Innovations in Teaching and learning

- Apart from traditional classroom teaching practices, the teachers are encouraged to use ICT-enabled teaching pedagogy. The teacher uses the interactive whiteboard in ways that engage students. Smart Class rooms with ICT facilities like multi-media projectors, interactive smart board to capture the running notes are used for effective teaching.

- Some general categories of innovative activities identified in the department.
    - Move from projects to Project Based Learning.
    - Teach concepts, not facts.
    - Distinguish concepts from critical information.
    - Make skills as important as knowledge
    - Form teams, not groups. .
    - Use thinking tools.
    - Use creativity tools
    - Reward based activity.
    - Make reflection part of the lesson.
    - Be innovative yourself.
        - Role play
        - Quiz
        - Focused group discussion   ...etc

Figure 1: Innovative Methods

Table 1: Innovative Teaching and Learning methods adopted

Teaching- Learning methods adopted	
Method	**Impact**
Use of Multi-media Projector	• As projector can display pre-recorded PPTs, videos, running notes, online material, etc., students can do discussions and can get better visualization as the study material is pre planned, can be replayed. • Improves understanding capabilities of the concepts, since students are able to retain the concepts through multimedia usage.
Quizzing	• Sharpens the brain, improves the alertness, spontaneity and student perceptions about the subject. • Analysis of students' subject knowledge, terminology, which helps to identify the weakness of the students.
Competitions/ Project works	• Ignite students' creativity • Enhancement in student's practical skills, presentation skills, leadership skills and team work. • Exposure to current industry trends and social awareness. • Quality improvement of projects has the impact on the number of publications of the students in reputed journals and conferences. • Better opportunity for placement and higher • Increase in entrepreneurship.
Internet / WiFi facility for online video streaming	• Connect with peers located at different places. • Awareness of current industry trends and technology. • Development in problem-solving through collaborative learning.
Use of Smart Board and recording facility.	• Makes teaching effective by projecting visual elements which leads to student engagement in learning. • Enables students to review contents repeatedly through recorded lectures which are uploaded on LMS portal. This makes the learning more effective •
Use of Podium with mike and speaker for audio presentations	• Listening to other pioneers of the domain inspires the students, improve communication skills.
Virtual Classroom through Webinar.	• Live and recorded expert web talks, helps develop independent learning

GroupDiscussions	• Improvement in communication skills. • Foster working together and problem-solving skills, and to provoke discussion of the subject matter.
Assignments/ Tutorials	• Enhancement in writing skills. • Improvement in University Results • One-to one interaction with faculty to clarify the fundamentals and apply to the real time problems.
Seminars/Workshops/Expert lectures	• To gain knowledge about the advancements and latest happening in various Technological fields. • Participation and engagement of students in real-time learning
Internships	• Understand the industry etiquettes. • Learn new skills while gaining confidence. • Practice communication, presentation and teamwork skills. • Industry experience to gain admission to reputed management institutes. • Better job opportunities in academia, industry and government sectors.
Organizing Technical Events	• To improve leadership qualities, group management skills, self confidence and personality
Involvement in SciTech Exhibition	• To learn to map the technology to our day to day life and to project the technical things in a non-technical way so that a common man will understand the use of technology.

- **LMS Portal**

  RAIT strives constantly to find creative ways to support our learners. With our push toward more meaningful use of technologies, we are transforming the anytime/everywhere learning experience through LMS.

  - Offers a centralized source of learning

  - Enhance performance through tracking and reporting tools.

  - The content and information in the course can be easily upgraded.

  - Simplifies the learning process

  - Accommodate multiple features including recording and racking, documentation and administration, as well as classroom learning.

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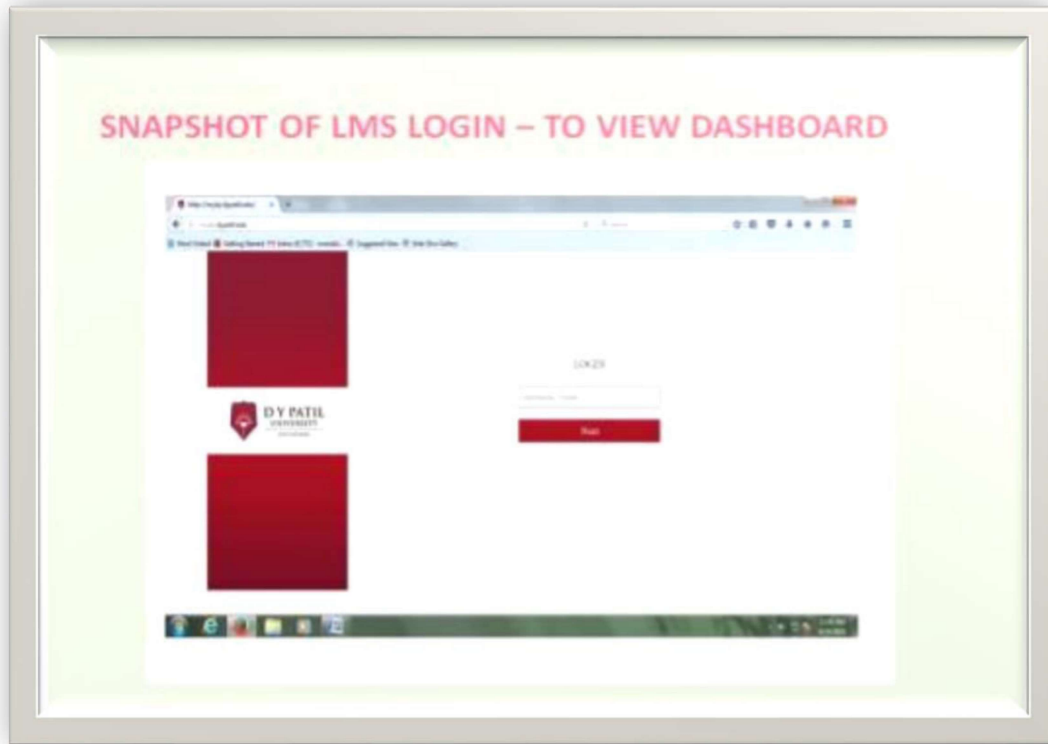INSTITUTE OF
TECHNOLOGY
NAVI MUMBAI

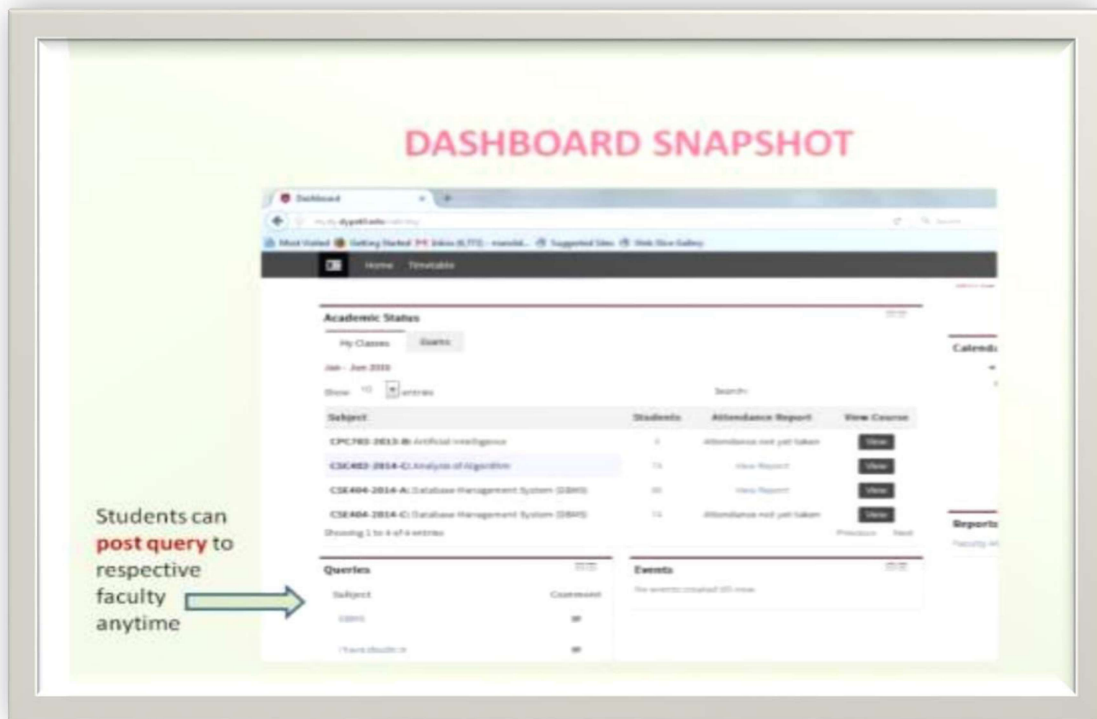*Department of Computer Engineering*

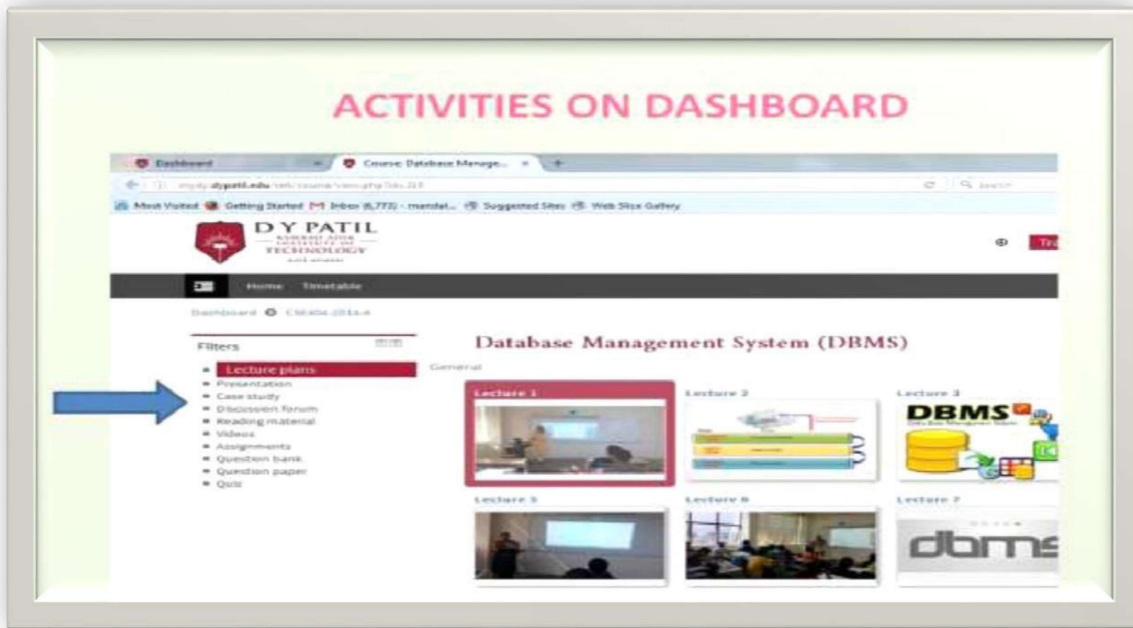**Figure 2: LMS Portal**

Figure 3: LMS Login

Figure 4: LMS Dashboard
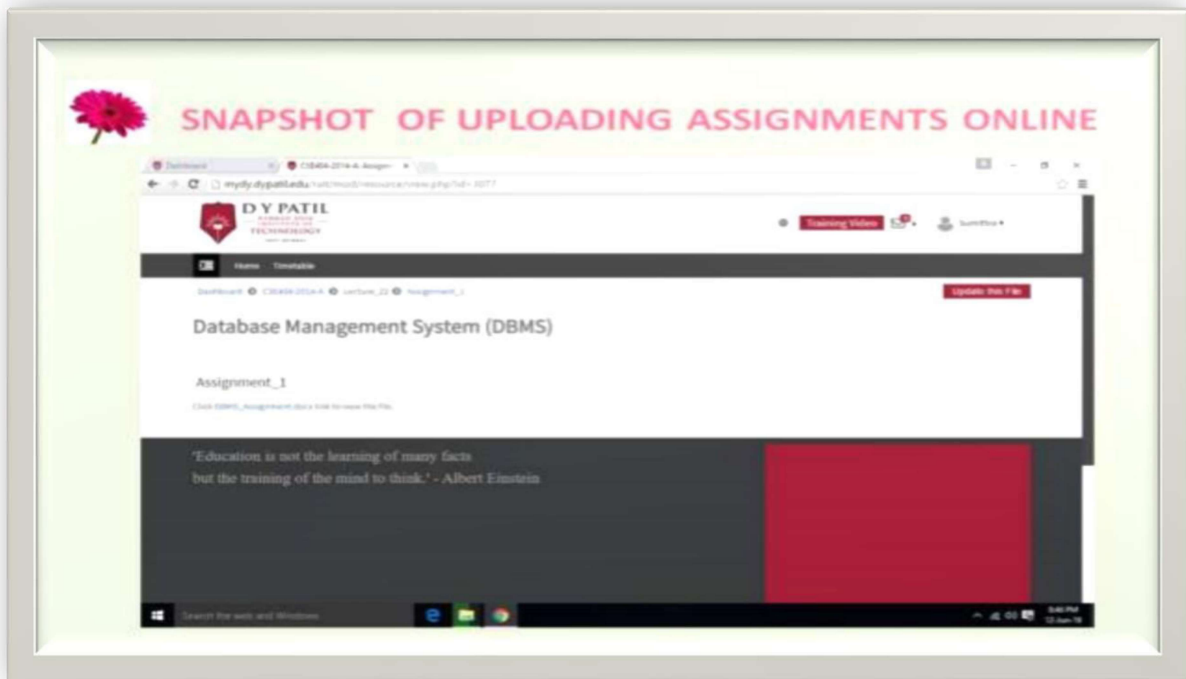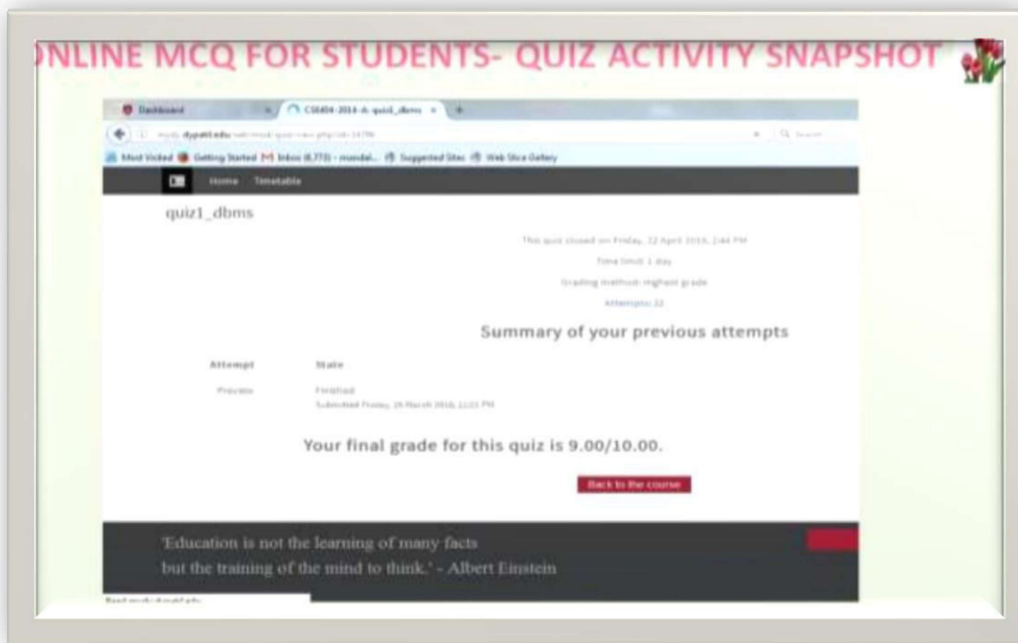
Figure 5: Activities on Dashboard
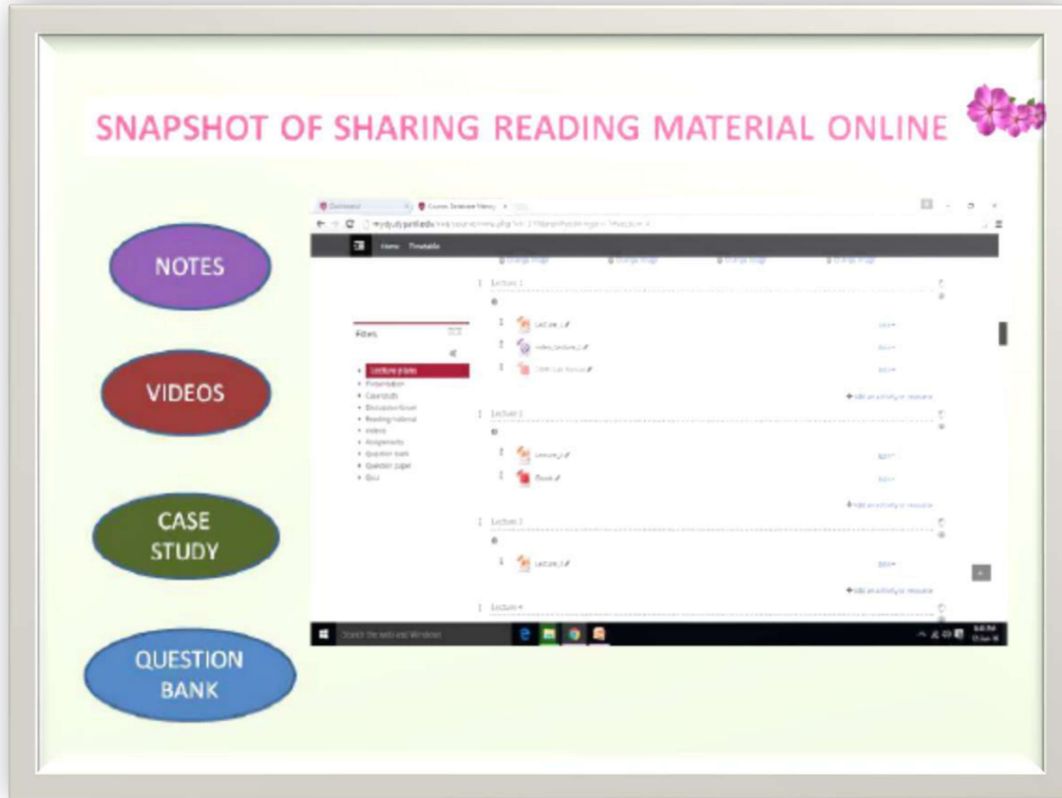

Figure 6: Assignments on LMS

Figure 7: LMS Discussion Forum

Figure 8: Quiz on LMS

Figure 9: Sharing Reading Material

- **Smart Board Usage**
  - Provides flexibility.
  - Easy access to activities.
  - Better interaction between students and teachers.
  - Interactive board turns a typical classroom into a fun learning environment.
  - Smart Board is an initiative which falls under ICT (Information and Communication Technology) responsibility

Figure 10: ICT Activities through Smart Board in 2015-16

Figure 11: ICT Activities through Smart Board in 2016-17

- Department has promulgated Learner-Centric Teaching-Learning processes that work on the principle of outcome based learning and teaching methodology. Faculties use NPTEL Videos to enhance student's knowledge by listening to experts of the domain.
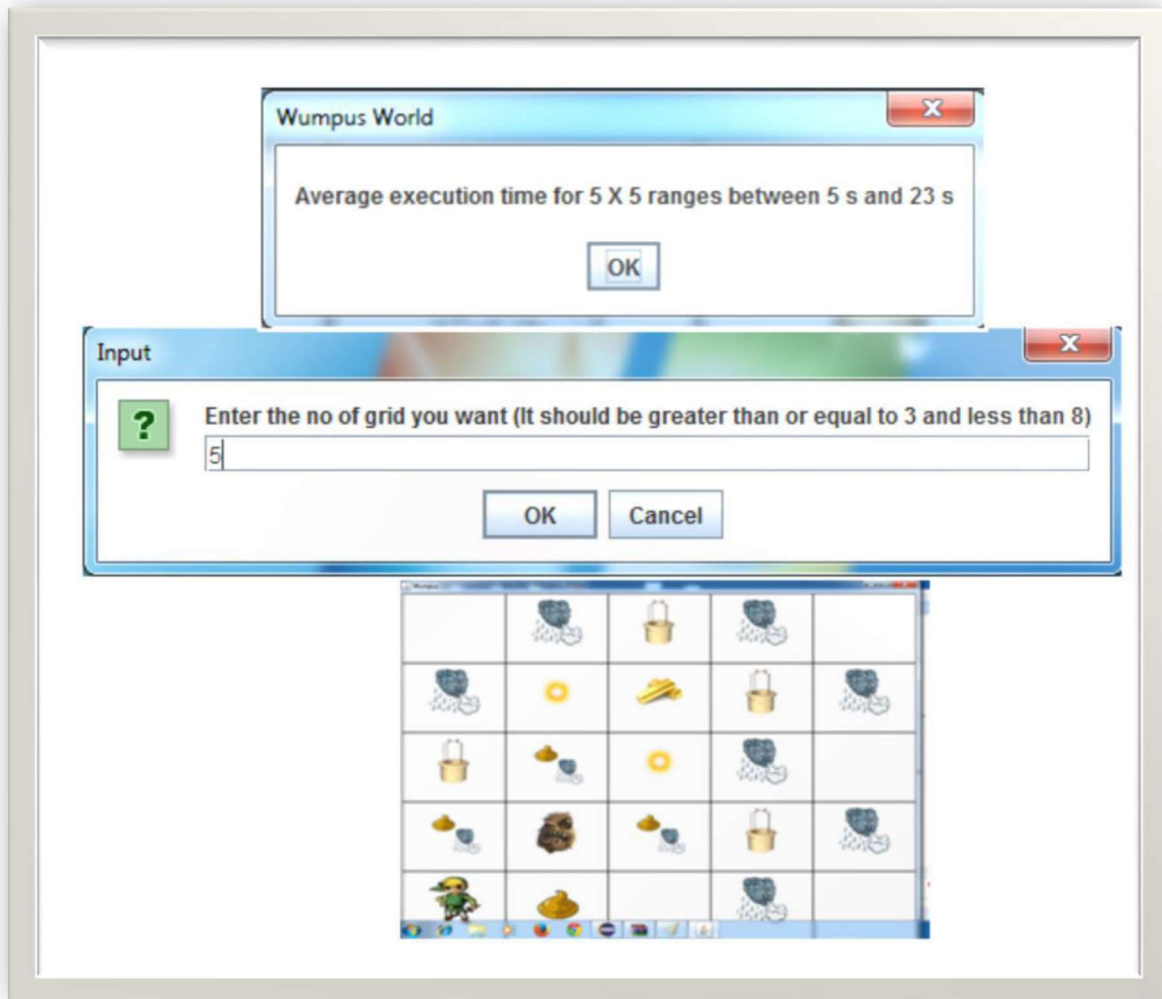

Figure 12: NPTEL Videos

- The group discussion activities are conducted in classroom, for improvement in communication skills and to foster working together and problem-solving skills, and to provoke discussion of the subject matter.

Figure 13: Group Discussion

- Students are encouraged for self-learning through departmental activities such as project works, web-based learning, competitive environment, etc.
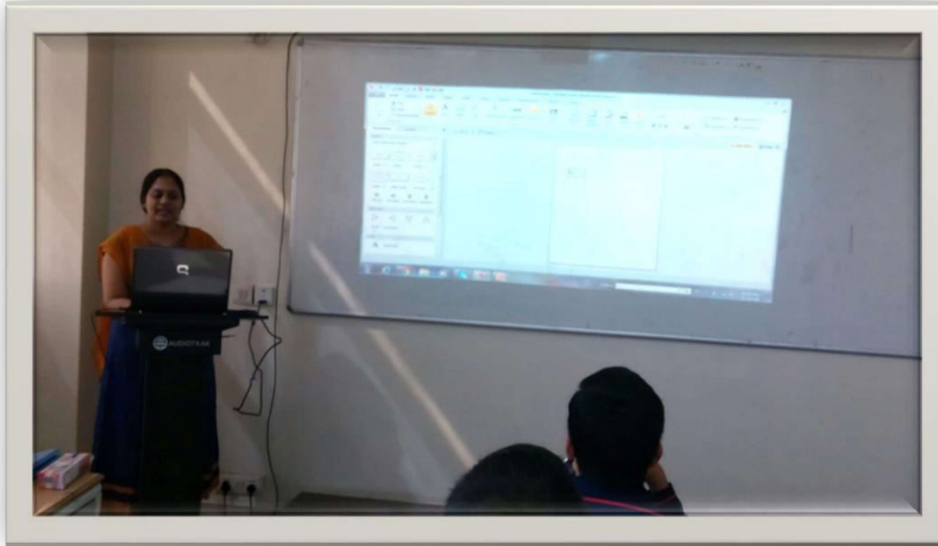

Figure 14 : Theory problems implemented as Projects

- Student driven seminars and technical events are arranged by various technical societies to motivate students to bring out their creative ideas. The students are encouraged to participate in all the departmental association technical activities.

- To sharpen the critical thinking among students, various group discussions, debates, guest lectures, workshops and seminars are organized by inviting experts from various domains. Students explore new ideas with the help of the expert views of eminent professionals.

Figure 15 : Expert Lecture

Using Open source software tools to teach the concepts

Figure 16 : Using Open source tools

- Well established laboratories and good library facility are provided to students to enable independent learning.

Figure 17: Library Facility

- Subject-wise quizzes are conducted to improve analytical skills, logical skills and reasoning abilities of the students.
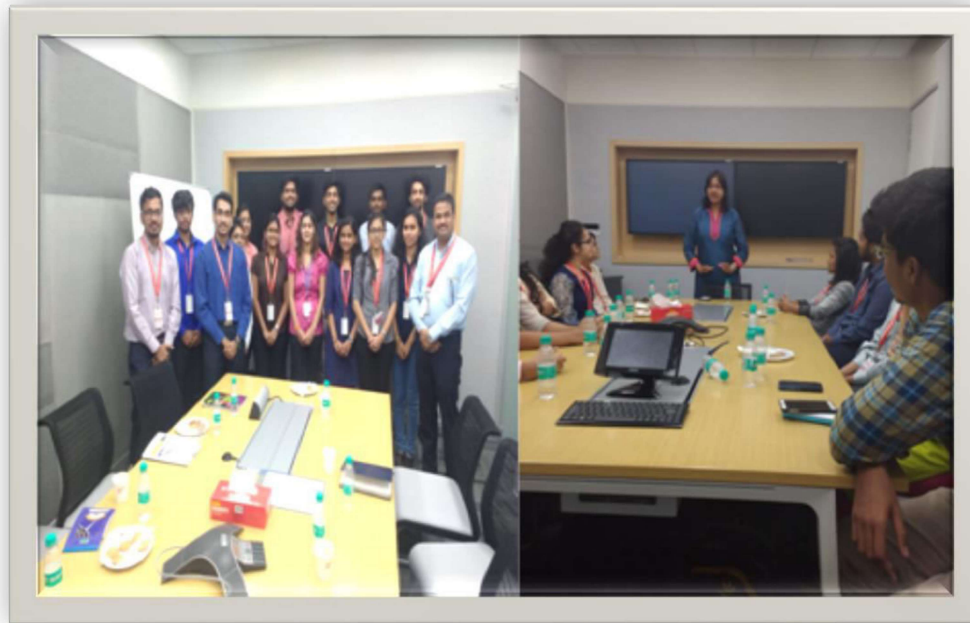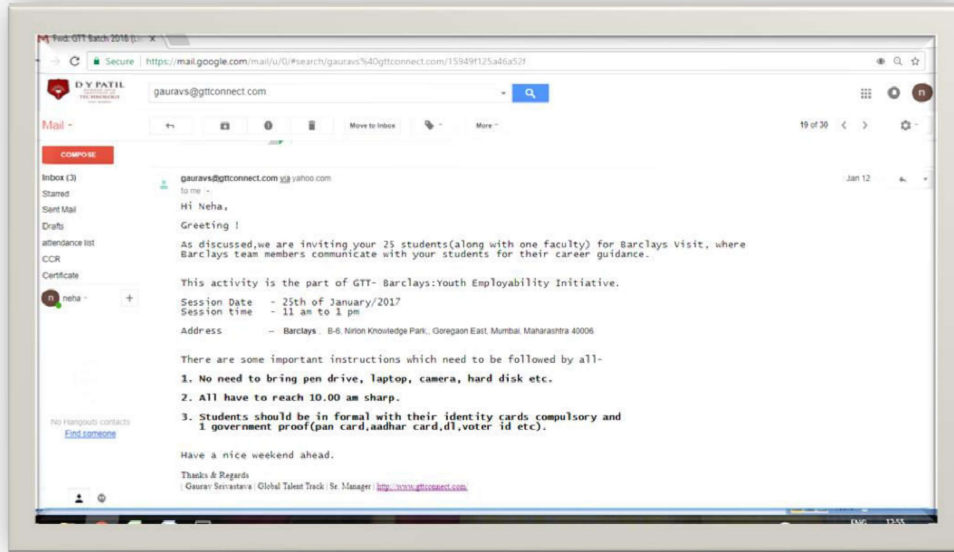

Figure 18: Quiz Activity

- Students are encouraged to participate in industrial exhibitions for technical exposure.

Figure 19: Industrial Visit

- Participatory learning through group discussions, role play, case study, debates, reward based activities, field visits, model making supplement class room teaching are conducted regularly.
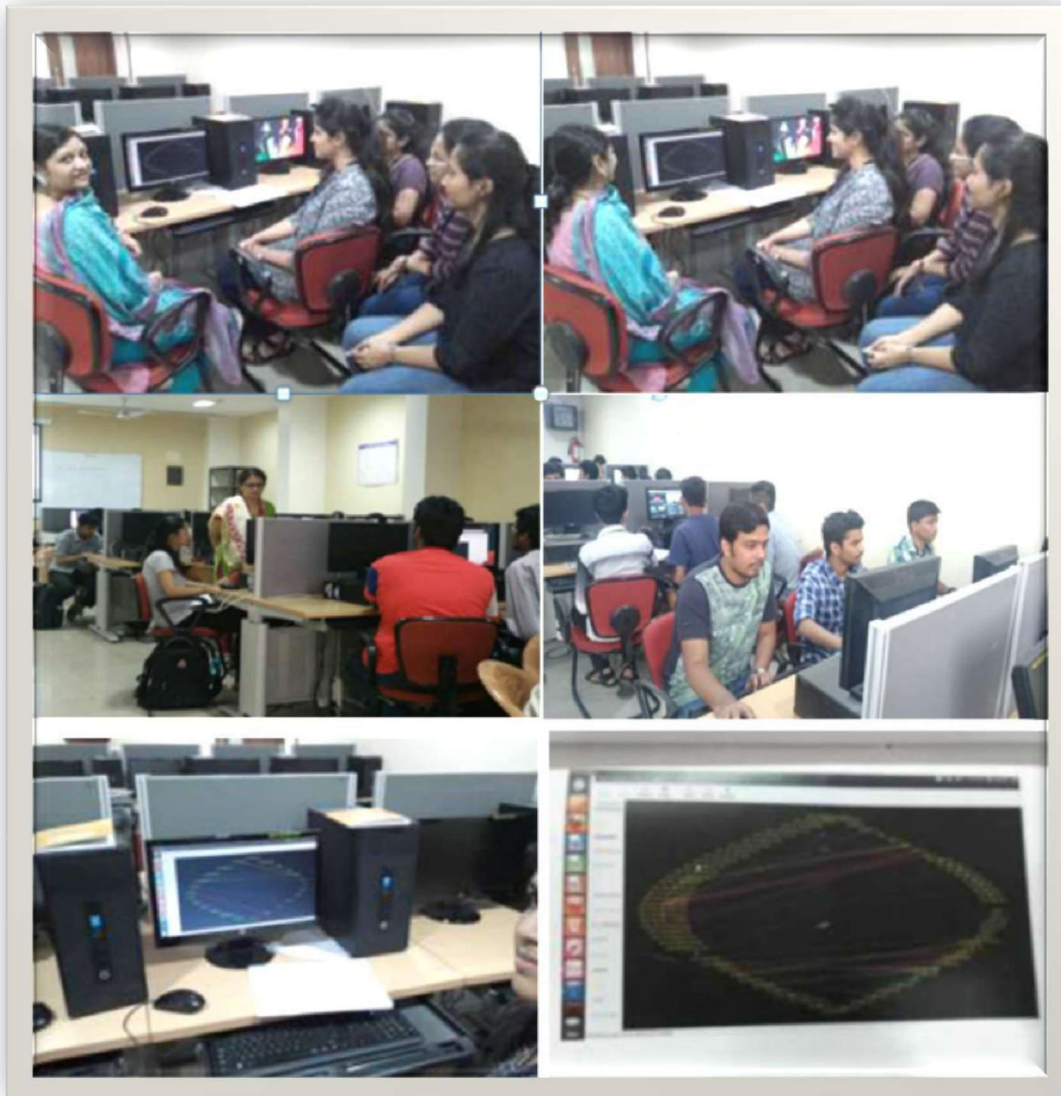

Figure 20: Role Play Activity

Figure 21: Reward Based Activity

- Faculties use various open source tools usage in practical lab.

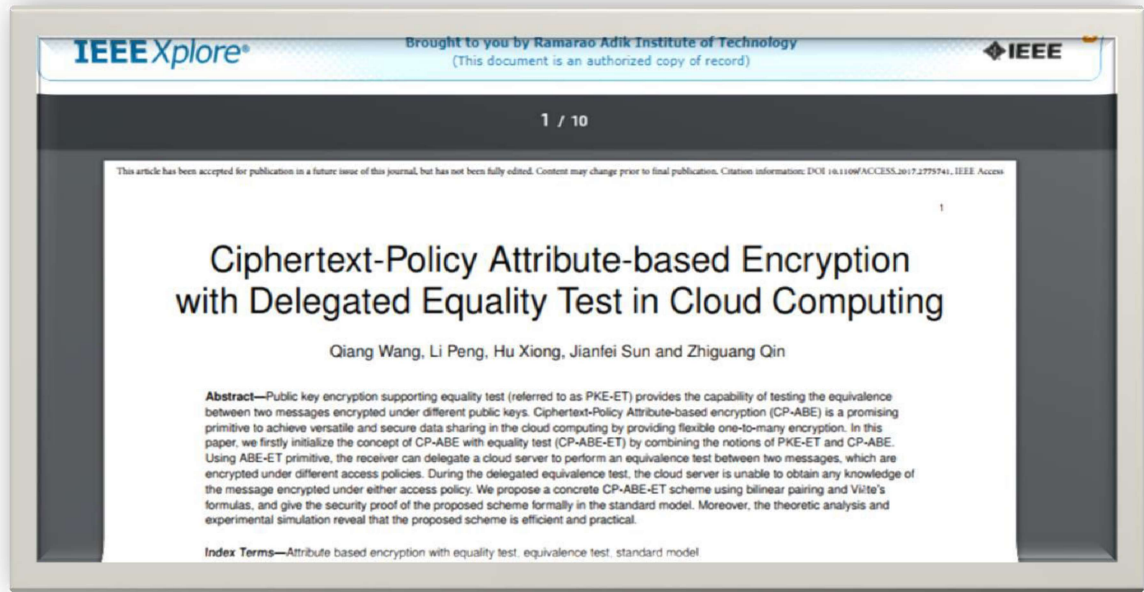**Figure 22: Tools usage in practical lab**

- Many students participate at national and international level conferences and workshops to exhibit their scientific temperament and talent.

Figure 23: Student participation certificate

- The Hard copies of Journals, magazines like IEEE, Springer, etc., online publication access and memberships, give standard journal access for doing quality research under the ambiance of central library of the institute.

Figure 24 : IEEE Access