BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, Pilani
Pilani Campus

INSTRUCTION DIVISION

FIRST SEMESTER 2018-2019

Course Handout (Part-II)

Date: 02/08/2018

Course No. : **ME F215/MF F215**

Course Title : **MECHANICAL ENGINEERING LABORATORY**

Instructor-in-charge : **GIRISH KANT GARG**

Instructor : Shyam Sunder Yadav, Keyur Joshi, Gaurav Watts, Abdulla Sultan, Abhishesh Mishra, Pingale Ajay Dadabhau, Rahul Priyadarshi, Rishi Kumar, Rohit Gunerkar, Shailendra Singh, Shital Patil.

Scope and objective of the course:

The objective of the course is to train the students in the skill of operation of instruments and equipments related to mechanical engineering, Course will mainly focus on testing of mechanical properties like tensile testing, hardness, impact, bending of beams. Basic fluid mechanics experiments like measurements of pressure, temperature, viscosity, flow measurement, basic electrical & electronics engineering like experiments on power measurements, transformers, induction motors. etc. This course will also expose the students to a broad knowledge of experimental methods and measurement techniques.

Laboratory Manual (LM): "A Laboratory Manual for MECHANICAL ENGINEERING LABORATORY (Enlarge and Edited Version of Measurement Techniques-II: TA C 222)", Digalwar, A. K. et al., EDD Notes.

Reference Books:

R1: Holman J.P., "Experimental Methods for Engineers," TATA McGRAW HILL, 7th ed., 2004.

Laboratory Plan:

Exp. No.	Name of Experiment	Ref
MEL 1	Determine the modulus of elasticity of mild steel specimen using tensile test	LM: ME 1
MEL 2	Determine the modulus of elasticity of mild steel specimen using bending test.	LM: ME 2
MEL 3	(a) Measurement of hardness of the given samples using Brinell Hardness Testing Machine and correlate them with the ultimate Tensile Strength (UTS) of the Materials (b) Measurement of hardness of the given samples using Rockwell Hardness Testing Machine	LM: ME 4 LM: ME 5

MEL 4	Verification of Bernoulli's theorem	LM: CH 5
MEL 5	Test on single phase induction motor	LM: EEE 2
MEL 6	Study of Reynold's apparatus	LM: CH 3
MEL 7	Test on single phase transformer	LM: EEE 6
MEL 8	(a) To estimate and compare the shock resistance qualities of the materials by conducting Impact Test (b) Perform torsion test to find modulus of rigidity	LM: ME 7 LM: ME 8
MEL 9	(a) Study of viscosity coefficient (b) Study of polariscope	LM: CH 2 Class Notes
MEL 10	(a) To measure flow by venturimeter and to calculate coefficient of discharge for venturimeter (b) To measure flow by orificemeter and to calculate coefficient of discharge for orificemeter	Class Notes Class Notes
MEL11	To determine the coefficient of discharge using different notched specimens	Class Notes
MEL12	(a) To measure the principle strain on a thin walled pressure vessel by using rosette strain gauge (b) To determine critical buckling load for columns with different end support	Class Notes Class Notes

Laboratory Location: Material testing laboratory room No.: 2104

Lab Cycle Details:

Lab Cycle I : Exp No MEL 1 to MEL 6

Lab Cycle II : Exp No MEL 7 to MEL12

Evaluation Scheme:

Component	Duration	Marks	Weightage (%)	Date & Time	Remarks
Lab. Expt. 1st cycle	16 Hr	70	35	TBA	OB
Lab. Expt. 2nd cycle	16 Hr	70	35	TBA	OB
Lab. Test	01 Hr	30	15	TBA	CB
Lab Quiz	01 Hr	30	15	TBA	CB
TOTAL		**200**	**100**		

Makeup Policy: Makeup will be granted only for genuine cases:
Chamber Consultation hours: Wednesday 4:00 pm to 5.00 pm Chamber no: 2243-Q
Notices: Notices concerning the course will be displayed only on Nalanda.

Instructor-in-charge

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