

GCET AICTE IDEA Lab

Let's nurture the product
of your innovative idea.

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Message From Editors



“The capacity to learn is a gift; the ability to learn is a skill; the willingness to learn is a choice”

-Brian Herbert

As the editors of the IDEA Lab’s Activity Newsletter, it give us immense pleasure to broadcast the newsletter of IDEA Lab. As stated in the quote, IDEALab focuses on practical based learning for the Learners. IDEALab concentrates on fostering new ideas, creativity and innovation. Generally, it is observed that students excel in theorotical knowledge but are found stragglng in practical implementation of the same. Hence, this Idea lab will assist Learners to apply their cognition in a daily practice and fathom concepts by doing Hands-on. Repeatedly and intentionally, we have used the word ‘Learners’ here, as this Lab is not only restricted to learners, but its also open for the stakeholders of society. We all faculty members along with student co-ordinators plan frequent seminars, works hops and training sessions for Learners under this emerging lab. This bi-monthly newsletter will showcase the details of programs organized in the past and upcoming planned events. To make it more informative and interactive, we have also added a column for students; where they can publish their own fun-facts, blogs and many more. Best wishes to all the students and Happy Learning.

Prof. Aakarsh S Jain & Prof. Endrick D Contractor
Editors,
GCET AICTE IDEA Lab Activity Newsletter

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GCET AICTE IDEA LAB with the under-counsel of the Electrical Engineering Department has organized a workshop on “Design and Development of Prototypes using the Laser Cutter and 3D Printer”. This offline workshop was held for three days from 28th July to 30th July 2022.

The main objective of conducting this workshop was to provide practical knowledge of the manufacturing environment to all the electrical engineering students there. The main keynote of the workshop was "3D Printing" (additive) to create the three dimensional objects and the "Laser Cutters", to process CAD data to accurately cut the sheet material made of wood or acrylic glass. Therefore the attempt was made to get hands-on practical knowledge of shaping a product. There were 36 notable participants in the workshop.

The workshop was conducted by Prof. Mihir Solanki & Prof. Jvalant Trivedi, Assistant Professor, Mechanical Department, GCET. The workshop was coordinated by Prof. Sachin Patel & Prof. Kaushal Shah. The workshop was carved up into three different sessions on different days.



Stranger Things and Mechanical gears 3d Printed

The first session was guided by Prof. Mihir Solanki and he discussed the overview of RD work, a software that allows us to perform laser cutting engraving operations and hands-on training on the same topic was also being conducted. After all this discussion, the visit to GCET AICTE IDEA LAB was conducted where the overview of the machine works was described. The session was very interactive and educational. Lastly, the participants designed mechanical gears in RD Works followed by cutting them using Laser Cutters.

The second session was based on 3D Printing and was conducted by Prof. Jvalant Trivedi. The session started with a discussion of the different components of the 3D Printer and then a brief overview of SnapMaker Luban software (a free, open-source CAM software that is committed to software services related to controls about 3D Printing, laser engraving or cutting, and CNC (carving capabilities) was given. After this discussion, the visit to GCET AICTE IDEA LAB was conducted. In GCET AICTE IDEA LAB, Prof. Purnank Bhatt explained the different components of a 3D Printer. Hands-on training on the same topics was being conducted. Lastly, the participants designed the box of stranger things with different parameters. After designing it, the printing of the box took 45 minutes.



The third session of the workshop was the hands-on session in which all the participants were given a task to make a chain on SnapMaker Luban and to make a wall hanging in RD Works software and were asked to operate both the machines. The best one of them was selected and on the next day and were sent for printing at the GCET AICTE IDEA LAB, and till that participants had started working on the engraving purposes. The chain took 42 minutes for printing and then wooden work for engraving purposes. By combining both a Wall Hanging was created.

The main accomplishment of the workshop was that the participants got a good hands-on exposure to the Laser Cutter and 3D Printer and learned about operating the software related to it.



Participants of the Workshop

CAD Software for Chemical Engineers

A three-day workshop on “CAD Software for Chemical Engineers” was organized by the Department of Chemical Engineering under GCET AICTE IDEA LAB. The workshop was conducted from 2nd August to 4th August 2022 for the third-year students of the Chemical Engineering Department.

On the first day, the session was guided by Prof. Mihir Solanki, Assistant Professor, GCET. The session started with the very basic idea of CAD software and its applications. He then moved ahead and taught various concepts in CAD software like how to draw lines, arcs, and circles by different methods.

Furthermore, Professor also taught them how to represent the dimensions of any shape.



On the second day, the session was divided into two phases. In the first phase Prof. Jvalant Trivedi, Assistant Professor, GCET introduced students to various features of CAD software like the updated bar, mirror tool, etc.

In the second phase, Prof. Purnak Bhatt, Assistant Professor GCET, taught students about 3-D modeling in the software. The session was quite enlightening for the students as the participants learned about many new concepts related to software.

On the third day, the session was led by Prof. Akarsh Jain Assistant Professor, GCET. He guided the students regarding 2-D modeling and its application. Later a practice session was held for the students to practice the techniques which they have learned in the entire session. An interactive session was organized to solve the doubts of the students. The event was concluded with the vote of thanks delivered by Prof. Endrick Contractor, Faculty



**“Skill Development Program”
for Teachers and Students of Shri Pritam High School, Sandesar**

GCET IDEA LAB in collaboration with the ISTE Student Chapter and Institute Innovation Council of GCET organized a “Skill Development Program”. The Skill Development Program was scheduled on 2nd August 2022 at 9:00 AM. The Skill Development Program was conducted by Dr. Vijay Makwana, Dr. Deven Trivedi, Prof. Bhavik Ardeshana, and Prof. Umang Jani.



The program’s main objective was to invite high school teachers and high school students to show them the facilities provided by GCET IDEA LAB and to encourage them to take up creative work and, in the process, get training on creative thinking, problem solving, collaboration, etc.



**“Skill Development Program”
for Teachers and Students of Shri Pritam High School, Sandesar**

The Skill Development Program was conducted offline at the GCET IDEA LAB building. A total of 33 students and 3 teachers of Shri Pritam High School enthusiastically participated in the Skill Development Program.

At the beginning of the session, Dr. Vijay Makwana explained the facilities developed under GCET AICTE IDEA LAB Scheme after receiving a grant from AICTE. He also discussed the major equipment, tools, and consumables used for the development of different types of components and various prototypes. In the second session, Dr. Deven Trivedi explained to students about different types of electrical and electronics instruments used in academic institutes and industries. He also provided hands-on training to the teachers and students of the high school. In the third session, Prof. Bhavik Ardeshana discussed the working principle and showed the operation of the CO2 Laser Cutter and Engraver.

In the fourth session, Prof. Umang Jani described different types of 3D printers available in the GCET IDEA LAB and operated them.

At the end of the session GCET IDEA LAB faculties answered the doubts of the teachers and students of Shri Pritam High School, Sandesar.

KAUSHALYAM-2

The Mechanical Department under GCET AICTE IDEA LAB organized “KAUSHALYAM-2”. The workshop was scheduled from 21st July to 23rd July, 2022. The workshop was conducted by Prof. Purnank Bhatt, Prof. Aakarsh Jain, Prof. Mihir Solanki, and Prof. Jvalant Trivedi who all are currently working as assistant professors in GCET. Along with them, Sarang Pandya and Tirth Joshi, two students from GCET, were also involved in conducting the workshop.



The main objective of this workshop was to give a basic idea to all the participants about 3-D Printer and CO2 Laser Cutter Machine. A 3-D Printer is a machine allowing the creation of a physical object from a three-dimensional digital model, typically by laying down many thin layers of a material in succession. On the other hand, CO2 laser cutting is a sheet metal processing technique that uses an electrically driven gas laser and it is used to cut contours into metal sheet material such as steel, stainless steel or aluminum.

KAUSHALYAM-2

On day 1, the students were divided into two batches. For batch 1, Prof. Purnank Bhatt gave a lecture on 3D printers where he introduced the students to the basics and history of the machine. Along with him, Prof. Jvalant Trivedi explained to the students about different shapes and requirements of support. After that, Tirth Joshi explained every detail of the machine and the type of software that is used to operate 3-D Printers like LUBAN. Thereafter, students were taken to the GCET AICTE IDEA LAB where they got a demo of how do the machines work and later students got hands-on experience for the same. At the end of day 1, students got to know about the machine and the software. Lastly, the students of batch 1 were assigned the task of making a phone stand.



For batch 2, Prof. Aakarsh Jain and Prof. Mihir Solanki were gave a lecture on CO2 laser cutter and engraver machine and shared its basics. Both the professors shared their experiences with it. Sarang Pandya gave all the basic knowledge of the CO2 machine. He discussed the various designs they made on it. After that, students were given a demo for the same. After discussing the theory, the students and professors visited the GCET AICTE IDEA Lab where the professors and the student coordinators gave detailed information about the machine.

Dr. Darshak Desai, Head of the Department of Mechanical Engineering visited the lab and took a photo with the team which was then made on a wooden block with the help of the machine. Lastly, the batch 2 students were assigned the task of making a design for the photos that they have clicked.

On day 2, the batches were interchanged and similar lectures were delivered to the students. After the basics of the machines were shared with the students, batch 1 students were assigned to make a car with the help of a 3D printer while batch 2 students were supposed to click a photo in a group and portray the same on given wooden piece with the help of a CO2 laser cutter machine.

KAUSHALYAM-2

On day 3, the students prepared a gear handle using both the 3-D Printer and the CO2 Laser Cutter Machine. Later an interactive session was organized to clear the doubts raised by the students. Finally, the event was concluded by the vote of thanks delivered by the faculties and the student coordinators. A total of 36 students participated in this workshop.



3D Scanner and Laser Cutter-EE

An exciting and learning event under the Skill Development Program organized by GCET AICTE IDEA LAB in collaboration with the ISTE Student Chapter, for the final year students of the Electrical Department on 8th August, 2022. This event was conducted by GCET AICTE IDEA LAB under the guidance of Dr. Vijay Makwana, Prof. Jay Vala, Prof. Bhavik Ardeshta and Prof. Bhargesh Patel. A total of 29 Students have participated in the event.



The objective of the event was to make students aware of the latest industrial trends regarding 3D Scanner and CO2 Laser Cutter and Engraver. It also encourages students to take creative ideas, problem solving, and collaborations. The event has fulfilled its objective to a great extent.

3D Scanner and Laser Cutter-EE

The event starts with the explanation of the history of AICTE IDEA LAB and perks received for the benefit of the students by Dr. Vijay Makwana Sir. Later sir also discussed the working principle, operation, and application of the CO2 Laser Cutter and Engraver. Students got their hands on practice with the software for the design of components like key-chain and shields. There was a demonstration of the CO2 Laser Cutter and Engraver by Prof. Bhavik Ardeshna.



In the second session, students gain knowledge of 3D Scanner under the guidance of Prof. Jay Vala. In this session also, students got hands-on practice with the software. Students have this event as an important aspect to deepen their technical knowledge and the latest about industrial technologies. At the end of the event, there was a request by students to the organizers for future knowledge-gaining sessions like this.

Skill Development Program on 3D Scanner and CO2 Laser Cutter and Engraver

GCET AICTE IDEA LAB in collaboration with the ISTE Student Chapter, Institute Innovation Council of GCET recently organized a Skill Development Program for the final year students of the Information Technology Department and Electrical Department. This program was conducted offline in the GCET IDEA LAB building on the 8th and 9th August, 2022 in two different slots starting from 9:30 AM to 5:00 PM. Dr. Vijay Makwana, Dr. Priyang Bhatt, and Prof. Jay Vala, Prof. Bhargesh Patel were the faculty coordinators for this program.



The main objective of the Skill Development Program was to make the final year students Industry-ready and aware of new technology's high-end instruments such as CO2 Laser Cutter & Engraver and 3D Scanner. This would not only adapt them to thinking of different, new, creative ways of working but also in the process, sharpen and train their mind on problem-solving, collaboration, etc.

Skill Development Program on 3D Scanner and CO2 Laser Cutter and Engraver

The session began with Dr. Vijay Makwana and Dr. Priyang Bhatt explaining the history of GCET AICTE IDEA LAB. Dr. Vijay Makwana described the facilities attained and developments made after receiving the grant from AICTE. Then after Dr. Priyang Bhatt started the discussion on the topic of the working principle of CO2 Laser Cutter and Engraver. Furthermore, the operations and their applications were taught. The students were fortunate enough to get the Hands-on practice session on the software to design different components used in Laser Cutting such as key-chain, shields, etc.

In the second session, Prof. Jay Vala and Prof. Bhargesh Patel explained the usage of 3D Scanner Software along with its applications to the students. A close demonstration of components related to the 3D scanner was held, next after the detailed discussion.

The students were then required to create a program on the software and participated in the short training session for displaying 3D scanning at work.

Students found this Skill Development Program very interesting as well as important for them to improve their technical skills. Furthermore, they requested the organizing team to arrange such programs in the future to further improve their technical and practical knowledge.

Engineering Trivia

1. Every hydrogen atom in your body is likely 13.5 billion years old because they were created at the birth of the universe.
2. In 1990, John Romkey created the first IOT device – a toaster that could be turned on and off over the Internet. By 1991, he had automated the entire process by adding a crane system that inserted the bread as well.
3. Gold is mixed with other metals to make it stronger, but most additions are white metals, like silver, and these quickly remove the yellow color of gold. The yellow color is restored by adding copper. Thus, gold jewelry is seen as yellow in color.
4. Big Brutus is the second largest electric shovel in the world. The electric shovel constructed in 1963 took more than 150 railroad cars and over a year to build. It is 160 feet tall and operates at 15,000 horsepower. The shovel had to be shut down in 1974 because the cost of operation was twice that of the value of coal it recovered.
5. The first computer program was predicted by Ada Lovelace in a paper she published in 1843. Ada suggested that plan for calculating Bernoulli numbers with a new calculating engine called the “Analytical Engine”.

**GCET AICTE IDEA Lab
Departmental Students' Team**

**ME
Department**

Chinmay Rudragoudar

Deep Pathak

Jay Shah

Kunal Rana

Mitesh Maru

Sarang Pandya

Tirth Joshi

Yash Ranpariya

**EC
Department**

Anubhav Shriwastava

Himanshu Patil

Mohsin Ali

Richa Mishra

Rishi Sha

Shrushti Parikh

Vidisha Sidha

Vraj Patel

**MC
Department**

Abhishek Borad

Achyut Sapariya

Anil Maity

Ishan Shah

Mit Patel

Mehul Kamani

Rohan Umrliya

Shivam Rana

Shubham Sharma

Smeet Shah

Vinit Trivedi

Lovish Ojha

CP Department

Abhishek Pandey
Alay Parikh
Bhumika Ailawadi
Darshan Modi
Dhruvi Vadariya
Dhyey Dodiya
Disha Patel
Ishan Bhatt
Jhanvi Shukla
Kinal Patel

Moinuddin Mulla
Nishi Patel
Nishith Soni
Prashant Solanki
Riya Patel
Sitanshu Goradia
Smit Choksi
Sneh Vachhani
Vraj Mistry
Yash Kotadia
Raj Simpi

IT Department

Aayushee Gurjar
Adnan Lokhandwala
Henali Shah
Henil Patel
Jinay Shah
Jyot Prajapati
Krish bhadvaniya
Krishshan Navadia
Nainil Oza

Priyan Nakrani
Rahi Patel
Raj Ami
Siddharth Chudasma
Smit Makhecha
Sujal Lakhani
Yash Patel
Yatri Shah

CH Department

Aaditya Rai
Aditi Thattil
Dipti Rathod
Jay Chauhan
Kanaiya Patil
Kushal Mehta
Mahir Mansuri

Neer Patel
Nil Zalavadiya
Sagar Gohil
Sania Pillai
Harshil Barbhaya
Hemal Dhankecha

CL Department

Aditya Lodhari
Kishan Kacha
Nisarg Patel
Pankaj Solanki
Ravirajsinh Vaghela
Yash Shaparia

EE Department

Dhaval Kalathiya
Dhruv Bhargav
Dhyey Vithalani
Emmanuel Kamugisha
Gautam Prajapati
Harshil Sathwara

Helly Parikh
Hetvi Shah
Mukul Goray
Nand Patel
Parth Vaghela
Shivam Patel

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**“ THE MAN WHO DOES NOT
READ BOOKS HAS NO
ADVANTAGE OVER THE ONE
WHO CANNOT READ THEM.”**

- MARK TWAIN



G.H. PATEL COLLEGE OF ENGINEERING & TECHNOLOGY

(A CONSTITUENT COLLEGE OF CVM UNIVERSITY)

Bakrol Road, Vallabh Vidyanagar, 388120- Gujarat

Ph. (02692) 231651, 236896(Fax)

Email: principal@gcet.ac.in Web: www.gcet.ac.in