

		National Institute of Technology Meghalaya An Institute of National Importance				CURRICULUM				
Programme		Master of Technology in Mechanical Engineering				Year of Regulation				2018
Department		Mechanical Engineering				Semester				I
Course Code	Course Name	Credit Structure				Marks Distribution				
		L	T	P	C	INT	MID	END	Total	
ME 515	Experimental Methods in Mechanical Systems	3	0	0	3	50	50	100	200	
Course Objectives	To introduce measurement system and its importance	Course Outcomes	CO1	Able to acquire knowledge about measurement system						
	To give the understanding of measurement error analysis		CO2	Able to acquire knowledge analysis of the error.						
	To give understanding of measurement of process variables		CO3	Able to acquire Knowledge about measurement of process variable.						
			CO4	Able to acquire Knowledge data acquisition system and Human machine interface						
SYLLABUS										
No.	Content					Hours	COs			
I	Experiment objectives: Comparison with the experimental, theoretical and computational methods, Monitoring, Control and research, Identifications of variables and system parameters for mechanical systems, Planning of instrumentations, Design of experiments,					07	CO1 CO2			
II	Basic Measurements systems: Generalized description of the measurement system, Operational description of the general measurement system and elimination method of Interfering inputs to the desired inputs, Null and Deflection Methods of Measurements, Analog and digital Measurements, Uncertainty Analysis, Performance Characteristics, Order of Instruments and Calibration, displacement measurement, pressure measurement, flow measurement, force torque power measurement, ,					11	CO2 CO3			
III	Modern Techniques of Experiments: Computerized data Acquisition, Data sampling and Signal Conditioning, , Measurement error, Graphical User Interface (GUI) or Human Machine Interface (HMI).					08	CO3 CO4			
Total Hours						36				
Essential Readings										
1. Experimental methods for Engineers, J P Holman, McGraw Hill										
2. Instrumentation for Engineering Measurements, by JW Dally; John Wiley & Sons.										
Supplementary Readings										
1. Engineering Experimentation – Planning Execution, Reporting, E.O. Doebelin, McGraw Hill										
2. Mechanical Measurements, Thomas Beckwith and Lewis Buck, Narosa Publishing House										