

MEXPRESS

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Mechanical Engineering Association
DEPARTMENT OF MECHANICAL ENGINEERING



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CONTENTS

Details	Page No.
Editors' Portfolio	4
Associate Editor's Portfolio	5
Programmes Organized	7
Value Added Courses	10
Resource Persons	10
Papers Published	11
Manuscripts Reviewed	12
Industry Linkage	12
Programmes Attended	13
Snap Shots	14
Students Achievements	17
Certified Solid Works Associate in Mechanical Design	18
Placements	19
Reviewer's Point	21
Vision, Mission, POs, PSOs and PEOs	27

From the Editors...

Hi, Hello, Readers. Here is the second issue of the sixth volume of our departmental newsletter, MExpress. In this issue you will get to know the details about the programmes organized, programmes attended by our faculty members, value-added courses conducted in the department, papers published by the faculty and students, faculty members who served as resource people, manuscripts reviewed by the faculty members, industry linkage established, students' achievements and a lot more. Hopefully, you all enjoy reading.

We kindly request all the readers to send us your feedback via the links through the different media given on the front page. We also request our readers to share what you think will be useful for others. We will consider publishing the same.

Editors....



STRICTLY TURBULENT



Ms. Jobisha Celin
20BME051
3rd year mechanical - B

Sometimes, flying to a place is not very smooth; it gets bumpy at times. You might have heard about the term turbulence. This turbulence causes discomfort to the passengers on the flight. As the wind velocity increases, turbulence also increases. Due to the greater extent of this turbulence, instability in flight is caused, which might put the flight out of its place and can cause structural damage.



[Turbulence from aircraft swirling clouds below](#)

So, what is turbulence?



[Turbulent planet patterns](#)

Fluid flows can be studied through streamlines. These are basically the velocity vectors through which the fluid flows. We call a fluid flow laminar when these vectors are parallel to each other. This is when the flow has no energy loss. However, when the fluid streamlines get mixed up or curled, they form circular profiles called vortices or eddies. This phenomenon reduces the energy of the fluid flow by curling and dissipating energy as heat into the system. Reynold's number, a dimensionless quantity, is used to define if a flow is turbulent, laminar, or transient. Consider a fluid flowing over a surface. On the surface, the velocity of the fluid particle is zero, and

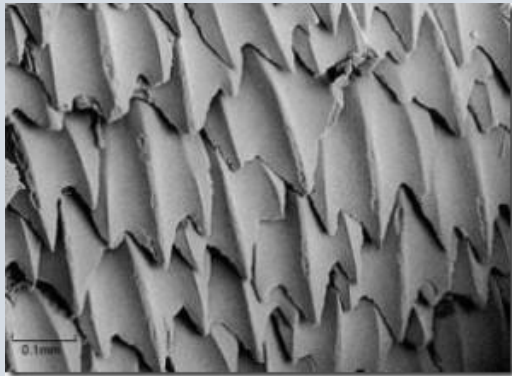
the fluid is experiencing some force trying to push it, and then there is viscosity trying to resist this force. Inertia, in this context, is the inability of the fluid to stop moving and conform to viscosity. When inertia increases in the presence of momentum diffusion (viscous effect) or vice versa, this results in eddies or vortices. Therefore, the ratio between the inertial force and the viscous force is important, and hence, Reynold's number came to be something that would quantize turbulence.

But turbulence is not always bad. The unpredictability of this turbulent flow is what makes it beautiful. Everything in the universe, starting from the giant red spot of Jupiter to the interstellar medium between the stars, expresses itself through turbulence.

Natural selection and evolution have helped sharks develop turbulence-inducing skins that make fluid stick to their bodies to a greater extent, reducing flow separation and allowing them to move faster. This is now employed in the manufacture of swimsuits, giving the wearer an unfair advantage over their competitors.



[Orion nebula-interstellar matter](#)

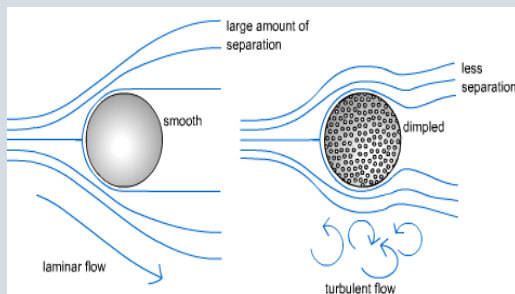


[Dermal denticles - shark skin](#)



[Turbulent inducing-Swim suit](#)

When turbulence is discussed, the aerodynamics of golf balls must also be discussed.



[Golf ball aerodynamics](#)

Golf is a sport in which the balls must be thrown to the longest possible extent, which obviously means lower drag force and higher lift is required. The dimples in the golf ball create turbulence, dissipating the energy of the air flow and reducing the size of the wake, a low-pressure region behind the ball. This makes golf balls aerodynamically efficient.

The gravitational induced vortex generator is one such device that converts vortex-rich energy to electricity. As the name implies, fluid is allowed to flow in a conical chamber with the help of a gravity tensor, which swirls the fluid, causing vortices and, as a result, turbine blades are used to extract energy. This installation is about 73% in practicability, and this proves to be a viable solution for fluids having lower hydraulic heads, say 0.7 to 3 meters, and helps the world on its course towards zero net carbon emission. There are numerous other devices that extract energy from fluid turbulence, such as vivace, vortex bladeless, and so on.

One can love laminar flow due to its smooth profile. This is why they can be used for aesthetics, but once the truth about turbulence is known, one can see that it's a beautiful phenomenon.

Turbulent flow is the rule; laminar flow is the exception.



[Gravitation induced vortex generator](#)

PROGRAMMES ORGANIZED



A seminar on “**New Product Development**” was organized on 23-09-2022 for students from other colleges. **Dr. M. A. Vinayagamoorthi**, Assistant Professor – II, **Mr. R. S. Mohankumar**, Assistant Professor – II, **Dr. S. Thirumurugaveerakumar**, Associate Professor, along with **Mr. A. Prabhakaran**, Assistant Professor, Automobile Engineering Department, were the resource people and coordinated the event.



- Another seminar on “Transport demand management”, was organized for the III-year and IV-year Mechanical Engineering, Aeronautical Engineering, and Civil Engineering students on 29-09-2022. **Mr. Andreas Rau**, Faculty Head and PI, TUM Asia, Singapore, was the resource person. The event was coordinated by **Dr. M. Thirumalaimuthukumaran**, Assistant Professor – III and **Mr. K. Manikandaprasath**, Assistant Professor – II.



A seminar about the courses offered by MMU for III-Year and IV-Year Students was organized on 09-09-2022. **Dr. Supriya Rao**, Manager, South India, India Team, MMU, New Delhi, was the resource person. **Dr. M. Thirumalaimuthukumaran**, Assistant Professor – III and **Mr. K. Manikandaprasath**, Assistant Professor – II, coordinated the event.



- An online seminar on “Twinning program with University of LEEDS, UK” for II Year Mechanical Engineering students, was organized on 23-09-2022. **Ms. Shweta Datt**, Country Advisor, University of Leeds, New Delhi, was the resource person. **Dr. M. Thirumalaimuthukumaran**, Assistant Professor – III and **Dr. B. N. Sreeharan**, Assistant Professor – II, coordinated the event.



A guest lecture about Awareness of GATE Exam and its opportunities in PSUs, was organized on 07-09-2022. **Mr. Saravanakumaran**, GATE Forum, was the resource person. **Dr. M. Thirumalaimuthukumaran**, Assistant Professor – III, coordinated the event.



A national level hands-on workshop on “Advances in Non-Destructive Testing” was organized in the department on 28-09-2022 and 29.09.2022. **Mr. K. Senthil Prabu**, ASNT NDT Level III, NABL Internal Auditor, ASME U Stamp NDE Consultant, and **Mr. T. V. Subash**, Senior Manager (Rtd.) Non-Destructive Testing, BHEL, Trichy were the resource persons. The event was coordinated by **Dr. A. P. Arun**, Assistant Professor – III and **Dr. V. Manivelmuralidaran**, Assistant Professor – III.





A workshop titled “Design Now” was organized on 30-09-2022. **Mr. Mohan Murali**, Executive Trainer, ICT Academy, was the resource person. **Mr. R. S. Mohan Kumar**, Assistant Professor – II coordinated the event.



A guest lecture on “Profile building for Career Readiness” was organized in the department on 27-09-2022. **Dr. S. Bhaskar**, Associate Professor, was the resource person. The event was organised by **Dr. T. Karuppusamy**, Assistant Professor - II.



A training programme on **Metal Arc Inert Gas Welding** was arranged on 01-09-2022. It is a part of purchasing new CENX MIG/MAG Welding Inverter Model: MIG 400 for Project Lab, MIG Machine model.



A Guest Lecture on “Recent trends in Mechanical Engineering and how to become an entrepreneur” was organized on 09-06-2022. **Mr. V. Sundar**, Proprietor, M/s. Shri Varshini Technologies, Coimbatore, was the resource person. He also assessed the internships undergone by the students. **Mr. P. D. Devan**, Assistant Professor – II, coordinated the event.

Another Guest Lecture on “Recent trends in Fabrication Engineering” was organized on 09-06-2022. **Mr. R. Sahasranamam**, Project Manager and Plant Head, M/s. L R Fabrications Private Limited, Coimbatore, was the resource person. He also assessed the internships undergone by the students. **Dr. V. R. Muruganantham**, Associate Professor, coordinated the event.



One more Guest Lecture on “Recent trends in Manufacturing Engineering” was organized on 09-06-2022. **Mr. RN. Yuvaraj**, Proprietor, M/s. Dharrshinin Engineering, Coimbatore was the resource person. He also assessed the internships undergone by the students. **Dr. S. Balasubramanian**, Associate Professor, coordinated the event.

VALUE ADDED COURSES

A value-added course on “Non-Destructive Testing for Industrial Applications” was organized by the department from 05-09-2022 to 29-09-2022. **Mr. Chidambaram Subramanian**, Senior Scientist, CSIR, Durgapur, West Bengal was the resource person. The value-added course was coordinated by **Dr. V. Manivelmuralidaran**, Assistant Professor – III and **Dr. A. P. Arun**, Assistant Professor – III.



RESOURCE PERSONS

Dr. S. Bhaskar, Associate Professor, was the resource person for an online NAAC sponsored two-day national seminar on "Importance of Outcome-Based Education on Modern Educational Setup" conducted by the Hindustan Institution of Technology, Coimbatore on 22-09-2022. He was also invited as Inaugural Speaker and gave the inaugural address during Readathon event organised by Kumaraguru College of Technology, Coimbatore on 29-09-2022.



Dr. N. Sangeetha, Associate Professor (SRG), **Dr. PR. Ayyappan**, Assistant Professor (SRG) and **Mr. K. Manikanda Prasath**, Assistant Professor – II, were invited to function as External Examiners for the Department of Mechanical Engineering, Government College of Technology, Coimbatore, on 22-09-2022.



PAPERS PUBLISHED



Dr. M. Balaji, Associate Professor, published a paper entitled “Enhancing effective industrial sustainability through green manufacturing practices by waste reduction using lean tools in manufacturing sector via productivity improvement,” in a Scopus indexed International Journal of Economic and Enviro-Economic Perspective/Neuroquantology/. Vol. 20, Issue No. 10, pp. 4304-4322.

Dr. K. K. Arun, Assistant Professor – III, published a paper entitled “A preliminary study on the reactive suspension approach to create bioactive polymer nanocomposites for dental applications” in the Digest Journal of Nanomaterials and Biostructures (WoS and Scopus Indexed International Journal), Vol. 17, No. 3, July - September 2022, p. 931 - 939.



Dr. N. Sangeetha, Senior Assistant Professor, published a paper titled “Experimental investigation in the selection of blank material during deep drawing process using finite element analysis” in the Scopus indexed International Journal of Ceramic Processing Research, Vol. 23, Issue No. 4, pp. 529-534.

Dr. B. N. Sreeharan, Assistant Professor – II, published a paper entitled “Critical Study on Vital Factors Influencing Productivity Improvement” in the International Journal for Research in Applied Science & Engineering Technology (IJRASET), Volume 10, Issue IX, September 2022.



MANUSCRIPTS REVIEWED

Dr. C. Velmurugan, Professor and Head, reviewed a paper titled "Advances in Materials and Processing Technologies Chip profile studies on SiC reinforced mono and SiC and graphite reinforced hybrid ZA43 MMCs", for the Scopus indexed International Journal of Advances in Materials & Processing Technologies.



Dr. B. N. Sreeharan, Assistant Professor – II, reviewed a paper titled "A Novel Balanced Aquila Optimizer for Air-Fuel Ratio System Control" for the Journal of the Brazilian Society of Mechanical Sciences and Engineering (A Scopus indexed international journal).

INDUSTRY LINKAGE



Dr. M. Balaji, Associated Professor, and his team with the support of Quality Circle Forum of India is implementing 5S at CoE Office of KCT from 10-01-2022. The project is expected to complete by 03-01-2023.



Dr. M. Ramesh Kumar, Assistant Professor – II, visited Centre for Development of Advanced Computing (C-DAC), Kolkata during 29-08-2022 and 30-08-2022 for initiating collaborative research in the areas of Information Technology, Electronics, and associate areas. He also visited M/s. Balunus Technologies, Bengaluru. He initiated a joint proposal submission of vision based mechanical system for welding assistance and commercialization of autonomous vehicle that is being developed. He also discussed about student internships project opportunities and placements for the students.



PROGRAMMES ATTENDED

Dr. N. Sangeetha, Associate Professor, participated in a conference on "Ansys Academic Innovation Conference 2022" on 16-09-2022, organized by ARK Infosolutions Private Limited, Coimbatore.



Dr. B. N. Sreeharan, Assistant Professor – II, participated in an FDP on "3D Printing Technologies" from 06-09-2022 to 10-09-2022, organized by Vemu Institute of Technology, Chitoor. From 01-08-2022 to 05-08-2022, he also attended an FDP on "Recent Trends in Additive Manufacturing Process and its Applications" organised by Karpagam College of Engineering, Coimbatore. Further, he completed an online course on "Creating Sales Dashboard using Microsoft Excel" from 01-09-2022 to 09-09-2022, conducted by Wall Street Majo. In addition, he participated in a webinar on "Turnitin Feedback Studio: Useful Features for Educators" on 21-09-2022, organised by Turnitin.

Dr. M. A. Vinayagamoorthis, Assistant Professor – II, participated in an FDP on "3D Printing, Additive Manufacturing: Theory and Practice" from 05-09-2022 to 09-09-2022, organized by Government College of Technology, Government College of Technology, Coimbatore.



Dr. M. Thirumalaimuthukumar, Assistant Professor – III, participated in a conference on "Ansys Academic Innovation Conference 2022" on 16-09-2022 organized by ARK Infosolutions Private Limited, Coimbatore. He also participated in an engineer's day on "The Institution of Engineers (India), Coimbatore Local Centre, 55th Engineers' Day" with the theme "Smart Engineering for a Better World," at PSG College of Technology, Coimbatore on 15-09-2022 organized by The Institution of Engineers (India), Coimbatore Local Centre, PSG College of Technology, Coimbatore. Further, he participated in a webinar on "Ansys Event-Acceleration of Ansys Fluent with nvidia GPUs" on 29-09-2022 organized by ARK Infosolutions Private Limited. Also, Dr. Thirumalaimuthukumar participated in another webinar on "CII Session on Importance of Problem-Identifications & Opportunity Mapping" on 28-09-2022 organized by CII. Dr. Thirumalaimuthukumar, further participated in one more webinar on "How to Get Published Webinar Series-Peer Review" on 21-09-2022 organized by SAGE Journals.



Dr. S. Balasubramanian, Associate Professor, participated in a Two-day Workshop on "Seven Habits of Highly Effective People" from 23-08-2022 to 24-08-2022, organized by ZEST SKILLS, COIMBATORE. He also participated in an FDP on "3D Printing, Additive Manufacturing: Theory and Practice" from 05-09-2022 to 09-09-2022, organized by Government College of Technology, Government College of Technology, Coimbatore.



Dr. S. Sivakumar, Assistant Professor – III, participated in a workshop on "Thermodynamic and CFD Analysis of Electric Vehicle Thermal Management" from 16-09-2022 to 17-09-2022, organized by VIT-Chennai, Vellore Institute of Technology, Chennai.

Dr. V. Manivelmuralidaran, Assistant Professor – III, participated in an FDP on "3D Printing, Additive Manufacturing: Theory and Practice" from 05-09-2022 to 09-09-2022, organized by Government College of Technology, Government College of Technology, Coimbatore.



Mr. S. Sivakumar, Assistant Professor – II, participated in a webinar on "National Education Policy 2020-Innovation and Entrepreneurship in HEI'S" on 30-08-2022, organized by KCT, CBE. He also participated in a workshop on "Advances in Non-Destructive Testing" from 28-09-2022 to 29-09-2022, organized by KCT, CBE.

SNAPSHOTS



Seminar on "New Product Development"



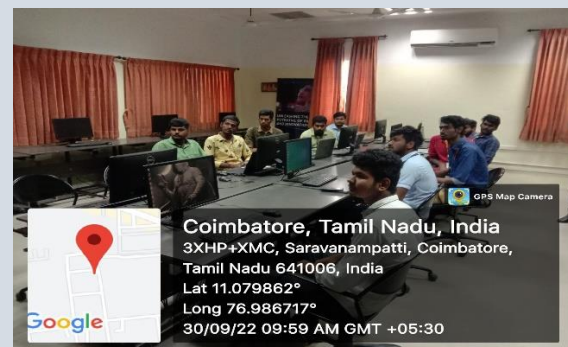
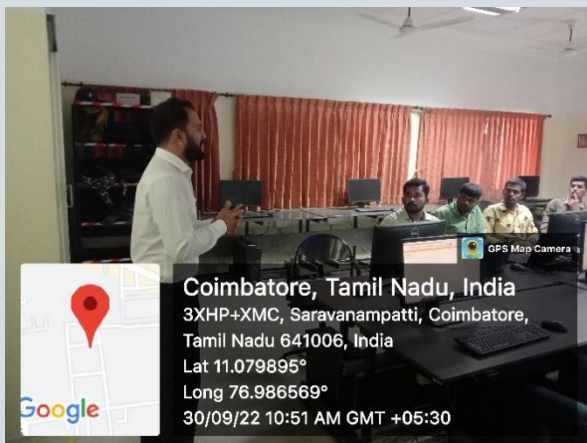
National level hands-on workshop on **“Advances in Non-Destructive Testing”**



Seminar on **“Courses offered by MMU”**



Training programme on **MIG Welding**



Workshop on **“Design Now”**



5S Implementation @ CoE Office, KCT



Students winning Competitions @ SNS Colors.

STUDENT ACHIEVEMENTS

- A team of six from the department competed in SNS Colors (A national-level design thinking contest and festival) of SNS Institutions and secured first prize in two of the mechanical events conducted on 28-09-2022 viz. (1) Dimensions - Modelling and assembling in SolidWorks and (2) Productathon - Product proposal Hackathon



Vaseekaran S L (20BME120), **Kumarasamy R** (20BME065), **Sanjay Kumar A D** (20BME100), **Praveen Kumar R** (20BME087), **Subramanian M** (20BME111) and **Krithik Sivasubramanian** (20BME064) of third year mechanical engineering. The team was mentored by **Dr. B. N. Sreeharan**, Assistant Professor – II.

- **Mr. Abhinandan S** – (21BME001) and **Mr. Akshay Kanna B** – (21BME008) of Second year Mechanical Engineering B section and **Mr. Gokulakrishnan M** – (21BME024) of Second year Mechanical Engineering A section have attended a Workshop named as “**Fusion 360 Beginner's Course**” organized by **Fleschool** from 24/09/2022 to 25/09/2022.
- **Mr. Imayan K T** – (20BME045) of Third year Mechanical Engineering B section attended an International Event named as “**SAE SUPRA'22**” organized by **Society of Automotive Engineers** from 22/08/2022 to 25/08/2022.
- **Mr. Mohamed Riyas N** – (21BME053) of Second year Mechanical Engineering B section attended an Event named as “**Thinking engineer's**” organized by **CADD Training center, Coimbatore** on 28/09/2022.
- **Mr. Kanishkar R** – (21BME039) of Second year Mechanical Engineering A section attended a National level Event named as “**GKDC**” organized by **ISNEE** from 22/08/2022 to 25/08/2022.
- **Mr. Gokulakrishnan M** – (21BME024) of Second year Mechanical Engineering A section attended an event named as “**Rhythm -Krizen**” organized by **Sri Krishna College of Engineering and Technology** from 13/09/2022 to 14/09/2022.

Certified Solid Works Associate (CSWA) in Mechanical Design

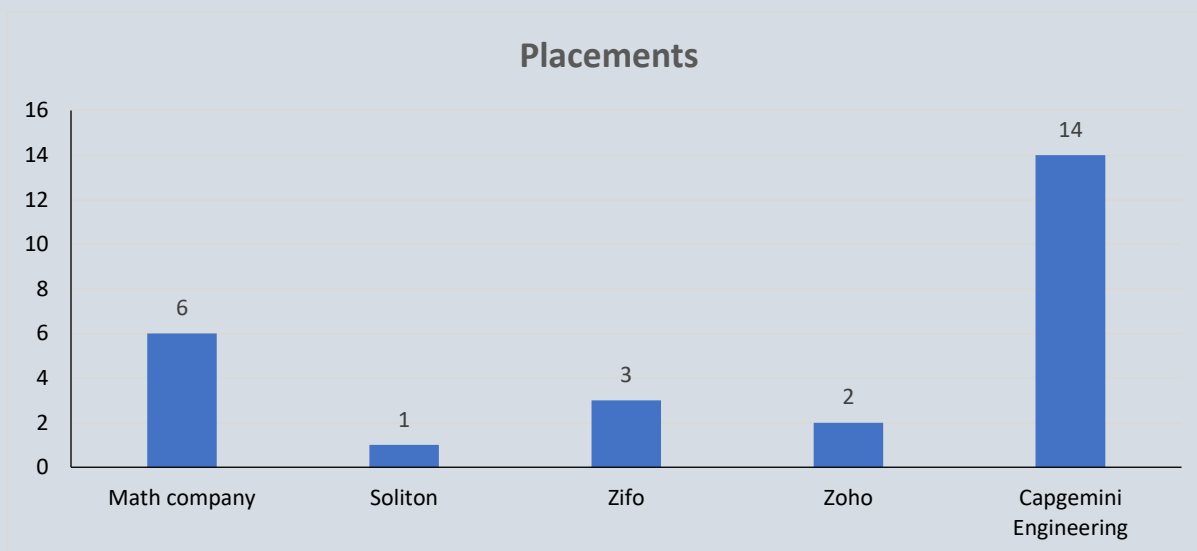
The following students have been certified as Solid Works Associate in Mechanical Design. **Dr. B. N. Sreeharan**, Assistant Professor – II, Faculty Advisor, Centre of Exemplary Learning (CoEL) coordinated Certified Solid Works Associate Exam (CSWA) on 25-09-2022 along with **Mr. G. V. Ananthu Krishna** (20BME012), **Mr. N. Lalitkishore** (20BME227), **Mr. L. Pradheep** (20BME240), **Mr. S. L. Vaseekaran** (20BME120), and **Mr. C. R. Vidhun** (20BME260).

Roll number	Name of the student
20BAU037	VARSHAN C
20BMC004	AMOSE RAJA K
20BMC018	KATHIRAVAN S
20BME051	JOBISHA CELIN A
20BMC038	SARIK NAVEETH S
20BME115	SURENDHER S
20BME087	PRAVEEN KUMAR R
20BME037	GOWTHAM R
20BME111	M SUBRAMANIAN
20BME094	RITHUVARSHANIM
20BMC213	SRUTHI S
20BAU010	GOKUL K
20BME033	GOPINATHAN M
20BME008	AKASH VELANGANNI D
20BME014	ARULMURUGAN K
20BME032	GOKULAVASAN K
20BME122	VETRISELVAN V
20BME092	RAKUL S
20BME100	SANJAI KUMAR A D
20BME066	LOKESWARAN R
20BME021	BHARATH YUVARAJ P
20BME039	GURU G
20BME069	MAHESH S
20BME097	SABARIVASAN

PLACEMENTS

Placement Summary

Name of the employer	No. of students placed
Math company	6
Soliton	1
Zifo	3
Zoho	2
Capgemini Engineering	14
Grand Total	26



Placed Students List

S. No.	Roll No.	Name of the student	Name of the employer	Package (In Lakhs)
1	19BME006	MANAV R SAMANT	Math company	5
2	19BME007	GEORGE JOHN PANICKER	Math company	5
3	19BME027	MOHAMED RISWAN U	Math company	5
4	19BME069	ASWIN BAALAJE R	Math company	5
5	19BME079	JANA KRISHNAN T	Math company	5
6	19BME226	NALAN M	Math company	5
7	19BME088	AMMAR HUSAIN M F	Soliton	8
8	19BME035	NAVANEETHAN M	Zifo	4.75
9	19BME045	SABARISHKUMAR R K	Zifo	4.75

S. No.	Roll No.	Name of the student	Name of the employer	Package (In Lakhs)
10	19BME076	SHYAM S B	Zifo	4.75
11	19BME022	MONISH R	Zoho	Intern
12	19BME049	JAGATHEESWARAN S	Zoho	Intern
13	19BME006	MANAV R SAMANT	Capgemini Engineering	4.25
14	19BME013	KISHORE KRISNA S	Capgemini Engineering	4.25
15	19BME031	KAMALESH S	Capgemini Engineering	4.25
16	19BME034	OBLI KARTHI M	Capgemini Engineering	4.25
17	19BME045	SABARISHKUMAR R K	Capgemini Engineering	4.25
18	19BME076	SHYAM S B	Capgemini Engineering	4.25
19	19BME087	ABISHEK S P	Capgemini Engineering	4.25
20	19BME100	SUVANRAJ R	Capgemini Engineering	4.25
21	19BME102	VIGNESH RAJ S	Capgemini Engineering	4.25
22	19BME103	BHUVANESH D	Capgemini Engineering	4.25
23	19BME114	MANIMARAN B	Capgemini Engineering	4.25
24	19BME150	GOPALAKRISHNAN V	Capgemini Engineering	4.25
25	19BME210	BARATH KUMAR S	Capgemini Engineering	4.25
26	19BME219	JAYABALU S	Capgemini Engineering	4.25

Congratulations

IPHONE 14, 14 PRO AND 14 PRO MAX



Mr. Nithin Karthik S
20BME081

3rd year mechanical - B

The Apple company released its new series of phones and many more gadgets on the 7th of September. The released gadgets list is as follows:

- Apple iPhone 14
- Apple iPhone 14 Plus
- Apple iPhone 14 Pro
- Apple iPhone 14 Pro max
- Apple Air pods Pro 2nd gen
- Apple Watch Pro
- Apple Watch Series 8
- Apple Watch SE

In this review, we will see all the mobiles released by them. First the iPhone 14 and the 14 Plus.

The Apple iPhone 14 and 14 Plus have the A15 Bionic chip, which was also used in the previous series of phones. Both have 2 cameras each of 12 MP and the front camera is also of 12 MP. The main differences between the iPhone 14 and the 14 Plus variant are the display size and the battery life.



Get our best battery life ever on iPhone 14 Plus. And awesome all-day battery life on iPhone 14.

Up to
26
hours
video playback on
iPhone 14 Plus³

Up to
20
hours
video playback on
iPhone 14³



Add a MagSafe
charger for faster
wireless charging⁴

The iPhone 14 variant has a 15.40 cm wide screen, while the 14 Pro has a 16.95 cm wide screen. Since the battery life is extended, the 14-variant can withstand a full day of work. The Apple company has announced that the 14 Plus variant has the longest battery life compared to the other variants. The offered storage options are 128 GB, 256 GB, and 512 GB, and these cannot be extended. Both the variants have a Super Retina XDR display. There is not much difference between the 13 series and the 14 and 14 plus variants.

But the talks are mostly about the 14 pro and the 14 pro max variants. Many new features are being introduced in these models.

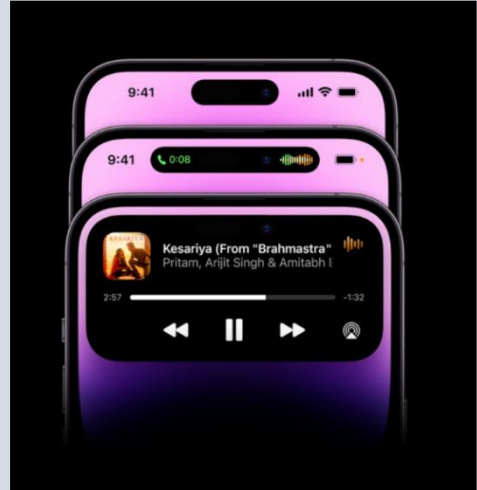
These variants also have many common features. The front camera is the standard 12 MP usually provided by Apple. The rear cameras for both the models are equipped with 3 cameras: 48 MP + 12 MP + 12 MP. These models have the all-new Apple A16 Bionic chipset.

The newest feature added to these models is the dynamic island. This feature was introduced along with iOS 16, which was launched as the default in the 14 series.

It shifts dynamically according to its use. If a call is in progress, the timings are displayed there as well. When without any use, it will be like a notch, where the camera is placed. This is one of the biggest changes brought by Apple since they started manufacturing full-screen phones. These show all notifications.

Always on display is a new feature added to this series. Many customization options like lock screen, font, image popping up over the time on the lock screen, etc. have been provided in iOS 16. The new 14-series phones can detect a car crash and call the emergency services and all the emergency contacts. The feature is also released on the Apple watches too.

Apple has released so many products and discontinued models like the iPhone 12 Mini, iPhone 11, iPhone 12 Mini, 13 Pro, and 13 Pro Max after releasing the new models.



MAHINDRA XUV 400

INTRODUCTION



Mr. Nikil R
20BME233
3rd year Mechanical - B

Mahindra, an Indian manufacturer, has recently announced plans to launch new eSUV's on their brand new platform, Inglo. away. But till then, Mahindra needed something to increase its presence in the mainstream eSUV market, and that's where the XUV 400 comes in. The XUV 400 is basically the same ditto as the XUV 300, now adapted into an EV. The new eSuv XUV400 has been introduced to compete with Tata Nexon, MG Astor, and MG ZS ev. It is 4200mm in length and, with a wheelbase of 2600mm, it definitely has the Nexon beat in terms of space. It comes with 378 litres of boot space, and the front seats come with stylish cushion seats, and there is enough leg room at the back. The floor is slightly higher to place the battery below the car.

FEATURES:

It comes with Apple CarPlay and Android Auto infotainment system. The XUV 400 also gets the Blue-sense mobile app, driver assessment and vehicle information in the infotainment system, steering-mounted controls, and an electric sunroof. The car that we drove is the top-spec

version with six airbags, all-four disc brakes, ISOFIX child seat mounting points, and ABS with EBD and traction control.

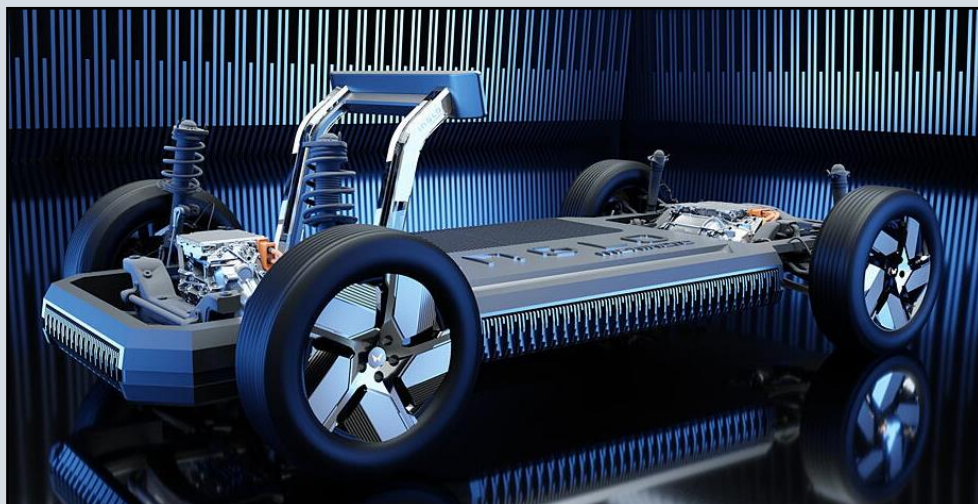
Powering the XUV 400 is a 39.4 kWh battery pack. The motor produces an impressive 147bhp and 310Nm of torque. The 400 also gets three driving modes, namely fun, fast and fearless. It claims 0-100 in 8.3 seconds. Its performance is better for daily usage.

It works great for increasing the performance and ride quality. It comes with the 400-width shock absorbers and works great. While we did not really get a bad road simulation, we did manage to get it over some rumble strips and speed breakers. The ride quality feels good and works well on the roads.

RANGE:

Getting to the important aspects, the range and charging bit, Mahindra claims an ARAI-certified range of 456km and comes with fast charging. The battery pack can be charged from 0-80% via a 50kW DC fast charger in just 50 minutes, while with a 7.2kW/32A outlet, it takes 6 hours 30 minutes for a 0-100% charge. The same is achieved in 13 hours while using a standard 3.3 kW/16A domestic socket.

The Mahindra XUV400 EV will receive a new grille with X-shaped inserts, a blanked-out grille, projector headlamps with integrated LED DRLs, copper accents, an all-black interior theme with copper inserts, connectivity, steering-mounted controls, six airbags, all four disc brakes, and an electric sunroof.



RE - Shotgun 650



Mr. Nithesh S V
20BME080
3rd year Mechanical - B

Shotgun 650:



Introduction:

Royal Enfield is one of the major vehicle-producing brands. Royal Enfield is the oldest two-wheeler brand, which has its own vintage design and its own unique exhaust sound. They are going to launch their new motorcycle named "Shotgun 650", which is expected to come to India by December 2022.



This comes with the new SG650 Twin concept, which explains why the name SG stands for ShotGun. The design communicates the single-styled floating seat, with a tubular handlebar and the front and rear fenders with different types of bar-end mirrors. It has a retro-styled front end which is finished with an aluminium coating, which even continues till the petrol tank. Overall, the appearance is like a single-seater unique bulk

vehicle from Royal Enfield. It looks stunning and would be an eye-catcher for all youngsters.

Specifications:

The shotgun comes with a BS6 engine, which is 648cc and produces a maximum torque of 52Nm at 5250 rpm. It gives a peak power of 47.65 PS at 7250 rpm. It comes with a 6-speed manual gearbox.

It has a CNC billet machine with wheels made out of solid aluminium with ABS and dual disc brakes. The front has upside-down forks and hand-stitched, comfortable leather seats.



Still, the brand has not revealed the full specifications of the Shotgun 650, but the shotgun is expected to be similar to the Interceptor 650.

Company words

The bike is expected to be launched at a price range of about Rs. 3,00,000 to Rs. 3,50,000. Still, now it is known that Shotgun comes only in one colour variant.

MARUTI SUZUKI GRAND VITARA



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3rd year mechanical - B

INTRODUCTION:

From Maruti Suzuki comes the relatively affordable Global C platform in the shape of the Grand Vitara, complete with an optional four-wheel-drive system. Production takes place at Toyota's plant outside Bengaluru, so expect very high standards for assembly. Maruti Suzuki is now entering the field with differently styled and equipped versions of the SUV.

ENGINE PERFORMANCE:

Suzuki's 1.5 Dual Jet engine produces 103 horsepower in the Grand Vitara. It is down on torque; there is a maximum of 137Nm, which comes in fully at 4,400rpm.

It has a three-cylinder, 1.5-litre petrol engine that uses direct as well as indirect injection and runs a more efficient Atkinson Cycle. The maximum output for the total system is 116 hp.



The new AC synchronous electric motor here focuses more on power than torque. This is why it spins much faster and helps improve power delivery at higher rpm, allowing the car to operate in EV mode up to 120km/h.

INTERIOR SPECIFICATIONS:



The AC controls and vents look stylish, and the 9-inch touchscreen infotainment system is placed in a manner that makes it easy to read. The strong hybrid version of the Grand Vitara also gets a screen-based instrument panel with several modes and display options.

The front seats are well suited—they are wide, well bolstered, offer good support, and some variants get cooled seats as well. There's also a fair amount of legroom in the rear of the cabin. The seat is generous and the adjustable backrest allows you to recline one step as well.

EXTERIOR SPECIFICATIONS:

It has both front and rear overhangs fleshed out to give it more of an SUV stance, and the bonnet is flat. Up front, the block-like nose is full of interesting details; the high-mounted LEDs look cool, and there's plenty of chrome on the nose. The two-part grille is both interesting and quite different; it blends a hexagonal lower section with a thick bar of chrome.



The wheel arches have been squared for a more SUV-like feel, making the 17-inch wheels look a bit small, and the sloping roofline prevents the rear from looking too utilitarian.

VARIANTS:

The Maruti Suzuki Grand Vitara is available in six variants, including Sigma, Delta, Zeta, Alpha, Zeta+, and Alpha+.

PRICE OF THE MARUTI GRAND VITARA:

The Maruti Grand Vitara's price ranges from 10.45 lakh to 19.65 lakh (ex-showroom). The Grand Vitara comes in 15 variants. The Grand Vitara base model costs 10.45 lakh in mild hybrid form (electric + petrol). The hybrid Grand Vitara model costs Rs 17.99 lakh (electric + petrol). whereas the price of the Grand Vitara automatic version starts at Rs. 13.40 lakh.





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.