


VIRTUAL LABS

NAME : STRENGTH OF MATERIAL PRACTICUM


Tensile Test

★★★★★

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ASTM A53
Corten Steel
Mild Steel
Comparison

Play

Pause

Restart

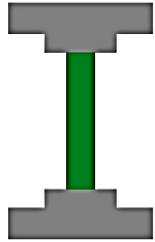
Input Parameters

Simulation Speed: 1x

Length = 50.8 mm

Diameter = 12.725 mm

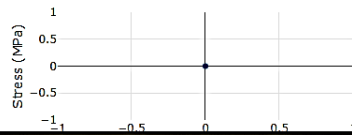
UTM Machine




Observations

Stress (Mpa)	Strain	Load (N)	Elongation (mm)	Youngs Modulus (Mpa)
0.0	0.0	0.0	0.0	0.0

Stress v/s Strain



<https://eerc01-iiith.vlabs.ac.in/exp/tensile-test-experiment/>


Shear Test

★★★★★

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Play

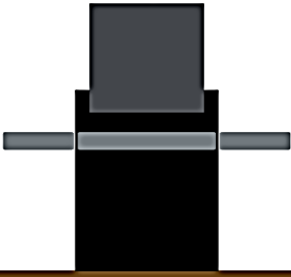
Pause

Restart

Simulation Speed: 1x

UTM Machine

Load ↓




Observations

Diameter (mm)	Area of Cross Section (A = $\pi d^2/4$) mm ²	Failure Load P (Kg)	Double Shear Strength ($P \times 9.81$)/2A (N/mm ²)
5.91	27.42	1300	232.55
5.95	27.79	1450	255.93
6	28.26	1500	260.35

Average Double Shear Strength = 249.61 N/mm²

<https://eerc01-iiith.vlabs.ac.in/exp/shear-test-experiment/simulation.html>



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Torsion Test

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Play Pause Restart

Input Parameters


Simulation Speed: 1x

Length of Rod = 80mm

Diameter of Rod = 6mm

Polar MOI = $1.27235 \times 10^{-10} \text{ m}^4$

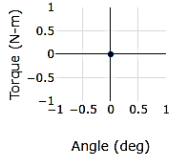
Modulus of Rigidity = 29.473138 GPa




Observations

Angle (deg)	Torque (N-m)
0.0	0.0

Torque v/s Angle



<https://eerc01-iiith.vlabs.ac.in/exp/torsion-test-experiment/simulation.html>



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Impact Test

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Play Pause Restart

Input Parameters

Simulation Speed: 1x

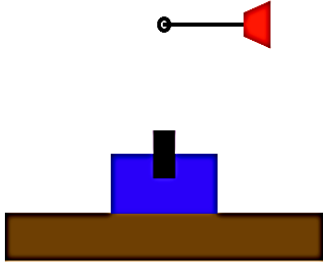
Length of Rod = 80 mm

Diameter of Rod = 6 mm

Polar MOI = $1.272 \times 10^{-10} \text{ m}^4$

Modulus of Rigidity = 29.473 GPa

Izod Impact Tester



Observations

Trial	Loss of energy due to friction, E_f (J)	Total Loss of energy E_t during transit of hammer(J)	Energy for failure of specimen = KU / Impact Value = $E_t - E_f$ (J)
1	2	44	42
2	2	42	40
3	2	46	44
Average energy for failure of specimen = 42.00 J			

<https://eerc01-iiith.vlabs.ac.in/exp/impact-test-experiment/simulation.html>



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1020, DEPARTMENT OF MECHANICAL ENGINEERING



Rockwell-Hardness



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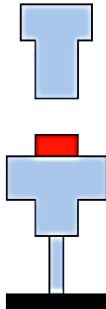
Play

Pause

Restart

Simulation Speed: 1x

Rockwell Hardness Tester



Observations

Trial	Material	Total Load (Kg)	Rockwell Hardness Number (RHN)
1	Cast Iron	100	32
2			59
Average Rockwell Hardness Number = 45.5			

<https://eerc01-iiith.vlabs.ac.in/exp/rockwell-hardness-experiment/simulation.html>



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VIRTUAL LABS

SUBJECT: METROLOGY AND MEASUREMENT PRACTICUM

S.No.	NAME OF THE EQUIPMENT	Virtual Lab Link Hyper Link
1	Micrometer	https://www.youtube.com/watch?v=phFRSS7mH9Y
2	Vernier Caliper	https://www.youtube.com/watch?v=FNdkYIVJ3Vc
3	Vernier Height Gauge	https://www.youtube.com/watch?v=xNebTevkKjg
4	Vernier depth Gauge	https://www.youtube.com/watch?v=aEfE_EHLqfl
5	Slip Gauge Set	https://www.youtube.com/watch?v=M7w4XQJa-TY
6	Gear Tooth Vernier	https://www.youtube.com/watch?v=nX-vAxGBqXo
7	Sine Bar	https://www.youtube.com/watch?v=PO-Ab7YfBzY
8	Floating Carriage Micrometer	https://www.youtube.com/watch?v=P--aDwmIfJs
9	Profile Projector /Tool Makers Microscope	https://www.youtube.com/watch?v=x27VTXKTBNs
10	Parallel /counter flow heat exchanger apparatus	https://www.youtube.com/watch?v=TWsRQy-j3f8
11	Mechanical /Electrical /Pneumatic Comparator	https://www.youtube.com/watch?v=TIYxyEPXzHY
12	Autocollimator	https://www.youtube.com/watch?v=pUbXhZF7a-s
13	Temperature Measuring Setup	https://www.youtube.com/watch?v=yVomxn6gPgs
14	Force Measuring Setup	https://www.youtube.com/watch?v=3xB2wZTNn_I
15	Torque Measuring Setup	https://www.youtube.com/watch?v=LSEtHAXfWN8
16	Coordinate measuring machine	https://www.youtube.com/watch?v=lZaWx8-oetQ
17	Surface finish measuring equipment	https://www.youtube.com/watch?v=CYqQfWr2MKc
18	Bore gauge	https://www.youtube.com/watch?v=n572qMo3g0A

VIRTUAL LABS

SUBJECT: FLUID MECHANICS PRACTICUM



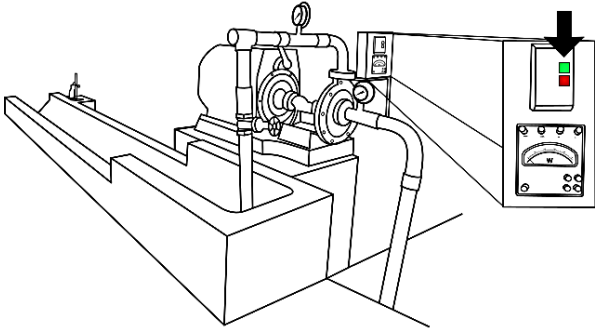
Performance Characteristics of Centrifugal Pump

☆☆☆☆☆


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STEP 1 Start the pump by pressing the start button.

Description



<https://fmc-nitk.vlabs.ac.in/exp/centrifugal-pump/simulation.html>



Performance Characteristics of Kaplan Turbine

☆☆☆☆☆

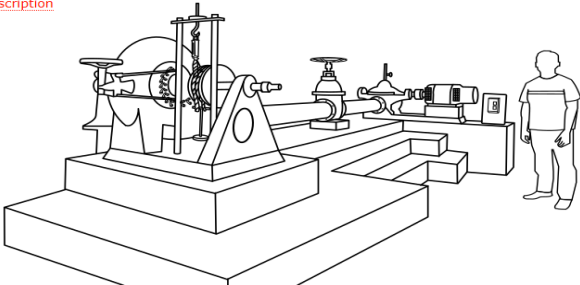
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PERFORMANCE CHARACTERISTICS OF KAPLAN TURBINE

Objective
To conduct the performance test on kaplan turbine under constant head and to plot the operating characteristics.

Apparatus used:
Kaplan Turbine Setup with Centrifugal Pump, Spring Balance with Weights, etc.

Description



<https://fmc-nitk.vlabs.ac.in/exp/kaplan-turbine/simulation.html>



Apparatus used:

Reciprocating Pump Setup with Motor, Collecting Tank, Spring Balance, Pressure Gauge, Stopwatch.

Description

