- Functional blocks and the applications of special ICs like Timers, PLL circuits,
- To understand the importance of Signal analysis using Op-amp based circuits.
- To understand and acquire knowledge on the Applications of Op-amp regulator Circuits.
- Ability to understand and analyse, linear integrated circuits their Fabrication and Application.

TEXT BOOKS:

1. David A. Bell, 'Op-amp & Linear ICs', Oxford, 2013.
2. D. Roy Choudhary, Sheil B. Jani, 'Linear Integrated Circuits', II edition, New Age, 2003.
3. Ramakant A.Gayakward, 'Op-amps and Linear Integrated Circuits', IV edition, Pearson Education, 2003 / PHI. 2000.

REFERENCES:

1. Fiore,"Opamps & Linear Integrated Circuits Concepts & applications", Cengage, 2010.
2. Floyd ,Buchla,"Fundamentals of Analog Circuits, Pearson, 2013.
3. Jacob Millman, Christos C.Halkias, 'Integrated Electronics - Analog and Digital circuits system', McGraw Hill, 2003.
4. Robert F.Coughlin, Fredrick F. Driscoll, 'Op-amp and Linear ICs', Pearson, 6th edition,2012.
5. Sergio Franco, 'Design with Operational Amplifiers and Analog Integrated Circuits', Mc Graw Hill, 2016.
6. Muhammad H. Rashid,' Microelectronic Circuits Analysis and Design' Cengage Learning, 2011.

MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF EEE
REGULATION 2017
B.E EEE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome(CO) Students will be able to	Knowledge Level
EE8461	Linear and Digital Integrated Circuits Laboratory	CO1: Interpret the basic implementation of Boolean functions for all the adder and subtractor circuits.	K2
		CO2:Check the logic truth table for all the code converter circuits.	K5
		CO3:Demonstrate the parity generator and parity checking.	K4
		CO4:Implement the encoders, decoders and counters with suitable truth table.	K3
		CO5:Find and verify the design of 4 bit shift registers of all modes using suitability IC's.	K5
		CO6:Analyze the different types of OP-AMP's.	K3
		CO7:Experiment the timer circuits in astability, monostability operation.	K5
		CO8:Test the voltage to frequency characteristics of NE/SE566 IC.	K5
		CO9:Implement the design of variability voltage regulator using IC LM317.	K3

CO-PO MAPPING

COs		Pos											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
		K3	K4	K5	K5	K3/K5/K6	K4	K2	K3	K3	K2	K3	K3
CO1	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO2	K5	3	3	3	3	-	-	-	-	-	-	-	-
CO3	K4	3	3	2	2	-	-	-	-	-	-	-	-
CO4	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO5	K5	3	3	3	3	-	-	-	-	-	-	-	-
CO6	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO7	K5	3	3	3	3	-	-	-	-	-	-	-	-
CO8	K5	3	3	3	3	-	-	-	-	-	-	-	-
CO9	K3	3	2	1	1	-	-	-	-	-	-	-	-

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EE8461 LINEAR AND DIGITAL INTEGRATED CIRCUITS LABORATORY L T P C
0 0 4 2

OBJECTIVES:

- To learn design, testing and characterizing of circuit behavior with digital and analog ICs.

LIST OF EXPERIMENTS

1. Implementation of Boolean Functions, Adder and Subtractor circuits.
2. Code converters: Excess-3 to BCD and Binary to Gray code converter and vice-versa
3. Parity generator and parity checking
4. Encoders and Decoders
5. Counters: Design and implementation of 3-bit modulo counters as synchronous and Asynchronous types using FF IC's and specific counter IC.
6. Shift Registers: Design and implementation of 4-bit shift registers in SISO, SIPO, PISO, PIPO modes using suitability IC's.
7. Study of multiplexer and de multiplexer
8. Timer IC application: Study of NE/SE 555 timer in Astability, Monostability operation.
9. Application of Op-Amp: inverting and non-inverting amplifier, Adder, comparator, Integrator and Differentiator.
10. Voltage to frequency characteristics of NE/ SE 566 IC.
11. Variability Voltage Regulator using IC LM317.

TOTAL: 60 PERIODS

OUTCOMES:

At the end of the course, the student should have the :

- Ability to understand and implement Boolean Functions.
- Ability to understand the importance of code conversion.
- Ability to Design and implement 4-bit shift registers.
- Ability to acquire knowledge on Application of Op-Amp.
- Ability to Design and implement counters using specific counter IC.

LIST OF EQUIPMENT FOR A BATCH OF 30 STUDENTS: (3 per Batch)

S.No	Name of the equipments / Components	Quantity Required	Remarks
1.	Dual ,(0-30V) variability Power Supply	10	-
2.	CRO	9	30 MHz
3.	Digital Multimeter	10	Digital
4.	Function Generator	8	1 MHz
5.	IC Tester (Analog)	2	-
6.	Bread board	10	-
7.	Computer (PSPICE installed)	1	-
8.	IC 741/ IC NE555/566/565		
9.	Digital IC types		
10.	LED		
11.	LM317		
12.	LM723		
13.	ICSG3524 / SG3525		
14.	Transistor – 2N3391		
15.	Diodes, IN4001,BY126		
16.	Zener diodes		
17.	Potentiometer		
18.	Step-down transformer 230V/12-0-12V		
19.	Capacitor		
20.	Resistors 1/4 Watt Assorted		
21.	Single Strand Wire		

Course Code		CO No	COURSE OUTCOMES	Knowledge level
EE8403	MEASUREMENTS AND INSTRUMENTATION	CO 1	To interpret the basic functional elements of instrumentation system for industrial applications.	K1
		CO 2	To organize the working operation of different electrical and electronic instruments to make models	K2
		CO 3	To apply the various method of measuring techniques.	K3
		CO 4	Will be able to discover the relevance of digital instruments in measurements, perform experiments and design projects in multidisciplinary fields	K4
		CO 5	To influence the working operation of various storage and display devices.	K4
		CO 6	Will be able to design complex digital circuits	K4
		CO 7	To build the basic concepts of transducer, data acquisition system and smart sensors	K4
		CO 8	Will be able to design sensors by own individual	K4

Mapping

COsPOs	PO 1 K3	PO 2 K4	PO 3 K5	PO 4 K5	PO 5 K3/K5/K6	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1 K1	1	-	-	-	1							
CO 2 K2	2	1	-	-	1							
CO 3 K3	3	2	1	1	3							
CO 4 K4	3	3	2	2	3							
CO 5 K4	2	2	1	1	3							
CO 6 K4	3	3	2	2	3							
CO 7 K4	3	3	2	2	3							
CO 8 K4	3	3	2	2	3							

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MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF ECE
REGULATION 2017
B.E EEE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome(CO) Students will be able to	Knowledge Level
EC8351	Electron Devices and Circuits	CO1: Explain the structure and working operation of PN junction devices.	K2
		CO2: Identify and differentiate both active and passive elements.	K2
		CO3: Use the different electronic devices and circuits include transistors and thyristors.	K3
		CO4: Interpret the amplifier circuit with the analysis of gain and frequency response.	K3
		CO5:Illustrate the concept of feedback amplifiers and oscillators.	K2
		CO6: Explain the working principles, characteristics and applications of BJT and FET.	K2
		CO7: Implement the design of different stages of amplifiers includes neutralization methods.	K3
		CO8: Classify the types of feedback amplifiers and oscillators.	K2

CO-PO MAPPING

COs		Pos											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
		K3	K4	K5	K5	K3/K5/K6	K4	K2	K3	K3	K2	K3	K3
CO1	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO2	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO3	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO4	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO5	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO6	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO7	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO8	K2	2	1	-	-	-	-	-	-	-	-	-	-

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B.E EEE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome(CO) Students will be able to	Knowledge Level
EE8391	ELECTROMAGNETIC THEORY	CO1: Explain the basic mathematical concepts related to electromagnetic vector fields.	K2
		CO2: Explain the basic concepts about electrostatic fields, electrical potential, energy density and their applications.	K2
		CO3: Acquire the knowledge in magneto static fields, magnetic flux density, vector potential and its applications.	K2
		CO4: Find the different methods of emf generation and Maxwell's equations.	K4
		CO5: Explain the basic concepts electromagnetic waves and characterizing parameters.	K2
		CO6: Compute Electromagnetic fields and apply them for analysis of electrical equipment and systems.	K3
		CO7: Apply the concept of electro dynamic fields and electromagnetic waves in determining wave parameters in different mediums.	K3
		CO8: Explain the relation between field theory and circuit theory system.	K2
		CO9:Solve the electrostatic problems using coulombs law and gauss's law	K3

CO-PO MAPPING

COs		POs											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
		K3	K4	K5	K5	K3/K5/K6	K4	K2	K3	K3	K2	K3	K3
CO1	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO2	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO3	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO4	K4	3	3	2	2	-	-	-	-	-	-	-	-
CO5	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO6	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO7	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO8	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO9	K3	3	2	1	1	-	-	-	-	-	-	-	-

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REGULATION 2017
B.E EEE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome(CO) Students will be able to	Knowledge Level
CY8151	ENGG. CHEMISTRY	CO1: Develop innovative methods to produce soft water for industrial use and potable water at cheaper cost	K3
		CO2: Identify and apply suitable water treatment techniques.	K3
		CO3: Understand the types of adsorption and catalysis which is used in industries.	K2
		CO4: Define and analyze engineering related problems and metal finishing in achieving a practical solution.	K3
		CO5: Demonstrate the knowledge of phase rule applied in various industries.	K2
		CO6: Identify the instrumental techniques for analysis and analyze the quality parameters of chemical fuels	K3
		CO7: Classify the materials best suited for construction of Battery and fuel cells.	K3
		CO8: Utilize the knowledge of solar and wind energy into most needy electrical energy efficiently and economically to reduce the environmental pollution.[	K2
		CO9: Solve the problems in EDTA and Combustion.	K3

CO-PO MAPPING

COs		POs											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
		K3	K4	K5	K5	K3/K5/K6	K4	K2	K3	K3	K2	K3	K3
CO1	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO2	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO3	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO4	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO5	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO6	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO7	K4	3	3	2	2	-	-	-	-	-	-	-	-
CO8	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO9	K3	2	2	1	1	-	-	-	-	-	-	-	-

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MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF EEE
REGULATION 2017
B.E EEE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome(CO) Students will be able to	Knowledge Level
EE8351	Digital Logic Circuits	CO1: identify the number systems and binary codes.	K1
		CO2: explain the operation and characteristics of digital logic families.	K2
		CO3: interpret the combinational logic using K-map minimization technique.	K2
		CO4: implement the combinational logic for different applications.	K3
		CO5: find the types and application of flip flops.	K4
		CO6: design the synchronous sequential circuits.	K6
		CO7: design the asynchronous sequential circuits.	K6
		CO8: classify the programmable logic devices.	K2
		CO9: realize the combinational logic circuits using VHDL.	K3
		CO10: implement the sequential logic circuits using VHDL.	K3

CO-PO MAPPING

COs		POs											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
		K3	K4	K5	K5	K3/K5/K6	K4	K2	K3	K3	K2	K3	K3
CO1	K1	1	-	-	-	-	-	-	-	-	-	-	-
CO2	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO3	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO4	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO5	K4	3	3	2	2	-	-	-	-	-	-	-	-
CO6	K6	3	3	3	3	-	-	-	-	-	-	-	-
CO7	K6	3	3	3	3	-	-	-	-	-	-	-	-
CO8	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO9	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO10	K3	3	2	1	1	-	-	-	-	-	-	-	-

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MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF ECE
REGULATION 2017
B.E EEE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome(CO) Students will be able to	Knowledge Level
EC8311	Electronics Laboratory	CO1: Interpret the basic procedure for all the semiconductor devices and circuits.	K2
		CO2: Check the characteristics of photo diode, photo transistor, Study of light activated relay circuit.	K5
		CO3: Demonstrate the half wave and full wave rectifiers with inductive and capacitive filters.	K4
		CO4: Implement the NPN transistors configurations, FET, JFET, UJT with suitable waveforms.	K3
		CO5: Find the phase and frequency measurements using CRO.	K5
		CO6: Analyze the different types of diodes and transistors used in semiconductor devices.	K3
		CO7: Experiment the differential amplifiers using FET.	K5
		CO8: Test the RC phase shift and LC oscillators.	K5
		CO9: Implement the design of passive filters	K3

CO-PO MAPPING

COs		Pos											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
		K3	K4	K5	K5	K3/K5/K6	K4	K2	K3	K3	K2	K3	K3
CO1	K2	2	1	-	-	-	-	-	-	-	-	-	-
CO2	K5	3	3	3	3	-	-	-	-	-	-	-	-
CO3	K4	3	3	2	2	-	-	-	-	-	-	-	-
CO4	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO5	K5	3	3	3	3	-	-	-	-	-	-	-	-
CO6	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO7	K5	3	3	3	3	-	-	-	-	-	-	-	-
CO8	K5	3	3	3	3	-	-	-	-	-	-	-	-
CO9	K3	3	2	1	1	-	-	-	-	-	-	-	-

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DEPARTMENT OF EEE
REGULATION 2017
B.E EEE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome(CO) Students will be able to	Knowledge Level
EE8411	Electrical Machines II Laboratory	CO1: Analyze the performance of three phase alternator by EMF and MMF methods	K4
		CO2: Analyze the performance of three phase alternator by ZPF and A.S.A methods	K4
		CO3: Calculate regulation of three phase alternator by slip test	K3
		CO4: Calculate impedance of three phase alternator	K3
		CO5: Analyze the relation between field current, armature current & power factor of three phase synchronous motor	K4
		CO6: Analyze the load performance of three phase induction machine with various loads	K4
		CO7: Determine equivalent circuit parameters of single phase and three phase induction motor	K3
		CO8: Calculate various losses of three phase induction machine	K3
		CO9: Analyze the load performance of single phase induction machine with various loads	K4
		CO10: Determine equivalent circuit parameters of single phase and three phase induction motor	K3
		CO11: Differentiate induction motor starters	K2

CO-PO MAPPING

COs		POs											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
		K3	K4	K5	K5	K3/K5/K6	K4	K2	K3	K3	K2	K3	K3
CO1	K4	3	3	2	2	-	-	-	-	-	-	-	-
CO2	K4	3	3	2	2	-	-	-	-	-	-	-	-
CO3	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO4	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO5	K4	3	3	2	2	-	-	-	-	-	-	-	-
CO6	K4	3	3	2	2	-	-	-	-	-	-	-	-
CO7	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO8	K3	3	2	1	1	-	-	-	-	-	-	-	-
CO9	K4	3	3	2	2	-	-	-	-	-	-	-	-
CO10		3	2	1	1	-	-	-	-	-	-	-	-

	K3												
CO11	K2	2	1	-	-	-	-	-	-	-	-	-	-