

SVKM's Institute of Technology

Department of Mechanical Engineering

PROJECT BASED LEARNING ACTIVITY FOR STUDENTS

The Project-Based Learning approach creates a constructive learning environment in which students construct their own Projects. In order to improve learning environment, SVKM IOT organised a Project Based Learning activity for students.

On Saturday 27 October 2018 a project exhibition was organised by SVKM Institute of Technology, Dhule with an aim to encourage and implement theoretical concepts of subjects in practical manner by doing projects. Students of Mechanical Engineering Department had presented and demonstrated their projects in presence of Principal and Departmental Faculties. The exhibition appreciated by authorities.

The snaps of few presentation are given below:



THE STIRLING ENGINE

INTRODUCTION

Stirling engine is a heat engine that operates by cyclic compression and expansion of air or any other gas at different temperatures, such that there is a net conversion of heat energy into work.

PROBLEM STATEMENT:
To convert and store heat energy in useful work.

WORKING:

APPLICATION:

- Used as external heat engine to convert solar radiation heat into work
- Can be used in Nuclear power plants
- When reversed it is used as Cryogenic coolers

Presented By:- Rahul Sharma
Samar Thorat
Ratnadeep Patil
Pratik Wagh
Rahul Suryavanshi

Guided by: Mr. Satish R. Patil

LAMINAR FLOW NOZZLE

Problem statement:

To convert Turbulent flow into Laminar flow

INTRODUCTION:-

Fluid flow can be divided into two different types: Laminar flow and Turbulent flow.

Laminar flow occurs when the fluid flows in infinitesimal parallel layers with no disruption between them.

APPLICATIONS

- The flow of air over an aircraft fin.
- To study the impact of fluid on bodies in condition of external flows
- Laminar flow is assumed for derivation of various fluid theories.

BILL OF MATERIALS

NO	MATERIAL	QUANTITY	COST
1	PIPE	20 PICH	50
2	STRIP	20 PICH	40
3	CAPS	2	100
4	SCRAUBER	3	15
5	SPRING	2	44
6	TAPE	2	25
7	NETT	2	35
8	M-SERIAL	3	10
9	GARDEN HOSE	1	20

STUDY OF DAM

Dimensions of the dam

- Max. Level of water at dam : 385m
- Level of water: 353m
- Width of dam: 500m
- Dimensions of a flow gate:
Height: 8m
Length: 11m.
- Number of flow gates: 17

FORMULA OF ACTUAL DISCHARGE FOR RECTANGULAR NOTCH:-

$$Q_{act} = C_{d1} \frac{2}{3} \sqrt{2g} LH^{3/2}$$

$$P_h = \rho gh$$

$$F = PA$$

Force on dam = 305603MN

Max. Discharge from a gate = 441KL/s

Max. Discharge of dam = 7496KL/s

Point of application of force = 235.5m from water surface.

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