	National Institute of Technology Meghalaya An Institute of National Importance		CURRICULUM
Programme	**Bachelor of Technology in Electrical and Electronics Engineering**	Year of Regulation	**2017-18**
Department	**Electrical Engineering**	Semester	**III**

Course Code	Course Name	Credit Structure				Marks Distribution			
		L	T	P	C	Quiz	MID	END	Total
EE255	**Network Theory Lab**	**0**	**0**	**2**	**1**	**30**	**0**	**70**	**100**

Course Objectives	To understand the practicability of electrical networks, their laws and theorems. To provide practical knowledge in the analysis of networks and verification of characteristics.	Course Outcomes	CO1	Understand the basic concept of basic electrical networks related problems and classifications.
			CO2	Understand the power electrical networks the illustrative examples in the electrical networks.
			CO3	Understand the Advantages Definition and basic theorems of Laplace transform, Laplace transform of some basic functions and periodic functions, Inverse Laplace transform, Transient response of R-L, R-C, R-L-C networks using Laplace transform method with DC and AC excitation.
			CO4	Limitations Z, Y, ABCD, h-parameters and Concept of Tree, Branch, Tree link, Incidence matrix, Tie-set matrix and Loop currents, Cut-set matrix and node pair potentials, Duality and Dual networks.
			CO5	Analyze the Fourier series representation of non-sinusoidal waves, Discrete spectra, rms values of non-sinusoidal waves, Steady state response of linear circuits to non-sinusoidal waves
			CO6	Understand the basic concept of Fourier transform of signum and step functions.

No.	COs	Mapping with Program Outcomes (POs)												Mapping with PSOs		
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	CO1	**3**	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**3**
2	CO2	**3**	**3**	**1**	**1**	**2**	**2**	**1**	**0**	**0**	**0**	**0**	**1**	**3**	**1**	**3**
3	CO3	**3**	**3**	**1**	**1**	**2**	**2**	**1**	**0**	**0**	**0**	**0**	**1**	**3**	**1**	**3**
4	CO4	**3**	**3**	**0**	**0**	**1**	**3**	**1**	**0**	**0**	**0**	**0**	**1**	**3**	**1**	**3**
5	CO5	**3**	**3**	**0**	**0**	**2**	**2**	**1**	**0**	**0**	**0**	**0**	**1**	**3**	**1**	**3**
6	CO6	**3**	**3**	**0**	**0**	**2**	**2**	**1**	**0**	**0**	**0**	**0**	**1**	**3**	**1**	**3**

SYLLABUS

No.	Content	Hours	COs
I	Verify principle of Superposition theorem with dc and ac sources.	02	CO1, CO2
II	Verify Thevenin's and Norton's theorems in ac circuits.	02	CO1, CO2
III	Verify Maximum Power Transfer theorem in ac circuits.	02	CO1, CO2
IV	Verify Reciprocity and Tellegen's theorems.	02	CO1, CO2
V	Verify resonance phenomenon in RLC series circuit.	02	CO3
VI	Verify resonance phenomenon in RLC parallel circuit.	02	CO3
VII	Determination of self-inductance, mutual-inductance and coupling co-efficient of a single phase two winding transformer representing a coupled circuit.	02	CO3
VIII	Observe the transient response of current in RL and RC circuits with step voltage input.	02	CO2, CO3
IX	Observe the transient response of current in RLC circuits with step voltage input for under-damp, critically damp and over-damp cases.	02	CO2, CO3
X	Determination of z and h parameters (dc only) for a network and computation of Y and ABCD parameters.	02	CO4, CO5
XI	Determination of equivalent parameter of parallel connections of two port network and study loading effect.	02	CO5, CO6
Total Hours		**22**	

Supplementary Readings:

1. W. H. Hayt and J. E. Kemmerley, "Engineering Circuit Analysis", Tata McGraw Hill, Eighth Edition, 2013.
2. M. E. Van Valkenburg, "Network Analysis", Prentice-Hall of India Pvt. Ltd., Third Edition, 2014.
3. Donald E. Scott, "An Introduction to Circuit analysis: A System Approach", New edition McGraw Hill Inc., 1987