Department of Electrical and Electronics Engineering

Academic Year 2022 - 2023 (Odd Semester)

Degree, Semester & Branch: III Semester B.E. EEE

Course Code & Title: EE3303 Electrical Machines - I

Name of the Faculty member (s): Mr. E. Thangam

Innovative Practice Description

- **Unit / Topic:** Unit I / Comparison between Electric and Magnetic Circuit
- **Course Outcome:** CO 1
- **Topic Learning Outcome:** TLO - 1
- **Activity Chosen:** Visible Quiz
- **Justification:**

The comparison between electric circuits and magnetic circuits is very generic, but the students usually confuse the parameters relations in electric and magnetic circuits. If they understand the difference between electrical and magnetic circuits, they will be able to remember all the formulas. Otherwise, they will make mistakes when solving problems in magnetic circuits. Normally, the students can remember all the formulas and parameters related to electric circuits, but when it comes to magnetic circuits, they are not able to recall the formulas. Hence, I decided to conduct an activity visible quiz. In this activity, the students in a group discuss themselves to choose the equivalent magnetic circuit parameter from the given electrical circuit parameter and vice versa. This visible quiz activity helps them to remember all the formulas related to magnetic circuits by keeping electric circuit parameters as a hint.

- **Time Allotted for the Activity:** 8 minutes
- **Details of the Implementation:**

I have prepared eight sets of Multiple Choice Questions (MCQ) for the topic of magnetic circuit parameters equivalent to electrical circuit parameters and vice versa in the PPT slides. A set of large unique cards printed with A, B, C, and D was prepared. During my lecture hour, I have classified students into 6 teams of 10 students each, and then I gave a set of unique printed cards to each student's team. I have shown the MCQ on the classroom projector, and then I asked all the student teams to discuss and choose the relevant magnetic circuit parameter and its formula from the given electrical circuit parameter shown in the MCQ. Based on the discussion and their answers to all the MCQ,

the student team representative has shown the relevant cards for their selection. If time permits, I will call on groups to explain the rationale for their selection. I also gave them a mini-lecture on inappropriate responses. This immediate feedback helps me identify the learning level of the students.

Total Strength is 64,

Photographer: one student - Mr. Satheesh Pandian (interested in photography)

Reporter: Myself

- **CO – PO / PSO mapping:**

CO	PO 1	PO 2	PO 5	PO 10	PO12	PSO 1
CO1	3	2	1	2	2	2

(1 – Low 2 – Moderate 3 – High)

- **PO / PSO mapped:**

Innovative practice	**PO10**
	2
Justification for correlation	During the activity, the students were allowed to communicate with teammates; hence it is moderately correlated as 2.

Reflective Critique:

(i) Feedback by the students:

The students enjoyed the quiz. They told they have been given the chance of remembering the concepts in the same class itself.

(ii) Benefit of the practice:

The students are getting the feel of being involved in the learning process inside the class. Since the quiz is not included in the calculation of the internal marks, the students answered the quiz without any test fear. Hence, they participated freely. I can get the student attention after the activity.

(iii) Challenges faced in implementation:

Few students have not much interest in attending the quiz sincerely, since the quiz

is ungraded. Managing those students and making them do the quiz is a difficult task for me in this activity.

(iv) Success rate of the activity:

By using this 1-10 scale, I evaluated the success of this activity. Out of the 6 teams, team number 4 was able to answer 6 questions correctly, team number 3 answered 2 questions correctly, the team number 1 answered 1 question correctly. From this, I thought to conduct one more online quiz test for all the students to assess their individual performance.

Team Number	No. of Quizzes answered
Team -1	1 Question answered correctly
Team -2	-
Team -3	2 Questions answered correctly
Team-4	6 Questions answered correctly
Team-5	1 Question answered correctly
Team-6	-

(v) Implementation Photograph:

References:

- https://omerad.msu.edu/teaching/teaching-strategies/active-learning-strategies/27-teaching/172-demonstrations
- Nagrath, I.J. and Kothari.D.P., Electric Machines', McGraw-Hill Education, 2004

Signature of Faculty Member **HOD**

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Course Code & Title: EE3303 Electrical Machines - I

Name of the Faculty member (s): Mr. E. Thangam

Innovative Practice Description

- **Unit / Topic:** Unit I / How EMF is induced? Types of induced EMF in the machine
- **Course Outcome:** CO 1
- **Topic Learning Outcome:** TLO - 3
- **Activity Chosen:** Think-Pair-Share
- **Justification:**

As electrical engineering students, they must be able to explain the different types of induced EMF and how they are induced in a machine. All the students have already studied these topics in their higher secondary school. This think-pair-share can help them to recall and analyze the process involved in the machine for the generation of EMF. The knowledge about this topic is required them to understand further topics in the field of electrical engineering, so because of this activity, peer learning occurs; hence, the students will never forget this important concept forever.

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- **Time Allotted for the Activity:** 7 Minutes (Think – 2 Min, Pair – 3 Min, Share – 2 Min)
- **Details of the Implementation:**

After teaching the topic of Faraday's law of electromagnetic induction, I have posed a question to all the students: "How is EMF induced?" "Types of induced EMF in a machine." Before starting the activity, I have discussed the different machine that induces EMF, so this increases the curiosity among the students to learn more about this topic. Then I gave them a minimum of 2 minutes for thinking. I encouraged them to write the responses in a paper. Afterward, I have allowed the students to form a pair and share their responses for 3 minutes. During the time of sharing responses, I keep a round at the class to watch the students' pair discussion. Next, I asked one or two individual students to share the consolidated responses with the entire class for 2 minutes. Finally, I gave a brief summary of the topic using PPT slides.

Total Strength is 64,

Photographer: one student - Mr. Satheesh Pandian (interested in photography)

Reporter: Myself

- **CO – PO / PSO mapping:**

CO	PO 1	PO 2	PO 5	PO 10	PO12	PSO 1
CO1	3	2	1	2	2	2

(1 – Low 2 – Moderate 3 – High)

- **PO / PSO mapped:**

Innovative practice	**PO 12**
	2
Justification for correlation	Due to the activity students understood how the EMF is induced in the electrical machines. It motivates them to explore more in the future, hence it is moderately correlated as 2.

Reflective Critique:

(i) Feedback by the students:

Most of the pair of students utilized this activity well, and a few students replied that 7 minutes is not enough for this activity. They requested to give more than 5 minutes for think, and 10 minutes for pair and share. But the majority of the team has satisfied with this activity.

(ii) Benefit of the practice:

The team of students has understood the concepts clearly and it has been evident from the points they have written on the paper during the discussion.

The one team of students presented the points to the class; it cleared any ambiguity in understanding the important points in the chosen topic.

(iii) Challenges faced in implementation:

Some of the team has one low-performing student and one high-performing student, which

creates the least discussion in that team, so managing the non-participating team of students in the class is the challenging one. Mostly the slow learners have not participated in the activity. They have not discussed or written any points on the paper.

(iv) Success rate of the activity:

I have taken one two-mark question from the chosen topic in internal assessment test -1, more than 78% of the students answered the question correctly.

(v) Implementation Photograph:

References:

- https://omerad.msu.edu/teaching/teaching-strategies/active-learning-strategies/27-teaching/172-demonstrations
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