



VISAT ENGINEERING COLLEGE

Nelloorupara, Mutholapuram P O, Elanji, Ernakulam - 686665

Approved by AICTE, Recognized by DTE Kerala

Affiliated to the APJ Abdul Kalam Technological University, TVM

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1. EXPERIENTIAL LEARNING

1.1 INDUSTRIAL AND FIELD VISITS

Industrial visits are a crucial component of experiential learning, offering students an immersive opportunity to bridge theoretical knowledge with real-world applications. By physically engaging with industries, students gain firsthand insights into operational processes, technology applications, and organizational structures.

INDUSTRIAL AND FIELD VISITS CONDUCTED DURING 2022-23

Sl No	Branch	No of Students	Field /Company Visited	Year
1	CE	39	AAMRO Dairies	Dec 2022
2	CSE	9	Tech Blaze Solutions	May 2022
3	CE, CSE, ME, EEE, ECE	30	Kannan Devan Tea Factory	May 2022
4	EEE, ECE	36	KEL Mamala	Dec 2022
5	EEE, ECE, CSE	20	KAYNES Technologies Pvt Ltd	April 2022
6	CE, ME	22	Asian Granite Private Ltd	April 2022
7	ME	8	Prasanna Engineering Works	Jan 2023
8	ME	8	Machinery and Spares, Valanjambalam	Dec 2022
9	CE	25	MATTER Lab, Kozhikode	April 2023



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Industrial Visit To Matter Lab, Kozhikode

Report

The Department of Civil Engineering had organized an industrial visit to MATTER LAB, Kozhikode on 25th April 2023. It was a one day programme consisting of 25 students accompanied by two faculties of Civil Engineering Department, Asst. Prof. Jibi Kurian, Asst. Prof. Soniya John). The departure from Ernakulam Railway Station to industry was at 10.00 am by college bus. The students were able to get exposed to a working construction environment. The ongoing construction works gave a detailed idea about the various construction strategies used. The students acquired knowledge on the construction with Autoclaved Aerated Concrete (AAC) blocks and its applications in the industry.

The students were able to explore the various applications of retaining walls and also its functions. They were also able to study the various water purification methods adopted in the site. The latest technology used for waste treatment adopted in the industry were also studied from the site. Different types of roof trusses used in the industry were helpful for the students in gaining in depth knowledge about the elements used in the construction of roof trusses. The entire site was covered by around 11.45 am and finally we arrived back at college around 12.00 pm. It was a memorable experience for the students as they were able to see the practical implications of theories that they have learnt during their previous semesters.



Industrial Visit to MATTER LAB



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Field Visit To Aamro Diaries, Elanji

Report

The Department of Civil Engineering had organized an industrial visit to AAMRO Dairy Farm, Elanji on 19th December 2022. It was a one day programme consisting of 41 students accompanied by three faculties of Civil Department, Asst. Prof. Soniya John, Asst. Prof. Thanuja Sasi and Sindhu N, Lab Instructor). The departure from college to industry was at 10.00 am by college bus. The students were able to get exposed to a working construction environment. The ongoing construction works gave a detailed idea about the various construction strategies used. The students acquired knowledge on the construction with Autoclaved Aerated Concrete (AAC) blocks and its applications in the industry.

The students were able to explore the various applications of retaining walls and also its functions. They were also able to study the various water purification methods adopted in the site. The latest technology used for waste treatment adopted in the industry were also studied from the site. Different types of roof trusses used in the industry were helpful for the students in gaining in depth knowledge about the elements used in the construction of roof trusses. The entire site was covered by around 11.45 am and finally we arrived back at college around 12.00 pm. It was a memorable experience for the students as they were able to see the practical implications of theories that they have learnt during their previous semesters.



Industrial Visit to AAMRO Dairies Farm



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1.2 INTERNSHIP

Internships serve as a cornerstone of experiential learning, providing students with invaluable hands-on experience in a professional setting. They offer a bridge between academic knowledge and real-world application by immersing individuals in practical work environments related to their field of study.



Amal Suresh P, student of 2021-25 batch of Computer Science & Engineering Department attended a 15 day workshop on Data Science & Machine Learning from 03/05/2023 to 17/05/2023.



Students of 2021-25 batch of Computer Science & Engineering Department getting Python Internship Certification from Technovalley Software India Private Limited.



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1.3 LABORATORY COURSES

Laboratory courses serve as a cornerstone of experiential learning, enabling students to bridge the gap between theory and practice in a controlled yet explorative environment. These courses provide a practical avenue for students to explore scientific concepts, theories, and principles taught in classrooms.

Experiential learning during laboratory courses



Material Testing Lab I




Machine Tool Lab I



Logic System Design Lab

Second year students of 2022-26 Batch of Civil, Mechanical and Electronics Engineering Department exploring out their experiential skills through practical courses.




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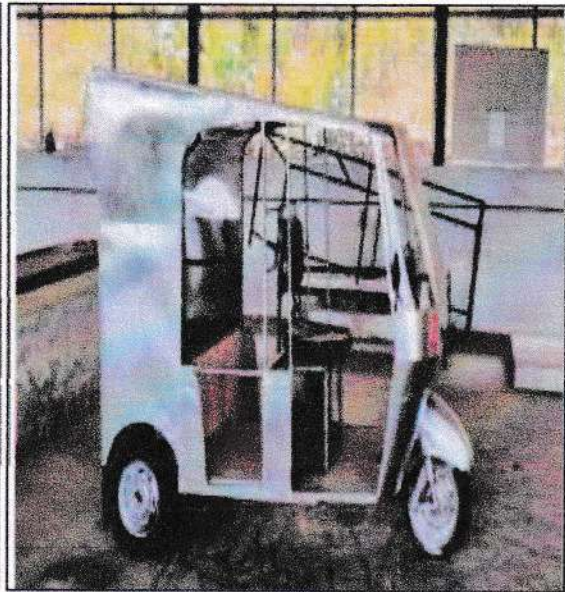
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1.4 SOCIALLY RELEVANT PROJECTS



The above clipping is a news article that came in the Deepika Newspaper about the project done by Sonu Sunil, student of S8 EEE (2019-23 batch). His project was about "IoT Based Self Charging E-Rickshaw for Differently Aabled Persons" which was a socially relevant project work.



Sonu Sunil, student of 2019-23 batch getting Runner Up Award in Srishiti 2023



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Demonstration of the project titled " IOT based self charging E-Rickshaw for differently persons" in VISAT Engineering College ground during IEEE Conference 2023.

Report


Sonu Sunil, final year student of 2019-23 batch of ECE did a socially relevant project as a part of his final year syllabus titled " IoT Based Self Charging E-Rickshaw for Differently Abled Persons". 'Solar E-Rickshaw' is a vehicle that makes use of energy produced by sunlight to run and it also hovers on an electric charging port if the condition arises to be not suitable for the solar energy to be consumed. He have designed the roof of the E-Rickshaw in such a way that it is 27°-30° slanted so as to increase the efficiency of solar power generation and in the trunk part of the Vehicle we designed it to be in a form of curve design to expand the boot space of the E-Rickshaw for battery storage as well as a backup plant for battery.

Conclusion of the project was that we must realize the potential change we could make throughout the world by small implementation of clean, cost effective, Pollution free Solar E-Rickshaw like this one. A one step towards a greater future may lie on Solar E-Rickshaw throughout the World as it has proven to be an effective, competitive alternative to traditional methodologies.

1.5 ADD ON COURSES

Add-on courses enhance networking opportunities, allowing students to interact with peers, mentors, and professionals from various industries, potentially opening doors for future




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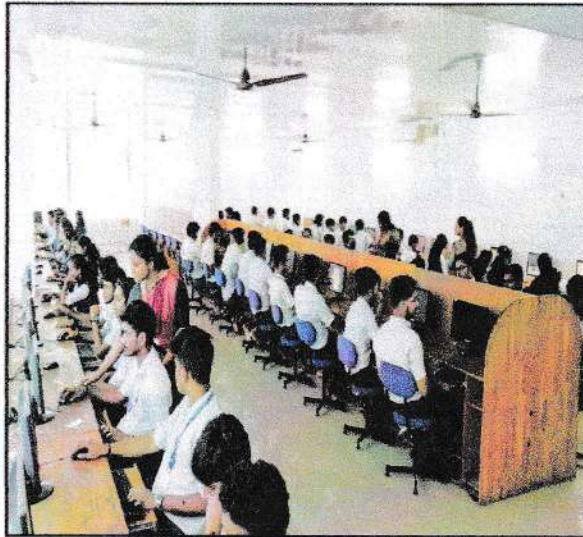
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collaborations or job opportunities. This interdisciplinary approach promotes holistic learning, fostering creativity, critical thinking, and problem-solving skills by connecting various areas of study.



Add-on course conducted as a part of academic curriculum through experiential learning.

2. PARTICIPATIVE LEARNING

2.1 INTERACTIVE WORKSHOPS & SEMINARS

Workshop on DGPS and Total Station Survey

A three day workshop on Differential Global Positioning Systems (DGPS) and Total Station Survey was conducted for students from 12th December 2022 to 14th December 2022 in configuration with CILL Associates Pvt. Ltd. The workshop gave the students an opportunity to apply the knowledge and skills they have acquired on campus in a real life- work situation. On the first day of workshops, some basic lessons from the total station, including the parts of the instrument, and the working of the instrument were explained. All the students operated the instrument. Sessions on how to center and level the instrument and how to site and record the readings were taken. On this day, the students were taught the continuation of area calculation and how to fix or place a total station instrument, and all the students were given a chance to take




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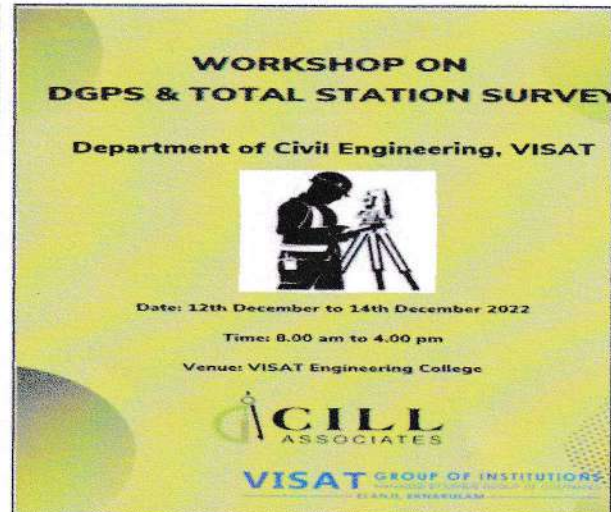
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the readings themselves. On the last day of the workshop, the students were taught how to draw the calculated areas on CAD software.



Students of Civil Engineering Department attending a workshop on Total Station Survey



Brochure of Total Station Survey Workshop conducted by CILL Associates

Technical Talk On Durable And Sustainable Concrete - Civil Engineering Department

A technical talk on 'Durable and Sustainable Concrete' was organized by the Department of Civil Engineering on 16th March 2023 at VISAT Engineering College. The program was started by a prayer song followed by a welcome address by Aparna T, student of eighth semester of the Civil Engineering Department. The event was inaugurated by the lamp lighting ceremony. Er. Sanulal K H, Technical Service Manager at Ramco Cements and Executive Committee member of ICI Kochi delivered the inaugural speech.

The session started at 2.00 pm with an introductory class on constituents of concrete. A detailed explanation on the types of cement and aggregates were given to the students. The properties such as workability, water cement- ratio and its effect on concrete were also discussed. The next session started at 3.00 pm and the session was all about how to make durable and sustainable concrete. Durability of concrete may be defined as the ability of concrete to resist weathering action, chemical attack, and abrasion while maintaining its desired engineering properties. A sustainable concrete structure is one that is constructed so that the total societal impact during its entire life cycle is minimal.



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Session by Er. sanulal K H, Technical Service Manager at Ramco Cements and Executive Committee member of ICI Kochi

2.2 TECHNOLOGY BASED LEARNING

Kahoot App

Technology based activities are carried out in the college in order to enhance the participative learning skills of students. The “Kahoot” app is used in classroom teaching so that students get familiarized with the topic by conducting quizzes based on the topic taught on that day. The main benefits of Kahoot1 include enhanced student environment, improved classroom dynamics, higher motivation, rapid feedback and higher energy levels throughout sessions. Image below shows the usage of Kahoot app during class hours of semester 3 students of the Civil Department for their subject “Surveying & Geomatics” by dividing as groups.



Conducting quizzes for semester III students of Civil Engineering branch using Kahoot App




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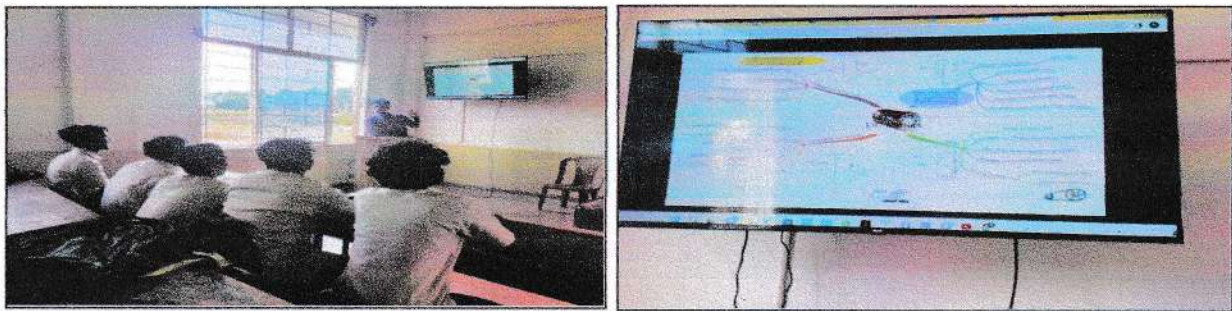
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Mind mapping

Mind mapping is a brainstorming technique that organizes information around a central topic or theme. It helps in finding better solutions faster, making for more effective collaboration and increasing productivity. It allows the students to encourage their creativity and since they are visual, they are easier to remember. Mind mapping is followed in our college during class hours so that students can get an overall idea about the topic they are being taught. The figure below shows the usage of mind mapping concepts in the class of S5 EEE for their subject 'DC Machines and Transformers'.



Mind mapping concept used in the class of S5 EEE for their subject 'DC Machines and Transformers'

2.3 QUIZ COMPETITIONS

Science Day Quiz

Date: March 1st 2023

Venue: Seminar Hall

Event: Science Quiz on behalf of Science Day 2023

The Science Quiz was conducted at our college on behalf of Science Day 2023. The event was organized by the college union, and it was open to all students and faculties of the college. The quiz was conducted in the college seminar hall. The quiz consisted of three rounds. The first round was a general science round, where questions from all fields of science were asked. The second round was a biology round, where questions related to plants, animals, and human anatomy were asked. The third round was a physics round, where questions related to the laws of motion, energy, and other fundamental principles of physics were asked. The teams were given 30 seconds to answer each question, and the teams with the highest score at the end of



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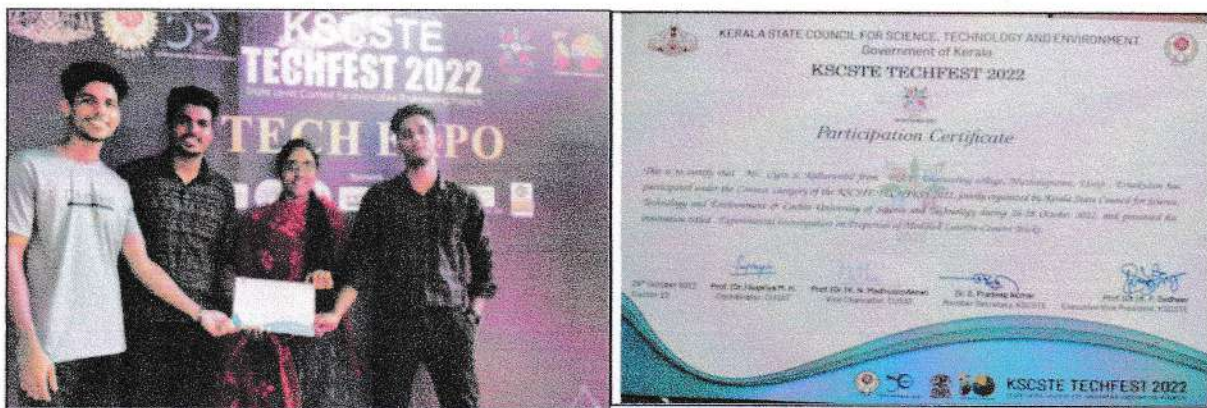
the three rounds were declared the winners. The quiz was conducted in a lively and interactive manner, and the audience was also encouraged to participate by answering questions.



Quiz conducted by College Union on Science Day 2023

2.4 TECHFEST PARTICIPATION

The final year students Arun V R, Cigin S Kallurumbil and Gokul K R presented their project 'Experimental Investigation on Properties of Modified Laterite Cement Brick' guided by Asst. Prof. Jibi Kurian in the Tech Fest organized by KSCSTE at CUSAT on 26th, 27th and 28th of October 2022.



Students of S7 CE participating in Tech Fest organized by KSCSTE at CUSAT



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2.5 GROUP DISCUSSIONS

Group discussions allow students to engage actively, share perspectives, and collectively explore diverse viewpoints on a given topic or subject matter. Through group discussions, participants learn from each other's experiences, ideas, and insights, fostering a deeper understanding of the subject through dialogue and debate. It also promotes the exchange of knowledge, encourages peer learning, and enhances problem-solving abilities by encouraging individuals to consider various perspectives and reach consensus or understanding through dialogue and active engagement.



Students of VISAT engaging in a group discussion as part of Internal Institute Level SMART INDIA HACKATHON 2023

2.6 DEBATES

By participating in debates, students get deeper into a topic, researching, organizing their thoughts, and articulating their viewpoints effectively. This process encourages them to critically analyze information, consider multiple perspectives, and develop persuasive arguments based on evidence and logic. Importantly, debates create an environment that promotes collaboration, communication, and respectful exchange of ideas.



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Students of S1 CE taking part in debates conducted during the soft skill classes conducted as a part of participative learning

2.7 PEER LEARNING

Peer learning is a fundamental aspect of participative learning, enriching the educational experience through collaboration and shared knowledge. In participative learning environments, peers engage in active discussions, group projects, and collaborative activities. Peer learning integrates naturally into this setting, allowing individuals to learn from one another by sharing diverse perspectives, experiences, and insights. Through peer-to-peer interactions, learners not only reinforce their understanding of the subject matter but also develop crucial interpersonal skills such as communication, empathy, and teamwork.



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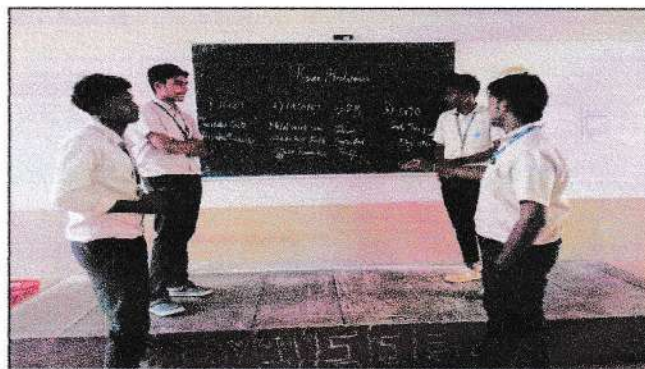
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Students of VISAT getting engaged in peer learning methodology through various workshops as a part of their curriculum

2.8 ROLEPLAY

Roleplay is a technique that allows students to explore realistic situations by interacting with their classmates in a managed way in order to develop their collaborative skills. Students are given particular roles to play in a conversation or other interaction based on their discipline. The figure below shows the roleplay conducted by S5 students of Electrical & Electronics Engineering Department, 2021-2025 batch based on the topic 'Power Electronics'. Four students were given to play out the features of different power electronic devices such as IGBT, MOSFET, SCR etc..



Students of S5 EEE, engaged in roleplay conducted based on various power electronic devices



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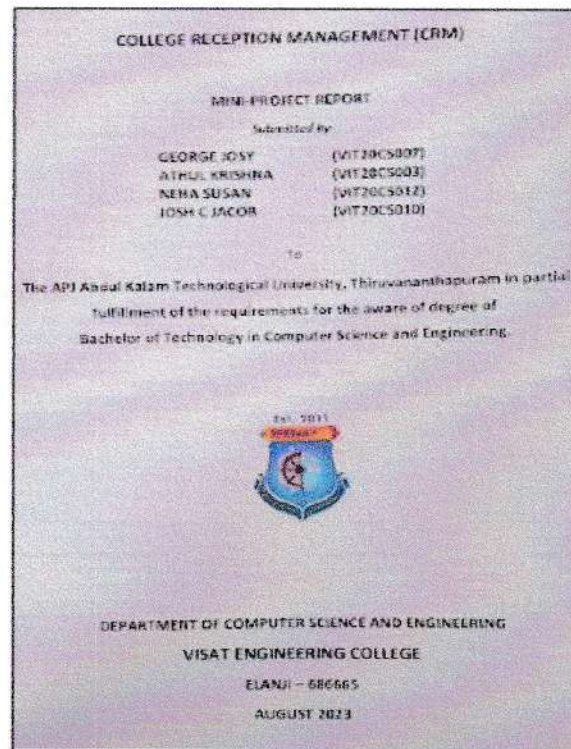
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2.9 MINI PROJECTS

Mini Projects are tools which enhance participative learning among students as it promotes collaboration and critical thinking skills as students work towards a common goal. It also improves research, planning and presentation skills, offering well-rounded learning experiences that goes beyond traditional classroom settings. These projects can cover various subjects and topics, allowing students to explore and apply their knowledge in a more practical and engaging manner.



Sample Report Front Page

2.10 NPTEL COURSES

NPTEL courses provide high-quality content in the form of video lectures, assignments, quizzes and exams. These are valuable resources that allow students to enhance their knowledge and skills in various fields, often providing certification upon successful completion of course assessments.



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NPTEL Online Certification
(Funded by the MoE, Govt. of India)

This certificate is awarded to
C.J JOJI
for successfully completing the course
Digital Circuits
with a consolidated score of **51** %

Online Assignments	21.03/25	Proctored Exam	30/75
--------------------	----------	----------------	-------

Total number of candidates certified in this course: 2526

Jul-Oct 2023
(12 week course)

Indian Institute of Technology Kharagpur

Prof. Haimanti Banerji
Coordinator, NPTEL
IIT Kharagpur

swayam

Roll No: NPTEL23EE115S535300918 To verify the certificate No. of credits recommended: 3 or 4

C J Joji (S5 EEE) completed the NPTEL Online Certification on 'Digital Circuits'

NPTEL Online Certification
(Funded by the MoE, Govt. of India)

This certificate is awarded to
FRANIO SONILAL
for successfully completing the course
Digital Circuits
with a consolidated score of **52** %

Online Assignments	21.85/25	Proctored Exam	30/75
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Total number of candidates certified in this course: 2526

Jul-Oct 2023
(12 week course)

Indian Institute of Technology Kharagpur

Prof. Haimanti Banerji
Coordinator, NPTEL
IIT Kharagpur

swayam

Roll No: NPTEL23EE115S535300967 To verify the certificate No. of credits recommended: 3 or 4

Franio Sonilal (S5 EEE) completed the NPTEL Online Certification on 'Digital Circuits'



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2.11 FLIPPED CLASSROOM

1) Sub : EET 204 – Electromagnetic Theory

Topic : Gauss's Law, Electromagnetic Waves

Source: <https://youtu.be/aCTRjVEmeC0> <https://youtu.be/qN12xzQR6vs>,

Taken By : Mr. C.J Joji, Franio Sonilal - S4 EEE



C J Joji, S4 EEE student discussing about 'Electromagnetic waves'

2) Sub : EET 302 – Linear Control System

Source - <https://www.youtube.com/watch?v=bWhpYIJIDGQ>

Topic : Stability Analysis using Bode plot

Taken By : Mr. Abhijith S – S6 EEE



Abhijith S, S6 EEE student discussing about 'Stability analysis using bode plot'



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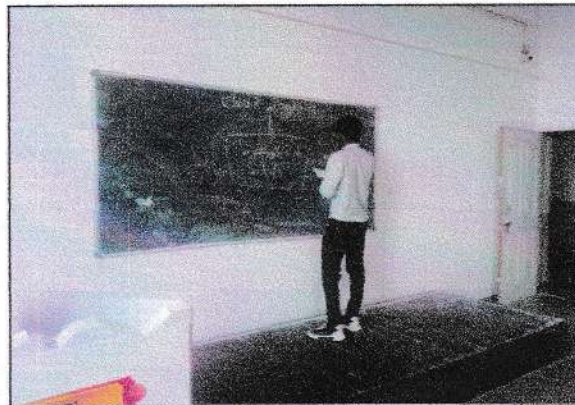
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2.12 CONCEPT MAPPING

Concept mapping is an active learning technique that involves representing connections between ideas in a diagrammatic way. It makes students realize that understanding is more important than memorizing, and share each person's different knowledge and ideas. In concept mapping, students in a class are divided into groups and a concept is given to them based on that course syllabus. Each group is given a chance to represent that concept in a diagrammatic manner and is later discussed with the rest of the groups.



Students of S3 CE (2022-26 batch) getting engaged in participative learning through concept mapping on the topic "Properties of Solids" based on 'CET201 - Mechanics of Solids' course.



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3. PROBLEM SOLVING METHODOLOGIES

3.1 TUTORIALS

Tutorials serve as effective problem-solving methodologies by providing a structured and systematic approach to learning and mastering a specific subject or skill. Tutorial sessions provided for core papers enables the students to enhance their problem solving skills in theoretical as well as practical situations. Students are given problem based questions of their corresponding subjects in the tutorial hours scheduled as per the curriculum.

Tutorial Sample of EST 100 -Engineering Mechanics

Tutorial Questions

	VISAT ENGINEERING COLLEGE <small>MANAGED BY UNISIS GROUP OF COMPANIES</small>			
Tutorial Questions				
Type: Tutorial I	Date: 21/11/2022			
Course Code & Name: EST 100 ENGINEERING MECHANICS	Max.Marks: 15			
Year/Sem.: 2022-2023/S1	Date of Submission: 21/11/2022			
Sl. No.	Questions	Marks	CO	BL
1	<p>1) A traffic signal of mass 500N is being held in the shape of two strings as shown in figure. Find the force produced in the string using Lami's theorem.</p>	5	4	3
2	<p>2) An electric light of weight 10 N is supported as shown in figure. Determine the tension forces T_1 and T_2 in the strings and the angle of inclination θ as shown.</p>	5	4	3
3	<p>3) Concentric circles of radii 1, 2, 3, 4, 5, 6 m are applied to the center of a regular hexagon as shown. Determine the magnitude and direction of resultant.</p>	5	4	3



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Tutorial Answer Key



Tutorial Answer key

Type: Tutorial 1	Date: 21/11/2022
Course Code & Name: EST 100 ENGINEERING MECHANICS	Max Marks: 15
Year/Sem.: 2022-2023/S1	Date of Submission: 21/11/2022

Sl. No.	Questions	Marks	CO	BL
1	FPR-218.76N- 2.5 mark FPQ-396.53N- 2.5 mark	5	4	3
2	S1-29.282 N-2.5 mark S2-20.70 N-2.5 mark	5	4	3
3	R-12 N -2.5 mark Angle-59.97-2.5 mark	5	4	3



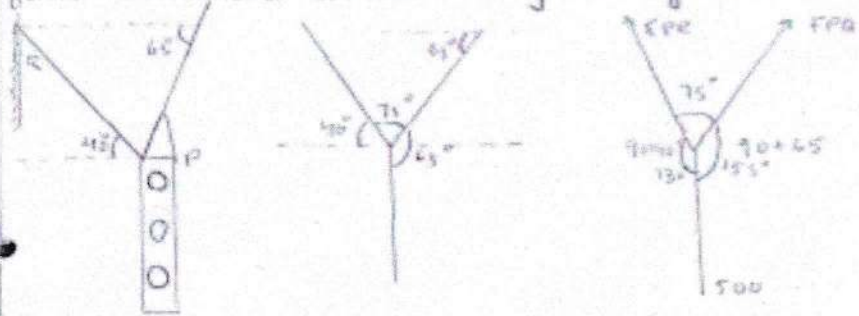
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Tutorial Sample

Kejo Mary Jijo

Module - 1

1) A traffic signal of mass 500N is hung with the help of two strings as shown in figure. Find the forces induced in the string using Lami's theorem



$$\frac{FPA}{\sin(155)} = \frac{FPB}{\sin(135)} = \frac{500}{\sin(75)}$$

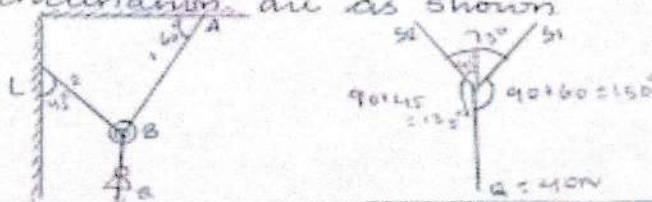
$$\frac{FPA}{\sin(155)} = \frac{500}{\sin(75)} \rightarrow FPA (\sin(75)) = \sin(155) \times 500$$

$$FPA = \frac{500 \times \sin(155)}{\sin(75)} = \underline{217.76N}$$

$$\frac{FPA}{\sin(135)} = \frac{500}{\sin(75)} \rightarrow FPA (\sin(75)) = \sin(135) \times 500$$

$$FPA = \frac{500 \times \sin(135)}{\sin(75)} = \underline{396.53N}$$

2) An electric light of weight Q is supported as shown in figure. Determine the tensile forces S₁ and S₂ in the wires BA and BC if their angle of inclination are as shown




Kejo Mary Jijo

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$$\frac{S_1}{\sin 135} = \frac{S_2}{\sin 150} = \frac{40}{\sin 75}$$

$$\frac{S_1}{\sin 135} = \frac{40}{\sin 75} \rightarrow 40 \sin 135 = S_1 \sin 75$$

$$S_1 = \frac{40 \sin 135}{\sin 75} = \underline{\underline{29.242N}}$$

$$\frac{S_2}{\sin 150} = \frac{40}{\sin 75} = 40 \sin 150 = S_2 \sin 75$$

$$S_2 = \frac{40 \sin 150}{\sin 75} = \underline{\underline{20.705N}}$$

3) Concentric forces of 1, 3, 5, 7, 9, 11 N are applied to the centre of a regular hexagon acting towards its vertices as shown in figure. Determine the magnitude and direction of resultant.

$$\sum F_x = 5 \cos 0 + 3 \cos 60 + 1 \cos 120 + 11 \cos 180 + 9 \cos 240 + 7 \cos 300$$

$$= \underline{\underline{-6N}}$$

$$\sum F_y = 5 \sin 0 + 3 \sin 60 + 1 \sin 120 + 11 \sin 180 + 9 \sin 240 + 7 \sin 300$$

$$= \underline{\underline{-10.39N}}$$

$$R = \sqrt{(\sum F_x)^2 + (\sum F_y)^2} = \sqrt{(-6)^2 + (-10.39)^2} = \underline{\underline{12N}}$$

$$\theta = \tan^{-1} \left| \frac{\sum F_y}{\sum F_x} \right| = \tan^{-1} \left| \frac{-10.39}{-6} \right|$$

$$= \tan^{-1} 1.73$$

$$= \underline{\underline{59.97^\circ}}$$


[Handwritten Signature]

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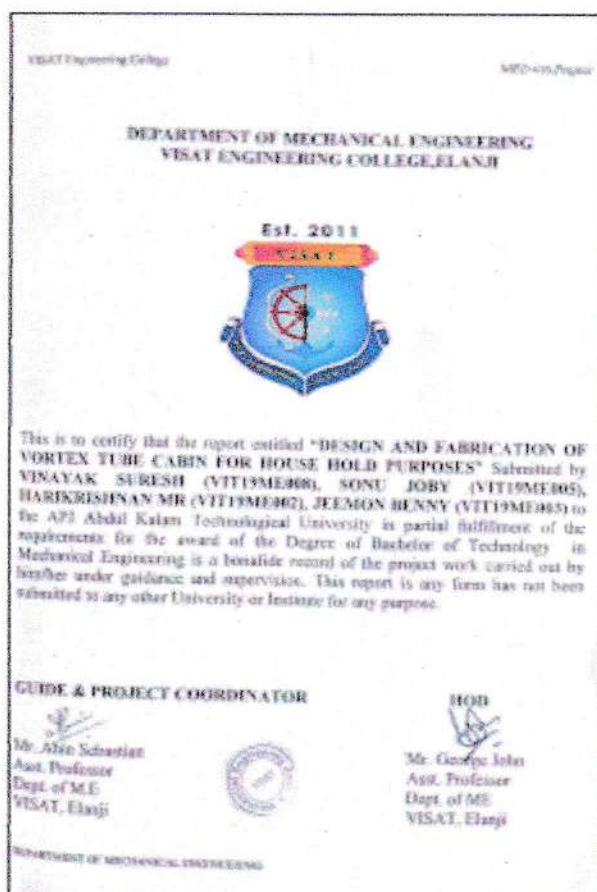
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3.2 PROJECT BASED LEARNING

Through project based learning, students not only apply theoretical knowledge but also develop practical skills, such as problem identification, research, analysis, and solution implementation. It also fosters a dynamic learning environment where individuals learn to navigate uncertainties, adapt strategies, and gain a deeper understanding of the subject matter, preparing them to thrive in a rapidly evolving world.



Project Report



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4. INFORMATION & COMMUNICATION TECHNOLOGY TOOLS

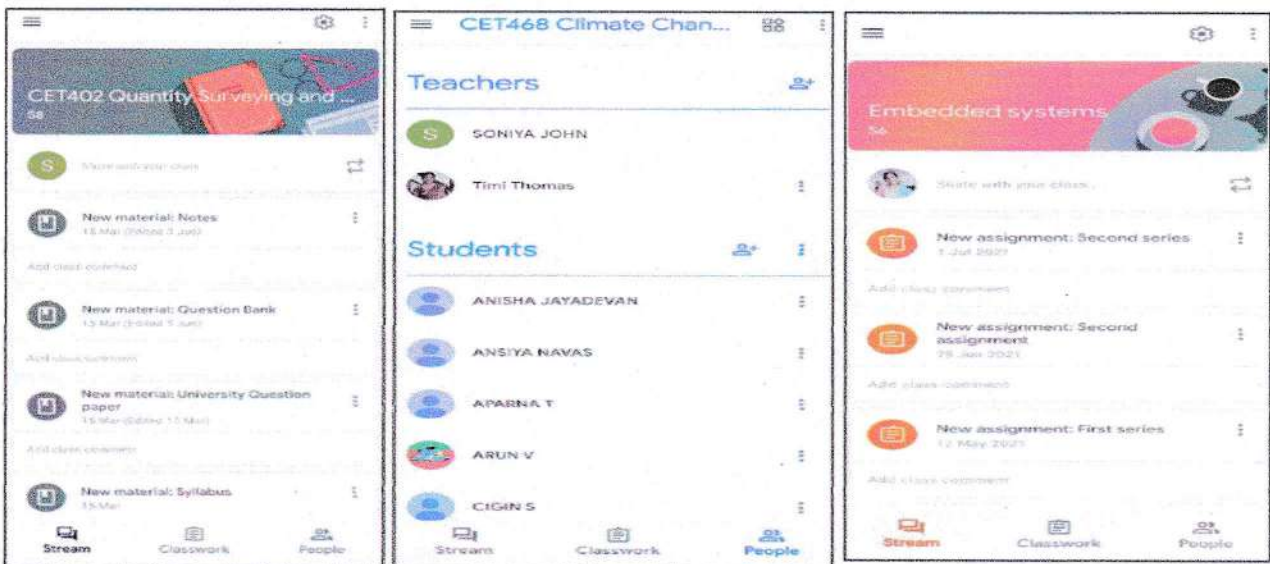
4.1 DIGITAL CLASSROOMS



Classrooms with Smart Television

Seminar Hall

4.2 GOOGLE CLASSROOM



Google Classroom used as a learning platform to streamline the process of file sharing



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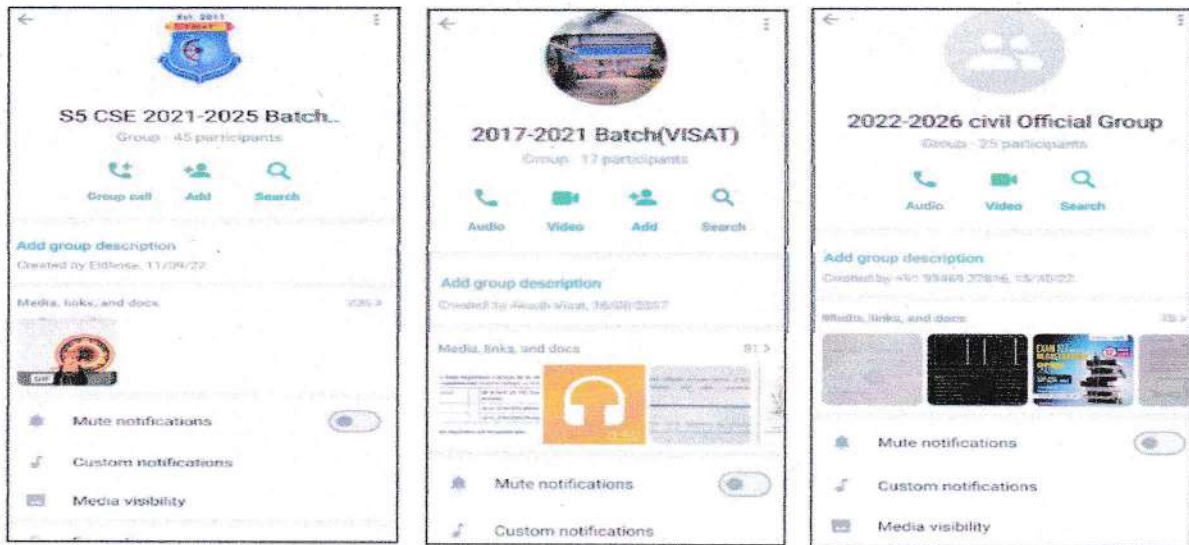
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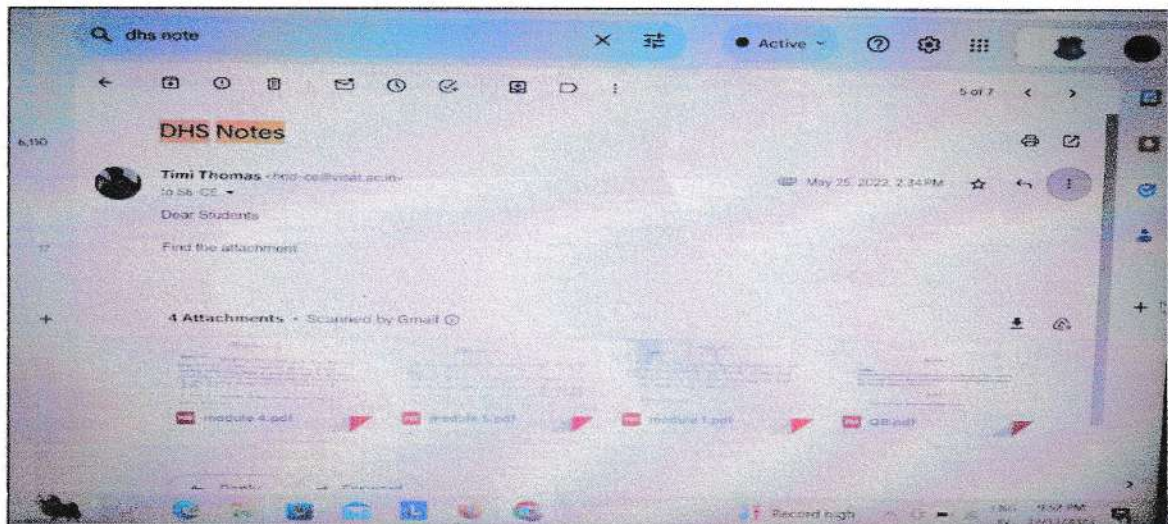
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4.3 WHATSAPP GROUP



Whatsapp groups used by various student batches to enhance the learning experience and to foster collaboration among students

4.4 GROUP MAIL



Group mails created to share the learning resources and to enhance their team work



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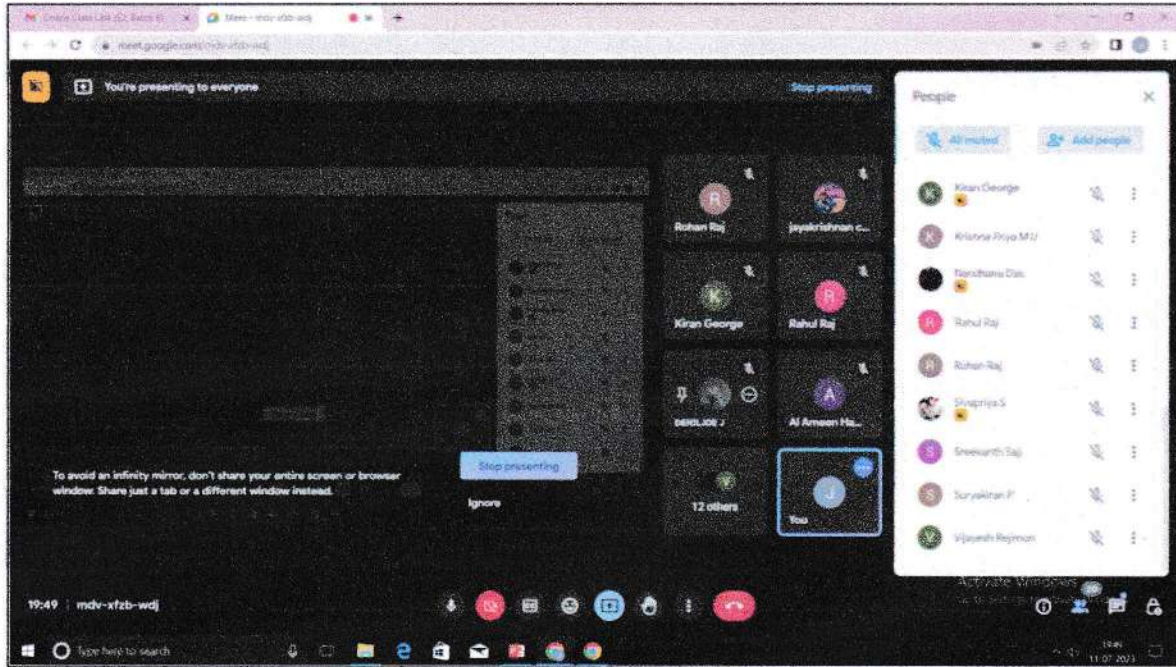
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4.5 GOOGLE MEET



Classes conveyed using Google Meet for students of 2022-26 batch for the course “EST100 Engineering Mechanics”



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