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Peer to peer learning- An effective tool in students learning

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ABSTRACT

Innovative teaching Methods have to be adopted in today's mind-set of youngsters. Outcome based education have to a giant leap forward to improve technical education in India and ensure learning registers in their young minds and make them to compete with their competitors around the world globally. This can be achieved only if the knowledge posed by them are deep routed and are strong with their concepts. Innovative teaching methods which are the most subsets of Outcome based education is an strong encouraging platform for student to encourage learning the concepts from their peers by which they encompassed with easy way learning. They seem to have more focused and fun during their learning process. Finally, the outcome is measured through knowledge Via their internal assessment. As all the engineering colleges follow NBA accreditation in deciding the quality of the students, they have also streamed and asked to adopt modern ways of teaching such as ICT, Model Demonstration, flip class, poster presentation, etc. In such an attempt an effort has been taken to show how effective will be peer to peer learning in form of flip class. In this present paper, a case study is developed through CO-PO mapping and attainment for Mechanical Engineering Students of Tier-II.[2] for the VII semester Mechanical Engineering Students for the subject "Operations Research" [1]

Keywords— CO-PO Mapping, Outcomes Based education, Innovative teaching Methods, Attainment

1. INTRODUCTION

Innovative teaching methods have to be incorporated in the classroom teaching of students to keep them encouraged in the class for about 60 min. As we all there are n number of distraction for today's generation students, hence to keep them engaged and focused these methods will be one strongest tool for learning the concept. There has to be interactive session with the students rather than the traditional method of learning, where the teacher instructs and students blankly copy the content just for the sake of it. The programme should be helping and bridging the students to their self learning techniques, staying focused, leadership skills and communication skills and to work individually or in a team which are the most promising attributes of Nation Board of accreditation. These will be met by this innovative teaching method.[5]

2. METHODOLOGY

Course outcomes outline the content that covers the entire content of the syllabus that has to be delivered. These outcomes are broken into different levels to enhance the learning. Here the course outcome of the subject Operation research is considered as an example for showing the OBE activity.

Course outcomes for the subject Operation Research (10ME65)

1. Identify and develop operational research models from the verbal description of the Real Systems.
2. Compute to create mathematical models that are useful to solve optimization problems.
3. Describe the solving techniques, analyze the results and propose recommendations to the decision-making process in management engineering

Identifying the gap and OBE activity to bridge the gap

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	1										
CO2	1	2										
CO3	1	2	1						3	3		3

The course coordinator has to Map to course outcomes to program outcomes. It enables them to identify the curricular gap in the course. If we look at the table some of the program outcomes are not met and hence an OBE activity of **course outcome 3** in the

form flip class was organised for the VII semester Mechanical Engineering Students for the subject “Operations Research” on 9th November 2017. The topic for the session was on PERT/CPM. This Session enabled the students to work on self-Learning, Communication skills and Peer to peer learning. CO-PO matrix for the courses was done by the course coordinator [7][8].



Fig. 1: The students on their self leaning and helping their peer

3. CO-PO MAPPING EXPLANATION

Table 1:CO-PO mapping explanation

	PO-1	PO-2	PO-3
CO1	Co1 is mapped with po1 with a value of 2 as it enables students to apply basic fundamental knowledge of mathematics. The students should have strong fundaments of basics	Co1 is mapped with po2 with a value of 1 as it enables students to enable verbal description of real problem in problem analysis	
CO2	Co2 is mapped with po1 with a value of 3 as it enables students to apply basic fundamental knowledge of mathematics. The students should have strong fundaments of basics to find the optimal mix	Co2 is mapped with po2 with a value of 2 as it enables students analyze the real-world problems in determining the optimal solution.	
CO3	Co3 is mapped with po1 with a value of 1 as it enables students to apply basic fundamental mathematics. The students should have strong fundaments of basics.	Co3 is mapped with po2 with a value of 2 as it enables students analyze the real-world problems and in making decisions	Co3 is mapped with po1 with a value of 1 as it enables students to incorporate the ideas in project based learning i.e. to develop small models for society

Assessment and attainment

Visvesvaraya Technological University ensures three assessment have to be conducted to evaluate the students’ performance. In the academic calendar the test dates and portions will be formulated that works in close adherence with academic calendar. The course coordinator sets question paper following the Blooms Taxonomy. The Module coordinator checks the question paper for quality and Blooms taxonomy levels. And the attainment level is taken as follows:

Attainment level 1: 50% students scoring more than 70% marks

Attainment level 2: 55% students scoring more than 70% marks

Attainment level 3: 60% students scoring more than 70% marks

Here to evaluate the innovative teaching method and to show students’ performance has improved through this outcome-based education two batches of 2013 and 2014 have been considered and their performances are studied and tabulated. Table 2 shows the details of the 2014 batch’s the attainment with respect to Course outcomes attained in three different tests and table 3 shows 2013 batch’s attainment with respect to Course outcomes attained in three different test.

Table 2: Impact Analysis (2014 batch)

Percentage of students scoring >70% of Marks (For Internal Assessment)	CO1	CO2	CO3
Number of Students Scored above 70% of Marks	13	26	46
Number of Students attempted the test	55	58	82
% of STUDENTS	23.6	44.82	58.5
Attainment Level			1

Table 3: Impact Analysis (2013 batch)

Percentage of students scoring >70% of Marks (For Internal Assessment)	CO1	CO2	CO3
Number of Students Scored above 70% of Marks	15	16	36
Number of Students attempted the test	48.00	48.00	69.00
% of STUDENTS	31	33	52
Attainment Level			1

Table 4: Course Outcomes

Course outcome	CO3	
	2013	2014
Number of Students Scored above 70% of Marks	36	46
Number of Students attempted the test	69	82
% of students	52	58.5
Attainment Level	1	1

The observation made from the table 4 is that with an intent of incorporating the flip class to 2014 batch has given the students the confidence to attempt the question when compared with the 2013 batch.

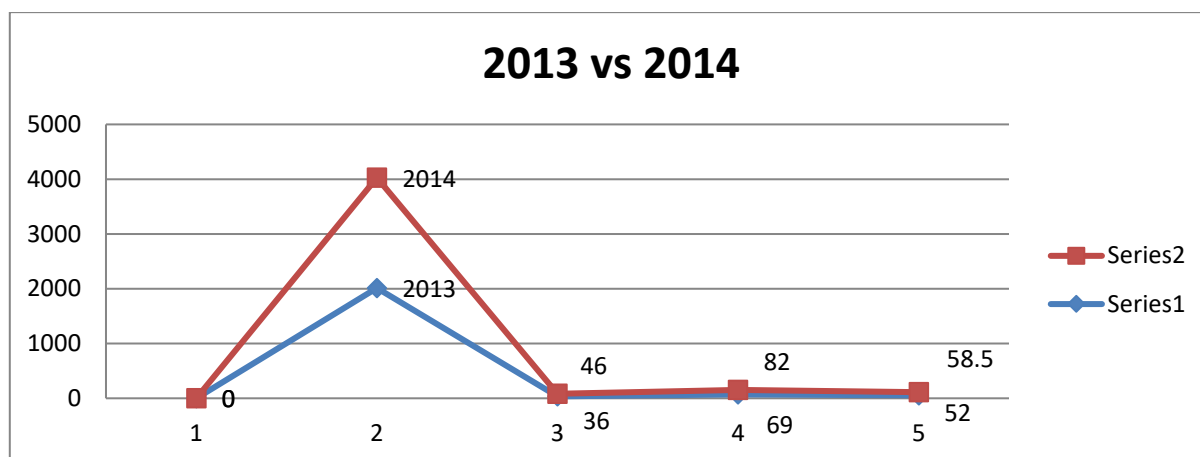


Fig. 2: Graph representing the comparison

4. CONCLUSION

In traditional mode of teaching, the attention of most students starts to decrease after ten or fifteen minutes, so flipping the class can help keep students focused and learning becomes more interesting. Flipping the classroom means that students have time to process and reflect on concepts and increase their basic knowledge. Instructors can get a sense of where the students are having difficulty with the course material and provide a platform for discussion.

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