



### Mechanical Engineering Department

Academic Year – 2019-20	Class: TE A Div.
Semester – I	Date : 10 /10/2019
Subject: Theory of Machines-II	
CO: CO4,CO5, CO6	PO: PO1

### Innovative Teaching Methods

**Title of Innovation method/activity:** Innovative Teaching Learning Method: Plickers Card Activity

1. Name of Faculty: Prof. D. D. Kulkarni

2. Subject: Theory of Machines-II

3. Objective of Method:

1. To understand the concept of Gyroscope, Synthesis of Mechanisms & Cam and Follower
2. To carry out formative assessment of students

4. **Topic Covered through Activity:**

Gyroscope, Synthesis of Mechanisms & Cam and Follower

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

It is a kind of formative assessment tool. Plickers is the free card activity for students. Students take a multiple choice test out of which only one option is correct. Students have plicker cards with them on which a code with four options are printed. The examiner uses an android/iPhone in which the plicker application is downloaded to scan the cards for the correct option. It's a very quick and easy tool where students do not need to take the time to get out technology. Students can know the result instantly. Students enjoy the test as it is an activity and not examination.

Benefits of method:

- It helps students to get instant feedback.
- It saves time.
- It helps focus attention and engage students.

It helps teacher to collect on spot formative assessment.

## The method:

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

Students stay engaged as they watch to see if their card was scanned, and their answer displayed.

The print out of cards is available with the students.

## Roles and Responsibilities

### Teacher

- Explains the topic of the pre-assessment to students.
- Displays the question and answer options via projector for students, while also reading each out loud.
- Requests that students hold up their “Plicker card” with the QR code that corresponds to their answer.
- Scans the students’ cards with their Phone using the Plicker App.
- Checks the Plicker data display to make sure every student has submitted a response.

### Student

- Students have to display their card to the teacher when answering a multiple choice question.
- Students have to orientate their card so that their letter choice is at the top of their card.

## 6. Assessment Tools

Q. No.	Question	Marks
Q1.	Which of the following statements is/are true for cam profile? a. Pitch point on the pitch curve has minimum pressure angle <b>b. In case of roller follower, trace point represents centre of the roller</b> c. Pitch circle is drawn through trace point from the center of cam d. All of the above	1
Q.2	To avoid jump phenomenon, which of the following condition should be true? Where, P = preload in spring, $\omega$ = cam speed, k = stiffness of spring, e = eccentricity a. $\omega > \sqrt{(me) / (P + 2 ke)}$ b. $\omega > \sqrt{(P + 2 ke) / (me)}$ <b>c. <math>\omega &lt; \sqrt{(P + 2 ke) / (me)}</math></b> d. $\omega < \sqrt{(me) / (P + 2 ke)}$	1

Q.3	<p>Which motion of follower is best for high speed cams?</p> <p>a. SHM follower motion</p> <p><b>b. Cycloidal motion follower</b></p> <p>c. Uniform acceleration and retardation of follower motion</p> <p>d. All of the above</p>	1
Q.4	<p>Which equation is known as Freudenstein's equation?</p> <p>a. <math>K_1 \sin \Phi - K_2 \sin \theta + K_3 = \sin (\theta + \Phi)</math></p> <p>b. <math>K_1 \cos \Phi - K_2 \cos \theta + K_3 = \cos (\theta + \Phi)</math></p> <p>c. <math>K_1 \sin \Phi - K_2 \sin \theta + K_3 = \sin (\theta - \Phi)</math></p> <p><b>d. <math>K_1 \cos \Phi - K_2 \cos \theta + K_3 = \cos (\theta - \Phi)</math></b></p>	1
Q.5	<p>Find out three precision points using 'Chebyshev Spacing Rule' for the interval 10 to 25</p> <p>a. 30, 17.5, 23.96</p> <p>b. 30, 30, 30</p> <p><b>c. 11, 17.5, 23.96</b></p> <p>d. None of the above</p>	1
Q.6	<p>Which among the following is/are classified under synthesis problem?</p> <p>a. Path generation</p> <p>b. Function generation</p> <p>c. Body guidance</p> <p><b>d. All of the above</b></p>	1
Q.7	<p>Gyroscopic effect is not observed in which of the following actions performed by the ships?</p> <p><b>a. Rolling</b></p> <p>b. Pitching</p> <p>c. Steering</p> <p>d. All of the above</p>	1
Q.8	<p>Degree of freedom for gyroscope rotor is</p> <p>a. 1</p> <p>b. 2</p> <p><b>c. 3</b></p> <p>d. 5</p>	1
Q.9	<p>The working depth of a gear is the radial distance from the</p> <p>a. Pitch circle to the bottom of a tooth</p> <p>b. Pitch circle to the top of a tooth</p> <p>c. Top of a tooth to the bottom of a tooth</p> <p><b>d. Addendum circle to the clearance circle</b></p>	1
Q.10	<p>In automobiles the power is transmitted from gear box to differential through</p> <p>a. Bevel gear</p> <p>b. Universal joint</p> <p><b>c. Hooke's joint</b></p> <p>d. Knuckle joint</p>	1

## 7. Evaluation sheet of attendee

Roll No.	Name of students	Score
1	Ahire Kishor Sanjay	30%
2	Ahire Komal Fakira	AB
3	Ahire Mayur Prakash	60%
4	Ahire Sagar Jagannath	60%
5	Gaykhe Apurv Suresh	60%
6	Bachhav Pratiksha Subhash	AB
8	Baste Yadnesh Govindrao	AB
10	Bhand Kartikkumar Rajaram	40%
11	Bhandare Akash Sanjay	20%
12	Birar Satyam Arun	50%
12	Bodke Priyanka Dnyaneshwar	20%
14	Borade Dhananjay Mhasu	70%
15	Borse Shraddha Pandharinath	30%
16	Burhade Rupeshkumar Suresh	60%
18	Chaudhari Gaurav Vishwas	40%
19	Chaudhari Prafulla Dattatray	50%
20	Chaure Rahul Navnath	30%
21	Chavan Ketan Umesh	50%
23	Dange Shreyas Sharadrao	AB
24	Dangre Gaurav Manik	50%
25	Darange Atharva Kamalesh	AB
27	Dashpute Ketan Anil	50%
30	Diwate Sahil Sanjay	50%
31	Gaikwad Pratik Gautam	60%
32	Gangurde Pavan Hemant	60%
33	Gangurde Pushpak Meghraj	60%
35	Gangurde Roshan Rajiv	AB
36	Gangurde Sarthak Subhash	AB
37	Gite Saurabh Dnyaneshwar	30%
38	Gunjal Bhushan Bapurao	60%
39	Hasan Danish Parvez	60%
40	Holaria Chandan Thakursingh	50%
41	Ingle Ajinkya Shantaram	AB
42	Jadhav Pratik Babaji	60%
43	Jadhav Ritesh Premchand	AB
44	Jadhav Tejaswini Tribhuvan	30%
45	Jadhav Vikas Sudam	50%
46	Jagtap Apoorva Rajendra	40%
47	Jagtap Shubham Rajesh	60%
48	Jangid Vishal Anand	40%
49	Joshi Parimal Sanjay	60%
50	Kadam Mayur Rajendra	60%

51	Kalantri Jayesh Manoj	70%
52	Kale Sanket Dipak	60%
53	Kandekar Omkar Sudhakar	50%
54	Kardile Akash Kailas	60%
56	Khairnar Asmita Annasaheb	20%
57	Kothawade Gaurav Anil	50%
58	Kshirsagar Manish Subhash	60%
59	Warke Kunal Suresh	40%
60	Lolage Jayesh Ghanshyam	50%
61	Mali Sunil Chanappa	50%
62	Mhalas Gandhali Sunil	30%
63	Mhasane Shriram Kailas	60%
64	More Ajay Rajendra	AB

## 8. Activity Picture



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