MARATHA VIDYA PRASARAK SAMAJ'S
KARMAVEER ADV. BABURAO GANPATRAO THAKARE
COLLEGE OF ENGINEERING

KBTCOE

Permanently Affiliated to Savitribai Phule Pune University Vide Letter No: CA/1542
& Approved by AICTE New Delhi Vide Letter No: 740-89-32 (E) ET/98
AISHE Code - C-41622

www.kbtcoe.org

Mechanical Engineering Department

Academic Year – 2020-21	Class: BE (B)
Semester – I	Date : 14/12/2020
CO: CO2,CO4	PO: PO1, PO5, PO9, PO12

Innovative Teaching Methods

Title of Innovation method/activity: Innovative Teaching Learning Method Virtual Lab Experiment Simulation and quiz using Testmoz.

Link shared to the students: Experiment on Base Excitation- http://mdmvnitk.vlabs.ac.in/exp5/index.html#

Experiment on Rotating Unbalance-http://mdmv-nitk.vlabs.ac.in/exp6/index.html#

Testmoz testmoz.com/7254892

Name of Faculty: Mr. D.V. Kushare

1. Subject: Dynamics of Machinery

2. Objective of Method:

    I. Perform experiment on base excitation and rotating unbalance

    II. Observe the effect of damping in Forced Vibration of SDOF system due to base excitation

    III. Observe the graph of magnification factor versus frequency ratio by varying parameters

    IV. Observe the graph of phase angle versus frequency ratio by varying parameters

    V. To enthuse students to conduct experiments by arousing their curiosity.

3. **Topic Covered through Activity**:
        Virtual experiment on Base Excitation.

4. Description of method with Benefits (8 – 10 lines):
Virtual experiments (not included in practical syllabus) will be performed for different parameters and objective test will be conducted by using testmoz software.

Benefits of method:

- It helps students to think individually about a virtual experiment and answer to questions.

- It teaches students to learn experiment virtually through simulation and self-evaluation by quiz.

- It helps focus attention and engage students in comprehending the reading material.

- It helps students to better understanding of base excitation system by simulation.

The method:

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

- Explain the procedure to conduct experiment virtually.

- To study theory and experimental procedure by using virtual lab and perform virtual experiment by using different parameters to understand the response of base excitation system.

- Evaluation of students is done by conducting quiz using testmoz software.

Roles and Responsibilities

- **Teacher**

  - Develop the awareness among the students about the virtual experiment.

  - Selection of different parameter to perform the experiment virtually.

  - Provide the study material on working, analysis and performance evaluation of base excitation system and appropriate guidelines at every stage.

  - Remain available during the completion of task.

  - Prepare assessment methodology.

- **Student**

  - Go through all the material provided on virtual lab website.

  - Once topic assigned, understand it and solve independently. After this each student will perform the virtual experiment and submit the quiz.

6. Assessment Tools

| Q. No.	Question	Marks
1	Phase difference between input and response at resonance is 90°	1M
2	At resonance, amplification factor depends only on?	1M
3	Phase difference between input and response of a system was found to be $\pi/4$. With mass of system 20kg and stiffness 2N/mm if operating frequency was 5rad/s what was the damping in the system (in Ns/m)	1M
4	Amplification factor of a system was found to be 1 at resonance. What would be its damping ratio?	1M
5	A system with 20kg mass 20N/m stiffness and 10Ns/m damping is being operated at 1rad/s if Xst=2cm what is the value of X0 ?	1M
6	A system with 10kg mass 10N/m stiffness and 2.5Ns/m damping is being operated at 1rad/s if Xst=1cm what is the value of X0 ?	1M
7	At resonance, for underdamped system increasing the value of damping would lead to ?	1M
8	When frequency ratio ($\omega/\omega n$) is greater than unity, phase angle decreases as _____	1M
9	At which frequency ratio, phase angle increases as damping factor increases?	1M
10	What is meant by phase difference or phase angle in forced vibrations?	1M

7. Evaluation sheet of attendee

Sr. No.	Roll No.	Name of students	Score out of 10
1	126	Abhishek Sunil Shelke	10
2	136	Abhishek Thorat	10
3	107	Akash Rajendra Pawar	10
4	119	Aniket Shashikant Rasal	10
5	108	Ankita Pawar	10
6	137	Chinmay Vyavahare	10
7	127	Danish Shiklikar	10
8	129	Darshan Shirsat	10
9	87	Dushyant Sanjay Mulmule	5
10	98	Ganesh Hiraman Patil	10
11	124	Jishan Chandbhai Shaikh	10
12	116	Keturaj Komalsing Rajput	9
13	140	Kunal Suresh Warke	4
14	88	Mansi Nankar	5
15	96	Patil Aniket Rajendra	10
16	101	Patil Niraj Shridhar	3

17	152	Patil Sagar Babulal	5
18	114	Pradip	3
19	118	Pranav Mohan Randive	3
20	94	Pratik Chindhu Patade	10
21	123	Preethesh Tanmoy Sen	10
22	135	Priya Talele	10
23	86	Shivam More	9
24	132	Sonar Anuja Kailas	9
25	81	Sunil Mali	10
26	90	Tejas	1
27	139	Tushar Anil Wagh	7
28	106	Tushar Suresh Patole	10
29	134	Vitthal Kondiba Suravase	10

Student responses: Uploaded as a separate excel sheet
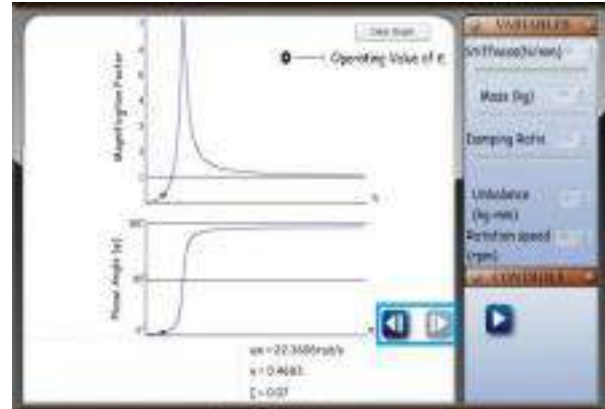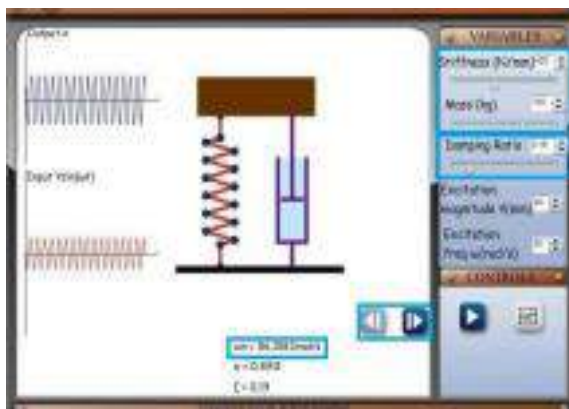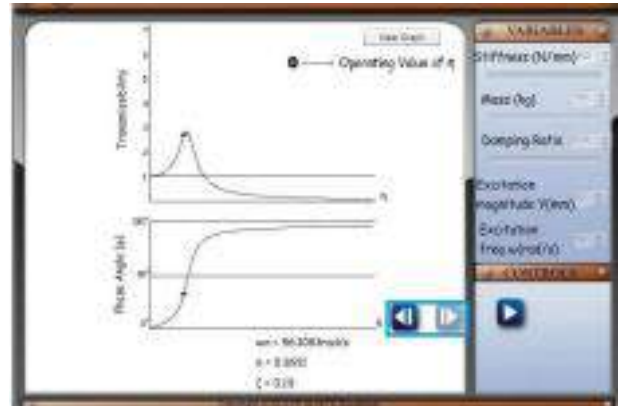
8. Activity Picture
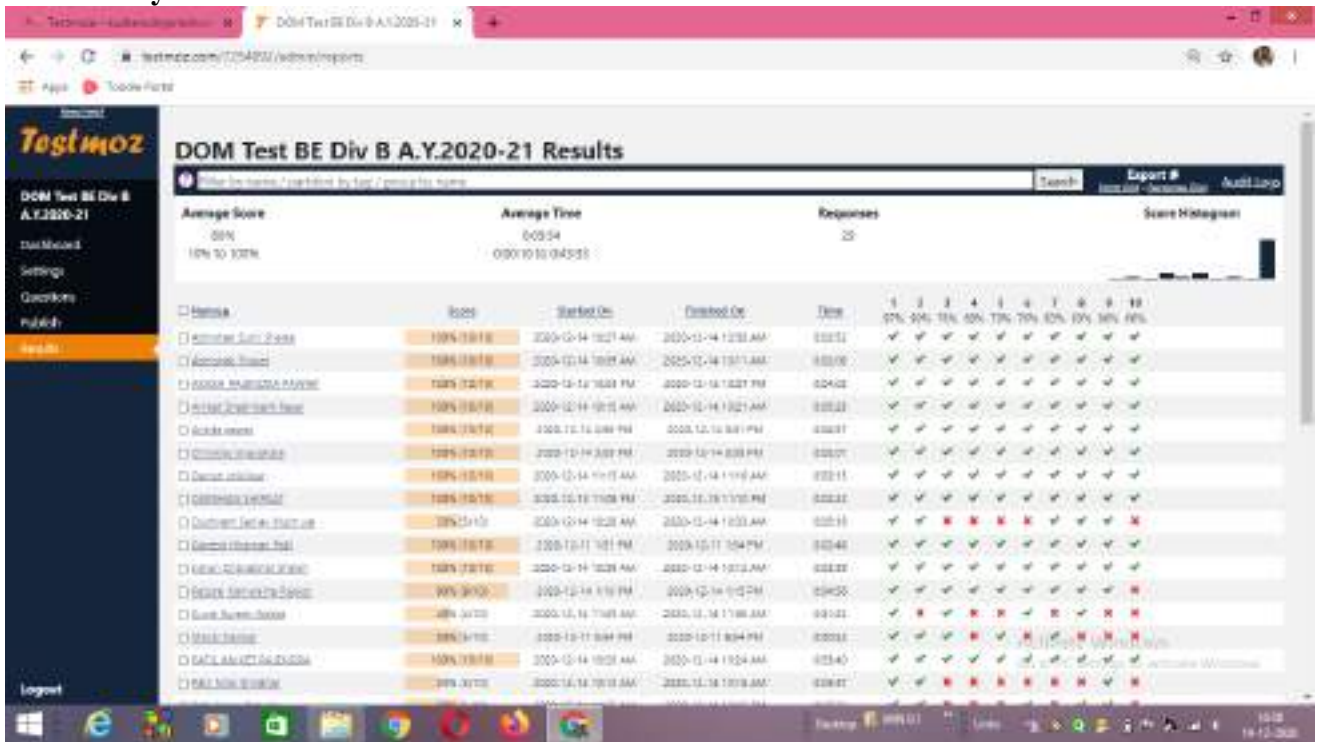
9. For review and critique contact: e-mail address of faculty and HOD
   kushare.dnyaneshwar@kbtcoe.org, hod.mech@kbtcoe.org

Mr. D.V.Kushare   Dr. S.P.Mogal
Subject In charge   Module Coordinator

Dr. A.B.Kakade   Dr. V.C.Shewale
NBA Coordinator   HOD