

MEXPRESS

Mechanical Engineering Department's Official Newsletter
VOLUME 05 - Issue 12



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AUGUST 2022

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FACULTY AS RESOURCE PERSONS



Dr. R. Manivel, Professor, provided a training programme on "Subsea Systems" for Post Graduate Diploma in Design Engineering students conducted by Sakthi Excellence Academy from 04-07-2022 to 12-07-2022.

Dr. N Sangeetha, Sr. Associate Professor, acted as External Examiner at GCT-ME, External on 29-07-2022. She was also a selection panel member for M. Tech. Defence Technology on 06-07-2022.



Dr. B. N. Sreeharan, Assistant Professor-II, trained M/s. CAPGEMNI placed students on Advanced Excel and G-Suite on 22-07-2022, 25-07-2022, and 29-07-2022, which were organised by the Department of Aeronautical Engineering. He was also one of the Jury for the Paper Presentation events conducted as a part of Yugam on 30-05-2022.

MANUSCRIPT SUBMISSION

The following faculty members submitted their respective prepared manuscripts to the WoS indexed Ambient Science Journal.

Name of the faculty	No. of papers
Mr. S. Sivakumar, AP-II	1
Dr. M. A. Vinayagamoorathi, AP-II	2
Mr. K. Manikanda Prasath, AP – II	1
Dr. M. Thirumalaimuthukumaran, AP – III	1



PAPER PUBLICATION



Dr. M. Balaji, Associate Professor, published a paper entitled "Lead time reduction and process enhancement for a low volume product", Vol 62, Part 4, pp 1722-1728. He also published another paper entitled "Experimental Investigations to Deploy Green Manufacturing through Reduction of Waste Using Lean Tools in Electrical Components Manufacturing Company", Volume 8, pp 365-374.

Dr. R. Manivel, Professor, published a paper entitled "Design and Multi-Perspective-based Computational Analyses of Flying Wing UAV for Rescue Applications in Cryogenic Environments."



Dr. S. Balasubramanian, Associate Professor, published a paper titled, "Design and development of a large scale FDM-based 3D printer," in the Journal of Physics.

MANUSCRIPTS REVIEWED

Dr. C. Velmurugan, Professor, reviewed a manuscript entitled "Influence of various blank diameter in deep drawing" for Materials Today: Proceedings, a Scopus-indexed International Journal.



The manuscript entitled "Experimental and Finite Element Analysis of Reinforced Composite Front Drive Axle" was reviewed for the WoS indexed International Journal of Indian Journal of Science & Technology by **Dr. B. N. Sreeharan**, Assistant Professor-II.

Mr. K. Manikanda Prasath, Assistant Professor - II, reviewed "Investigation on flexural properties on sandwich 3D printed PLA Component for the Scientific. Net, a Scopus indexed International Journal."



PROGRAMMES ATTENDED / COURSES COMPLETED



Mr. S. Ramanathan, Assistant Professor – III, participated in an FDP on "Design and development of 3D Printing" from 25-07-2022 to 31-07-2022 at IIT, Trichy.



Dr. M. Thirumalaimuthukumaran, Assistant Professor – III, participated in a National Event on "Recent Advancement in Heat Transfer of Manufacturing Processes" from 25-07-2022 to 29-07-2022 organised by the Government College of Technology, Coimbatore.

Dr. M. A. Vinayagamoorthi, Assistant Professor – II, participated in a webinar on "Innovation at the Speed of Design Tata Motors Drives Innovation Through Rapid Design Point Analysis" from 27-07-2022 to 28-07-2022, organized by Altair webinar - Tata Motors Drives Innovation. He also participated in Webinar on "The Future of Skills" on 15-07-2022 organized by L & T EduTech.



Dr. S. Balasubramanian, Associate Professor, participated in a Conference on "Additive Manufacturing in Aerospace and Defense" on 02-07-2022 organised by NDRF. He also participated in a seminar on "National IPR Awareness Mission" on 04-07-2022 organised by NIPAM. Further, he participated in a webinar on "The Future of Skills" on 15-07-2022 organised by L & T EduTech.

Dr. S. Thirumurugaveerakumar, Associate Professor, participated in a webinar on "The Future of Skills" on 15-07-2022 organised by L & T EduTech.



Dr. V. R. Muruganantham, Associate Professor, participated in a seminar on "National IPR Awareness Mission" on 04-07-2022 organised by NIPAM.

Dr. T. Karuppusamy, Assistant Professor-II, participated in a webinar on "The Future of Skills" on 15-07-2022 organised by L & T EduTech.



Mr. P. D. Devan, Assistant Professor-II, participated in a seminar on "National IPR Awareness Mission" on 04-07-2022 organised by NIPAM.

Mr. R. S. Mohankumar, Assistant Professor-II, attended a two-day webinar on "Innovation at the Speed of Design-Tata Motors Drives Innovation Through Rapid Design Point Analysis" organised by Altair through the online platform on 27-07-2022 and 28-07-2022.



INDUSTRIAL VISITS



An industrial visit was arranged to M/s. Benchmark Tea Factory, Doddabetta, Ooty, Tamil Nadu, 643001 on 14-07-2022 for the PBL II Semester students. The visit was arranged and accompanied by **Dr. S. Balasubramanian**, Associate Professor.

ALUMNI REUNION

An alumni reunion of the batch 1998-2002 was organised by the Department of Mechanical Engineering, on Saturday 9th July 2022. Alumnus arrived by 11:30 a.m. and hold interactions with HoD and faculty members. Later they had campus visit which followed by lunch. Photo sessions were arranged, and reunion ended with valedictory function.



Dr. S. Thirumurugaveerakumar, Associate Professor and **Mr. V. R. Navaneeth**, Assistant Professor - II coordinated the event.

CAPGEMINI ENGINEERING CENTRE OF EXCELLENCE FOR PRODUCT LIFECYCLE MANAGEMENT

Activities so far

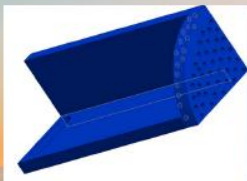
For the AY 2021-22 Even Semester (06), an elective course U18MEE0024 Product Design and Development, is completed during Mar to June 2022.

Total No. of students completed	: 90
Mechanical Engineering	: 44
Mechatronics Engineering	: 20
Automobile Engineering	: 15
Aeronautical Engineering	: 11

Students Contribution

- ☐ Technical Poster Presentations
- ☐ Prototype Building
- ☐ Mini Project work
- ☐ Voice over Presentations
- ☐ Case Study Reports
- ☐ Seminar Group Presentations

Technical Poster Presentations

 MULTI PURPOSE CHOPPING BOARD U18MEE0024 - PRODUCT DESIGN AND DEVELOPMENT DEPARTMENT OF MECHANICAL ENGINEERING KUMARAGURU COLLEGE OF TECHNOLOGY		
ABSTRACT Cutting boards is the product only used for cutting purposes. In modern days, single purpose tool is insufficient. So old tools are modified and recreated to perform multiple functions.	NEED FOR MODIFICATION 1. Don't perform multiple functions. 2. Not satisfying customer needs 3. Perform common function.	SPECIFICATION 1. It can perform more than one function. 2. It involves cutting, washing and transferring.
INTRODUCTION A cutting board (or chopping board) is a durable board on which to place material for cutting. The kitchen cutting board is commonly used in preparing food; other types exist for cutting raw materials such as leather or plastic. Kitchen cutting boards are often made of wood or plastic and come in various widths and sizes.	OLD MODEL VS NEW MODEL  	ADVANTAGES 1. Multi purpose product 2. It can satisfy customer needs. 3. This board performs cutting of vegetables, washing of cut vegetables and transfer of that vegetables made easier.
 DONE BY SUVANRAJR(19BME100). GUIDED BY MOHANKUMAR RS ASSISTANT PROFESSOR, KCT.		



U18MEE0024-PRODUCT DESIGN AND DEVELOPMENT DUPLEX BOTTLE

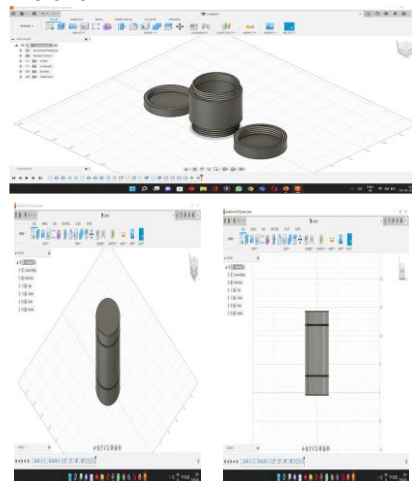
ABSTRACT

Water bottle and flasks are common utility, almost everyone uses it. The main problem in it was the cleaning part. Since the bottom portion is inaccessible, sometimes it is left uncleaned or not cleaned properly, which may lead to serious health problem due growth of bacteria, deposition of toxic substance. Our goal is to make the bottom part more accessible to clean.

OBJECTIVE

Health becomes a question nowadays. No one has time to time to care about it in this modern world. Only small amount of ingestion of bacteria or toxic substance may lead to drastic health issues. For example, When using a copper bottle we have to ensure that it does not get a green oxide coat which is poisonous to health. But if the green oxide coatings formed in the bottom it is hard to access it by normal means. So to make the bottom part of the vessel accessible is our objective.

DESIGNS



SOLUTION

Our solution is to make the bottom part of the container detachable, so that it can be detached, cleaned and attach it while we use. We added threads at the bottom like the one at the cap. Now we have opening, so we can drink from both the sides, which is an added significance. We made both the caps wider, so it is easier to clean when compared to narrow neck bottles.

TARGET CUSTOMERS

Almost everyone carry water bottles. But our targets are school students and elder peoples whose health conditions are cared much.

ACKNOWLEDGEMENTS

By
Anul Manoj R
Guided by
Mr. Mohan Kumar



U18MEE0024 – Product Design & Development Detachable Measuring Cube

NAME : SHYAM S B
ROLL NO. : 19BME076

GUIDED BY : Mr. MOHAN KUMAR R S

ABSTRACT

To counter the problem statement, I have gone through a lot of existing products that could solve the problem, and came up with a measuring cube. This measuring cube could measure and contain substance of up to 20 different measurements. This cube can be used to measure food products of greatest accuracy and could be used to prepare consistent food daily. This cube could minimise the storage space of conventional utensils up to 10 to 15 times.



MODIFICATION

PROBLEM STATEMENT

Today's food business sees a lot of food wastage and inconsistency in food quality. This has resulted in failure of numerous restaurants, cafeteria, dine-ins etc, since they could not produce consistency in food quality and due to this inconsistency, they have failed to manage the usage of raw materials.

FAILURE ANALYSIS

Even though this product seems to be useful in saving a lot of space, cost-effective and provides consistency in food quality, this measuring cube was a failure. It failed because it wasn't handy for cooks and chefs to use it. It consumed a lot of time to add the substance to the cube first and then to the food. The general one step process became a two step process, which made the preparation time of a food to increase.

TARGET CUSTOMERS

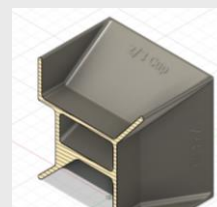
The main target customers are people who run a kitchen, cafeteria, restaurant, motel, hotel. These people understand the use case of this product. This product has been developed specifically for the problems faced by them, which was identified through customer feedback.

NEW PRODUCT DEVELOPMENT

To overcome this failure, I went through the design of the existing measuring cube and came up with an idea. The idea was to make the measuring cube, a detachable one. To explain it in simple terms, the detachable measuring cube is just an assemblage of various spoons of accurate measurements. This modification solves the problem by making the two step process again to a single step process, this makes the preparation time of food quicker with consistent quality, lower wastage and saving a lot of space in kitchen.



ISOMETRIC VIEW



SECTION ANALYSIS

DESIGN EXPLANATION

For the sake of simplicity and for the convenience of 3D printing, the total number of measurements were cut down from 20 to 5 measurements. This simplification helped me to explore new ideas to encounter the problem in measuring cube and come up with an idea. Adding a holder to the measurement cups in the cube made it a literal spoon, which helped to solve the problem. The specific spoon can be detached from the cube, used to measure the required food substance, and then could be attached back to the measuring cube.



KUMARAGURU
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character is life

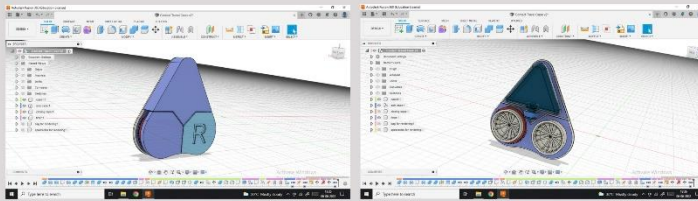
U18MEE0024 Product Design and Development

Guided by Mohan Kumar R S 19BME070 Vipin S

Contact Lens Travel Case

- Everyone using contact lens on daily basis knows the difficulty of carrying a bottle of saline solution everywhere along with the lens case.
- The Lens case includes a compact bottle for saline solution and a 30-day calendar which is convenient to use.
- The overall heart shaped design gives the case a nice aesthetic touch and the material used is soft and pliable enhancing its appeal.
- The solution bottle carries solution that would last about 3 days for rinsing and storing lens. The design is transparent to easy knowing of volume of solution present. The travel case does all of this w/o compensating in its compactness.

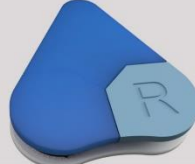
3d model of the Lens case:



Case without cap



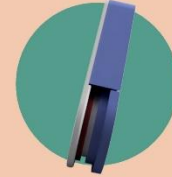
Solltuion bottle



case with cap

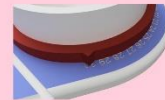
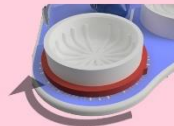


Top View



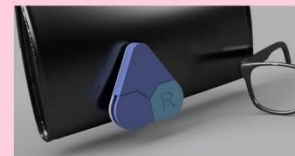
Side View

30-day Calender



Almost all lens expire in 30 days from the day they are opened. The Lens Case contains a functional feature which reminds you how long you have been using the lens in the case so that you can make sure you change yours in time.

Target customer: People who use 30-days contacts and those who use contacts on daily basis.



Real life size representation of the product

3D Printed Prtotypes



**Charger with Adjustable
Mobile Holder**



Adjustable laptop table



**Detachable Measuring
Cube**

3D Printed Prototypes



USB & Memory card Holder



Contact lens travel case

Wooden Prototypes



Multi Purpose Chopping Board

Customized Prototypes



Multi purpose mobile back case



Stapler with single punching machine



Surface Smoother

Technical Seminar Group Presentations

INDUSTRIAL DESIGN TEAM MEMBERS: ARUL MURUGAN, V - 19BAU024 NAVEEN KUMAR, V - 19BAU026 KAVINESH, S - 19BAU031 REKSH PAUL, JESS, C - 19BAU032 RITHESH KUMAR, A - 19BAU033	INTRODUCTION: Industrial design is an applied art whereby the aesthetics and usability of mass-produced products may be improved for marketability and production. The role of an Industrial Designer is to create and execute design solutions towards problems of form, usability, and value. Uses ergonomics, engineering, marketing, brand development, sales.	A design is the protection of the <i>ornamental or aesthetic</i> aspect of a product. A design makes a product attractive and appealing for the consumers. APPLIED ART TO IMPROVE PRODUCT - Aesthetics - Usability - CREATE AND EXECUTE DESIGN SOLUTIONS - Form - Ergonomics - Engineering - Marketing - Brand development - Sales
1 ★ 00:10	2 ★ 00:12	3 ★ 00:12
Industrial design deals with consumer products as well as industrial products. - Human behavior - The human-machine interface - The environment - Product itself	What is Industrial Design? - Industrial Design is concerned with all the human aspects of machine-made products and their relationship to people and the environment. - The designer is responsible for those products and their impact on society and nature. - The designer is responsible for the product's human factors engineering, safety, form, style, maintenance and cost. - Industrial design deals with consumer products as well as industrial products.	What can be registered as a design? The look of the product OR Part of the product
4 ★ 00:14	5 ★ 00:24	6 ★ 00:27

Mini Project Work



LARGE SCALE 3D PRINTER (1Mx1Mx1M)

Department of Mechanical Engineering
Kumaraguru College of Technology
Product Design & Development- U18MEE0024

Nitheeshwar R K - 19BME067
Sangeethkumar B - 19BME234



INTRODUCTION

Three-dimensional (3D) printing is an additive manufacturing process that creates a physical object from a digital design. The process works by laying down thin layers of material in the form of liquid or powdered plastic, metal, or cement, and then fusing the layers together.

- Three-dimensional (3D) printing is an additive manufacturing process in which a physical object is created from a digital design by printing thin layers of material and then fusing them together.
- Some industries, such as hearing aids manufacturers, airline manufacturers, and car manufacturers, use 3D printing to create prototypes and mass produce their products using custom scans.
- While it is currently too slow to be used in mass production, 3D printing technology is still evolving and has the potential to massively disrupt both the manufacturing logistics and inventory management industries.

ADVANTAGES OF 3D PRINTING

- Speed
- Cost efficient
- Flexibility
- Tangible design and product testing
- Quality
- Consistency
- Risk reduction
- Accessibility
- Sustainability

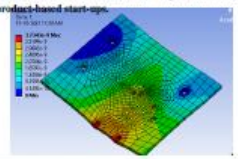


UNDERSTANDING 3D PRINTING

- Since it was introduced, 3D printing technology has already increased manufacturing productivity. In the long-term, it has the potential to massively disrupt both the manufacturing, logistics, and inventory management industries, especially if it can be successfully incorporated into mass production process.



- Currently, 3D printing speeds are too slow to be used in mass production. However, the technology has been used to reduce the lead time in the development of prototypes of parts and devices, and the tooling needed to make them. This is hugely beneficial to small-scale manufacturers because it reduces their costs and the time to market, that is, the amount of time from a product being conceived until its being available for sale.
- 3D printing can create intricate and complex shapes using less material than subtractive manufacturing processes, such as drilling, welding, injection moulding, and other processes. Making prototypes faster, easier, and cheaper allows for more innovation, experimentation, and product-based start-ups.



INDUSTRIAL USES

- Car and aircraft manufacturers have taken the lead in 3D manufacturing, using the technology to transform unibody and fuselage design and production, and powertrain design and production. Boeing is using 3D-printed titanium parts in the construction of its 787 Dreamliner airliner. In 2017, General Electric created a helicopter engine with 16 parts instead of 900-an indication of how big an impact 3D printing could potentially have on supply chains.
- In medical sciences, 3D printing is being used to customize implants. In the future, organs and body parts may be created using 3D printing techniques. In the fashion world, Nike, Adidas, and New Balance are using 3D printing to create their shoes. In the construction industry, companies around the world are making breakthroughs in 3D printing of the materials need to build homes. Using layers of concrete, homes can be built in 24 hours, which are stronger than regular cinder blocks and cost a fraction of the price.
- In the manufacturing of hearing aids, 3D printing is now customary. The use of 3D printing accelerates the process of manufacturing and enables manufacturers to make custom hearing aids. Audiologists can use 3D scanners to create a custom prototype using reference points from the scan. Manufacturers can feed the scan into a 3D printing machine and after fine-tuning the materials and the ear shapes, print the entire hearing aids.

COMPONENTS USED	QUANTITY	APPLICATION
Stepper Motor (NEMA17-2004)	7	Axis-Motion
Stepper Motor (NEMA17-1704)	2	Ezrider
Stepper Motor Driver TB6600	8	Stepper Motor control
Controller Board (RBL V1.0)	1	Overall Controlling of the printer operation
LED Display	1	Graphical control integration
SMPS 230V AC-12V DC 40A	1	Power Converter

IMPACT OF LARGE SCALE 3D PRINTING

- The main objective of developing this 3D printer is to prototype the die before manufacturing it.
- Secondary objective of developing this 3D printer is to manufacture Aircraft wings in a single print.
- Plays a vital role in scale down prototyping.
- Research related to fixed wing aircraft
- UAV fuselage research
- Since the 3D printed components are used in prototyping the cost of prototyping is reduced.
- By using the 1m x 1m 3D printer large components are manufactured in one print.
- Minimal material wastage.
- Largest student-built 3D printer in South India.



Case Study Reports



KUMARAGURU COLLEGE OF TECHNOLOGY
COIMBATORE – 641 049
(An Autonomous Institution Affiliated to Anna University Chennai)

INTERNAL ASSESSMENT

DEPARTMENT OF AUTOMOBILE ENGINEERING

U18AUE0022-PRODUCT DESIGN AND DEVELOPMENT

ASSIGNMENT – 2

SUBMITTED BY

SARAVANAN.P - 19BAU005

HARI VIGNESH .S - 19BAU010

DINESH.V - 19BAU023

ARULMURUGAN.V - 19BAU024

CUSTOMER NEEDS AND PRODUCT /SERVICE SPECIFICATIONS

SERVICE : MUSIC APPLICATION (SPOTIFY)

PROBLEM IDENTIFICATION :

COVID19 has taken various shapes in many industries but in case of music application (SPOTIFY) it is said to be a boom period for any hike in the market. Music remains a key part of people's life during this lockdown/quarantine be it the work desk, cook area, gaming console, household chores, etc. This new home routine has impacted how, where and why people are listening. For example, listening in the car has declined, but listening on gaming console and across connected device is up. It is obvious they're huge number of users in the market but here rises a question that if the feature provided is completely utilized by the users or not. This project will help to understand 360-degree view about Spotify.

OBJECTIVE

- To study the level of awareness towards Spotify app.
- To know the perception and preference towards Spotify app.
- To identify the factors influencing to select Spotify app.
- To know level of satisfaction towards Spotify app.
- To identify the problem and offer suggestions based on result and users' opinion.

PROJECT METHODOLOGY:

- SAMPLE DESIGN:**
The study is based on convenient sampling.
- SAMPLE SIZE:**
The Sample size of the study is 50 respondents.
- AREA OF STUDY:**
The study is conducted in Coimbatore city.
- COLLECTION OF DATA:**
Both primary data and secondary has been used in the study. Primary data is collected through questionnaire. Secondary data has been collected from official websites, journals, magazines and articles.
- ANALYSIS:**
 - Percentage analysis
 - Rank analysis

SURVEY (49 RESPONSES):

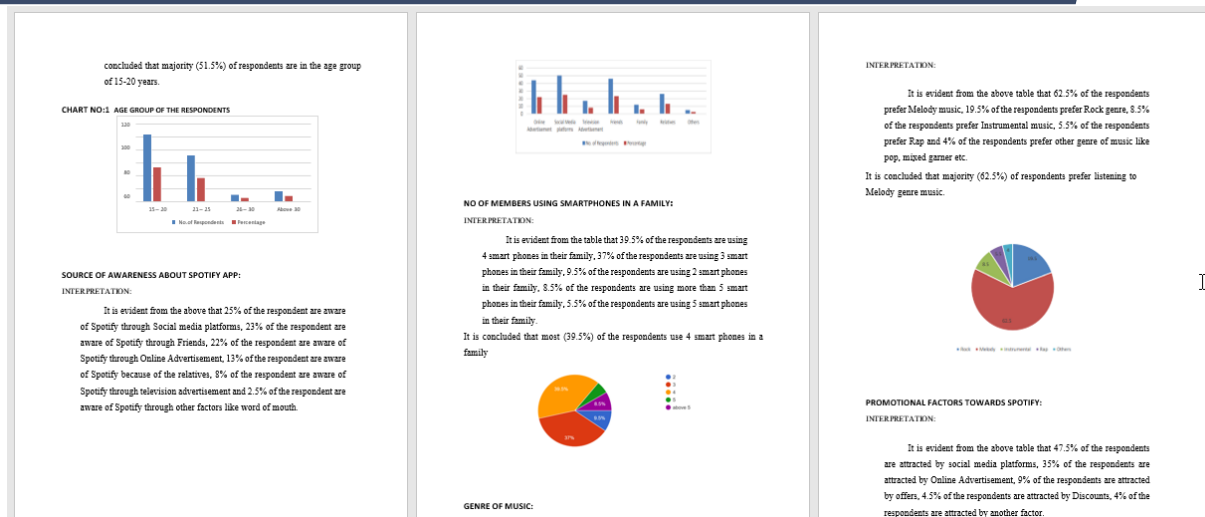
We have collected around 49 responses from different customers of Spotify on different basis and below we have summarized some of the parameters which would give a better perception to the problem statement.

Link to Response:
[Study towards music application \(Responses\).xlsx](#)

AGE GROUP OF THE RESPONDENTS

INTERPRETATION:

It is evident from the above table that 51.5% of the respondents are in the age group of 18-25 years, 35.5% of the respondents are in the 26-30 years, 8% of the respondent are in the agegroup above 30 years and 5% of the respondent are in the age group 26 – 30 years. It



SNAP SHOTS



Department visit



Alumnus discussion in the department



Alumnus – Infront of Department

ELECTRIC AND HYBRID VEHICLE WORKSHOP (EHV - 2022) , TOP ENGINEERS, WORKSHOP, CHENNAI, TAMIL NADU, 21ST AUGUST 2022

About Event

TOP ENGINEERS is an organization which is run by MIT-ANNA UNIVERSITY ALUMNI, Chennai. TOP ENGINEERS specializes in providing hands on experience on industrial practices to its participants through various workshops, seminars and other means by renowned subject matter experts and researchers to bring out the real world experience. TOP ENGINEERS workshops are designed to provide an insight view in the field of engineering. All the concepts will be explained in detail with the help of practical and with specially designed animations which would help the students to visualize things before actually practically working on it. TOP ENGINEERS have conducted more than 1000 programs in India and trained over 1, 00,000+ students in the last 10 years.

Events – PPT Topics

Basics Of Electric Vehicles
Basics Of IC Engines
Basics Of Hybrid Vehicles
Types Of Hybrid Vehicles
Powertrain Architectures
Electric Motors, Power Electronics and Electric Drives and Motor Control
Batteries, Ultracapacitors and Flywheels
Technology Options
Design And Sizing
Energy Recovery Systems
LIVE ELECTRICAL BIKE OR CAR DEMO
IC ENGINES DISMANTLING AND ASSEMBLING

Last Dates for Registration

20.8.2022

CONTACT 09940322437 / 9840728806

MAIL admin@topengineersindia.com

WEBSITE www.topengineersindia.com

LINK: <https://forms.gle/Gsu6R4imD6ZStV4AA>

Arduino Workshop (Data - 2022), Top Engineers, Workshop, Chennai, Tamil Nadu, 27th August 2022

About Event

TOP ENGINEERS is an organization which is run by MIT-ANNA UNIVERSITY ALUMNI, Chennai. TOP ENGINEERS specializes in providing hands on experience on industrial practices to its participants through various workshops, seminars and other means by renowned subject matter experts and researchers to bring out the real world experience. TOP ENGINEERS workshops are designed to provide an insight view in the field of engineering. All the concepts will be explained in detail with the help of practical and with specially designed animations which would help the students to visualize things before actually practically working on it. TOP ENGINEERS have conducted more than 1000 programs in India and trained over 1,00,000+ students in the last 10 years

Events

- | | |
|------------------------|----------------------------------|
| 1. INTRODUCTION | 4. SERIAL COMMUNICATION |
| a. EMBEDDED SYSTEM | a. DATA TRANSMIT |
| b. ARDUINO | b. DATA RECEIVE |
| 2. DIGITAL OUTPUT | c. LED CONTROL USING SERIAL DATA |
| a. LED ON/OFF CONTROL | d. GET SENSOR DATA SERIALLY |
| b. LED BLINKING | 5. ANALOG INPUTS |
| 3. DIGITAL INPUTS | a. ANALOG SENSOR INTERFACING |
| a. SWITCH INTERFACING | 6. ANALOG OUTPUTS |
| b. LED ON/OFF SEQUENCE | a. PULSE WIDTH MODULATION |
| c. SENSOR INTERFACING | b. LED BRIGHTNESS CONTROL |
| | c. RGB LED CONTROL |

Last Dates for Registration 26.8.2022

CONTACT 09940322437 / 9840728806

MAIL admin@topengineersindia.com

WEBSITE www.topengineersindia.com

FACEBOOK LINK <https://www.facebook.com/topengineersplus>

LINKEDIN LINK <https://www.linkedin.com/company/top-engineersindia>

INSTAGRAM

https://www.instagram.com/invites/contact/?i=1lfu0wukc7n4a&utm_content=n4g5brd

TELEGRAM LINK <https://t.me/topengineersworkshops>

WHATSAPP LINK

<https://chat.whatsapp.com/F2XvwCdfJ7p4vkVLMntqGn>

REGISTRATION LINK <https://forms.gle/edyW6LM4QKfrGtpUA>

Registration Fees

INR 900/- PER PERSON (INDIA) (including GST)

\$100 USD (FOR OTHER COUNTRIES)

GROUP DISCOUNT OFFER

Group of 5 & above will get 5% Discount

Group of 10 & above will get 10% Discount

LINK: <https://rzp.io/l/1b1MPc042W>

LINK

INAE INNOVATIVE STUDENT PROJECTS AWARD 2022:

The following students have submitted the application from Mechanical Engineering department to Indian National Academy of Engineering on 31-07-2022.

- | | | |
|-------------------------|---|----------|
| 1. Mr. R. A. Indrajith | - | 18BME215 |
| 2. Mr. D. Deepachandran | - | 18BME218 |
| 3. Mr. G. Suriya | - | 18BME230 |

Project Guide: **Dr. K. M. Senthil Kumar**, Associate Professor and Coordinator for INAE Innovative Student projects Award 2022- **Mr B. Jeeva**, Assistant Professor - II

MONACO ENERGY BOAT CHALLENGE:



Monaco is the world capital of yachting, and the Yacht Club de Monaco is the heart of this endeavour. Founded in 1953 by Prince Rainier and presided over by HSH Prince Sovereign Albert II since 1984, the Yacht Club de Monaco has a rich sea-going legacy. It is a centre for excellence in yachting, bringing together over 2500 members of 80 nationalities. Home to historic events and prestigious sailing contests, the Yacht Club is committed to the sustained wellbeing of the world's oceans and the environment. The Monaco Energy Boat Challenge is a part of this effort.

The Monaco Energy Boat Challenge, or MEBC, unites universities across the globe for the common goal of zero-carbon yachting. This serves as a platform for developing, testing, and collaborating to form the next generation of sustainable yachting solutions. Separated into 3 classes with participants from 20 nations, MEBC has created a real impact in the quest against climate change. The challenge, presided over by an international jury, consists of races, tech talks, and exhibitions by the industry.

There are three categories in the Monaco Energy Boat Challenge, viz.,

- Energy Class
- Solar Class
- Open Sea Class

Team Sea Sakthi is the first Indian team to compete in the Monaco Energy Boat Challenge. Participating in the Energy Challenge, the team has fabricated a catamaran-type craft equipped with a fully electric propulsion system and innovative electronic and IT solutions.

ABOUT TEAM SEA SAKTHI (TSS):

Team Sea Sakthi was founded in December of 2021 to compete in the MEBC. After clearing the initial submissions, the team expanded to incorporate 14 engineering students with various ingenious talents across the departments of KCT. Harnessing experience from designing and building battery-powered electrical vehicles, the team has managed to design, validate, fabricate and test a boat in just over 3 months. With the support of the institution, partners, and mentors, the team aspires to spread sustainability in the marine sector while serving as a learning and research point for such endeavours. With immense pride in Tamil culture, the 2022 boat has been named "Yali" after the mythological guardian beast of temples that symbolizes power and strength.

The energy boat YALI, built by Team Sea Sakthi of Kumaraguru College of Technology, represented India. The Technical Inspection (TI) of the Monaco Energy Boat Challenge has been cleared successfully.



KCT TEAM – Design of Energy Boat



Monaco Energy Boat Challenge



Prize distribution to KCT Team



KCT TEAM WITH ORGANIZING OFFICIALS



Shri Shankar Vanavarayar, Joint Correspondent, KCT
along with KCT TEAM - COMMUNICATION PRIZE

STUDENTS PUBLICATIONS

Mr. Barani, Mr. Rakul, Mr. Mohammed Thoufeek, along with their supervisor Dr. M. A. Vinayagamoothi, published a technical paper titled on "Design of Steering System for an All-terrain Vehicle" in International Research Journal of Engineering and Technology, Volume: 09, Issue: 07 / 2580-2588.

**KUMARAGURU**
college of technology

COIMBATORE – 641 049

Department of Mechanical Engineering**INSTITUTE VISION:**

The vision of the college is to become a technical university of International Standards through continuous improvement.

INSTITUTE MISSION:

Kumaraguru College of Technology (KCT) is committed to providing quality Education and Training in Engineering and Technology to prepare students for life and work equipping them to contribute to the technological, economic, and social development of India. The College pursues excellence in providing training to develop a sense of professional responsibility, social and cultural awareness and set students on the path to leadership.

DEPARTMENT VISION:

To emerge as a centre, that imparts quality higher education through the programme in the field of Mechanical Engineering and to meet the changing needs of the society.

DEPARTMENT MISSION:

The department involves in sustained curricular and co-curricular activities with competent faculty through teaching and research that generates technically capable Mechanical Engineering professionals to serve the society with delight and gratification.

B. E. MECHANICAL ENGINEERING**PROGRAM EDUCATIONAL OUTCOMES (PEO's):**

- PEO 1 :** Graduates will take up career in manufacturing and design related disciplines.
- PEO 2 :** Graduates will be involved in the execution of Mechanical Engineering projects.
- PEO 3 :** Graduates will take up educational programme in mastering Mechanical sciences and management studies.

PROGRAM OUTCOMES (PO's):

- 1. Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and teamwork:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSO's):

1. Apply the fundamentals of science and mathematics to solve complex problems in the field of design and thermal sciences.
2. Apply the concepts of production planning and industrial engineering techniques in the field of manufacturing engineering.

M. E. INDUSTRIAL ENGINEERING**PROGRAM EDUCATIONAL OBJECTIVES (PEO's):**

- PEO 1 :** Graduates will be mid to higher level management / engineering professionals with responsibilities in engineering management, data analysis and business operations.
- PEO 2 :** Graduates will be engineering professionals, and technology leaders who would manage such functions as plant engineering, production, supply chain and quality management.
- PEO3 :** Graduates would function as educators or researchers in academic institutions.

PROGRAM OUTCOMES (PO's):

- P01 :** An ability to independently carry out research /investigation and development work to solve practical problems.
- P02 :** An ability to write and present a substantial technical report/document.
- P03 :** Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.
- P04 :** Apply knowledge and competencies in manufacturing, analytics, supply chain, quality and engineering management.
- P05 :** Apply principles of industrial engineering to solve problems in industry.
- P06 :** An ability to work as part of interdisciplinary teams, communicate effectively, model and design engineering systems optimally.

PROGRAM SPECIFIC OUTCOMES (PSO's):

- PS01 :** Graduates will be able to apply the engineering management and data management concepts in industrial engineering areas.
- PS02 :** Graduates will be able to apply industrial engineering skills and knowledge to effectively manage the functions of production and supply chain management.