


 NIIST BHOPAL		<b>NRI INSTITUTE OF INFORMATION SCIENCE &amp; TECHNOLOGY</b>  <b>DEPARTMENT NAME: MECHANICAL ENGINEERING</b>  <u><b>LIST OF EXPERIMENTS</b></u>		FORM NO	NIIST/A/10
				REV. NO	0
BRANCH	ME	REV. DT	30/06/2011		
SESSION					

SUBJECT NAME: Materials Technology      SUBJECT CODE: ME-303

1	Metallographic studies – Study of Optical microscope, Optically flat surface preparation, etching reagents, Grain size- ASME no., micro structures, Image analysis, Standard specimen
2	Carbon, sulphur, Phosphorus determination, Strauhlin's apparatus, Eggert's Method in different samples.
3	Hardness and Hardenability test, Jeremy Cony test. Soft and hard Martensite
4	. Different heat treatment cycles using electric furnace [ Programmable preferred ], Annealing, Case carburising, Normalising, etc.
5	Gravimetric / Volumetric - chemical analysis of alloying elements like, Cr, Ni, Mn, Si etc.
6	Study of different instrumental method of analysis, spectrophotometers, Differential Scanning calorimeter
7	Spot test for quick assessment of alloying elements like Mn, Cr, Ni, etc
8	Experiments / study of Non Destructive Methods, Ultrasonic test, Magnetic particle inspection, Dye penetration test, Eddy current test, Radiography test.
9	Cupping test / formability test for sheet metal


  
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BRANCH	<b>ME</b>		
SESSION			

SUBJECT NAME: 4 Strength of Material      SUBJECT CODE: ME-304

1	Standard tensile test on MS and CI test specimen with the help of UTM
2	Direct/ cross Shear test on MS and CI specimen
3	Transverse bending test on wooden beams to obtain modulus of rupture
4	Fatigue test
5	Brinell Hardness tests
6	Vicker hardness test
7	Izod/Charpy test
8	Rockwell Hardness test

  
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				REV. NO	0
BRANCH	ME	REV. DT	30/06/2011		
SESSION					


SUBJECT NAME: Manufacturing Process    SUBJECT CODE: ME-305

1	Study of tools used for various manufacturing processes , study includes application & live demonstration of hand and machine tools .
2	Hands on Exercise on Pattern Making
3	Performance on Metal Casting of Simple component
4	Performance on Welding of simple work piece (Example Arc and Resistance Welding)
5	Exercise Problems on Welding
6	Exercise problems on Casting
7	Study of forging machine & demonstration of various operations of forging
8	Study of Hydraulic ,Pneumatic presses & demonstration of piercing, slitting, deep drawing operations on press machine

  
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SESSION					

SUBJECT NAME: Thermal Engg Lab

SUBJECT CODE: ME-306

1	To determine volumetric and isothermal efficiencies of a single stage compressor.
2	Study of two stage air compressor with intercooler
3	To determine volumetric and isothermal efficiencies of a two stage compressor.
4	Study of different types of boilers and their classifications.
5	Study of different types of high pressure boilers.
6	To determine the performance of boiler.
7	Temperature measurements, Pyrometers and thermography
8	Thermocouples, Temperature sensors, study and calibration.
9	Study and experiments on ORSAT apparatus.
10	Experiments on calorific value of different fuels and analysis of exhaust gases.

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