	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	**IV**

Course Code	Course Name	Credit Structure				Marks Distribution			
		L	T	P	C	INT	MID	END	Total
EC 272	**Operational Amplifiers and Its Applications**	**2**	**0**	**0**	**2**	**50**	**50**	**100**	**200**

Course Objectives	To understand the basic fundamentals and applications of operational amplifier.	Course Outcomes		
			CO1	Ability to understand the basic concepts and characteristics of operational amplifiers.
			CO2	Ability to design and analyse operational amplifier based electronic circuits.
			CO3	Ability to define the prospective application of operational amplifiers is various domains.

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**	**2**	-	-	-	-	-	-	-	-	-	-	**2**	-	-	-
2	CO2	**3**	**2**	-	-	-	-	-	-	-	-	-	-	**2**	-	-	-
3	CO3	**2**	**3**	-	-	-	-	-	-	-	-	-	-	**2**	-	-	-

SYLLABUS

No.	Content	Hours	COs
I	Operational Amplifiers and Linear ICs, Introduction to the Op-Amp Parameters, Understanding Op-Amp Data Sheets, Ideal Operational Amplifiers and Op-Amp Circuits, Differential and common-Mode operation.	**10**	**CO1 & CO2**
II	Applications of Op-Amp in real time scenario, Inverting Amplifiers, Non-inverting amplifiers, Summing Amplifiers, Differential Amplifiers, Voltage –to-Current Converters, Integrators and Differentiators, Comparators and Detectors, Active Filter Circuits, Instrumentation Amplifiers	**14**	**CO2 & CO3**
Total Hours		**24**	

Essential Readings

1. D.A Bell, “Op-amps and linear ICs”, Oxford, Third Edition, 2015.
2. R. A. Gayakwad, “Op-amps and linear integrated circuits,” Prentice Hall, 2000.
3. Sergio Franco, “Design with Operational Amplifiers and Analog Integrated Circuits”,Tata McGraw Hill, 3rd Edition, 2012

Supplementary Readings

1. James M.. Fiore, “ Operational Amplifiers and Linear Integrated Circuits: Theory and Application, ” Jaico Publishing House, 1st Edition, 2002