



INSTRUCTION DIVISION  
FIRST SEMESTER 2015-2016  
Course Handout (Part-II)

Date: 03/08/2015

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

**Course Title** : MECHANICAL ENGINEERING LABORATORY

**Instructor-in-charge** : ARUN KUMAR JALAN

**Instructor** : Abhijit K Digalwar, Jitendra S Rathore, Srinivas Kota, Neetu Malik, Shivani Nain,  
Neha Arora, Paridhi puri, Tamalika Bhakat,

**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. LVDT Transducers, logic gates 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, 7<sup>th</sup> ed., 2004.

**R2:** Modi P.N. and S.M Seth, “Hydraulics and Fluid Mechanics,” Standard Publishers, 12<sup>th</sup> ed. 1998.

**Laboratory Plan:**

Exp. No.	Name of Experiment	Ref
MEL1	Determine the modulus of elasticity of mild steel specimen using tensile test	LM: ME1
MEL2	Determine the modulus of elasticity of mild steel specimen using bending test.	LM: ME2
MEL 3	Vicker’s Hardness Testing Machine and correlate them with the Ultimate Tensile Strength (UTS) of the materials	LM: ME6
MEL 4	Verification of Bernoulli’s theorem	LM: CH5





# BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, Pilani

## Pilani Campus

MEL 5	Study of logic gates and combinations	LM: EEE 1
MEL 6	Hardware familiarity, component study and operational amplifier circuits	LM: EEE 3
MEL 7	Perform compression test on UTM	LM: ME 3
MEL 8	Measurement of hardness of the given samples using Brinell Hardness Testing Machine and correlate them with the ultimate Tensile Strength(UTS) of the Materials	LM: ME 4
MEL9	To estimate and compare the shock resistance qualities of the materials by conducting Impact Test	LM: ME 7
MEL10	Study of Viscosity Coefficient	LM: CH 2
MEL11	Test on single phase induction motor	LM: EEE 2
MEL12	Determination of sensitivity of LVDT transducer	LM: EEE 6
MEL13	Measurement of hardness of the given samples using Rockwell Hardness Testing Machine	LM: ME 5
MEL14	Perform Torsion test to find angle of twist	LM: ME 5
MEL15	Study of Fatigue Testing Machine	Class notes
MEL 16	Study of Reynold's apparatus	LM: CH 3
MEL 17	Measurement of electrical variables in single phase circuit	LM: EEE 4
MEL 18	Test on single phase transformer	LM: EEE 6

**Laboratory Location :** Material testing laboratory

### Lab Cycle Details:

Lab Cycle I : Exp No MEL 1 to MEL 6  
 Lab Cycle II : Exp No MEL 7 to MEL12  
 Lab Cycle III : Exp No MEL 13 to MEL 18



**Please Consider Your Environmental Responsibilities**  
**Do Not Print Unless Necessary**



**BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, Pilani**  
**Pilani Campus**

**Evaluation Scheme:**

Component	Duration	Marks	Weightage (%)	Date & Time	Remarks
Lab. Expt. 1 <sup>st</sup> cycle	24 Hr	30	20	TBA	OB
Viva -I	2 Hr	9	6	TBA	CB
Lab. Expt. 2 <sup>nd</sup> cycle	24 Hr	30	20	TBA	OB
Viva -II	2 Hr	9	6	TBA	CB
Lab. Expt. 3 <sup>rd</sup> cycle	24 Hr	30	20	TBA	OB
Viva -III	2 Hr	9	6	TBA	CB
Final Lab. Test	01 Hr	33	22	TBA	CB
<b>TOTAL</b>		<b>150</b>	<b>100</b>		

**Makeup Policy:** Makeup will be granted only for genuine cases:

**Chamber Consultation hours:** Wednesday 3.30 pm to 4.30 pm Chamber no: 2152-C

**Notices:** Notices concerning the course will be displayed only on Mechanical Engineering NB

**Instructor-in-charge**

**ME F215/MF F215**



**Please Consider Your Environmental Responsibilities**  
**Do Not Print Unless Necessary**