Effective ICT Tools for Course Management

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***Abstract*—Usage of Technology in Teaching-Learning Process (TLP) transforms teacher centered learning environment into a student centered learning environment. ICT (Information and Communication Technology) not only enhances students learning process but also helps them to improve their skills to solve real world problems. Content creation using technology is crucial in the current scenario for course management. In this paper we will discuss the effective tools available under open source for management of courses. The tools discussed were used by us for our course content creation, distribution and assessment. We will show the effectiveness of these tools through survey collected from students who accessed the tools.**

Keywords—ICT, Teaching-Learning Process (TLP); Tools; Gmail; WhatsApp; Effective Teaching; Content Creation; Content Distribution; Content Assessment; Course Management;

I. INTRODUCTION

Teaching and Learning Process can be improved by effectively using technological resources available. Using technological resources helps students to learn concepts easier and faster. Educational institutions began to take advantage of the technology by offering distance learning courses using computer networking for information. Currently there are tremendous tools both open source and commercial tools available for content creation. But discussion on open source tools for content creation will be beneficial to large teaching faculty community. In this paper we will discuss on open source tools used for our course content creation, distribution and assessment. Since Technology is always advancing, students can utilize such tools to improve themselves, while teacher can execute their lessons to be a creative lesson.

II. RELATED WORK

ICT aims at transferring the old traditional paradigm of learning to the new paradigm of learning [1]. Recently the authors of [2] have discussed the role of ICT to make Teaching-Learning effective in institutions for learning. Few open teaching-learning process tools were suggested by [3], but effective ness of these on particular teaching course was not discussed. The use of ICT tools will be a viable solution to encounter the situation of scarce resources. Hence the choice of open source tools is the better option [4]. Providing an information on accessible open source ICT tools to the teachers will be help full and it further boosts to start using ICT in their teaching process.

III. TOOLS

ICT tools will be useful for effective learning irrespective of age group. Course teaching using ICT tools will help course learners to access course anytime and from anywhere. In the following section we discuss the open source tools used by us for content creation, distribution, announcement and assessment. The overview of our approach is shown in the block diagram Fig 1. Course contents were created first, then the it was distributed to students for access through announcements. Students were assessed to find out the effectiveness of their learning process by using the course contents distributed to them. To find out the effectiveness of the tools used by us the survey was conducted from the students who accessed the tools. Twenty five students participated in this survey. The survey form created to collect statistical information from students is available for access at [5].

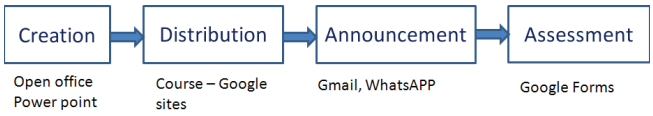

Fig. 1. Open Source tool approach for teaching and learning process

We created a website for our courses DSD using VHDL and Artificial Intelligence, using Google Sites [6]. To explore the options available we made one course website public and other private.

The front screen shot of the course sites are shown in fig 2 and 3. The course site available at [7]. Artificial Intelligence course site was made public which can be accessed by any one but the course site for the subject DSD using VHDL was made private, in which access was give to only course registered students.

We asked registered students about their experience of logging in to the course website and using it. The statistics are shown in figure 4, results show that students were comfortable in accessing course website.

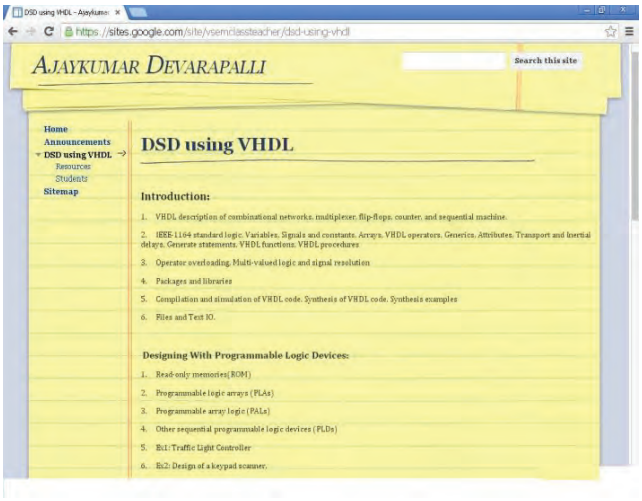

Fig. 2. Screen shot of DSD using VHDL Course Site

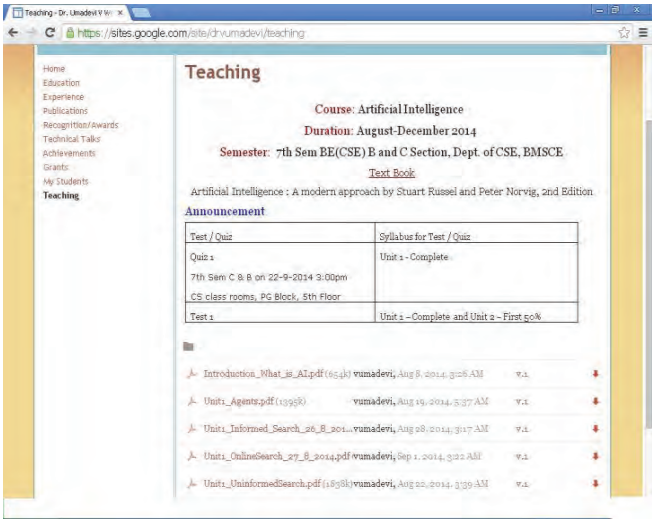

Fig. 3. Screen shot of Artificial Intelligence Course Site

A. *Content Creations*

Lecture notes were created using power point. Audio narrations were added to the slides. The power point slides along audio narrations were converted to video using CamStudio [8]. Survey was collected from students to find out the effectiveness of lecture videos, the results are shown in figure 5. For already studied concepts by the students in previous semesters, were distributed to listen and come prepared for the class. Already studied concepts were pre-requisites for the discussion on the topic for next coming class. So when the student listens and comes to class, teacher can revise the concepts and move forward in explaining the advanced concept.

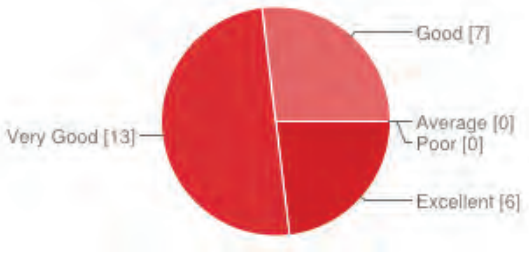

Fig. 4. Statistics for experience in using course website

B. *Content Distribution*

Providing the facility of accessing the course contents from any where, at anytime and from any device to students is important. The lecture materials were prepared and uploaded to our course sites. The students round the clock can download and read materials. Survey was collected from students to find out the experience in using the lecture material through our course site, the results are shown in figure 6.

The statistics of using lecture materials for knowledge up gradation by the students are shown in figure 7.

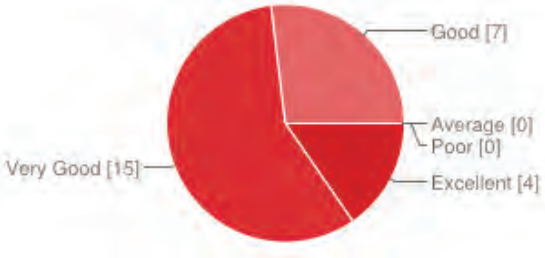

Fig. 5. Statistics for Effectiveness of Using Video Lectures

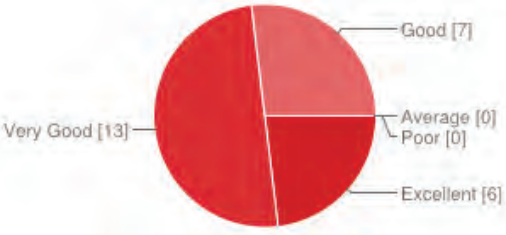

Fig. 6. Statistics for experience in using course contents

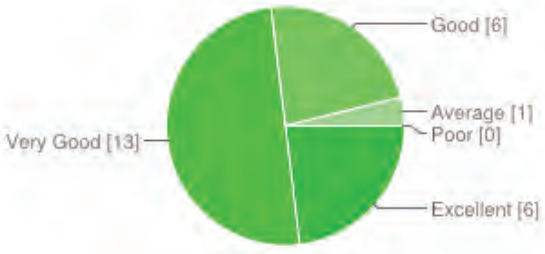

Fig. 7. Statistics of knowledge up-gradation by using course contents

C. *Announcements*

Announcements are the most important part of the course as

1) It gives students an immediate updates of recent activities of the course.

2) It helps students to be aware of their crucial activities of the course work like assignment and project deadlines.

Now a days students are more used to mobile technologies for communication. As most of the smart phones available in the market comes with communications Apps such as WhatsApp, which is popular among the students. Hence we made use of WhatsApp as communication ICT tool along with Gmail for keeping with updates on the class activities to the students. Screen shot of the WhatsApp group of the course DSD using VHDL is shown in figure 8.

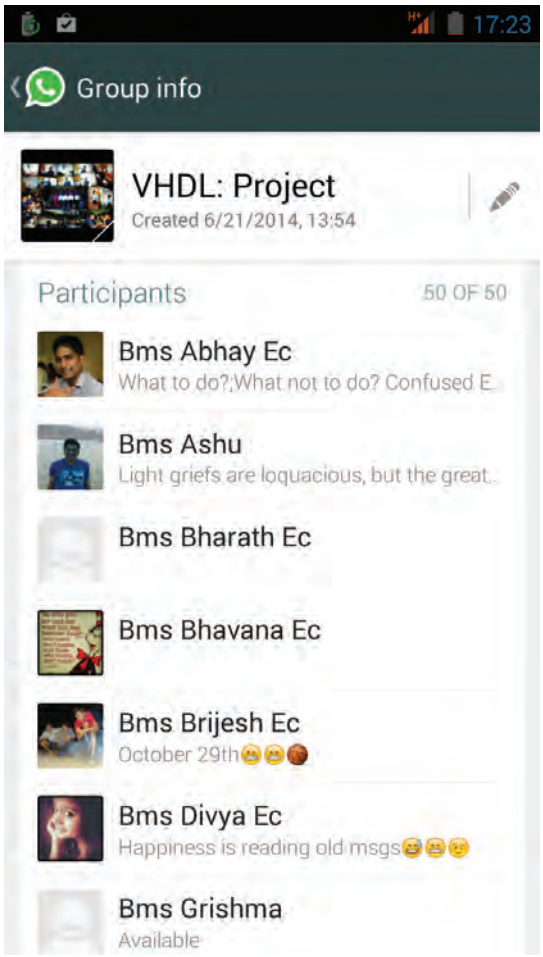

Fig. 8. Screen shot of the course WhatsApp group

Survey was collected from students to find out the effectiveness of communication tools, the results are shown in figure 9. We have used GoogleScripts for sending automatic reply for assignment submission and their assignment status.

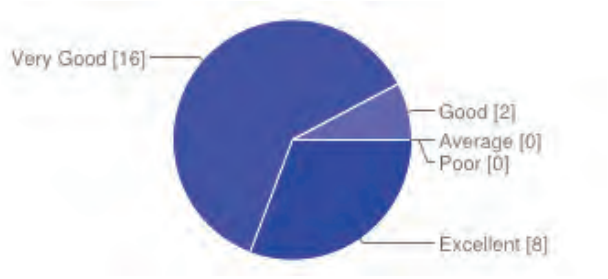

Fig. 9. Statistics for Effectiveness of Using Communication Tools

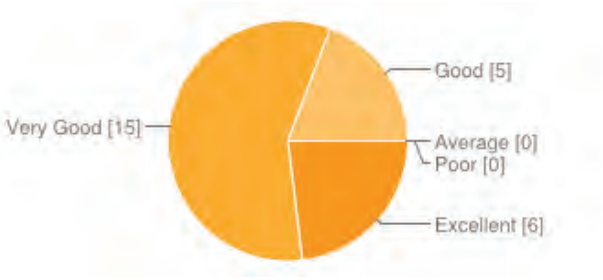

Fig. 10. Statistics for Effectiveness of answering MCQs through Online

D. *Assessment*

Assessment is important to find out whether students are Learning what is taught to them. It is a systematic review to increase students Learning development. Significance of assessments are

1) They provide qualitative information that helps teacher how to improve the course further through change in curriculum, teaching methodologies, course material etc.

2) They provide the comparative data to find out how well the Learning outcomes are being achieved.

3) Assessment leads to a continuous cycle of improved student Learning.

We used **Google Forms** for creation of Multiple Choice Questions (MCQs). The created forms were distributed to students to answer the questions. Survey was collected from students to find out the effectiveness of answering MCQs through Google forms, the results are shown in figure 10. The assignments from students were received through our course **Google Drive**.

IV. CONCLUSION

Teachers should be prepared to face challenges of 21st century to incorporate the new age education. Information of technological tools to the teachers for course management will help them to face the new demands in their profession. In this paper we have discussed the open source tools which can be used for content creation, distribution and assessment. The tools discussed were used by us and effectiveness of this tools were assessed through the survey from students of the course. The survey results showed that the tools were found to be very

effective. In future we look forward to include few more open source ICT tools in our course management.

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