



**Mechanical Engineering Department**

Academic Year – 2019-20	Class: SE
Semester – II	Date : 07/02/2019
CO: CO1	PO: PO1, PO9, PO10, PO12

**Innovative Teaching Methods**

**Title of Innovation method/activity:** Innovative Teaching Learning Method (Development of Mechanisms)

Link shared to the students:

1. Name of Faculty: Dr. S.P. Mogal

2. Subject: Theory of Machines-I

3. Objective of Method:

- I. Identify construction, working and application of mechanism
- II. Describe the types of motion of link
- III. Identify no. and type of kinematic link, kinematic pairs, joints in mechanism
- IV. Determine degree of freedom of mechanism
- V. Develop practical and presentation skill

4. **Topic Covered through Activity:**

Identify construction, working and application of mechanism

5. **Description of method with Benefits (8 – 10 lines):**

To make a model of any mechanism by using waste material by the group of 4 students and to give a presentation. The hands-on activity is designed for students to develop different mechanisms models.

Benefits of method:

- It helps students to better understanding motion of link and how it transforms from input link to output link,
- Students have to understand working of mechanism and find types of links, kinematic pairs and joints used, which gives to apply knowledge.
- It helps to students to share his ideas with classmates and builds oral communication skills.
- Learn how to make presentation in a team.
- It helps to clarify the concept and builds teamwork skills.

## **The method:**

Monitor and support students as they work through the following in this method:

1. Ask students to make a model of any mechanism by using waste material which is available in workshop.
2. Mechanism model is developed by a group only.
3. All groups are asked to give presentation of mechanism model.
4. Teacher examined the presentation of each group and asks questions related to type and no. of links, kinematic pair, joints, degree of freedom, working and application of mechanism.

## Roles and Responsibilities

- **Teacher**
  - Provide the waste material for development of mechanism model.
  - Provide the study material of different mechanisms and appropriate guide lines at every stage of making models.
  - Develop the awareness among the students about the industrial applications of mechanisms.
  - Remain available during the completion of task.
  - Prepare assessment methodology.
- **Student**
  - Go through all the material provided on mechanisms.
  - Once mechanism is selected, understand it and discuss individually within the group. After this each student should be paired with another student or a small group and discuss any doubt with his partner. Then students have to discuss individually within the group.
  - Actively participate in group and contribute by means of discussion
- **Group**
  - Form the group of members as per the guidelines by teachers.
  - Understand and discuss to finalize the best solution for the assigned task.
  - Assign the work within the group to achieve the task within stipulated time period

## 6. Assessment Tools

Sr. No.	Rubrics	Marks
1	Understanding	4 M
2	Presentation	2 M
3	Learning materials Model develop	2 M
4	Question Answers	2 M

## 7. Evaluation sheet of attendee

Sr. No.	Roll No.	Name of students	Score out of 10
3	112	Kapadnis Nikita	7
2	104	Bhangare pramila	7
3	103	Bairagi Priya	7
4	108	Mogal Madhura	7
5	102	Patil Mayur	6
6	109	Salunke Darshan	7
7	116	More Bhushan	6
8	99	Chaudhari Pratik	6
9	100	Deore chirag	7
10	113	Kadam Prathmesh	8
11	114	Shinde Sudarshan	8
12	117	Rajguru Swapnil	8
13	65	Ranade Aditya	10
14	71	Sawant Rishikesh	9
15	76	Shinde Rohit	9
16	80	Thete Vinay	9
17	66	Ravate Nilesh	9
18	77	Shirode Rohit	9
19	75	Shinde Karan	9
20	72	Shelke Abhishek	7
21	79	Thakare Anaji	7
22	81	Thok Nikita	7
23	67	Salunke Yashwant	9
24	68	Sanap gaurav	9
25	69	Sangale Vivek	9
26	70	Savale Avinash	9
27	121	Bhamare Vivek	8
28	123	Dangare Saurabh	9
29	124	Dawange Satish	9
30	130	Joshi Dhruv	8
31	127	Gholve Sachin	8
32	132	Kale Satish	9
33	134	More Prathmesh	8
34	127	Gholve Sachin	8

35	132	Kale Satish	9
36	134	More Prathmesh	8
37	136	Pagar Ajinkya	9
38	135	Nakil Sanket	10
39	131	Kadam Sandesh	9
40	120	Bhalerao Raaj	8
41	118	Aher Prerna	9
42	119	Baviskar Sidhhi	8
43	122	Chavan Rutuja	8
44	129	Jadhav Trupti	9
45	133	More Jagruti	8
46	125	Dhanait Sachin	9
47	126	Gaikwad Shrinkant	10
78	128	Jadhav Aniruddha	9
49	96	Bodke Yash	8
50	89	Badge Parag	9
51	83	Wagh Omkar	8
52	90	Lodwala Chirayu	6
53	88	Ahod Abhishek	8
54	97	Parkhal Piyush	8
55	82	Vasait Khushal	9
56	84	Warungse Saurabh	9
57	87	Ambekar Krishna	9
58	85	Zope Akshay	8

## Impact

- This innovative teaching method is implemented in kinematics of machinery subject syllabus (SE 2019 pattern).

<b>Guidelines for Laboratory Conduction</b>
The student shall complete the following activity as a Term Work
<i>Total 10 experiments from the following list must be performed. Term Work of the Student is evaluated based on the completion of Practical, Assignments using Drawing Aids, Assignments using Software &amp; Programming Languages, Assignments using Virtual Laboratory and Detailed Industrial Visit Report.</i>
<b>Practical</b> (Experiment # 1 is compulsory and Select any Two from Experiment # 2 to 4)
<ol style="list-style-type: none"> <li>1. To make a model of any mechanism by using waste material by the group of 4 to 6 students and to give a presentation using PPTs.</li> <li>2. Speed and torque analysis of epicyclic gear train to determine holding torque.</li> <li>3. To study and verify cam jump phenomenon.</li> <li>4. To study manufacturing of gear using gear generation with rack as a cutter and to generate an involute profile.</li> </ol>

## 8. Activity Picture



9. For review and critique contact: e-mail address of faculty and HOD  
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