

# Problem Based Learning

**Course Name and Code : Engineering Graphics**

**Class and Div. : FY B.Tech B and F Division**

**Department : Mechanical Engineering**

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# Purpose and Motivation

- ❖ Engineering drawing is a universal technical language
- ❖ Improves the visualization, imagination and drawing skill of the students
- ❖ Helps to create the technical drawings
- ❖ No prior basic knowledge of the technical drawing

## Suitability of Technique to course

- ❖ To Enhance the visualization, imagination and technical drawing skill of first year engineering students
- ❖ To improve the learning of the students using problem based learning approach inside and outside the classroom

# Procedure of Technique

## **Activity I : Product Drawing**

- ❖ Students were asked to draw orthographic views of the products provided by instructor
- ❖ Students need to take the measurements of the products for example Washing machine, Water purifier
- ❖ The drawings are assessed through the rubrics and graded.

# Procedure of Technique

## **Activity II : Model building**

- ❖ Groups of the students formed
- ❖ Students were asked to prepare the models of different solids such as prism, pyramid, cone, cylinder, cube and tetrahedron of different sizes using hard card sheet paper.
- ❖ The models were prepared by cut section method, so it can be opened to see the sectional views and development of solids
- ❖ Student from each group were instructed to explain the problem with the respective model to their group.
- ❖ Total 12 problems solved with this method in the class.

# Outcomes of Technique

## Activity I : Product Drawing

Sr. No.	Range of Marks	No. of Student 22-23	No. of Student 21-22	Remark
1	0-5	--	10	--
2	6-10	23	20	Poor skill
3	11-15	26	18	Average skill
4	16-20	11	6	Good skill

Grading Of The Activity-I

Sr. No.	Academic Year	Attainment of CO3 (%)
1	2020-21	68
2	2021-22	65
3	2022-23	75

Attainment Of CO3

CO 3: Prepare orthographic views of engineering components

# Outcomes of Technique

## Activity II : Model building

Exam	Max Marks	Average Marks 2021-22	Average Marks 2022-23	Increase in Average Marks	CO	Attainment 2021-22	Attainment 2022-23	%Increase in Attainment
UT I	10	4.21	5.23	1.02	CO1	65.12	75.08	9.96
UT II	25	12.52	16.78	4.26	CO2	72.21	76.94	4.73
ESE	39	24.18	32.86	8.68				

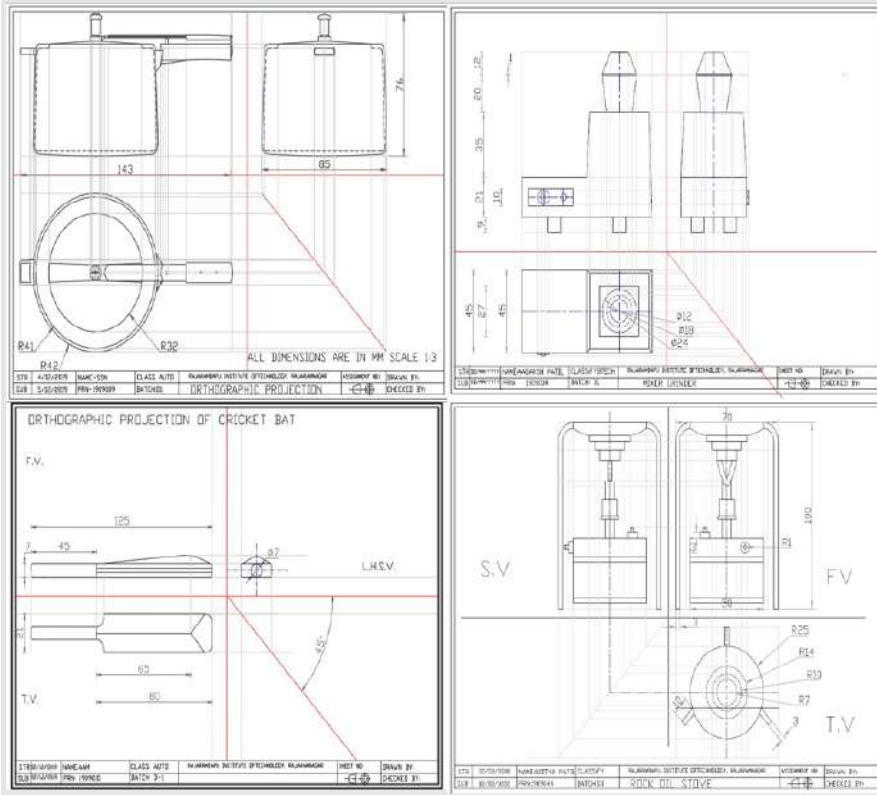
Average marks of the students in various exams

Attainment of CO1 and CO2

**CO1:** Draw the projections of line, plane and regular solids with respect to reference planes as per given conditions

**CO2:** Generate sectional view, true shape of sections and development of lateral surfaces of regular solids

# Photographs and Student Response



**Activity I : Product Drawing**

**Activity II : Model building**