Benefits of Learning Management System (LMS) in Indian Education

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Abstract-- In today's scenario, academic institutions are striving to find the right combination of students, faculties, protocols and systems to manage their learning programs. Learning management systems (LMS) are becoming an interface for handling course registration, managing course contents, assessing students through assignments, conducting quizzes and exams, for smooth functioning of institute administration, evaluation and report generation. In general, LMS/E-Learning serves as a means for acquiring the knowledge using the help of technologies e.g. Internet and Interactive based over the traditional ways; thereby enables learning over a wide spectrum with higher efficiency. Technical Education Institutions (TEI) in India is dependent on classroom teaching for syllabus coverage. Faculties put in lot of effort to manage, store and reuse the course material for repeating the course in next semester. This system shall act as a central space for student-teacher interaction outside classroom and also cater to challenges faced by student, faculty and management in day to day events of college. In the LMS process, faculties can upload course contents like lecture notes, e-books, assignment, quizzes and mid-semester while the student on the other hand can access the same using their login details. Here we analyze various features of the LMS and how they help students to gain academic excellence in comparison to traditional ways. Since only few survey reports are available in the literature that discuss the benefits of LMS in Indian education system, we sought to take help of the surveys conducted overseas in form of literature reports to have a retrospective view of benefits gained by the student due to LMS. LMS also serve as the most significant enterprise system for teaching and learning.

Keywords-- Learning Management System (LMS), Technical Education Institutions (TEI)

I. INTRODUCTION

In older days, students learning were always associated with schools, colleges and universities. Till few years back, it was perceived that teaching and learning is over once you graduate out of a university. Continuous learning and teaching for the whole life was always associated with the teachers. But in the present day world, the knowledge is rapidly evolving in a manner that for one to remain productive, he needs to learn continuously irrespective of her profession [1]. Continuous learning is essential due to frequent technology change [1]. Educators in the 21st century realize that students entering the classroom today are much different from those who have come before. Today's students are demanding a change in the classroom because of their ability to gather information faster than any other generation [2] given the resources available today for use in the classroom, such as overhead projector, LCD projector and so on. The hardest job is to integrate all available resources into a defined tool. Learning management system is such a tool to address real life challenges of students, faculties and management. LMS is an enhanced form of classroom teaching. Now a day's education has become more global and students are looking for learning with the help of internet like submitting assignments, reading lecture notes, giving online exam etc. E –learning became more popular as students frequently use internet to access social media websites like Face book, Orkut, Google+ [3]. Today we try to encourage all children to reach for their fullest potential [4]. Teachers are better qualified. One room classroom has become an outdated way of learning. The computer, libraries and ready access to information have all contributed to the ability to learn outside of the conventional classroom teaching.

Improving Technology has also made possible to provide frameworks which can help in conventional education system. These frameworks are commonly known as learning management systems (LMS). LMS is a server side software system built for providing a framework to enable the above function over internet. E-learning is an approach to facilitate and enhance learning through computer and communication technology. Learning management system basically uses three types of networks internet, university network or corporate computer network [6]. LMS is emerging as a potential delivery medium for education and training. This is evident from the increasing number of educational institutions and organizations adopting e- learning. In India, there has been an upsurge in the number of students going for management education. But, before management

institutes embark on this e- learning journey, it is important to assess student readiness for this medium [5]. A good LMS provides lot of functionalities which can be used to gain in multiple aspects: classroom tracking using web-based learning [3], management reports to track real time student performance, online collaboration tools, including forums, chat-rooms, and e-mail tutor [3], flexible structure that allows cross-culture knowledge transfer, user –friendly interface for novice etc.

In this paper we make an attempt to understand the overall benefits of having an LMS in Indian education system over traditional ways of learning. We begin with a brief overview of the MLS followed by introducing the major functional popularly used by the students at overseas to have a layman's view of the LMS usage. Given that a numerous reports are available, we also tried to learn from these experiences the exact benefits from student's perspective which is the central theme of the paper. Authors also give details to where the student, faculties and the management benefits with examples.

II. OVERVIEW OF LMS

Learning Management System (LMS) works as central repositories to address all type of educational needs. The major areas addressed by LMS deployment are Curriculum Planning, Instant Evaluation, Learner Engagement and Content Management.

Fig1. LMS Features

Curriculum Planning: The word curriculum planning means what courses of study to teach and within a specified course what topic to teach in a particular semester/year in a college system [7]. Generally, faculties of Technical Educational Institutions (TEI) are involved in curriculum planning and are done by making a course plan and lecture schedule before starting the course work. Course plan is detailed structure of course clearly stating chapter description and reading resource (page number, website, handouts etc.) and lecture schedule states total number of lecture hours required for completion of course and amount of course coverage in a particular class.

Instant Evaluation: All LMS supports instant evaluation for multiple choice questions asked during test/exam. As soon as student click submit button, all multiple choice questions are evaluated simultaneously and grading is displayed on screen. This tool is helpful in removing students result anxiety. As result is shown without time delay, student gets more time for their improvement and using LMS we can increase frequency of conducting test/exam in a semester.

Content Management: Course content management is a serious issue for faculties as well as students. Many faculties repeat same course in consequent semester/year. so, there is need for teaching resource management and for this LMS provides unique login ID to create , manage and store contents for future use. Similarly, for students during placement they need revision of class notes. As, they are generally in last semester/year of study, managing notes of first year seems impossible. Here also LMS, provides a tool "private files" to store all previous notes.

Learner engagement: Learner engagement means engaging today's students for academic success [8]. Students learn more in a group as they imitate behavior of other students from different cultural backgrounds. This also helps in building strong student relationship like getting to know each other, building strong teams,

effective communication, and so on. LMS support several tools for collaborative learning like chats, messages, forum, wiki, etc. where students learn easily topics which they found difficult in offline mode of learning.

III. LMS USABILITY & ANALYSIS

LMS interface is a user–friendly window. Faculties, students and management can login in LMS using their login and password details as shown in Fig2. Login access is given to only to authenticate user, preferably persons belonging to same organization. After user enters login details, another window opens up as shown in figure 3.This figure depicts overall course plan during a semester like number of lectures in a week, date schedule, list of enrolled students, study material available for that course.

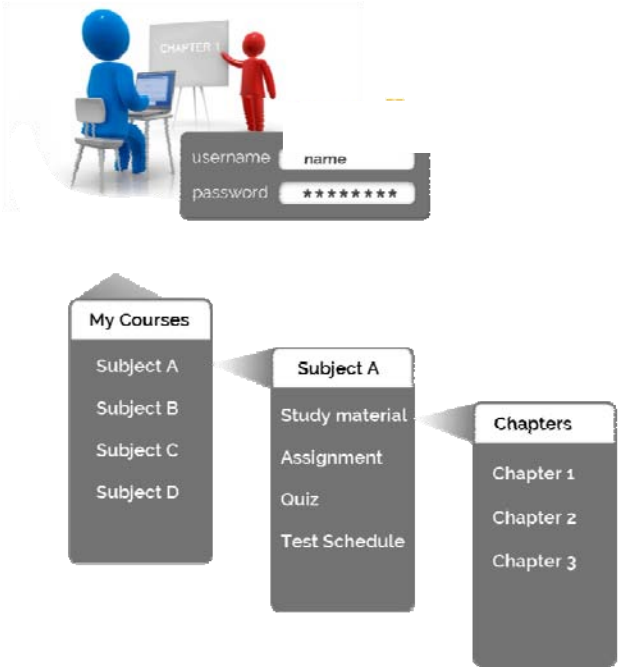


Fig2. LMS Login Interface

The common features of any education learning management system are listed below:

1. **Content management**: Course material like lecture notes soft copies may be included as a part of the suite and uploaded in parallel with classroom teaching.
2. **Assessment and testing**: All assignments shall be distributed and submitted online using LMS and quizzes/test shall be instantly graded.
3. **Curriculum Planning**: LMS shall be used for designing of course plan and lecture schedule.
4. **Reports generation**: LMS provide nice reporting tools with options to customize student's reports.
5. **Communication and collaboration**: Some learning management systems provides chat, forum as communication tools and wiki, blog, glossary as collaborative tools.
6. **Classroom and college announcements**: All classroom and college news in form of updates are visible in announcements in LMS.

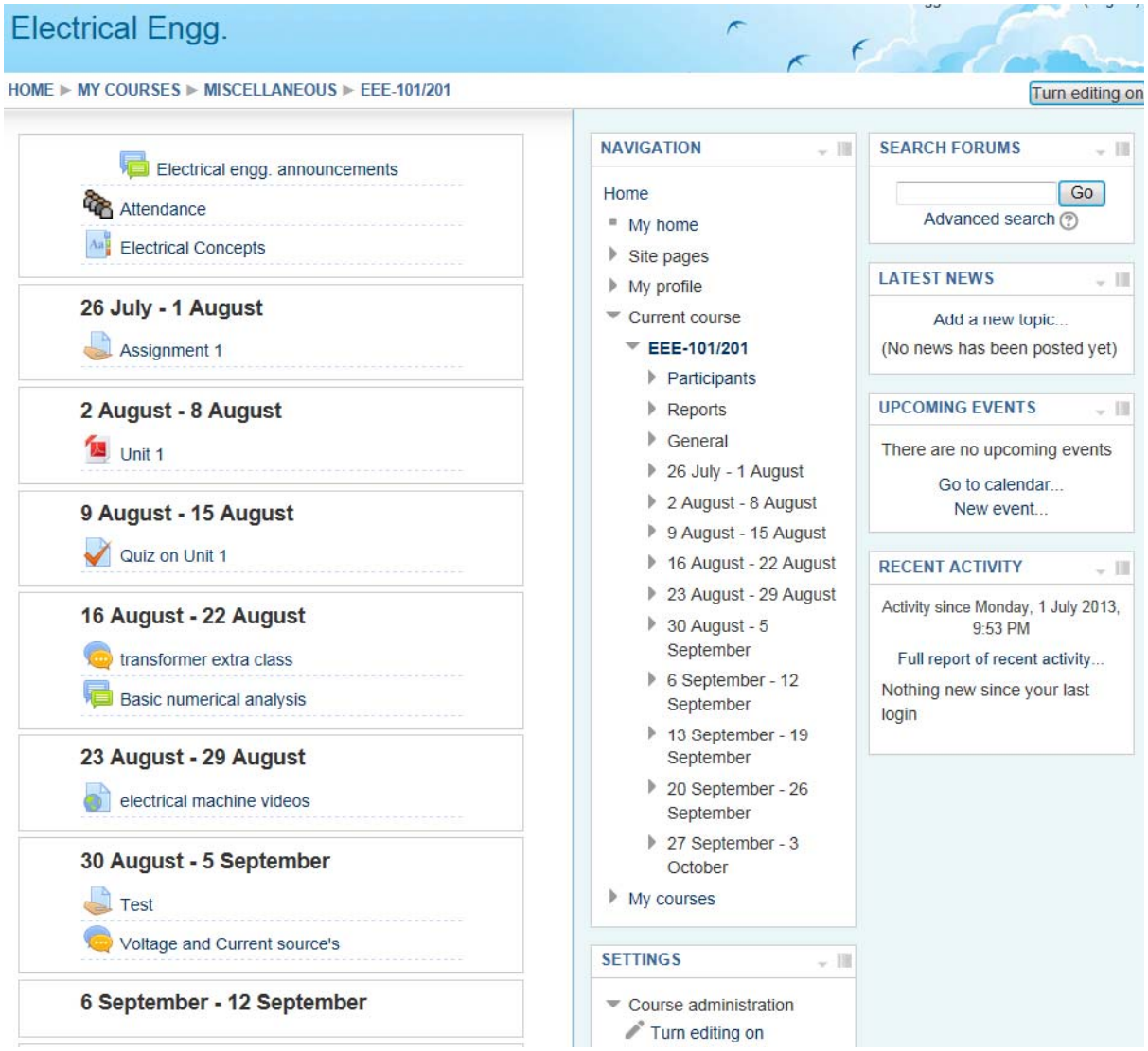


Fig3. LMS snapshot of Electrical Engineering Course management system from 26 July till 5 September. Weekly schedule of assignment, quizzes, tutorial class, extra class are depicted along with latest news, upcoming events and recent activity.

Now, Faculty organizes online quiz and students appears for the same quiz as shown in Fig4. We see that, online quiz is opened by clicking in “Attempt Quiz Now”, another testing window opens up and list of questions are displayed. Most of the quizzes are Multiple choice questions type as these questions are instantly graded and result is displayed as soon as students submits quiz paper online. Online checking of quizzes reduces student’s anxiety and fear of bad grades. This serves as a medium for student improvement in another quiz.

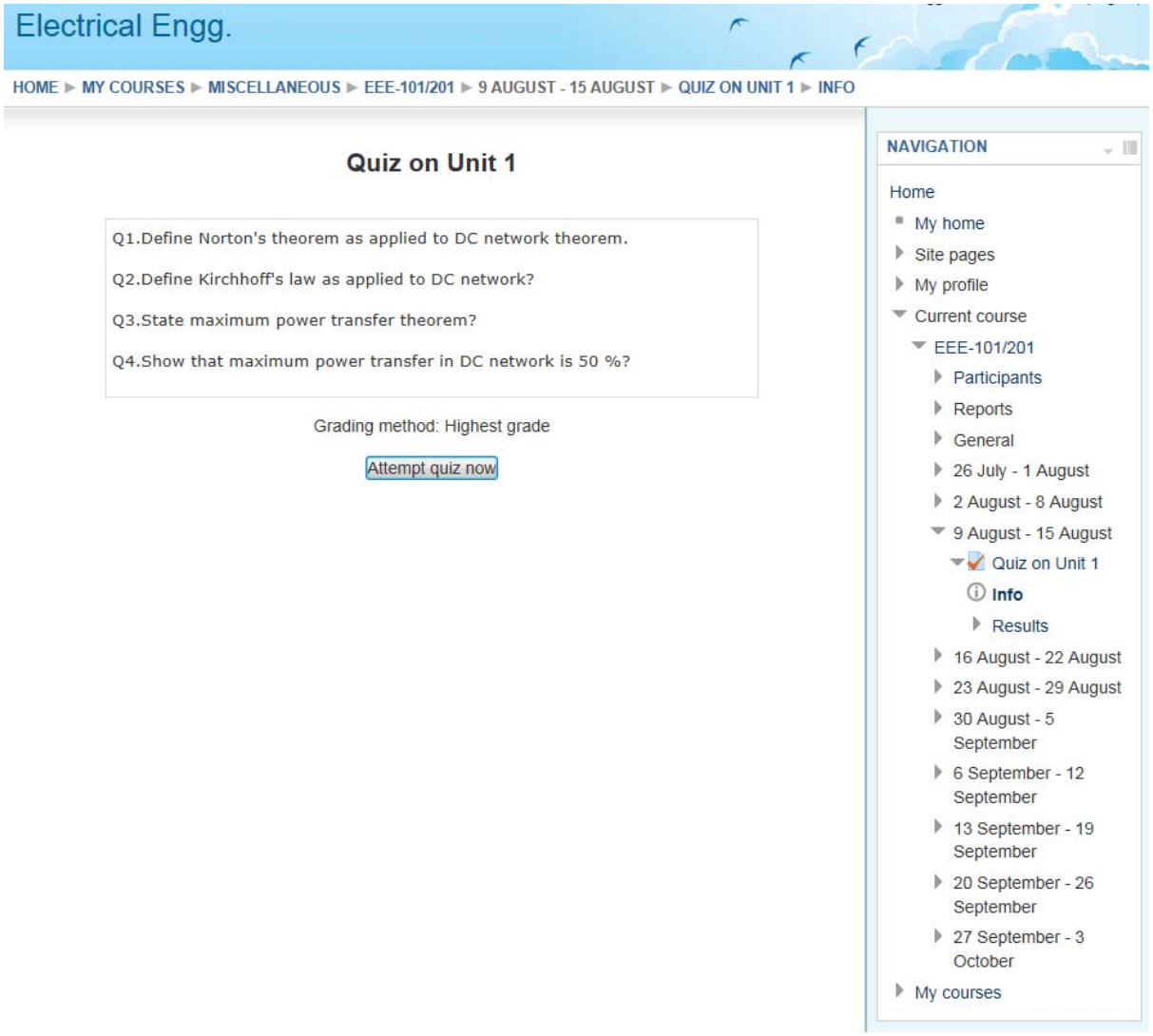


Fig4. Online Quiz in LMS given to students by faculties after covering Unit-1 i.e. (DC Network Theorems).The quiz consists of four questions in total. Students access quiz by clicking on “Attempt quiz now”. Grading system depends upon number of questions attempted for e.g. if one question is attempted, marking out of 25% marks are awarded , when all questions are attempted, marking out of 100 % marks are awarded and so on.

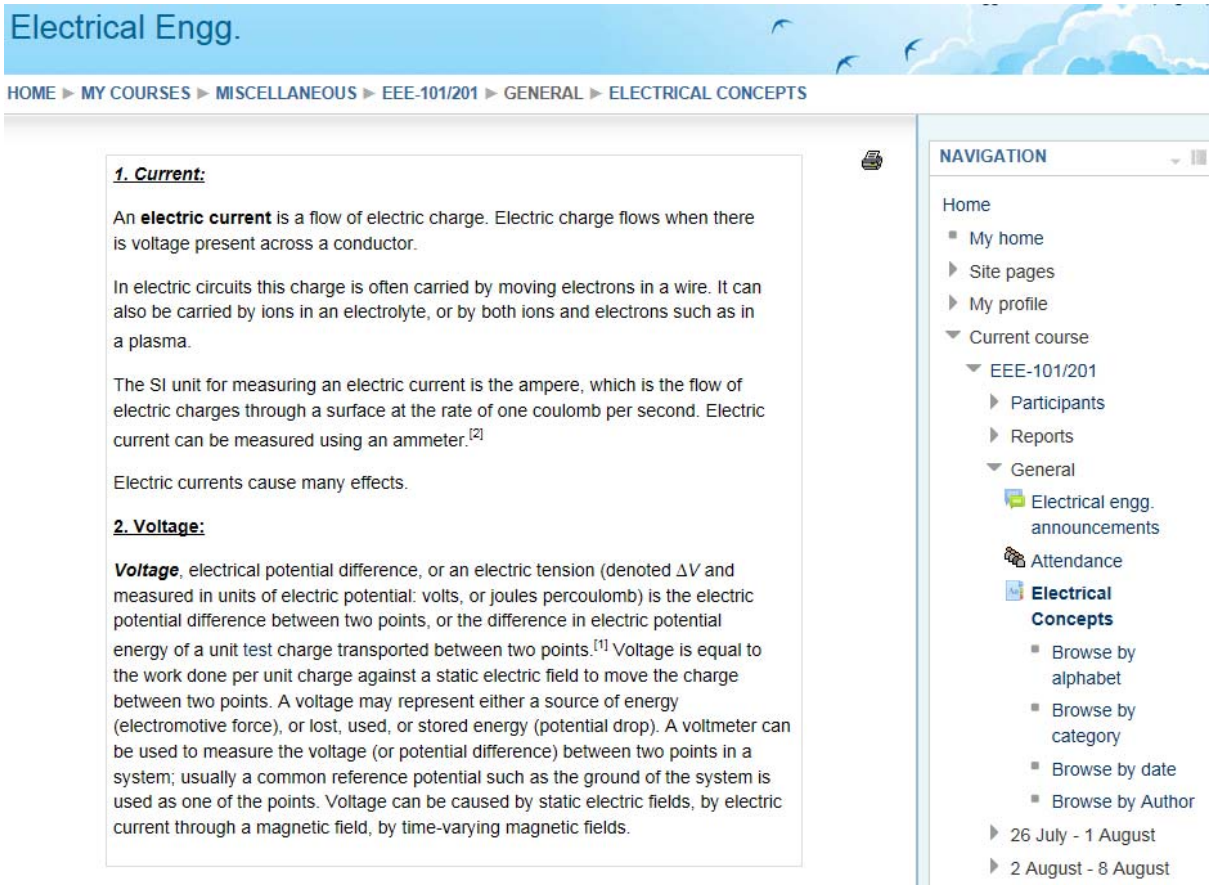


Fig5. LMS provides Glossary tool for subject support. Online Glossary is referred for understanding and revising fundamental concepts.

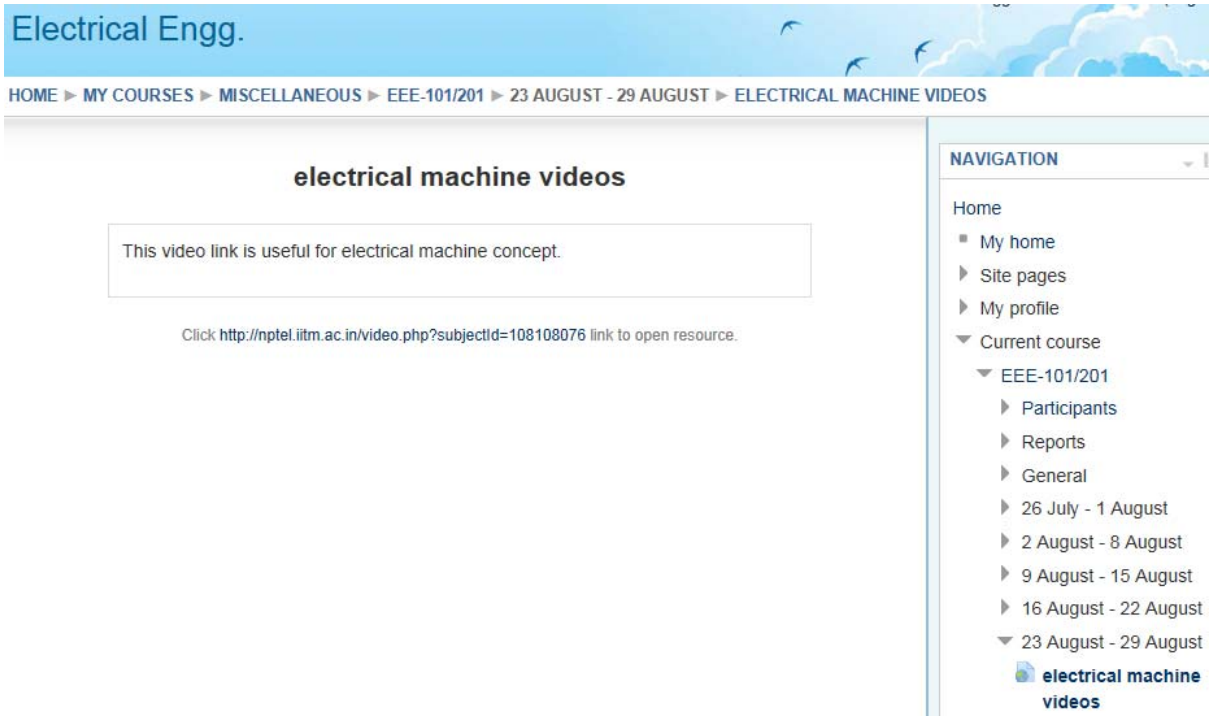
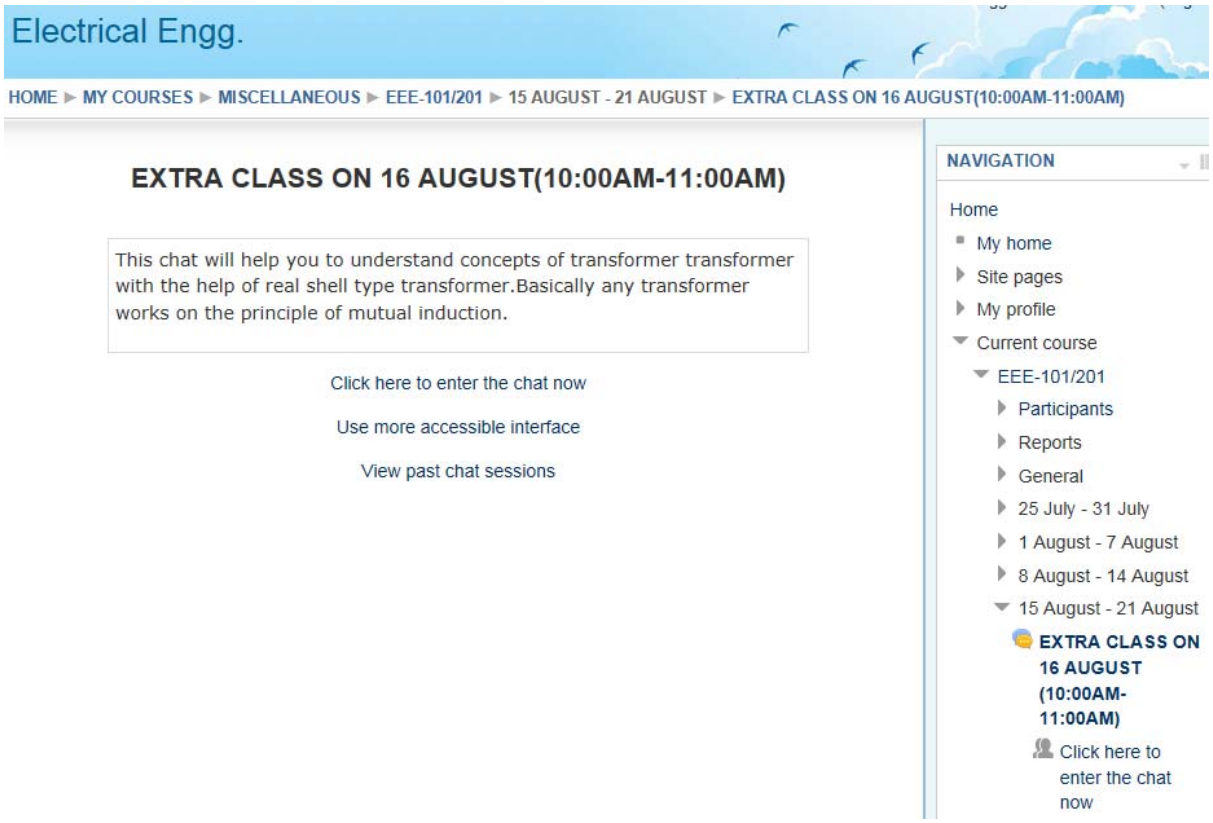


Fig6. Link to Electrical videos from IIT Professor's is accessed by clicking on a hyperlink e.g. http://nptel.iitm.ac.in?subjectid=108108076, which is provided as a tool in LMS.

a)



b)

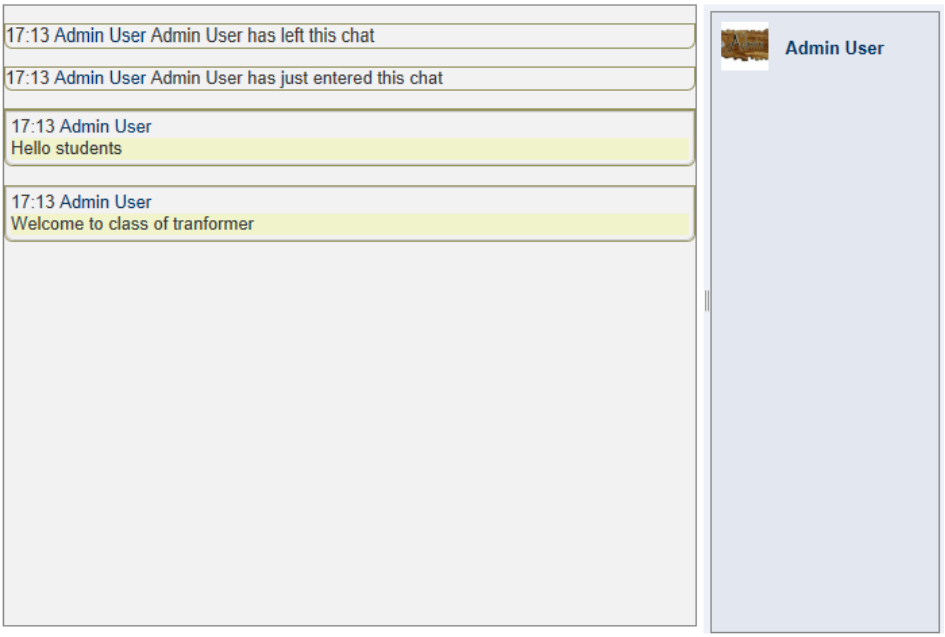


Fig7. (a) Extra classes can be complemented with Chats in LMS, user is required to click “Enter the chat now” and then another window is opened for accessing chats. This tool is helpful when syllabus is uncovered and time to cover is less. It is helpful for both faculties and students as extra class can be managed with ease and its purpose also is fulfilled. (b) Another Window opens for accessing chats and user can now chat with other users/faculties. This tool helps to arrange extra classes in form of virtual classroom even on Sundays. Management also supports this practice as overall cost of arranging extra class is saved.

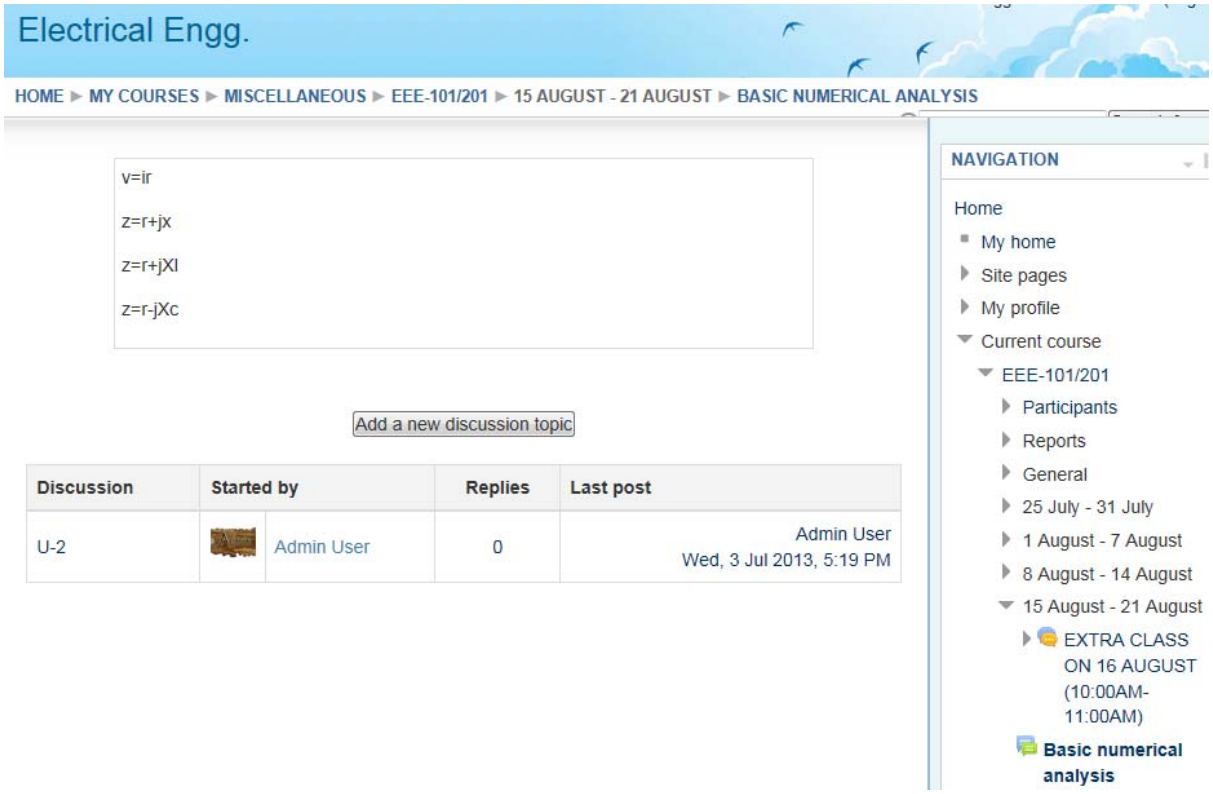


Fig8. Forum tool in LMS is used for complementing tutorial classes. In forum, each and every student is asked to participate for getting their queries resolved. Generally, offline tutorial classes are arranged in institutions where queries of every student are not resolved due to time constraint. Here, students shall post there query in form of numerical, theory questions or multiple choice questions and faculty will respond back to it.

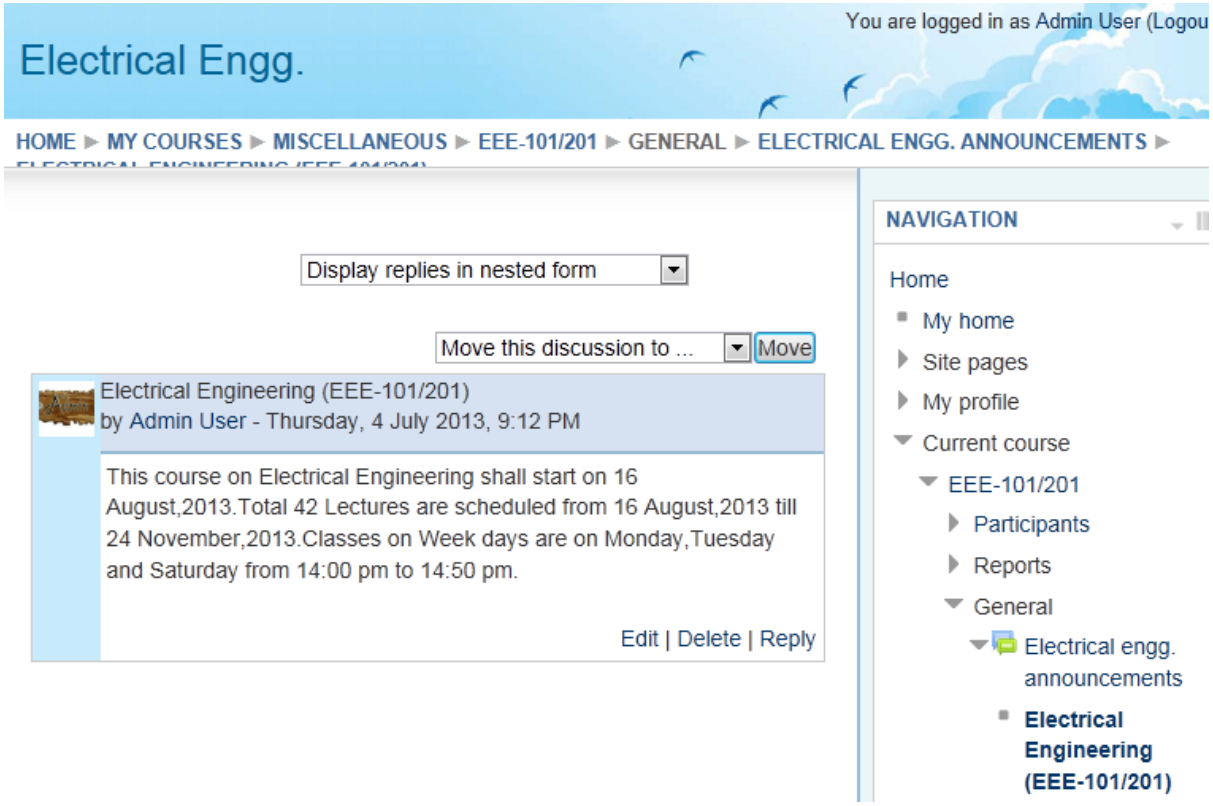


Fig9. General Announcement is made to all students registered in Electrical Engineering courses. This announcement/news is viewed when student login on LMS and access registered courses.

Learning management system is very important for all educational institutes to systematically monitor all educational activities along with development of their students, faculties and proper management control over

developing state of art institution. LMS software automates the administration department of any institution like registering students, tracking courses in a particular semester or branch, student's record maintenance, charting progress of student's, delivering e-learning to students. The best LMS makes working smooth and easy going for faculties, students and management (refer to the Table1 for details).

Table1. Benefits gained by the faculty, students and the management are listed here for various course events in 2 categories; one that involves manual working and the other involving LMS software. Comparisons are shown respectively in the following part, a) Faculty, b) Student and c) Management. We list a major benefit which helps faculties to improve their work style in colleges, for students to improve their performance and score better marks and the management people to improve their college performance by improving semester result and reducing office politics and resolving inter-department conflicts inside colleges.

a) Benefits to Faculty:

Course events	Manual Working	LMS Working
Answer Copy evaluation	Generally takes 72 Hours (3days)	Almost Instant
Tutorial Class	Enquire for Room allocation	Discuss it using forum online
Extra Class	Arrange separately after course completion	Arrange using Online chat
Assignment submission	Students copy it from peers in offline scenario	Copying assignment is impossible in online scenario as ELS has plagiarism checker.
Conducting Quiz/ Mid-semester exam	Write and forward to academic cell for printing, may lead to exam paper leak	Type paper on ELS, exam paper leak can be avoided as only faculty knows paper before giving to students.
Structured Course	Syllabus without timeline sometimes lead to less time for later units in a course	Syllabus with timeline and any changes made are visible to students as well.
Re-floating course	Plan course structure, material etc. again.	Use previous course structure, material etc.

b) Benefits to Students:

Course events	Manual Working	LMS Working
Syllabus	Visit library and take photocopy	See and download from my course tool in LMS
Lecture notes	Pen-down class notes or take photocopy	See it on LMS or access it on smartphone.
Assignment sheet	Distributed in class or take photocopy afterwards	See it on your LMS login
Lab manual	Write all experiments and due to less time copy observation from peers.	Experiments already uploaded, students take observation on their own and understand experiment properly.
Answering questions in exam	Write down each and every answer	Type it (Becoming easier due to Facebook chats and SMS)
Exam result anxiety	Exists	Does not exists as for multiple choice questions, we have instant grading
Absence from class	Phone a friend about class	Check on LMS for E-notes
Previous Exam papers	Photocopy it from library	Available on LMS

c) Benefits to Management:

Course events	Manual Working	LMS Working
Conducting Exams	Ask exam cell to prepare student's sitting schedule/ Answer sheets	No need to arrange student's sitting schedule as cheating is impossible due to plagiarism check
Semester Result/Education Quality	At par with other colleges	Improves as student get more preparation time for next quiz due to almost instant grading
Students Stress	Increasing day by day due to competition between colleges	Reduced in online environment
College ranking in GBTU	At par with other colleges	Ranking improves as semester result goes up.
Long term Cost	Expensive due to repetition of work and resources	Cheaper as course structure can be saved and used later.
Placement Activities	Conduct separate classes for online test preparation	Students become habitual of online test using LMS
More extra work can be given to faculties	More course load , less extra work	Less course load due to LMS, more extra work can be given to faculties/staff/students

IV. DISCUSSIONS

Traditional way of teaching involves writing on the blackboard, drawing pictures that may not be as good as the one in textbooks as way of communicating the concepts. Nowadays, our way of gathering information is getting changed; we typical use search engines e.g. Google, yahoo etc. to get the answers or if we are on a journey we make use of mobile phones. Nearly everyone possess some sort of communicating machine through which he/she can gather information from internet or through his colleagues and therefore people are getting used to it. Sometime it seems that the students are no more interested in traditional way of education system. Providing education with a blend of 21th century technology is necessary to keep the interest of students and engage them into the continual learning process [11].

There are very few reports relating to the usage of LMS and their impact on the education system and learning effectiveness of the students in India; and here are the reports as follows.

Arulchelvan [9], has conducted a survey at a rural school near Chennai, which implements the electronic learning management system. The study involved a survey, comparative analysis and an interview to do a performance analysis of E-LMS. Sample sizes were 120; comprised of 50 students taken from 6^{th}, 7^{th} and 8^{th} standard, 50 parents and 20 teachers. With the aid of LMS, the author was able to pinpoint the subjects that were very interesting to the student and those that are difficult. Students were able to cope very well with Physics, Social Science and Mathematics in the order while they find Chemistry and Biology as the difficult subject. Before the LMS implementation, during Jun-Oct, there used to be more number of absentees but as the system started the numbers began to diminish. The survey has found out the LMS implementation has reduce the absenteeism to nearly $1/4^{th}$of the initial numbers in Nov-Mar session. Further, the reduced absenteeism has improved their academic performance significantly.

A pilot study was carried out by Arun et al [10] to perform need analysis of learning management system for post graduate students (sample size = 38). The survey also revealed key details relating to study patterns and the challenges faced. 18% of the new comers eventually become aware of the course and career choices that would be awaiting for them at the completion of program by their seniors, however, 82% of them find that there is a great need for an orientation program that provides such useful information. Most of the students become vigilant, 1week prior to their exams. Time spent per day nearly follows a linear curve during internal examinations but in the case of final exam, nearly most of thestudents spend more than 5 hours. Students seem to learn/study more during discussion, followed by during internal examinations, seminar and final exams in order of their preference. 71% have unique taste for a particular subject irrespective of the faculty and his teachings. However this is not always true since 29% have opted for a specific subject because the faculty is good at teaching. There are some subjects, which they never liked just because the faculty didn't make it an interesting or they were unable to understand the subject. Lack of an alternative source or additional support

were also been implicated. Topics would be more interesting if have industrial applications were also discussed. It is found that the student who were to understand the topics develop an interest for a subject over a period of time. While those who dislike the subjects clearly indicated that can't grasp the topics so easily. Further the knowhow on the topics relies with the concerned instructor or in other words they had to approach the instructor to clarify their doubts but find it uncomfortable. About 82% of the students were excited to know learning management systems which could enable them to monitor their performance and help them sort out the problems being faced with the topics.

It is difficult to envisage the benefits online learning in Indian scenario based only on the few reports. However the current literature data favors the idea that LMS can transform the learning strategies and enhance quality of education. LMS has been widely used elsewhere and a number of literature data is available, where form we can have a retrospective view of how the LMS performs well in comparison to traditional ways. Here, we will discuss some examples in details.

Students who enter the college just after admissions are generally novice and have little technical skills. Among the pool of students, one could find certain portions to be well versed in computer aspects however this cannot be generalized; then there are intermediate users and some who have negligible knowledge. However, learning management systems will enable them to overcome this barrier and enable them to gain more technical skills as they have to explore various features [16]. Though this can be seen as the primary benefits to the students as they become technically skilled and well equipped for the jobs, it have been observed via the implementation they much better in exams too in comparison to traditional ways of learning.

Introduction of web based systems for undergraduate courses provided a fair learning platform for the students to learn outside the class and facilitate discussions among themselves [17]. There is a positive effect of such systems esp. learning abilities, problem solving skills, comprehensive abilities etc. They enable repeated practice of the concepts which are not possible in class rooms and take quizzes at their convenience so the student themselves won't feel much pressure. When students enrolled in Theories of Personality were assessed between 2 groups wherein one group took quizzes on Mallard (a web based program) against the paper-and-pencil based quizzes, they showed satisfactory results indicating that Mallard students were able gain more benefits [18]. Asynchronous learning e.g. quizzes at their leisure time, take-home assignments etc. allows the students to go through their materials critically and encourage discussions so that gain more understanding of the concepts.

Courseware on Physics designed over the Moodle as the LMS platform showed that not only they benefit the undergraduate students but also teachers to share the knowledge over the virtual space via chats, forums etc [13]. Animations of the physics laws by means of scripts, Java applets and flash based have been very useful to understand the physical problems. Sometimes it is necessary that student gains high level of skills e.g. in clinical research where they need to be accurate at such experimental works. Innovative use of a learning management system e.g. Blackboard has shown the student can achieve high level of skills via computers based assessment. They not only reduce the time but also reduce the burden of the faculty or the demonstrator [14].

Arthur et al. suggests seven good teaching and learning practices for undergraduate education [19]. Increasing student-faculty interaction is necessary as it facilitates the student to be involved intellectually and make their career plans where the faculty would gear them both at times of success and difficulties. Secondly the team effort plays an important role where sense of collaboration and social comes into picture then merely being a competitive scenario. The author also encourages the student toward active learning beyond the classroom e.g. internships, doing an independent study etc. Of course timely assessment and prompt feedback is necessary as it will help student with poor academic records and given the special classes would enable them to prepare well for the upcoming exams. Time management is another aspect where one should effectively utilize their time efficiently. Author also encourages student to expect more, presuming that higher expectations drive the students to perform well and as a booster to make extra efforts. It is interesting to note that student typically follows various modes of learning and chooses to follow his own way as it is easier. Considering a pool of students, we would find people with varied interests and talents; such diversity and be encouraged to adopt such diverse ways of learning.

Besides being very advantageous to faculties and student, the management too finds it necessary for their unique education proposition and enables them to achieve higher education standards in the country. Universities find it necessary to have a web presence as it would promote content development related activities [12]. There is a necessity to gain experiences in handling distance education [15]. College management people like Chairman, Executive Director, and Director General, Dean, and Administration officer can use LMS for betterment of their institutes. They can easily take faculty feedback online using LMS and feedback report be taken out for further analysis and judgment. Moreover, colleges can adopt LMS methodology for branding purposes during admission process and company calling process in placement time. LMS will serve as USP for colleges because most of the placement companies now days take online test for campus selection and these

tests are taken on LMS. So, if college has prior experience on LMS, campus process will be smooth and more companies will be attracted for placement drive [20].

V. CONCLUSION

In this paper we see that Learning Management System (LMS) works as lever for broader improvement of teaching and learning. Psychology of student works as a major parameter for student's growth. The knowledge of Student's psychology helps the teacher to get answers to questions like what are the factors that affect students learning. Why do students forget? How to improve student performance? [21] The awareness of psychology has helped the teacher in editing teaching approach in learning process. LMS supports specific tools for understanding student's psychology easily like wiki tool in LMS helps to form a group assignment in class consisting of each and every student of class in group. Each student modifies the assignment and finally contribution of specific student is known easily. Hence, faculty can set appropriate strategy after knowing student's psychology to teach specific student [11]. The purpose of this paper is to examine the awareness levels, degree of familiarity and readiness to accept e- learning environment. The benefits of LMS are: Contents can be repeated again and again until learner understands it properly, Multimedia learning methods be used depending upon learner receptivity, E-learning is culture independent; Learning is flexible in terms of timings and completion of syllabus, Individual problem solving is possible. The obstruction for LMS deployment are: Availability of infrastructure like internet, computer is major challenge, Power source is necessary during e-learning study, Handwriting becomes bad due to overuse of keyboard, Student tardiness is often seen if class contents are available online, Overuse of computer can damage student's eye. This study should be considered as eye opener, as it shows benefits of LMS online working as compared to offline working**.**

ACKNOWLEDGMENT

None

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