	National Institute of Technology Meghalaya An Institute of National Importance	**CURRICULUM**

Programme	**Bachelor of Technology in Electronics and Communication Engineering**	Year of Regulation	**2018-19**
Department	**Electronics and Communication Engineering**	Semester	**III**

Course Code	Course Name	Credit Structure				Marks Distribution		
		L	T	P	C	CONTINUOS EVALUATION	VIVA	Total
EC 255	**Network Analysis and Synthesis Laboratory**	**0**	**1**	**2**	**2**	**70**	**30**	**100**

Course Objectives	Course Outcomes		
To understand the fundamentals of electrical circuits		CO1	Will develop understanding on electrical circuits
To understand the concepts of transient response of RLC circuits		CO2	Will develop understanding on of transient response of RLC circuits
To understand the two port network and network topology		CO3	Will develop understanding on two port network
To understand network synthesis		CO4	Will develop understanding on network synthesis
		CO5	
		CO6	

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	PSO4
1	CO1	**3**	**3**	**2**	**1**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**2**	**1**	**0**
2	CO2	**3**	**3**	**2**	**1**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**2**	**1**	**0**
3	CO3	**3**	**3**	**2**	**1**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**2**	**1**	**0**
4	CO4	**3**	**3**	**2**	**1**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**2**	**1**	**0**

SYLLABUS

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

Essential Readings

1. V. Valkenberg, "Network Analysis", Prentice-Hall of India Pvt. Ltd, 3rd Edition, 2014.
2. F. F. Kuo, "Network Analysis and Synthesis", John Wiley & Sons, 2nd Edition, 2006.
3. C. L. Wadhwa, "Network Analysis and Synthesis", New Age International Publishers, 2nd Edition, 2007.

Supplementary Readings

1. D. R. Choudhary, "Networks and Systems", New Age International, 2nd Edition,, 2013.
2. A. Chakrabarti, "Circuit Theory: Analysis and Synthesis", Dhanpat Rai & Co., 6th Edition, 2014.
3. D. E. Scott, "An Introduction to Circuit analysis: A System Approach", 1st Edition McGraw Hill, 1987.