

Initiation Of Edmodo Into Classroom At Sphoorthy Engineering College

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Abstract: Technology plays a vital role in Engineering Education as today's students are 21st century learners and they have close affinity with technology. The main motivation of this paper is to incorporate student engagement techniques such as blended learning and flipped classroom using technology and assessing the students understanding while teaching courses in Electronics & communication engineering and program. Teaching courses using Chalk and Board method are less effective because there is no way to know whether the students are listening to the class and understanding the course.

The paper describes the use of EDMODO platform to blend learning where students and teacher can have online discussion. Teacher can upload the video or document and post the assignments and see the graph of student progress. To flip the class by recording power point slides and recording desktop screen. These tools are helpful for students in understanding theory as well as practicals.

The result of students understanding is also presented in this paper from which a teacher can know the students' needs to improve in which part of the course.

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1. Introduction

A well said by Marion Ginapolis "It is not about the technology; it's about sharing knowledge and information, communicating efficiently, building learning communities and creating a culture of professionalism in schools. These are the key responsibilities of all educational leaders". Today's learners are called millennial learners and they are equipped with all technical gadgets. They like to learn with digital technology and more practically. They enjoy social interaction and autonomy. To become a teacher of these students, it's necessary to incorporate effective tools and technology in teaching [2]. Also, it's more important to assess the students to know their understanding level. This paper mainly concentrates on classroom teaching and learning methodology of a programming course in Electronics and communications stream as well as assessment using tools and technology. Teacher centric Chalk and Board method works well in explaining the concepts and the logic, but this method is not efficient to know student understanding and is not helpful in assessment. The course belongs to Electronics and Communication engineering stream and is offered in second year first semester B. Tech program. The prerequisite for the course is Mathematical background and basic electronic components concepts like diode transistor, Photo type samplers etc.. And it is a prerequisite to the Analog

communications and VLSI subjects.

The aim of the course is to make the students learn several types of Amplifiers, Types of transistors, working principles of Transistors and FET, Types of Feedback Amplifiers and Applications of Amplifiers. To teach the student how to analyze the problem and to use the required processing step. The course helps the students to solve engineering problems and implementation of projects through Simulink programming. The course also helps the students to write algorithms for different steps of VLSI.

The Course is important because most of the application and system software are developed and are being developed in Mat Lab programming language. Thorough knowledge of the language is essential for VLSI career.

The traditional learning approach of the course is, each step of the Analog Electronics will be explained through one or more examples. This is implemented by making the student solve the programs to solve Mathematical, Engineering and simple electronics problems. The course is implemented through lecture, tutorial and laboratory sessions.

Hence to change this approach, we have used active learning techniques such as blended learning and flipped classrooms along with various lecture recording and assessment tools such as presentation tube, InPods platform and EDMODO and have made the use of Google gadgets for feedback and assessment [3].

2. Technology Used For Teaching, Learning & Assessment

Different tools and techniques have been described briefly in this section:

Blended learning

Blended learning also called as hybrid learning, is learning that combines the best of online learning and face-to-face instruction to enhance learning style of the students. Learning can be blended in two ways [4]. In one way we can record our own teaching videos using various recording technology or can make the use of recorded one and share it among the students and later can have a discussion on those videos. In another way we can hold this discussion online using available platforms such as InPods and Google

Classroom. Blended learning is useful for the students who don't participate in any discussion in the class. Flipping the classroom is form of blended learning, as course content is moved out of the classroom to an online format allowing for class time to be more interactive.

Flipped Classrooms

Flipping the classroom is also called inverted teaching which is an active learning technique to engage student's actively in learning rather than through delivering lectures alone [5]. Flipping the classroom is the process of replacing traditional lectures with more learner centered approach where content delivery is moved outside of the classroom through videos, or pre-class readings.

EDMODO platform

EDMODO is a platform which helps to blend and flip the classroom teaching and learning. It allows the teacher to teach and assess the students with technology and students can also learn with technology. It allows teachers to upload video lecture, notes and assignments. This platform also allows online discussion among students and teachers on uploaded content. It also generates reports which shows the student performance where it depicts students have attempted how many correct or incorrect answers or not attempted answers [10].

3. Characteristics of 21st Century Learners:

Today's digital kids think of information and communications technology (ICT) as something akin to oxygen. It's what they breathe, and it's how they live. They use ICT to meet, play, date, learn, acknowledge each other and form their personal identities.[7]

Students born after the 1980's are known as them millennial learners, they are also known as Generation Next, Generation Y, and digital learners. These students have various personality traits such as

- Close affinity with technology
- Used to a lot of attention from the parents / family.
- Work best in relaxed environment.
- Enjoy social interaction, researching information and autonomy.

□ Short attention span

The learning needs of the millennial learner had considerably changed since the past century. They

- Prefers open, transparent and fair interaction.
- Learn best when the content is relevant and present in an educational manner.
- Learn best when content is presented in multiple modes—visual, audio, games, and contests.
- Expect closer interaction with the faculty.
- Learn well in group/collaborative activities.
- Learn best in a relaxed environment.
- Enjoy challenging research-based activities.

By considering the various characteristics of the 21st century learner, we proposed the following techniques to students to improve the student learning of the subject.

- 1) Make content relevant : Whenever possible connect content to the real world. This is possible for most topics in engineering, which are so closely linked to life.
- 2) Partner with Technology : Use different strategies/technology options whenever possible
- 3) Make yourself accessible: Encourage them to communicate with you (e-mail is an excellent tool); support the shy/weaker students to develop confidence.
- 4) Regular Assessment: Embed assessment in everyday instruction. This will ensure regular review and repetition leading to enhanced student performance and confidence.
- 5) Plan and Implement group activities: Plan activities regularly which can be conducted in pairs, small groups and large groups.
- 6) Provide constructive feedback : Positive reinforcement is said to be one of the most powerful tools for motivating students

4. Personality Traits of the Millennial Learners:

Few of the personality traits of the millennial learners to be taken into consideration are their short

attention span and their affinity to enjoy social interaction. Research suggests that the concentration level of a student keeps dropping as shown in the below figure.

This issue needs to be addressed immediately to ensure effective learning during the class. It has been

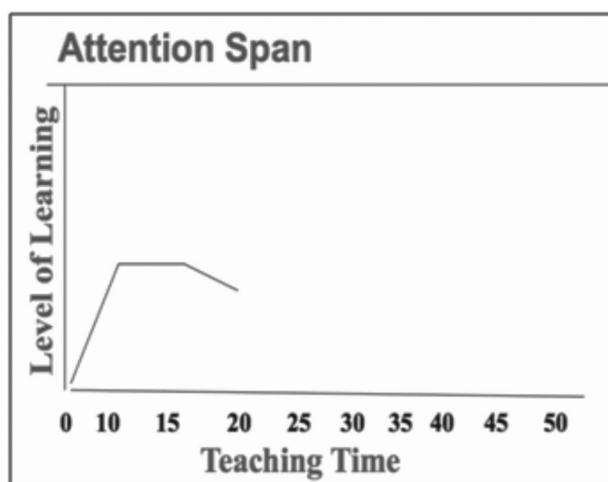


Fig. 1 Attention span of a student inside the classroom [2]

suggested that by indulging students in small active learning activities in the class improves their attention span and which ensures better learning as shown in the below figure.

5. Methodology

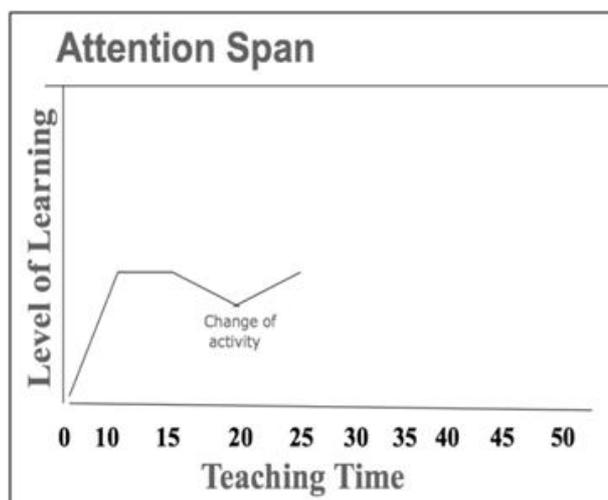


Fig. 2 Attention span of a student after activity [2]

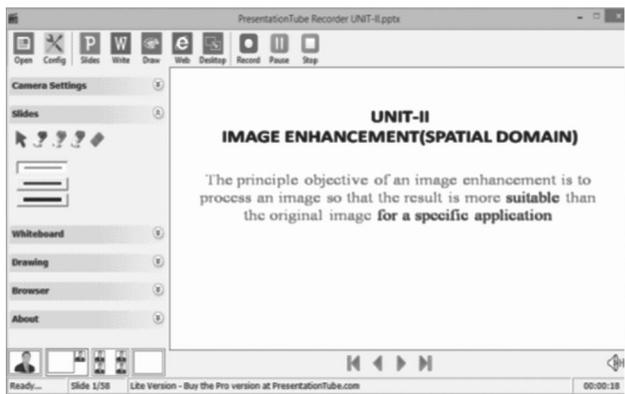
Classroom Practice

By keeping in mind the main motivation of this paper, which was “to incorporate student engagement techniques such as blended learning and flipped classroom, using technology and assessing the students while teaching programming courses in Electronics and Communication Engineering program”, we have practiced the tools such as presentation tube for recording and explaining power point slides, Google classroom for Teaching, learning and Assessment practice and InPods platform for uploading these videos and grading the assignments effectively.

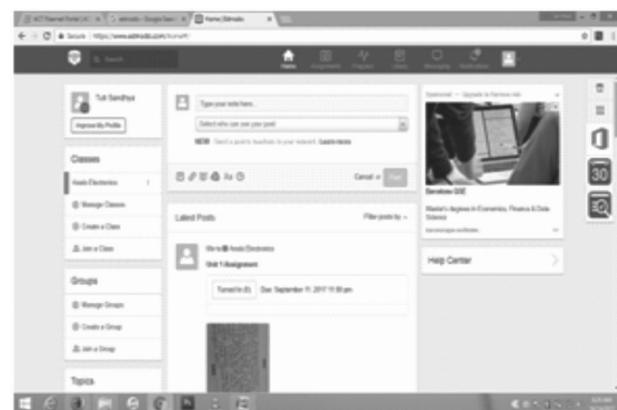
Implementation & Results

As the students are equipped with their own laptops and internet connection, they used to watch recorded videos in advance.. Video in Fig 1 shows the recording of introduction to basic concept of programming using presentation tube software:

Fig 1. Power point slides recorded using



presentation tube. The following screen shows how to get in to this App. We can access this through mail id (i.e., e-Mail ID with @gmail.com). We have used this



App for my college students which can be accessible with their e-mail ID.

If we click on class room shown in above screen, we will get the list of subjects added to class room App. Now, you can observe 1 subject named “ANALOG ELECTRONICS” in the following screen.



To flip the class recorded video (shown in Fig 4) and notes (shown in Fig 5) are uploaded using InPod's platform.



Fig 4. Video uploaded on InPod's platform



Fig 5. Notes uploaded in the form of pdf file

Blended learning is achieved by involving students in online discussion (shown in Fig 6) where they can ask or discuss question and their answers.



Fig 6. Online discussion forum

Finally, we have collected the result of teaching and learning as the part of assessment using technology. Initially we have uploaded the multiple-choice question assignment with grade points 10 for each question (shown in Fig 7) and students need to submit this assignment before due date (shown in Fig 8). Also, Fig 8 shows class average performance on the particular assignment.



Fig 7. Assignment submitted by particular student

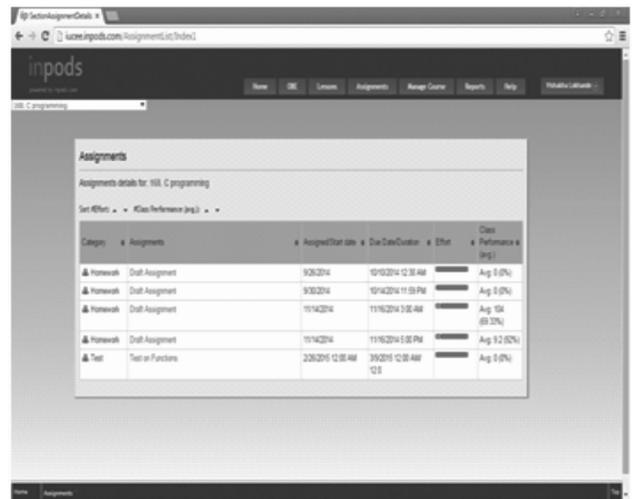


Fig 8 Assignment with due dates and class average performance

Fig 9 describes the maximum and minimum marks secured by the student.



Fig 9. Assignment Section Performance Chart



Fig 10. Assignment question wise student report

We can see question-wise student report which shows the particular student has attempted how many correct, incorrect or not attempted questions (shown in Fig 10) as well as how many students have not attempted the particular question (shown in fig 11).

The screenshot shows a web browser window displaying an 'Assignment Questionwise Student report'. The report is titled 'Draft Assignment' and lists four students: Sambhavi 1104, Soori Singh, Raksha 557, and Miransa Nimishajai. Below the student names is a table with 11 columns representing questions. The first three columns are '# Correct', '# Incorrect', and '# Not Attempted'. The remaining columns are a grid for individual student performance, labeled A, B, C, D, and E. The data in the table is as follows:

Question #	# Correct	# Incorrect	# Not Attempted	A	B	C	D	E
Question 1	3	2	0	0	0	0	0	0
Question 2	5	0	0	0	0	0	0	0
Question 3	0	5	0	5	0	0	0	0
Question 4	3	2	0	0	2	0	0	0
Question 5	3	2	0	0	0	1	1	0
Question 6	5	0	0	0	0	0	0	0
Question 7	5	0	0	0	0	0	0	0
Question 8	4	1	0	0	1	0	0	0
Question 9	3	2	0	2	0	0	0	0
Question 10	4	1	0	0	1	0	0	0
Question 11	5	0	0	0	0	0	0	0

Fig 11. Assignment question wise student report

6. Conclusion

Today, there are many tools available to teach and assess the students learning. InPods platform to Integrate Blended learning and Flipped classroom was very useful in and outside of the classroom environment from the traditional teaching because, here students felt our presence anywhere and anytime. After practicing this approach, students have exhibited what they understood through the assessment sheet and based on this understanding they are able to learn the course very effectively.

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