Government Polytechnic – Junagadh

Mechanical Engineering Department

Virtual Laboratory

What are virtual labs?

Virtual labs are simulated learning environments that allow students to complete laboratory experiments online and explore concepts and theories without stepping into a physical lab.

Students can try out lab techniques for the first time and become more familiar with advanced lab equipment that might otherwise be inaccessible.

Through animations, students can look inside the machines they are operating.

1. Theory of Machines:

- **Oldham Coupling Mechanism**
  http://vlabs.iitkgp.ac.in/mr/exp6/index.html
- **Quick Return Mechanism**
  http://vlabs.iitkgp.ac.in/mr/exp7/index.html
- **CAM Follower Mechanism**
  http://vlabs.iitkgp.ac.in/mr/exp8/index.html
- **Position analysis of Grashof four bar mechanism**
  http://mm-nitk.vlabs.ac.in/exp1/index.html
- **Velocity analysis of Grashof four bar mechanism**
  http://mm-nitk.vlabs.ac.in/exp2/index.html
- **Acceleration analysis of Grashof four bar mechanism**
  http://mm-nitk.vlabs.ac.in/exp3/index.html
- **Position analysis of Slider crank mechanism**
  http://mm-nitk.vlabs.ac.in/exp7/index.html
- **Velocity analysis of Slider crank mechanism**
  http://mm-nitk.vlabs.ac.in/exp8/index.html
- **Acceleration analysis of Slider crank mechanism**
  http://mm-nitk.vlabs.ac.in/exp9/index.html
- **Position analysis of Scotch Yoke Mechanism**
  http://mm-nitk.vlabs.ac.in/exp11/index.html
- **Velocity analysis of Scotch Yoke Mechanism**
  http://mm-nitk.vlabs.ac.in/exp12/index.html
- **Acceleration analysis of Scotch Yoke Mechanism**
  http://mm-nitk.vlabs.ac.in/exp13/index.html
- **Position analysis of Elliptical Trammel**
  http://mm-nitk.vlabs.ac.in/exp14/index.html
- **Hart Straight Line Mechanism**
  http://mm-nitk.vlabs.ac.in/exp15/index.html
- **Peaucellier Straight Line Mechanism**
  http://mm-nitk.vlabs.ac.in/exp17/index.html
- **Whitworth Mechanism**
  http://mm-nitk.vlabs.ac.in/exp26/index.html
- **Crank and Slotted Mechanism**
  http://mm-nitk.vlabs.ac.in/exp29/index.html
- **Universal Joint**
  http://mm-nitk.vlabs.ac.in/exp21/index.html

2. Fluid Mechanics:

- **Calibration of V-Notch**
  http://fm-nitk.vlabs.ac.in/exp1/index.html
- **Calibration of Rectangular Notch**
  http://fm-nitk.vlabs.ac.in/exp2/index.html
- **Impact of Jet**
  http://fm-nitk.vlabs.ac.in/exp3/index.html
- **Friction in Pipes**
  http://fm-nitk.vlabs.ac.in/exp4/index.html
- **Venturimeter**
  http://fm-nitk.vlabs.ac.in/exp5/index.html

3. Fluid Machinery:

- **Performance Characteristics of Centrifugal Pump**
  https://fmc-nitk.vlabs.ac.in/exp/centrifugal-pump/
- **Performance Characteristics of Hydraulic Ram**
  https://fmc-nitk.vlabs.ac.in/exp/hydraulic-ram/
- **Performance Characteristics of Kaplan Turbine**
  https://fmc-nitk.vlabs.ac.in/exp/kaplan-turbine/
- **Double Acting Reciprocating Pump**
  https://fmc-nitk.vlabs.ac.in/exp/reciprocating-pump/
- **Performance Characteristics of Pelton Turbine**
  https://fmc-nitk.vlabs.ac.in/exp/pelton-turbine/
- **Pipe Bursting**
  https://fmc-nitk.vlabs.ac.in/exp/pipe-bursting/
- **Performance Characteristics of Francis Turbine**
  https://fmc-nitk.vlabs.ac.in/exp/francis-turbine/

4. Strength of Materials:

- **Izod Impact Test**
  http://sm-nitk.vlabs.ac.in/exp5/index.html
- **Direct Shear Test on Mild Steel Rod**
  http://sm-nitk.vlabs.ac.in/exp7/index.html
- **Bending Test on Mild Steel**
  http://sm-nitk.vlabs.ac.in/exp11/index.html
- **Brinell Hardness Test**
  http://sm-nitk.vlabs.ac.in/exp10/index.html
- **Rockwell Hardness Test**
  http://sm-nitk.vlabs.ac.in/exp20/index.html
- **Vickers Hardness Test**
  http://sm-nitk.vlabs.ac.in/exp21/index.html
- **Tensile Test on Mild Steel**
  http://sm-nitk.vlabs.ac.in/exp13/index.html
- **Compression Test on Mild Steel**
  http://sm-nitk.vlabs.ac.in/exp15/index.html
- **Torsion Test on Mild Steel**
  http://sm-nitk.vlabs.ac.in/exp19/index.html

5. Thermal Engineering:

- **PV Diagram of a SI Engine**
  http://vlabs.iitkgp.ernet.in/rtvlas/exp1/index.html
- **Load Test on a SI Engine**
  http://vlabs.iitkgp.ernet.in/rtvlas/exp3/index.html
- **Mechanical Efficiency of a SI Engine**
  http://vlabs.iitkgp.ernet.in/rtvlas/exp4/index.html
- **Determination of Cylinder Mean Effective Pressure**
  http://vlabs.iitkgp.ernet.in/rtvlas/exp5/index.html
- **The Study of Phase Change**
  http://htv-au.vlabs.ac.in/heat-thermodynamics/Study_of_Phase_Change/
- **Heat Transfer by Radiation**
  http://htv-au.vlabs.ac.in/heat-thermodynamics/Heat_Transfer_by_Radiation/
- **Heat Transfer by Conduction**
  http://htv-au.vlabs.ac.in/heat-thermodynamics/Heat_Transfer_by_Conduction/
- **Heat Transfer by Natural Convection**
  http://htv-au.vlabs.ac.in/heat-thermodynamics/Heat_Transfer_by_Natural_Convection/
- **Newton's Law of Cooling**
  http://htv-au.vlabs.ac.in/heat-thermodynamics/Newtons_Law_of_Cooling/
- **Black Body Radiation**
  http://htv-au.vlabs.ac.in/heat-thermodynamics/Black_Body_Radiation/

Use and spread to the concerned.

Thank You