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

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

Course Code	Course Name	Pre-Requisite	Credit Structure				Marks Distribution		
			L	T	P	C	Continuous Assessment		Total
EE 253	**Electrical Machines-I Laboratory**	**EE 253**	**0**	**0**	**2**	**1**	**01 Experiment**	**10**	**100**

Course Objectives	To enable, train and evaluate the ability of the students to perform the analysis of any electromechanical system.	**Course Outcomes At the end of this course students will be able to**	CO1 To formulate and then analyze the working of any electrical machine using mathematical model under loaded and unloaded conditions.
	To empower students to determine the parameters of DC machines and transformers by performing experiments on these machines.		CO2 To troubleshoot the operation of an electrical machine.
	To enable students to identify and solve DC machines and Transformer related problems.		CO3 To conduct testing and experimental procedures on different types of electrical machines.
	To inculcate the ability to select a suitable measuring instrument for a given application employs DC Machines & Transformers.		CO4 To identify suitable measuring instruments for measuring electrical and non-electrical quantities for a given application.
			CO5 To understand the design aspects of DC Machines & transformers.
			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
1	CO1	**3**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**3**	**0**	**3**
2	CO2	**3**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**2**
3	CO3	**2**	**3**	**3**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**2**
4	CO4	**2**	**2**	**3**	**0**	**2**	**2**	**3**	**0**	**2**	**0**	**0**	**1**	**2**	**3**	**2**
5	CO5	**2**	**2**	**3**	**0**	**2**	**2**	**3**	**0**	**2**	**0**	**0**	**1**	**3**	**3**	**3**
6	CO6	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

SYLLABUS

No.	Content	Hours	COs
1	Sumpner's Test on single phase transformers	**02**	**CO1** **CO2** **CO3** **CO4** **CO5**
2	Polarity test & OC-SC tests on single phase transformers	**02**	
3	Parallel operation of single phase transformers	**02**	
4	No load & external load tests on DC shunt generator	**02**	
5	Verification of Scott's connection on three phase transformers.	**02**	
6	Speed control of DC shunt motor	**02**	
7	Verification of phasor group for three phase transformers.	**02**	
8	Load Test on DC shunt motors	**02**	
9	Swinburne's Test on DC Machines	**02**	
10	Hopkinson's Test on DC Machines	**02**	
	Total Hours	**20**	

Essential Readings

1) Say M. G., The performance and design of alternating current machines, CBS Publishers, Delh, 4th Edition,2004.
2) Bimbhra P. S., Electrical Machinery, Khanna Pub., Delhi., 7th Edition, 2018

Supplementary Readings

1) Clayton A. E., The performance and design of direct current machines, Pitman and sons, London. 4th Edition,1961
2) Bhag S. Guru, H. R. Hiziroglu, Electric Machinery and Transformers, Oxford, 4th Edition,2014