DEPARTMENT OF MECHATRONICS

Pedagogical initiatives:

Faculties use various **Pedagogical initiatives** which include Demo, presentations, video lecturing, interactive teaching methods, animations and collaborative learning methods with real world illustrations methodologies to create the best learning environment wherever required.

Collaborative learning:

In terms of **Collaborative learning** the following activities are planned:

- Minimum two industrial visits per semester per class
- Guest Lecture arranged based on the gap analysis from industry / academia.
- ICT supported learning like NPTEL, Thor, Code Thantra, Webinar included in the regular academic schedule.
- Students are encouraged to undergo internship and industrial projects.

- In terms of **supportive learning** the following activities are planned :
  - Peer learning – Seminars by senior students, group learning.
  - Creating awareness about Higher education in India & Foreign Universities.
  - Incubation, Startups and EDC – Mentored by Experts from IIT,NIT and reputed industries.
  - Soft skills and domain training by the competent experts.
  - Motivating students to participate in national and international competitions.
  - Mentoring by the senior faculties and industrial experts.
- Weak students are identified based on the periodic assessment and remedial action has been implemented through University preparation Class (UPC)

- **Lecture method and Interactive learning:**

  The faculty use black board and audio visual aids in teaching. Students are encouraged to actively interact during the lecture hours for getting the doubts clarified. Models and charts are used for interactive learning.

- **Project-based learning:**

Students are encouraged to do mini project every semesterin laboratory related subjects. Many real time projects are given to the students and they are guided by both faculty and Industry/Research experts.

Students are motivated to participate in various national level project competitions.

- **Computer-assisted learning:**

  A unique Dr. APJ Abdul Kalam Innovative Learning Program (ILP) Centre spanning an area of 13000 sq ft was developed in the year 2016-2017 with 300 latest work stations and necessary licensed industry oriented software facilities.ILP is aimed at diversifying the teaching learning process and its environment with creativeness and innovation by involvement of students in various technical and non-technical activities to realize their skills, talent and passion.

  This facility will aid in imparting knowledge and lay platform for:-

  1. Product Development
  2. Industrial Projects
  3. Conducting tailor-made training programs for core companies
  4. Research Publications and Patents
  5. Business incubation for Startups

- **SMART class Room**

  Faculty are using LCD Projector class rooms / Audio Visual Halls for interactive sessions, webinars, animations, NPTEL and other online videos.

C. Methodologies to support weak students and encourage bright students:

- The faculty advisors regularly interact with the students and subject handling faculty regarding progress of the students to identify the weak and bright students. The students who score less than 60% marks in their internals, having backlogs in University / end semester examinations areidentified as academically weak students.In consultation with the HOD, academically weak students arecounseled by the senior faculties in the department and Principal whenever necessary.
- The parent teacher meeting is planned in every semester to interact with the parents of weak students and to advise themto support the students to overcome his / her problems

and pass in the examinations. During University preparation class, special attention is given by all faculty members, and alsopracticesed one to one coaching, group study and peer learning.

Guidelines to identify weak students and supporting activities

S.No	Identification Criteria	Actions taken
1	Students scoring less than 60% of marks in Internal Assessment and fail in end semester exams	1. Counseling by senior faculty 2. Interacting with parents, if necessary 3. Conducting remedial classes 4. Peer learning 5. Group Discussion 6. One to One Coaching 7. Daily test 8. Model based teaching 9. Simplified class notes
2	Diploma/Vocational students with less basics of Mathematics.	Conducting remedial classes in mathematics

Guidelines to identify Bright students and supporting activities

S.No	Identification Criteria	Actions taken
1	Students who score 8 CGPA and	1. Certificates with mementos

	above in their end semester exams.	2. Trust Scholarship 3. Additional Library books 4. Involving them in industrial projects 5. Encouraging them to do self learning 6. Internship - National and International 7. Encouraging them to participate in competitions 8. Training for Competitive exams such as GATE TOEFL, IELTS
2	Students securing ranks at University level.	Distribution of medals and certificates.

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Department of Mechatronics Engineering

Industrial Visit

Outcome: Students get sound knowledge in Industrial equipments and industrial environment

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Department of Mechatronics Engineering

Brain storming session with Industry Expert

Outcome: Students are exposed to new technology and updated their knowledge

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Objective :Students Exchange program International level

Outcome: Students exchange program will enhance the student's technical skills

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Value Added course with Industry collaboration lab

Outcome: Students Enhance their skills in Industry collaborated lab

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Objective: Aero-modeling competition Enhance the students skills

DEPARTMENT OF MECHATRONICS ENGINEERING

INNOVATION IN TEACHING LEARNING PROCESS

1) Innovation in Teaching-Disseminated in college website
    a. Crossword
    b. Multiple choice questions
    c. Peer Group learning
    d. Identify the parts
    e. Quiz
    f. Paper presentation
    g. Pre-Reading materials
    h. E-Learning
    i. Workshops
        i. National
        ii. International
    j. Competition
    k. Self learning
    l. Design
    m. Robotics and Automation
    n. 3D Printing and Reverse Engineering
2) Technical Symposium
3) Concept a day
4) NPTEL
5) Career compass
6) NPTEL Content
7) Students Exchange program
8) SAE Completion
9) Alumini Talk
10) Role Play

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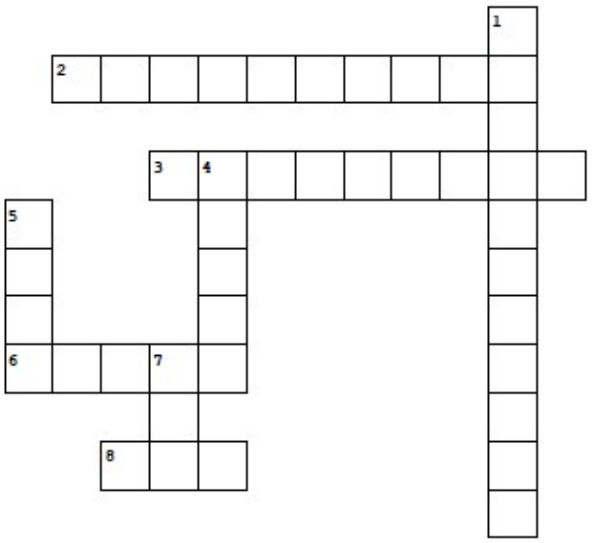
Department of Mechatronics Engineering

Crossword

Digital Electronics



Across

2. what is another name for a one-shot?

3. Who invented Gray code?

6. With four J-K flip-flops wired as an asynchronous counter, the first output change of divider #4 indicates a count of how many input clock pulses

8. How many OR gates are used to made encoders

Down

1. What number System has a base.

4. if an active-HIGH S-R latch has a 0 on the S input and a 1 on the R input and then the R input goes to 0, the latch will be _____.

5. binary number of decimal number 32 is x,then how many zeros are in x

7. many roles does Boolean Algebra have _____

Multiple choice questions

Subject: Digital Electronics

Objective: To enhance the knowledge of the subject through multiple choice questions

Multiple Choice Questions

1. **The given hexadecimal number (1E.53)16 is equivalent to _____**

a) (35.684)8
b) (36.246)8
c) (34.340)8
d) (35.599)8

Answer: b
Explanation: First, the hexadecimal number is converted to it's equivalent binary form, by writing the binary equivalent of each digit in form of 4 bits. Then, the binary equivalent bits are grouped in terms of 3 bits and then for each of the 3-bits, the respective digit is written. Thus, the octal equivalent is obtained.
(1E.53)16 = (0001 1110.0101 0011)2
= (00011110.01010011)2
= (011110.010100110)2
= (011 110.010 100 110)2
= (36.246)8.

2. **The octal number (651.124)8 is equivalent to _____**

a) (1A9.2A)16
b) (1B0.10)16
c) (1A8.A3)16
d) (1B0.B0)16

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Peer Group learning:

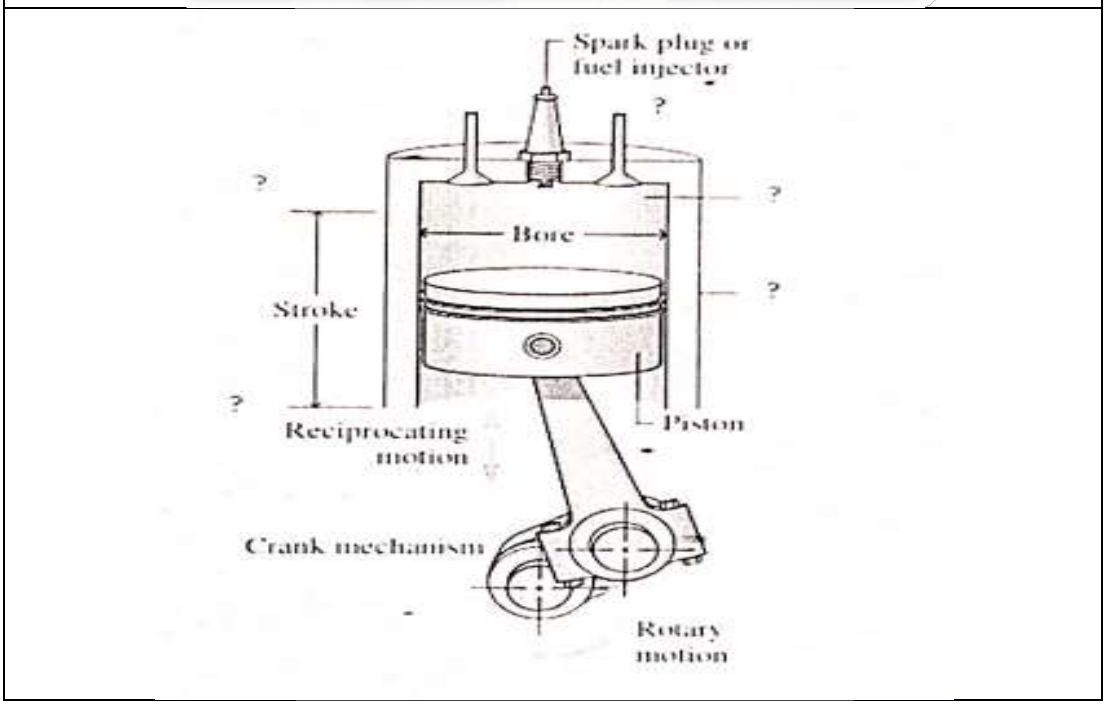
To improve the performance of slow and average learner students the peer groups are formed with each group consisting of group ot students in which tow are advanced, two are average and two are slow learners

Outcomes:

slow learner students got cleared their doubts and they felt easy to understand the concept and they shown more interest to study when they are formed

Department of Mechatronics Engineering

Identify the parts



Outcome: To understand the parts of the IC Engine

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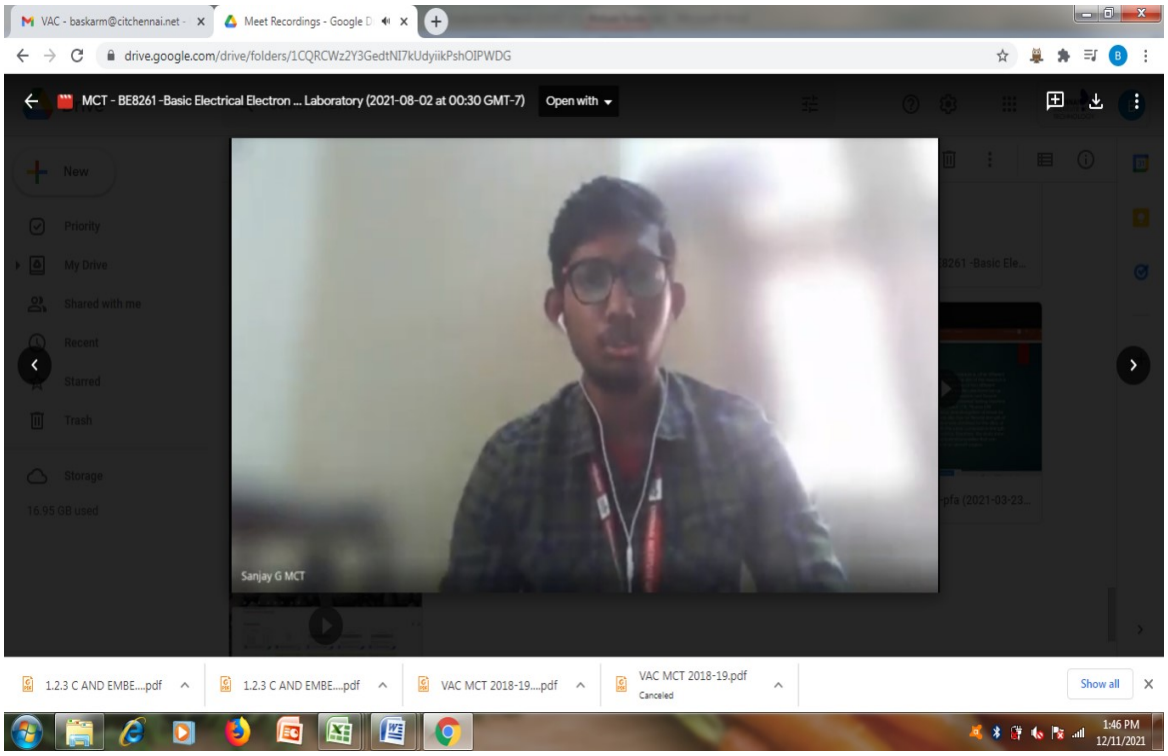
QUIZ

OBJECTICE: Quiz is conducted not only to test the person knowledge but also to test the speed of a person's brain and how active a person can think in a given particular situation.



Outcome:

Students and faculties learnt more new trending concepts in and around in the area of Engineering.

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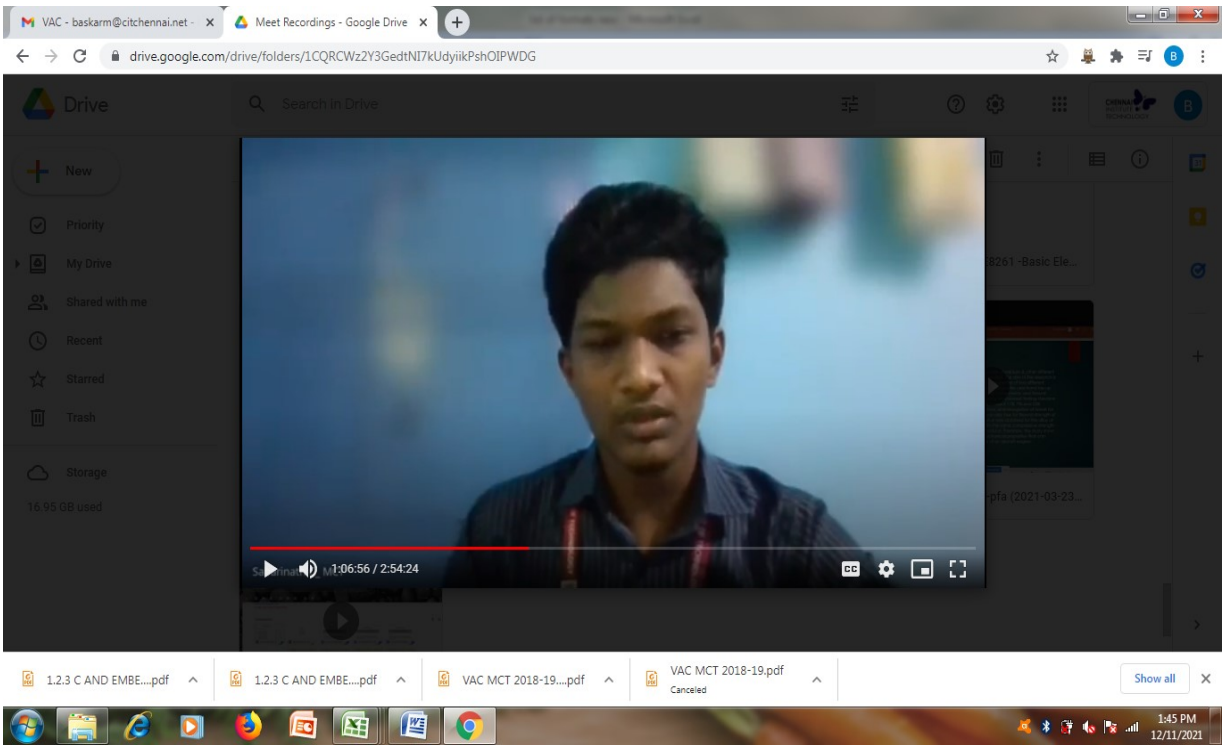
CONCEPT OF THE DAY

Objective:

It is a technical forum for the students and faculty members to upgrade their technical skills.



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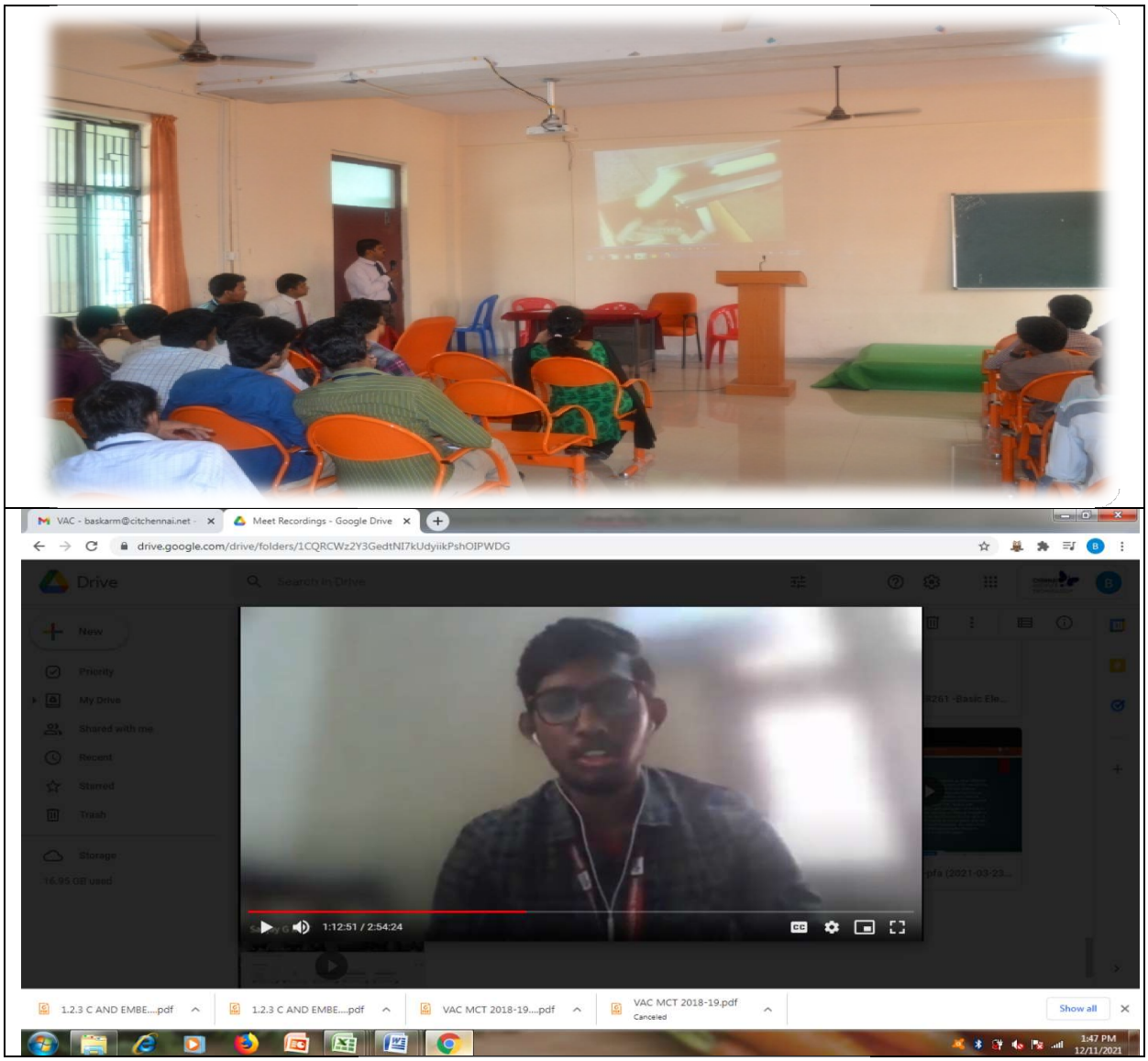
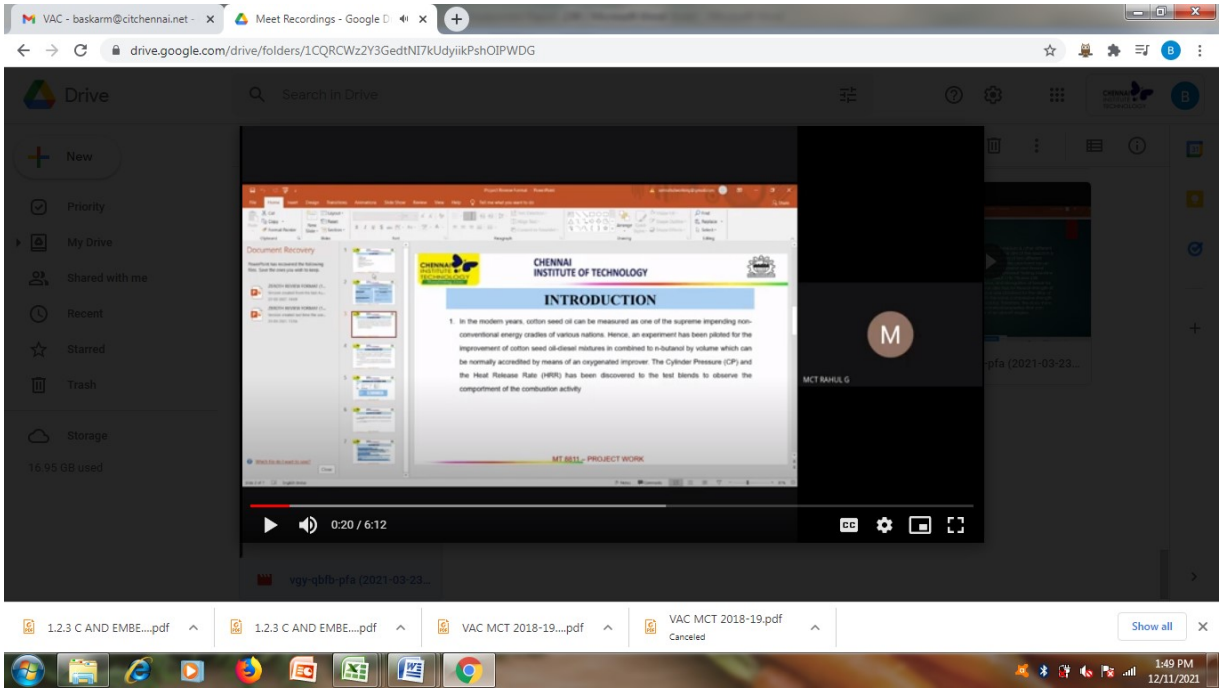
Paper Presentation



A Presentation is a means of communication which can be adapted to various speaking situations such as talking to a group, addressing a meeting or briefing a team. To be effective step by step preparation and the method and means of presenting the information should be carefully considered. This Program will not

only exhibit student's technical skill along with managerial ability which is need for the growth of one's own professional and personal ability.

Student presenting a Topic on Recent Trends in Mechatronics Engineering.



Outcome:

- ✓ Retrieval aids later retention. There is clear evidence from psychological experiments that practicing retrieval of something after learning it, for instance by taking a quiz or test, makes you more likely to retain it for the long term.
- ✓ Identify gaps in knowledge.
- ✓ Causes students to learn more from the next study episode. Essentially it reduces forgetting which makes the next related study area more productive.
- ✓ Produces better organization of knowledge by helping the brain organize material in clusters to allow better retrieval.
- ✓ Improves transfer of knowledge to new contexts.

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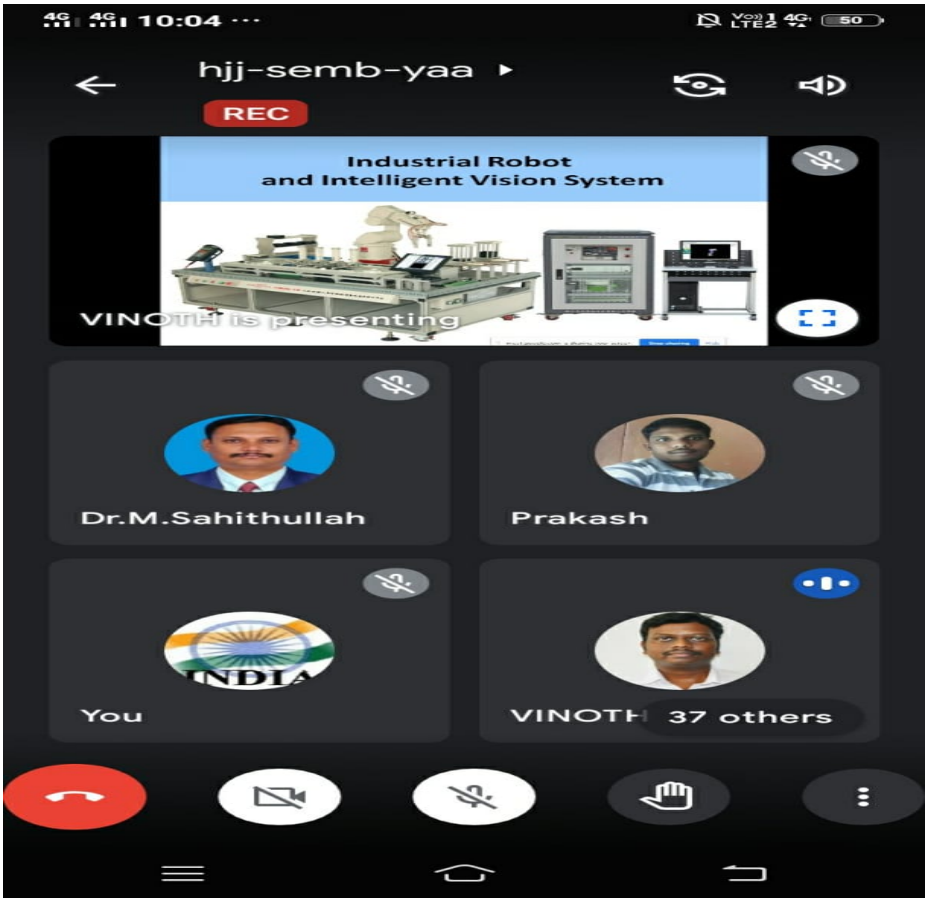
Objective of Webinar:

Webinars are really useful in engaging the listeners through live presentations and interactive multimedia which can makes the distance feel less of a hurdle**.**

Webinars include meetings, conferences, demonstrations, training or teaching, or events that are designed to give information either one-way or interactively. The theory of the "3I Framework "says students must be offered opportunities to interact with videos. Audio-visual technology has been long in use in the educational sector but with the improvement of information and communication technology, its role has become more dynamic and vast today. Among the many computer-mediated communication (CMC) systems, webinaris one of the latest developments.



Department of Mechatronics Engineering

E-Workshop

Objective: The goal of the workshop is to equip the participants with relevant knowledge and skills for conducting and applying monitoring and evaluation and ultimately improve the performance of their development Projects, Program and Organizations.

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Department of Mechatronics Engineering

E-Learning

Objective: Online courses available for faculties and students to upgrade their knowledge in the latest technology with real time applications.

Certificate
of hours of learning

Saravana kumar I

Cyber security by Packethacks
02 hours 07 minutes

Month / Year
07 / 2020

Student signature:
Saravana kumar I

Adrian Medeiros Dantas
CEO / Director - Cursa

This certificate proves that the student has attended the following courses in the Cursa application, which is available in the Google application store (Google Play), proving the authenticity of the respective viewing time of video lessons that are made available by third parties through the platform of Youtube. To account for the time in the course, the student must watch the videos until the end. If you have received this certificate from someone else and want to verify that it is authentic, go to cursa.app/en/verify and consult by email: saravanakumar98845@gmail.com
Application manager: Medeiros Tecnologia LTDA - Brazilian company
E-mail: contato@appcursosdegraca.com.br

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E-Learning

Objective: Online courses available for faculties and students to upgrade their knowledge in the latest technology with real time applications.

deeplearning.ai

COURSE CERTIFICATE

07/05/2020

Saravana Kumar I

has successfully completed

Structuring Machine Learning Projects

an online non-credit course authorized by deeplearning.ai and offered through Coursera

EDUCATION FOR EVERYONE · coursera · COURSE CERTIFICATE

Adjunct Professor Andrew Ng
Computer Science

Verify at coursera.org/verify/A5NXVYMF97P8

Coursera has confirmed the identity of this individual and their participation in the course.

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NPTEL

Objective: The operational objective of NPTEL is to make high quality learning material available to students of engineering institutions across the country by exploiting the advances in information and communication technology.

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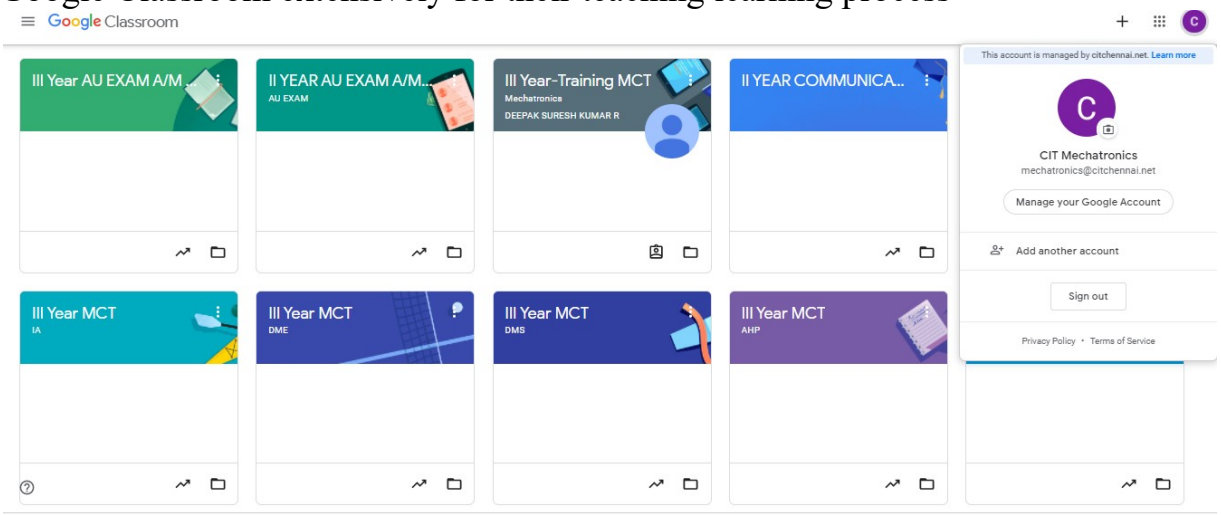
Use of ICT

Google Classroom:
All the faculty members of the Department of Mechatronics Engineering use Google Classroom extensively for their teaching learning process



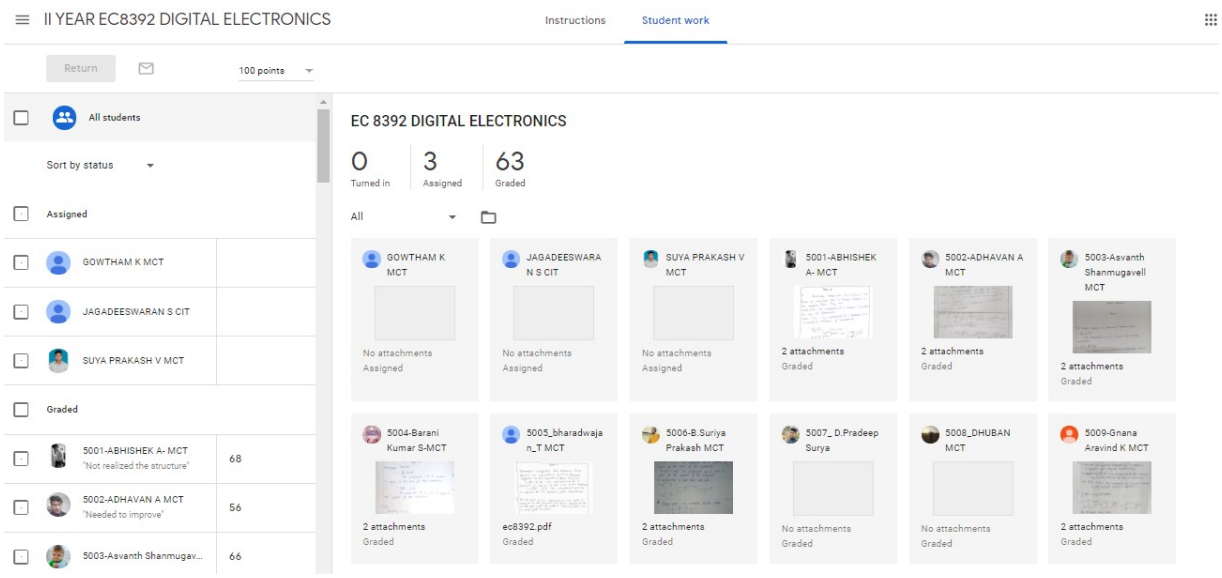
We manage the following tasks through the use of Google classroom.

Posting the teaching materials to facilitate classroom mode

We manage the following tasks through the use of Google classroom.

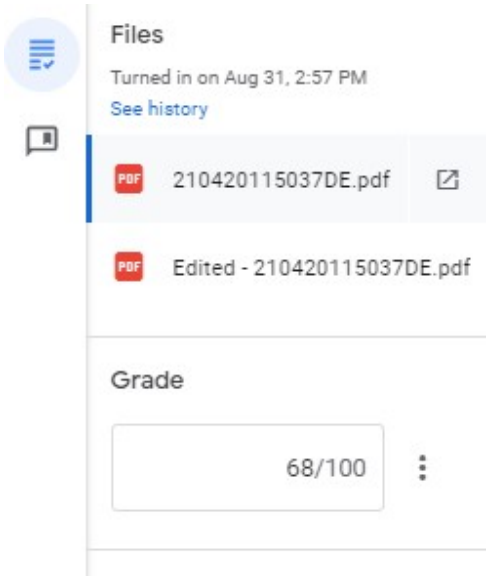
1. Posting the teaching materials

Posting the time-bound assignments and manage all the submissions digitally



.

Evaluation of the students' work



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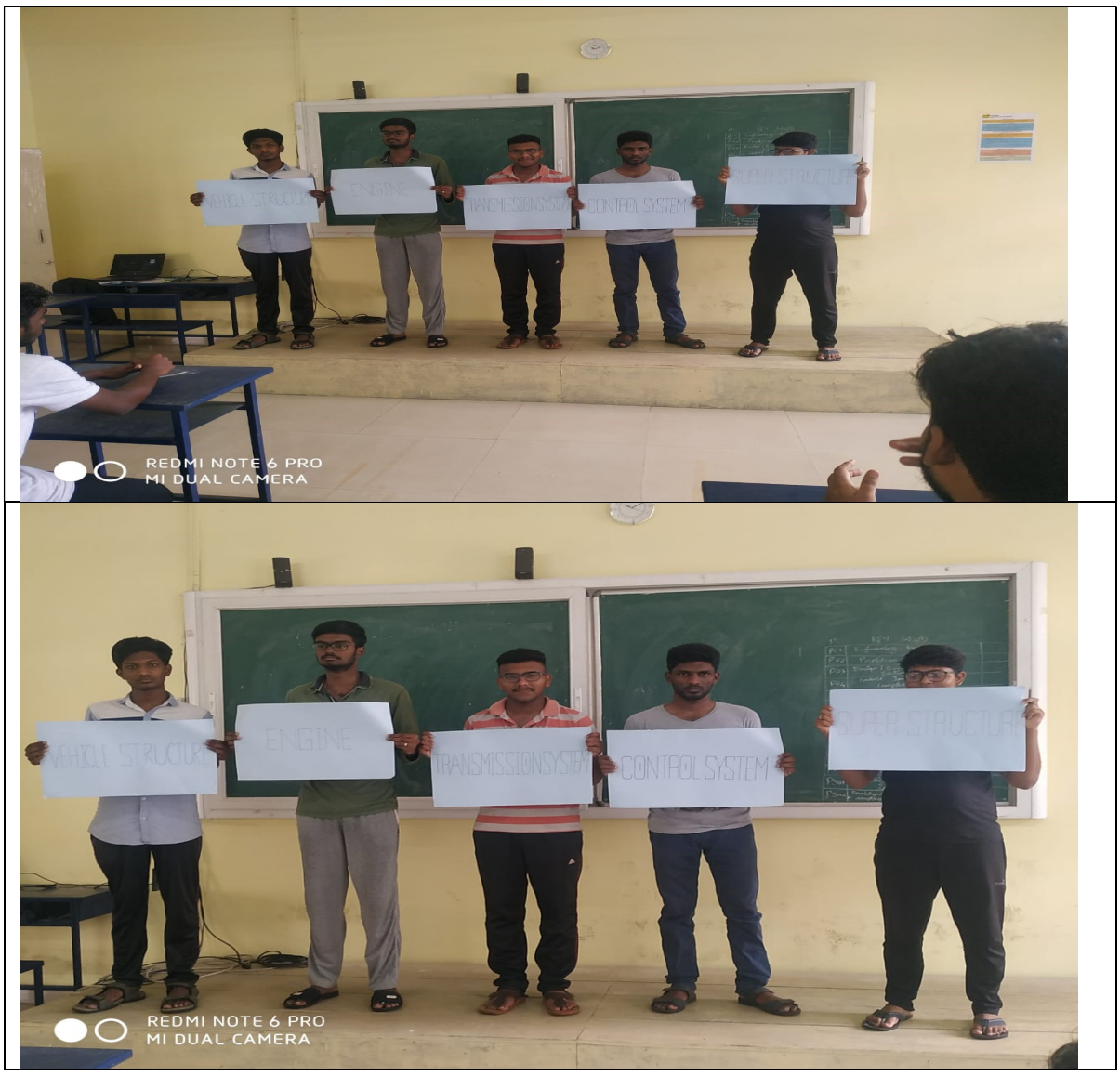
Role Play:

The activities of role play were conducted in automobile engineering to identify the parts of the vehicle.



Outcome: Student actively participates in group activities and enhances their knowledge

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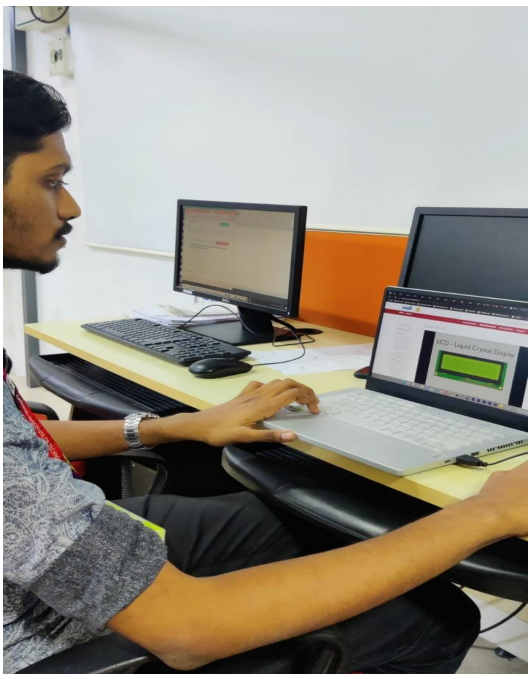
Self Learning

Objective: method of garnering information and after processing and retaining it without taking the help of another individual



Outcomes: self-learning helps a person in understanding the basic concept of learning and it says that everyone has to learn by himself at the end of the day