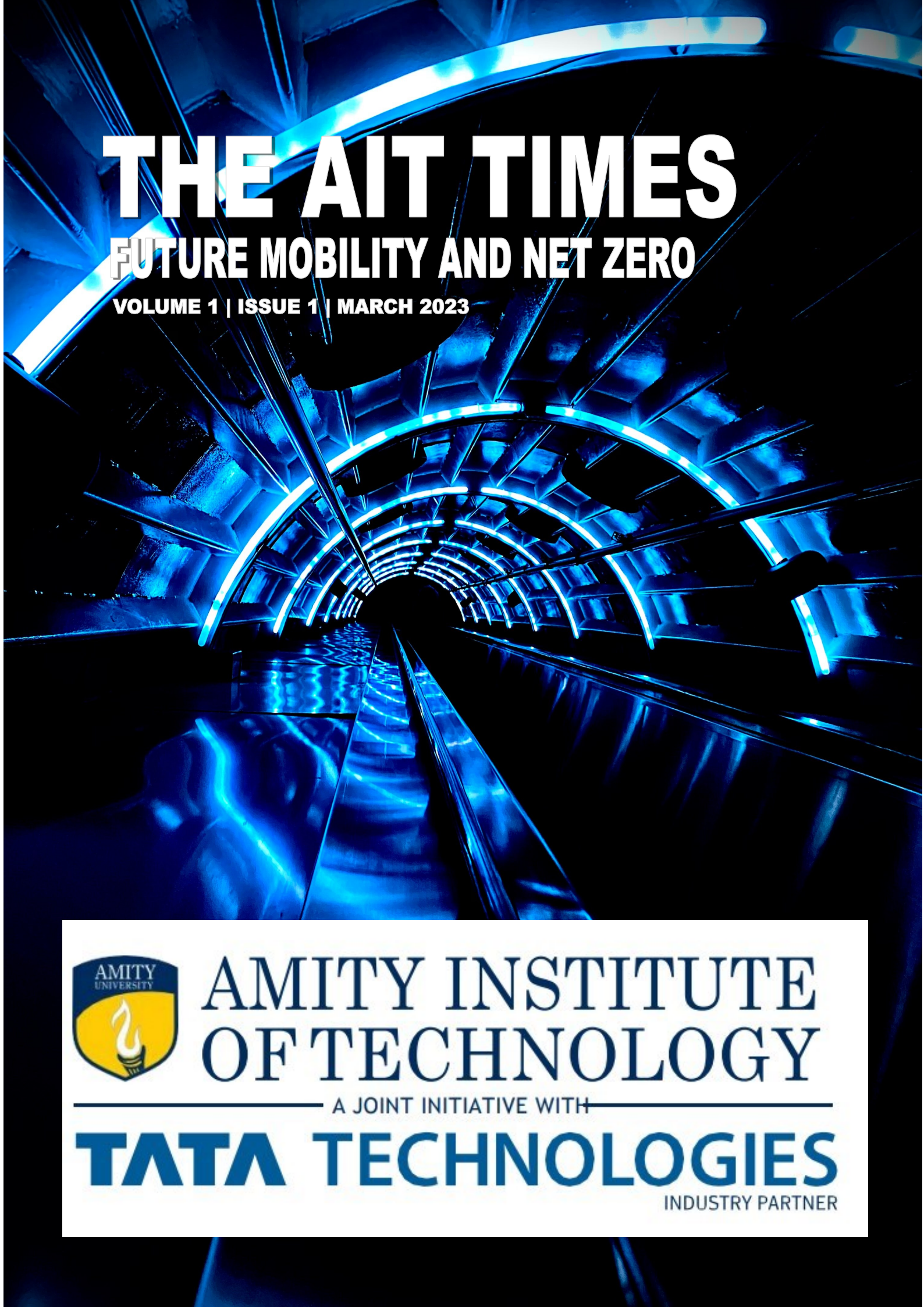

THE AIT TIMES

FUTURE MOBILITY AND NET ZERO

VOLUME 1 | ISSUE 1 | MARCH 2023

AMITY UNIVERSITY

AMITY INSTITUTE OF TECHNOLOGY

A JOINT INITIATIVE WITH

TATA TECHNOLOGIES

INDUSTRY PARTNER

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UTTAR PRADESH

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Volume 1, Issue 1

March 2023

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A JOINT INITIATIVE WITH
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THE AIT TIMES

FUTURE MOBILITY AND NET ZERO

Highlights:

- Interview with Mr. Sunil Bhatnagar
- Amity Youth Fest
- Faculty Achievements
- EV Expo Visits
- Upcoming Events
- Students' Achievements
- Crossword

INSIDE THIS ISSUE:

Message from Vice-Chancellor

Amity University Uttar Pradesh (AUUP), Noida offers world-class education in a variety of fields such as engineering, management, law, and education. It has been at the helm in all areas of imparting education, industry experience, and developing future leaders with values and sanskars. To achieve such a level of success, the journey has been long but steady in its pursuit of excellence. To bridge the gap between academia and industry and to create a talent pool of Industry Ready Engineers, **Amity University** has joined hands with **Tata Technologies Ltd.** and established **Amity Institute of Technology (AIT)**. Another important aspect of this engagement is to promote Innovation and Incubation by leveraging Industry Innovation ecosystem for Entrepreneurship and Start-ups. It is to the credit of **AIT** that it constantly keeps tapping the force lying dormant among India's confident new generation and raises them on a value system based on ethics, integrity and sincerity.

Newsletters are a popular way for businesses, organizations, and individuals to connect with their audience and communicate updates, information, and insights on a regular basis. newsletters can be a powerful way to engage with your audience, build brand awareness, and drive conversions. I extend my warmest congratulations to the entire Team of AIT on the successful launch of its first e-newsletter **"The AIT Times"**. I appreciate the effort and hard work that went into creating this e-newsletter. Your first e-newsletter sets the tone for what's to come, and it's important that you've made a great first impression. I hope this is just the beginning of many more successful newsletters to come. I look forward to receiving future editions and staying up-to-date on the latest news and developments in your field.

-**Prof. (Dr.) Balvinder Shukla**,
Vice-Chancellor,
Amity University
Uttar Pradesh,
Noida, India.

Message from Sr. VP, TATA Technologies

Dear students / faculty members and staff,

It gives me great pleasure to know that AIT is starting a newsletter. This newsletter will serve a platform to showcase the numerous achievements, innovations, events, and initiatives.

This newsletter helps to foster a culture of intellectual curiosity, creativity, and innovation by providing a space for students, faculty, and staff to express their ideas, share their experiences and explore different perspective on issues that matter to us all.

I encourage you to participate actively in contributing to the newsletter by submitting your articles, innovation, photographs, or sharing your thoughts on a particular topic, this is an opportunity for you to showcase your achievements and collaborate with students' community.

I hope you will find this newsletter both informative and inspiring and I look forward to reading your contribution in the future.

Sincerely

P V Kaulgud

Sr. Vice President-Education Delivery

TATA Technologies Limited

Message from Dy. Dean

Dear Readers,

It gives me immense pleasure to present the first issue of AIT Times.

The year started on a promising note and in relentless pursuit of our goals, we have made unconditional commitments to excel. At AIT, our focus is to build a rich intellectual potential embedded with interdisciplinary knowledge, human values, and professional ethics. Our endeavor is to create industry-ready professionals who can take up challenges in this competitive world. Research is an integral part of an academic institution and we lay great emphasis on providing abundant opportunities, and skill-based learning to promote innovations in research.

I believe that 'Good things come to those who wait and Greater things to come to those who are willing to work for it'. On this note, I congratulate all the faculty, staff and students of AIT for their hard work and achievements in various spheres and assure them of continued support.

Prof. (Dr.) K.M. Soni

Professor, ECE Department- ASET

Deputy Dean, Engineering & Technology

In-charge, Ph.D. Dept. - AUUP

Message From Head Of Institution

Warm Greetings from Amity Institute of Technology!

It gives us great pleasure to present to you our inaugural newsletter 'The AIT-Times', the quarterly newsletter of Amity Institute of Technology. As we embark on this exciting journey of sharing information and insights with you, we would like to extend a warm welcome to all of our readers. This newsletter will provide an opportunity to the students, faculty, and staff members to express their creative and original thoughts and also provide an exposure to the students to the emerging technologies in Automotive and Aeronautical domain. The AIT Times will serve as a fruitful platform for sharing ideas, new developments, events, and achievements in published form and also give a stimulus to our creative writing skills.

As we continue to navigate a rapidly changing landscape, it is more important than ever to stay informed and engaged with the latest news and developments in our field. Our newsletter is designed to help you to do just that, by providing valuable insights, informative updates, and inspiring stories that will empower you to reach new heights. Our team of experts will be sharing their knowledge and expertise to help you stay ahead of the curve and make informed decisions.

At our institute, we are committed to excellence and pushing boundaries to achieve our goals. We believe that through collaboration, innovation, and a relentless pursuit of knowledge, we can make a meaningful impact on our industry and society.

In the past few months, team AIT has taken many initiatives, such as organising webinars, seminars, workshops, expert talk by industry leaders, expert talk by Alumni, training of Tata Motors' engineers on Electrical and Electronics of Electric Vehicles, industry visits, visit to EV expo and Auto Expo, faculty development programmes on Electric Vehicle Technology and Industrial Automation. We also launched new programmes, M.Tech. (Electric Vehicle Technology), Int. B.Tech. (Automobile Engineering) + M.Tech. (Electric Vehicle Technology), Ph.D. (Automobile Engineering). Team AIT has also planned to organise International Conference on Future Mobility and Net Zero (FuMoNZ-2023) on 28-29 September 2023.

I, also take this opportunity to welcome the new faculty members, Dr Himanshu Mishra and Dr Gaurav Ninawe who have joined our institute in the last quarter and the students' of 2022 batch to AIT. I wish everyone a great journey together.

I heartily appreciate and congratulate the editorial team of The AIT Times led by Gnanvitha for their sincere efforts and commitment to release the newsletter in stipulated time.

I encourage you to read the articles, share your feedback, and contribute your ideas for future topics. Together, we can continue to grow and evolve as professionals, and make a meaningful impact in our industry.

Thanking You,

Prof. Vivek Kumar

Head, Amity Institute of Technology

" Leadership is the capacity to translate vision into reality"

- Warren G. Bennis

Interview with Mr. Sunil Bhatnagar

Mr Sunil Bhatnagar is associated with Battery industry for more than 25 years, worked with many national and international companies. Presently, he is CXO, Lithium Project, IPL Tech Electric P Ltd, Murugappa Group Company. He is EV Committee member at International Federation of Green Energy, EV Committee at Amity University Noida and speaker at many forums like ASSOCHAM, BRICS, PHDCCI and at various EV Conferences, and many more. He is covered more than 100 times in various electronic magazines. He was instrumental in setting up SMF VRLA battery division at Okaya, setting up SMF VRLA battery manufacturing greenfield project at Artheon Battery Co Ltd (JV company of North Star Battery Co USA) as Director, was Director with Coslight India P Ltd (subsidiary of Coslight Power Co Ltd Harbin). Was Country Head (Energy Div.) of Micromax (Bhagwati Products Ltd.). Was Director of Sanvaru Technology Ltd. etc. He has great interest in new technologies like fuel cells, (FCEVs), Hydrogen, Sodium ion, Aluminum ion and many more and working to achieve SDG7 targets for a carbon neutral greener world.

He talked at length with **Prof Vivek Kumar**, Head of Institute, Amity Institute of Technology, Amity University, Noida about "**Electric Vehicles in India: Challenges and Opportunities**".

Q. India is rapidly becoming the global centre for electric vehicles, with its 2020 worth of $5 billion and projected to increase to $47 billion by 2026. Indian government has offered incentives to customers and businesses that produce Electric Vehicles to encourage them, and state governments have also offered incentives, but people still have some skepticism regarding 4-wheelers, but the government has established some goals to reach them. How can we reach them? What is the state of EV ecosystem in India?

A. The momentum of electric vehicles is picking up fast as Govt. is quite focused on its growth and implementation of new technologies in EVs. As there is a difference in prices of ICE (Internal Combustion Engine) and EVs so the Govt. has come up with FAME scheme where in incentives were given to buy EVs. Incentive of Rs 15000 per kWh is given in 2 wheelers which has maximum share in EVs. An incentive of Rs 10000 per kWh is given in E Passenger Autos, E Rickshaws, E Cargo vehicles, E cars etc. and an incentive of Rs 20000 per kWh is given in E Buses. These incentives have given a big boost to sales of EVs. This was required initially so that ecosystem of EVs is set in India and once people know the usefulness of EVs then sales momentum will come up automatically. Sales of E Cars are slightly less because the initial price gap in ICE & EV is slightly on the higher side but now this segment is also picking up nicely. Another issue which most buyers discuss is about charging infra and that is not a major drawback as most EVs are designed to run for 100 to 150 km and for city drive it's sufficient. Yes, the need of charging infra arises in the case of commercial activities like taxi services, logistic services, interstate travels and e commerce platforms etc.

Q. According to Vahan, EV registration in India jumped to 10.2 Lakh in 2022 from merely 3.29 Lakh in 2021, almost a three-fold increase. Electric vehicles (EVs) were registered in India, mostly in the states of Uttar Pradesh, Karnataka, and Tamil Nadu. However, only a few states exhibit EV penetration, due to the public authorities' motivations for each state and the government of India's future goals to reach 2.2 million EVs in 2023. With the number rising to 3.9 million in 2024, 5.6 million in 2025, 7.5 million in 2026, and 9.1 million by the end of 2027. Why certain states execute the government's annual goals while others do not is to be understood.

A. The sales are not symmetrical in all states and there are many reasons for that. It is mainly due to the promotion and incentives offered by states. E-2wheeler is basically adopted by college going students or people who work mostly in office, seen a good trend of E-2W in big cities and townships. E 2wheeler are very popular with e commerce companies as its most hassle-free option for delivering small packets/cargos in the city in a much better way. Another factor is the development of metro rail services in some cities and a lot of E3 wheelers have come up to serve as last mile connectivity vehicle. Some states have announced good incentives for EVs apart from the central program of FAME etc. so with extra state incentive the EVs are more viable. Infect, EV industry in India is picking up fast and it has evolved in last three years mainly. In the next two years these numbers of EVs are achievable as per target. There are issues of raw material, technology and infrastructure. Then the Govt. came up with new schemes of ACC (Advanced Chemistry Cell) etc. for Rs 18100 Cr and it gave a big boost to infra in some states. Similarly we have PLI (Production Linked Incentive) program and some companies have joined PLI scheme which increased the production levels. Over all we see some states or cities are growing fast in EVs because of the above reasons. For example, cities like Bangalore, Chennai, Pune etc. are big hubs of EV ecosystem.

Q. The infrastructure for charging stations is the main problem for EVs, as there are no charging stations on highways. Instead, there are very few located in metro satellite cities like Noida in the NCR, and most of them are not being utilized fully. This is contrary to reality, as there are no users of the charging stations. How to address this?

A. The charging infra is coming up fast and but it will take some time as EVs are coming on roads and the viability of installing chargers is also important. If we allocate a few MW of power for a charging station and if that station is not utilized properly then the Discoms has an issue with high difference in sanctioned loads and consumed loads. At the same time the charging infra on highways is important and is also picking up fast now. For example we see charging stations on Delhi Jaipur Highways or Delhi Chandigarh Highway or Mumbai Pune express way etc. Similarly, it's coming all over India. Presently more than 5000 charging points are available on all India basis. This charging infra development can be compared to introduction of CNG stations at one time in India and after initial hiccups it went so well. Any new technology takes some time to establish as overnight infra can't come up but the speed with which work is going on in this segment is highly appreciable.

Q. It is correct that in E 2 W and E 3 W, battery swapping is being tried and used. but the option of swapping batteries is not feasible in a four-wheel electric vehicle. Second, you mentioned that infra is being created for fast charging, but is it true that life of batteries is reduced when utilizing fast charging while charging regularly in fast charging mode?

A. Many people claim that speedy charging reduces battery life because of the high temperature, this is because heat is generated while charging. Lithium batteries are designed to operate at temperatures of 25 degrees but in India temperatures can occasionally exceed 40–45 degree C, which can have an impact on battery life. In case of high charge/discharge application most companies have cooling systems in their

their batteries to lengthen the life of battery. As a result, applications that require high charge/discharge have built-in cooling measures. There are cooling jackets mostly in all electric buses and high discharge E vehicle. The thermostat on the cooling jacket allows you to start cooling as and when it is required. Cooling is necessary in applications using DC chargers at high voltage/current and also required in case of high discharge applications. Most companies are using NCM technology in E-2 wheelers (cell voltage is 3.7 V) due to space constraints. In 3 wheelers as space is not a constraint so most companies use LFP- LiFePO4 technology (Cell voltage is 3.2 V) but in LFP energy density is not that good as compared to NCM but LFP technology can handle temperature issues very well and life cycle is also significantly higher when compared to NCM. High-speed two-wheelers use PCM (Phase Change Material) because PCM can absorb high temperatures and transfer it to outer body of battery through a heat sink etc. or may release temperature when battery is not that hot. Thus PCM is feasible for smaller 2 wheelers and some e cars; but for bigger EVs like E Buses or E Trucks etc. a suitable cooling system incorporating a cooling jacket and a particular Glycol coolant is important.

Q. Electric vehicles have a maximum range of 400 kilometers, but high-end EVs have ranges between 500 and 600 kilometers. The unavailability of lithium-ion batteries is another factor that some people think will make hybrid vehicles more successful. Hybrid cars are expensive, but they provide a better degree of comfort than alternative fuels. Do you think more people will favor hybrid automobiles as a result?

A. We have mild hybrid vehicles with a modest battery pack used generally for the stop-start function then we have plug-in hybrid, which uses battery mostly and IC motor is used when battery is low. The best version is pure electric BEV (Battery Electric Vehicle) which will eventually prevail due to their advantages, such as zero aftersales, very low running expense, zero fuel cost. BEVs will pick up fast now as Lithium cell prices are declining from one time high of $400 some 4-5 years back to $140 now in 2023, and car prices also witnessing decrease in prices. For example, Tesla has reduced its prices by 10% in most models and other car manufacturers will also toe the same line. More innovations technologies are coming up such as hydrogen fuel, which appears to be the best fuel, but the cost of production is expensive as on date so it may take some time to pick up. As demand grows and technology advances, costs will finally come down with volumes which will be a big plus point for the EV industry.

Q. As you said that lithium and cobalt required as raw material in lithium-ion batteries is not available in our country and therefore the lithium-ion cells are imported from China, Korea and other countries. What effect does it have on the Indian economy and how will the 5.9-million-ton lithium deposits that have recently been discovered in Jammu and Kashmir, affect the price of lithium manufacturing on the Indian economy?

A. We are importing Lithium cells as presently we are not having any Lithium cell manufacturing facility in India though few companies are coming up fast in India and scene will change by the end of 2024. However, when we import lithium cells then a significant outflow of foreign currency happens but still it's a better option compared to crude imports. The fossil fuel vehicles need fuel regularly but lithium-ion batteries once imported and fitted in any EV will last for at least 5 to 6 years. Lithium cell/battery is a one-time investment as opposed to recurring daily cost in imports in crude, so lithium imports are still better compared to crude oil imports.

On Lithium exploration in J&K belt, we have conducted G3 survey which means we have identified a large lithium reserve but it is in a very early stage. After this G2 and G1 survey will happen to certify exact grade and quality of lithium reserves. If it is verified then India will be having world's second-largest lithium resource, which will be advantageous for India both locally and globally. Once this exercise is over then Govt. will go for allocation of blocks to various bidders. Refining facilities will be put up for getting lithium out of these ores. Hopefully this will take shape by 2024 -25.

Q. As of now, we can see that India does not manufacture cells. Do you anticipate investments in this sector from Indian billionaire businesses like Tata, Reliance, etc.? If so, how much would this investment cost and how will it improve opportunities and employments?

A. As the momentum has picked in EV segment so putting up cell plant is no issue now. Apart from Reliance, Tata many players like TDS (Toshiba Denso Suzuki), Rajesh exports and few more are in race. Govt. has come up with ACC scheme of Rs 18100 Crores to boost cell production. Cell manufacturing is much required now in India as that is basic requirement for any battery pack maker.

Q. There is no mechanism for disposal of Lithium-ion batteries used in computers or mobile phones or even used in EVs. This hazardous material used in batteries worsens the environment. Could you please provide us with some insight into this situation and future reuse or recycling of batteries?

A. Disposal of Lithium batteries is a genuine problem and the government has acknowledged it. To address this issue, the government has launched a compulsory program of registration by all companies who deal in lithium batteries. The Ministry of the Environment & Forest has published a circular requiring every battery producer, importer etc. to register with them and share a database on the number of batteries imported, manufactured, circulated, collected, and disposed of. As a result, battery waste management is now tightly enforced by the government. All companies dealing in Lithium batteries will have to register at MoE&F vide Form 1A. The EV's pre-owned battery can be used in ESS as a first choice before recycling.

Q. Young people often ask if driving electric vehicles (EVs) is transferring pollution from one location to another. This implies that EVs consume energy from the power grid, which is further produced by thermal power plants. How the Solar-integrated electric vehicle charging system will be useful in the future?

A. Efforts have been made to use more green energy and reduce reliance on grey energy, leading to the establishment of large green energy sources like windmill farms and solar farms. Additionally, EVs, like conventional automobiles, do not pollute the environment unless they are charged by a grey source. We are producing 150 Gwh of green energy already by various means so it's not all that grey now. Use of thermal power will be restricted as India has plans to achieve 500 GWh of green energy by 2030 of which 150GWh is already achieved.

Q. Do you see opportunities for start-ups in this field? Automobile manufacturing requires significant investment, so do you think that young entrepreneurs will get attracted to start-ups in this industry?

A. Now it's a perfect moment to start a business in the electric vehicle industry as it has a big scope as on date. This is an innovative technology, and the best innovators are emerging fast and quickly. There is a sizable electronics industry requirement for motor and battery controllers, as well as a sizable market opportunity for batteries. New startups which are fully focused on EVs are doing very well, whereas established IC engine businesses are trying to add EVs to their portfolio as it's like a business call to survive in this futuristic market. Everyone who is coming up in EV space is a young mind, an effective thinker or entrepreneur (may be from IIT or IIM etc.) who have desire to grow with innovative approach/ ideas in this space of EVs, BLDC motor, controllers, batteries and new technologies, Drones, AGVs, IoT, AI etc.

Q. Sir, do you feel that skill training in EV field is required?

A. EV industry needs technical staff and students from Amity University who have specialization in EV courses are very useful asset for any EV industry. As Amity has collaboration with TATA Technologies to provide practical training to Amity students so these students know much more than expected. Additionally, each EV business has its own unique technology, so slight in-house training for these kinds of students will eventually add value to the company. In any EV company technical staff is required at every level for battery technology, battery assembly, power electronics, charging stations, electrical systems, BMS etc. All of this requires skilled people, so skilling is essential because almost every step involves technology, engineering & safety.

Q. How long do you think it will take for India to switch from diesel and petrol vehicles to EVs?

A. Every proven and established technology works even in changing times, but the CAGR may decrease with time. For example, if IC engines are selling more now, there's a chance that sales of IC engines will drop or even stay the same after EVs enter the market. However, no industry ever closes as one needs to evolve better. Since the introduction of lithium batteries, lead acid batteries have not closed but the growth has restrained. Initially CAGR in lead acid battery industry was close to 24% and has since decreased to 4% now, only the level can change, but the industry will exist. The government also plans to implement EV in stages. First, we plan to say 25% of electric vehicles on roads, it may take another 2-3 years. Later, we would set an even higher target of 40 percent etc. So, in coming 8-10 years, we can see a massive boom in EVs in India.

It is difficult to imagine that all of the thousands of trucks, buses, and other vehicles in use today, especially in the heavy vehicle segment would be replaced immediately. But because we are all working on it, we can anticipate that they will be reduced considerably in the near future. In addition, dual fuel or hybrid mode would be utilized in the not-too-distant future because the forthcoming technology opens up the possibility of modifying the IC engine to improve its performance. So forthcoming advancements will be exceptionally invaluable.

One more point I'd like to make is that, according to the government norms, diesel vehicles last for 10 years, whereas petrol vehicles last 15 years. Therefore, when these vehicles reach the end of their useful lives, EVs offer the chance to repurpose them through retrofitting, in which the powertrain takes the place of the engine. Additionally, the government has issued a circular regarding flex fuel engines. We already have 10% ethanol mixing in fuel, and now we want to get it to 20%. Since flex fuel runs on ethanol mix so the government has mandated that all vehicles be designed to run on flex fuel as well as gasoline or diesel.

Q. In terms of battery technologies, you often hear about lithium batteries. Do you think it would be possible to use sodium-ion batteries or any other technology that uses a known and available raw material in India? And lastly, what message you would like to convey to all EV stakeholders?

A. Here I will give example of Indian Oil Corp. who has taken a commendable initiative by laying out 10000 Aluminum plate or Aluminum air battery stations at their petrol pumps. By the end of 2023, between 1000 and 1500 pumps will be operational with aluminum plate technology. The government wants people to start driving electric cars in order to cut down on pollution, keep their promise to the Paris Agreement on using green energy and curtail greenhouse emissions. Message to entrepreneurs or those related with EV field infra- it's a golden opportunity to have such a vast market with all new players in EV domain. One can increase sales /production by 100 percent annually. It's unprecedented!! Therefore, those who have invested in this field have access to both the domestic and export markets. The market is big as EV is picking up at a great pace. At the same time, we may note that the FAME scheme may not last long as its purpose is achieved but indirect benefit will come from GST. The GST on IC engines is 28%, while GST on EVs is only 5%, so there is an indirect gain of 23%. The government wants people to start driving electric cars in order to cut down on pollution, keep their promise to the Paris Agreement and use green energy. To achieve these targets the Govt. is working on strategic decisions like reduction of GST on EVs, reducing customs duty on EV related items (which are not made in India yet); laying up charging infra, policy initiatives for swapping stations, reduced electricity charges for EV Charging and similar activities which boost EV population.

(PS: wherever word Govt. is used, it means Govt. Ministries/PSUs like MNRE, MoRTH, Niti Aayog, MHI, MoE&F and KABIL etc.).

CAD Master 3.0– Amity Youth Fest

Event Date: 31.03.23-01.04.23. CAD Master 3.0 is organized by Piston Craft Club, the technical club under Amity Institute of Technology, AUUP Noida. It is a platform to exhibit your design skills in context to Computer Aided Design. It is an opportunity for budding designers to showcase their software skills. This allows the student to display their forte in designing process by using their cognitive, analytical, problem solving and designing skills. This endeavours to bring forth and recognize the innovative transformations that manufacturers have adapted. The innovative competition for the designing with manufacturing fraternity is a knowledge-based competition that provides a platform for students to present their designing skills with keeping manufacturing feasibility in mind. Participation is invited from both Amity and Non-Amity students of reputed institutions and universities. The judges for the competition were Dr. Himanshu Mishra, Dr. Anil Kumar and Dr. Gaurav Ninawe. 23 students participated in this and the best 3 were awarded with certificates.

Certificates awarded to winners

Activity

Alumni Speak

Getting into Amity was the best thing that I have ever experienced. Apart from excellent education it has given me several opportunities and experiences to revitalize my career. Amity has given me the magnificent memories that I'll cherish lifelong. There are excellent teaching Faculty, Spacious and state of the art laboratories, and a Ragging free atmosphere. Apart from this, the Institute has a collaboration with Tata Technologies Ltd. which provides trailblazing Industry Ready Experience along with the Curriculum which is rarely seen anywhere else in the country which helped me get multiple career opportunities. The news letter is an excellent initiative by our department, it really carries a lot of useful and updated information, and most important inspires the students to keep abreast with the placements and developments in our institute. Proud to be a Amitian.

Venkata Sai Jatin Immaneni
Skilled Engineer GET
R&D
Tata Technologies Ltd
Batch 2022 AME

At Amity institute of technology, amidst an avant-garde atmosphere along with highly intellectual and supportive faculties, I have witnessed my prowess and knowledge raising to the apex. Apart from its robust curriculum, an exposure to automobile designing competitions expanded my ambit of skills.
Adding to this, I believe this initiative of publishing quarterly newsletter would definitely help students in having comprehensive coverage of educational as well as professional knowledge.

Pratyush Singh
Assistant Manager
National Service
Hyundai Motor India Limited
Batch 2020 AME

New Joined Faculty Members

" Heartfelt welcome to the newly joined faculty members to Amity Institute of Technology"

Dr. Himanshu Mishra
Assistant Professor (I)
M. Tech. (Aerodynamics) – IIT Kanpur
Ph.D. (Mechanical Engineering) – University of Melbourne
Area of Interest- Aerodynamics, Turbulence, Measurement systems in fluids, Renewable Energy, Future air mobility

Dr. Gaurav Ninawe
Assistant Professor (II)
B.E. (Mechanical Engineering)
M. Tech. (Automobile Engineering)
Ph.D. (Mechanical Engineering)
Area of Interest- Alternative Fuels, I. C. Engine, Renewable Energy, Hybrid and electric vehicles

Faculty Corner

"Heartiest Congratulations to the faculty members for their promotions and successful grant of projects"

Projects

Funded Project by AIT Faculty Members			
S. No.	**Name of PI/Co-PI**	**Title of Project**	**Funding agency**
1	Dr. Eswara Krishna Mussada	Finishing of Additive Manufactured Complex Features using Abrasive Flow Finishing Process	TARE, SERB, Department of Science and Technology-(GOI)
2	Dr. Himanshu Mishra	Development of Intelligent Algorithm Based Wind Turbine Rotors at Low and Moderate Wind Regimes for Farmlands of India	TARE, SERB, Department of Science and Technology-(GOI)

Promotions

" The art of teaching is the art of assisting discovery"
- Mark Van Doren

Promotions of AIT Faculty Members			
S. No.	**Name**	**New Designation**	**Photo**
1	Dr. Eswara Krishna Mussada	Associate Professor	
2	Dr. Shailendra Singh Chauhan	Asst. Professor - III	
3	Dr. Gurpreet Singh Saini	Asst. Professor - III	
4	Dr. Anil Kumar	Asst. Professor - III	

EV India 2022 Expo

Event Date:09.09.2022: EV India 2022 Expo is an International Electric Motor Vehicle Show which provides an opportunity and platform to electric vehicle manufacturers to showcase their latest products, technology, and equipment, Smart and NextGen transport vehicles to meet and network with the trade industry as well as end users with the main aim to find out new business and protection to the environment. The objective of visit was to give an exposure of emerging technologies in EV industry to the students. Students were able to recognize the parts and components, understand their functionality and relate with the theory they studied in their courses. The visit was organised by Mr. Ankit Khatri, a 2nd Year M. Tech Student under the guidance of Mr. Eswara Krishna Mussada. The visit commenced from Amity campus around 01:30 PM in the afternoon and reached Expo centre, Greater Noida around 02:15 PM. After reaching there, the students and faculty members registered for the entry of the EV expo. After successful entry in the Expo Hall, all the students and faculty members visited the various stalls of EV manufacturers, interacted with them, and collected useful information and the industry details. They were able to recognize products and services that they are offering. Around 5:00 PM, students returned to campus. Student gained knowledge about the electric vehicles and components and interacted with the industry leaders, and asked their doubts which were cleared addressed by the experts. All students were impressed by the expo as they got physical exposure of the products showcased.

Group photo near the entrance

" In order to have clean air in cities, you have to go electric"
- Elon Musk

Auto Expo– The Motor Show 2023

Group photo in front of the expo

Event Date:17.01.2023: Auto Expo is one of the world's premier auto shows. A signature event, that witness the best minds coming together on a single platform to showcases all that is best in the automotive world, in terms of products, technologies, concepts and trends. This year it was held at India Expo Mart, Greater Noida, Uttar Pradesh. The objective of visit was to get the overview of new technology coming up in the Automobile Industry. This visit aimed to skill up student's knowledge regarding the types of technology available or expected to come in future. The event was organised by Ms. Tanushri Saini and Mr. Nakul Kaushik, both from 3rd Year under the guidance of Dr. Eswara Krishna Mussada. The visit started around 10:00 AM in the morning where the students reached the Expo Centre at 10:30 AM. After reaching there students and faculties collected the pass for entry into the expo. After entering the expo everyone visited the SIAM stall and had a look at Road Safety event going on there. Some students got the chance to drive the Go-Cart at the expo. After visiting the SIAM Stall all students were allowed to move freely in the expo and collect details of the vehicles or technology showcased there. At 3:00 PM all students were asked to assemble at a meeting point. The bus left the expo centre at 3:30 PM and reached college at 4:00 PM.

Seminar on EV Charging Infrastructure by AEE Chapter

Event Date:27.08.2022: Amity Institute of Technology, Noida in association with AEE Delhi and AEE Amity Student Chapter organized the Seminar to make participants aware about the current trends and prospects in EV charging infrastructure. The seminar highlighted the progress in the field of EV charging infrastructure, EV charging government laws, and smart technologies emerging in the EV sector.

Recognizing the necessity of sustainable energy to protect our world, AEE Amity Student Chapter took the initiative to educate people on how the EVs can help to utilize energy resources wisely. Ms. Shivi Singh (President, AEE Amity Student Chapter) kicked off the event by greeting attendees and inviting distinguished guests & speakers to light the lamp. This was followed by welcome address by Dr Bedatri Moulik (Assistant Professor, AIT Noida) followed by introduction to the seminar's theme by Prof. Vivek Kumar (Head-AIT, Secretary, AEE Delhi Chapter). This was followed by address of Prof. (Dr.) K.M. Soni (Deputy Dean, Engineering &Technology) and Keynote address by Prof. (Dr.) Balvinder Shukla (Vice Chancellor, Amity University Uttar Pradesh, Noida).

Mr. Dalip Singh (President, AEE Delhi) highlighted the role of Association of Energy Engineers in combating climate change & importance of Green EVs in achieving Net Zero Goal. The webinar had five presentations from the five speakers. Mr. Rajeev Sapra, the first presenter, spoke on the topic of bridging the gap between academia and industry and EV charging station architecture.

Following this, Mr. Saurabh Rohilla, spoke on the topic of innovations in E-mobility and smart transportation, covering subtopics such as noticeable trends, fast charging of EV as density of EV batteries rise, problem of demand and supply imbalance, system of shared infrastructure as a solution to the problem.

Mr. Ravindra Joshi, the third presenter, spoke on the topic of government policies and strategies for EV chargers roll out. He explained India's EV scenario, highlighting government incentives, reduction of road tax on EVs, major impact on pollution reduction, summary of government guidelines on captive charging infrastructure, charging with integrated source of electricity for the EVs.

Taking the event forward, Mr. Vikrant Aggarwal, discussed the topic of E-mobility business and electrification challenges, addressing subtopics such as demographic aspects and consumer behavior, installation of public chargers, and current transportation systems.

Mr. Irfan Kawoosa, the last presenter of the day, discussed several business opportunities in EV charging infrastructure, including core DC chargers, opportunities as a CPO (Charge Point Operator).The presentations were followed by a Q/A session which included questions on how to match the battery capacity of an EV in such a way that it can withstand a particular fast rate of charge from fast chargers?

The event wrapped up with summing up of the deliberations by Mr. A.C Verma (Vice President, AEE Delhi) and a vote of thanks by Dr. Eswara K Mussada (AIT, Amity University).

Group photo at demonstration area for industry session

Industry Session- Riding a Greener Future

Event Date: 13.10.2022: The industry demonstration session conducted on "RIDING A GREENER FUTURE –Charging EV On-Demand" is an initiative to bring the students aware with the advanced technologies in the field of Automobile Engineering. The Key Speakers of the event were: Mr. Saurabh Rohilla – Co founder & CXO, Hopcharge, Ms. Surbhi Sangwan – CRM, Hopcharge, Mr Gautam Grover – Senior FSO, Hopcharge, and Mr. Hem – FSO, Hopcharge. This initiative was led by Hopcharge, world's first on demand, doorstep and zero grid charging solutions for electric Vehicles; and TATA Motors, who have a remarkable portfolio of both passenger and commercial vehicles space for several years. It highlights the real fast charging of EV cars by giving demonstration through their charging pods. In addition to, it explained that how EV works and its various benefits and demand in current world now. The test drive of the Electric cars while taking care of all the safety measures was taken by the students, faculty, and staff members. It was a great experience to be a part of this demonstration. The event was coordinated by Ms. Tanushri Saini and Mr. Nakul Kaushik from 3rd Year under the guidance of Dr. Bedatri Moulick.

" The time is right for electric cars-in fact the time is critical"

- Carios Ghosn

3rd Alumni Expert Talk

Event Date:23.08.2022: The 3rd Expert Talk was held by AIT in E3G08, where the event commenced from 3:10 PM where everyone was asked to be settled in the respective room. The event started with a warm welcome address given by our HOI Prof. Vivek Kumar highlighting about the Alumni Mr Aman Singh, who is the Senior Vehicle Calibration Engineer at Bosch Global Software Technologies, his experiences, activities and other aspects. The address was followed by the alumni interacting and beginning his discussion with the AIT students regarding methods, techniques and tactics used by him to become unique and capable. Talking about the Alumni, Mr. Aman Singh is the Senior Vehicle Calibration Engineer at Bosch Global Software Technologies. An Innovation driven engineer with subjective and technical understanding of science behind vehicles, which helped him to engineer the Powertrain requirements into engineering aspects. His experience includes Development of EV Retro-fitment Powertrain units for L5 category vehicles, India with key work attributes like Powertrain sizing, Vehicle testing on dyno and road, Motor Controller/ ECU calibration, Battery Pack testing, DOE and DVP for vehicle as well as components, Vehicle Integration for both Electrical, electronic, and mechanical systems, and Benchmarking. He also gave an informative presentation stating all the pros and cons about the practices followed by the industry.

The event was wrapped up by Prof. Vivek Kumar presenting a memento to Mr Aman as a token of love and appreciation. The event ended with vote of thanks by Ms Gyanvi Bhardwaj, a student from 4th year, B Tech (AME).

The event was organised by Ms Tanushri Saini, 6th Semester B Tech (ANE) and Mr Nakul Kaushik, 6th Semester B Tech (AME).

4th Alumni Talk

Event Date: 5.09.22. The session was conducted on **"Alumni Interaction and Engagement: Guidance for Career Progression by Alumni"** is to creating opportunities to enable maximum presence of noted Industry personalities to hold interactive sessions with the students. The co-ordination with the various academic departments to conduct this Alumni interaction and engagement to enhance the perception level of the students to the new age requirements of the Industry.

Faculty Coordinator: Prof. Vivek Kumar, Dr. Puran Singh K

Alumni Interaction

TYPHOON HIL: Training Program

Event Date:03.11.2022: An industry training session conducted on "Design, Test and Validation tool for Engineering Applications" was an initiative to bring the students aware with the advanced technologies in the various field of Engineering. Talking about the organisers Typhoon Hil, it is a technology and market leader in ultra-high-fidelity Hardware in the Loop (HIL) solutions for design, testing, and validation of power electronics, microgrids, e-Mobility, EV powertrain software testing, and distribution control and protection systems. Typhoon HIL platform ushered a new era of model-based testing and validation of control software and hardware with its embedded, ultra-high fidelity real-time Hardware in the Loop (HIL) platform. The key speakers of the event were: Dr. Salim Qureshi, Mr. Shamsher Ansari, Mr. Siddiqui and Mr. Jibran. Talking about the event, Proper in-depth training by the industry experts was given to the participants (students and faculty members). Students from MTech and B. Tech were the main target audience for this training session, who in turn gave great feedback about the software utilities. The credit for this event goes to Ms. Tanushri Saini and Mr. Nakul Kaushik (both from 3rd Year) who took the initiative to organise this training under the guidance of Dr. Bedatri Moulik.

"Being an alumni is not just a title, but a lifelong commitment to the growth and success of the institution"

Students attending the training program

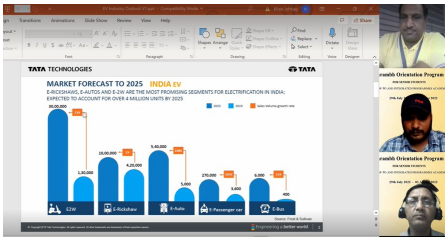
Industry Sessions

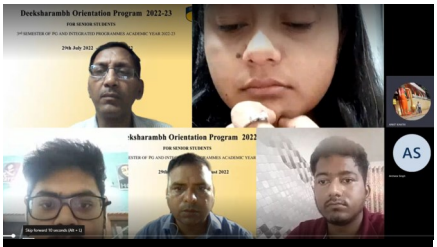
Industry- Academia Technology Forum Expert Talk on EV Powertrain

Event Date:04.11.2022: An Expert Talk was held on 04th November 2022 between 11:00-12:30 pm on the topic of EV Powertrains. The Forum was led by Dr. Allabaksh Naikonde, Chief Technical Officer of JLNPhenix Energy. The expert talk conducted was an attempt to provide the students an exposure of the advanced technologies in the field of Automobile Engineering specializing in electric vehicles. Among the topics discussed in this forum were focused on EV architecture, its components, challenges and innovations. These technologies aim to strengthen the development and use of electric vehicles, including electric and driverless cars. Usage of today's technologies and improved electric vehicle infrastructure will also help maintain and improve the safety of passengers and vehicles on the roads. More than 50+ participants were present in this talk. The event was coordinated by Tanushri Saini and Nakul Kaushik (3rd Year students) under the guidance of Dr. Bedatri Moulik.

"Industry is best at the intersection of science and art"
-Edwin Herbert Land

Automobile Industry





Online session

Event Date:30.07.2022: The industry session conducted on **"Current and Future Technology in Automobile Industry"** is an initiative to bring the students aware with the advanced technologies in the field of Automobile Engineering. AI, machine learning, human-machine interface, and IoT are some of the technological trends in the automobile sector. These technologies will strengthen the development and use of vehicles, including electric and driverless cars. Big data and analytics also help maintain and improve the safety of passengers and vehicles on the roads. The speakers wer Dr. Ishtiaq Ahmed Khan, Mr. Amol Sonawane and Mr. Muttanna Japannavar.Dr. Ishtiaq Ahmed Khan is currently Programme Director, Tata Technologies Ltd., Pune under the Engineering and Design line of business. He has over 17 years of experience in the Automotive and Aerospace Industries and has worked on eight international assignments in Germany, United Kingdom, France and Italy for major International OEMs and Tire 1 suppliers.

Mr. Amol Sonawane is managing the different E-Mobility events and proven ability to reenergize and create emerging customer centric business strategies. He is part of various skill development programs managed by ISIE INDIA in association with various government organizations, institutes and industries for training, placement, skill development and providing career opportunities to students in EV industries.

Mr. Muttanna Japannavar is currently a Senior R&D Manager at Epic Mining India Limited which he has been associated with it from 2016 and Qualified internal auditor (LRQA) and Scrum Master. He has over 18 years of experience in the Conceptual design, CFD and FE analysis for Off-high way, Automotive and Aerospace engineering.

Demystifying Drone Technology

Drone demonstration

Event Date:20.10.2022: The industry session was conducted on **"Demystifying Drone Technology"** by Piston Craft Club, the technical club of Amity Institute of Technology in association with Amity Drone Research Centre. This seminar was organized to make the students aware of the scope and growth of the drone industry, current and future technologies, and employment opportunities. Discussions with the Amity Drone Research centre Team and AIT were also carried on in Drone Research Centre, where they demonstrated their drones made by students to the guest speaker, Mr. Rajesh Battish. Students also got an opportunity of asking engineering and design suggestions for the drones being developed at Amity. The Event was coordinated by Ms. Tanushri Saini and Mr. Nakul Kaushik under the guidance of Dr. Himanshu Mishra.

High Speed Driving– Road Safety Campaign by ASDC and Auto Guru

Event Date:02.03.2023: The industry session conducted on "**High Speed Driving – Road Safety Campaign**" an initiative to bring the students aware with the awareness by communicating the negative consequences and impact caused due to driving at high speeds. The key speaker of event was Mr. Aman Shukla -a Public Speaking Coach and Tedx Speaker. The Guests attending this event were Mr. Asim Inam – Industry expert sales ASDC, and Mr. Ativ Shah – CEO and Co-founder of Auto Guru India. Proper in-depth training by the industry experts was given to the participants (students and faculty members). Using the medium of an interactive presentation and engaging session we will be educating students on good, safe driving behavior and manners. Students from M.Tech. and B.Tech were the main target participants for the training session, with great feedback from them about the software utilities. The small assessment took place which was taken in the form of Quiz (10-15 mins). After the session, students has been provided with a certificate by ASDC, Auto Guru India.

The event was coordinated by Mr. Noel Abhram Cheriyan (M. Tech EVT), Mr. Nakul Kaushik, and Mr. V Ahkash (B. Tech AME, 3rd Year), Ms. Tanushri Saini(B. Tech ANE, 3rd Year), Mr. Hardik Sehgal and Mr.Gurneet Singh (B. Tech AME, 2nd Year) and Mr. Sukrit, Ms. Ananaya Sadera, Mr. Shantanu, Mr. Aryan Bansal, Mr. Shrey, and Ms. Shreya from 1st Year under the guidance of Mr. Manish Kumar, the faculty coordinator for the event.

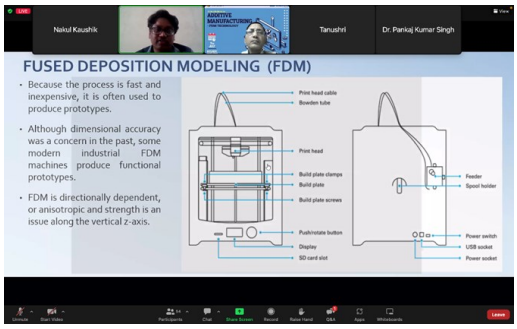
Presenting Honorariums

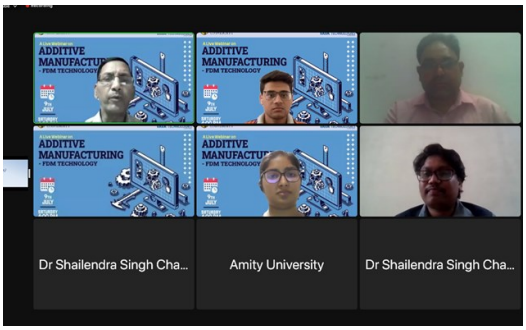
Webinars

Additive Manufacturing

Event Date:09/07/2022: The webinar conducted on "Additive Manufacturing – FDM Technology" is an initiative to give an exposure of latest technologies to aspiring students. It has been utilized in the automobile industry, ranging from testing models, lightweight tools to final functional components. FDM begins with a software process, developed by Stratasys, which processes an STL file (stereolithography file format) in minutes, mathematically slicing and orienting the model for the build process. If required, support structures are automatically generated. The main speaker of the event was Mr. Jyoti Kumar Mandava an automotive designer with 10 years of experience. Currently, he is working with Tata Technologies Ltd as Assistant Manager. He was part of team involved in design and development of Land Rover discovery Sport, Tata motors ,Tata Nexon, Tata Tiago and Tata Tigor and Advance Modular platform (AMP). He is expert in design and development of Body and Trims for 4 wheelers, FDM 3D printing Additive manufacturing.

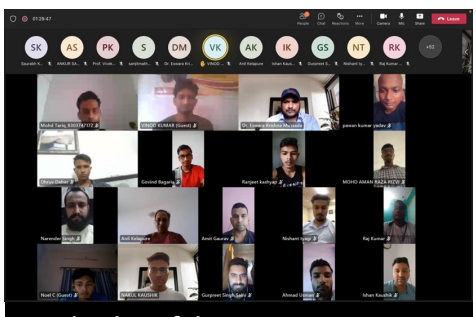
Faculty Coordinator: Dr. Pankaj Kumar Singh, Dr. Shailendra Singh Chauhan.





"Webinars have been great for understanding what is new within our industry and is a great service for continuing education"

- Spencer M.



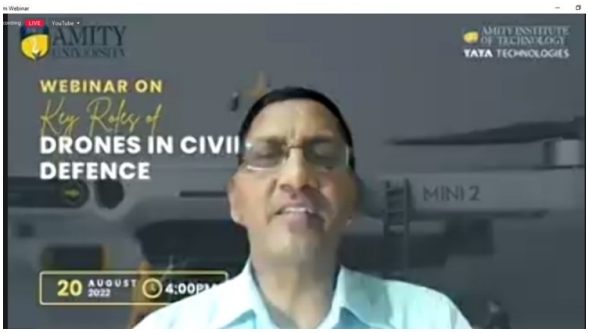
Conduction of the event

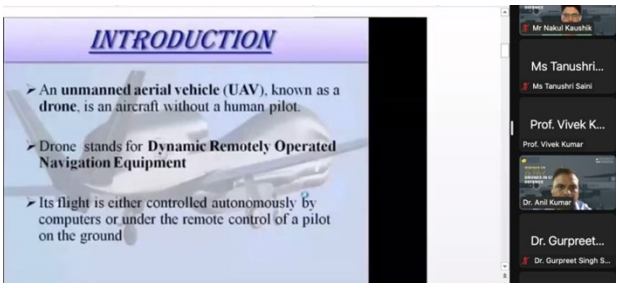
Fascinating World of Electric Vehicles

Event Date:23/07/2022: The webinar "Fascinating world of Electric Vehicles" is an initiative to bring the aspiring students aware with the advanced technology in the field of Automobile Engineerig. All electric cars have regenerative braking which means that every time you apply breaks, some electricity goes back into the battery. Braking in fact actually helps you to get more miles from the car, enabling you to drive further. Electric car drivers who are driving down a hill or a mountain will actually have added miles when they reach the bottom. The key speakers of the event was Mr. Anil Kelapure, Programme Director (Automobile Engineering) at AIT. His astonishing employment history have been with Gajra Gears, Tata Motors (Pune & Pantnagar), Paharpur Cooling Towers Ltd (Kolkata) &Tata Technologies Ltd (Present). He has been a technocrat with over three decades of experience in Process Engineering, Manufacturing, Assembly, Servicing of Machine Tools & Robots, Project Planning / Execution.

Faculty Coordinator: Dr. Eswara Krishna Musaada.

Key Role of Drones





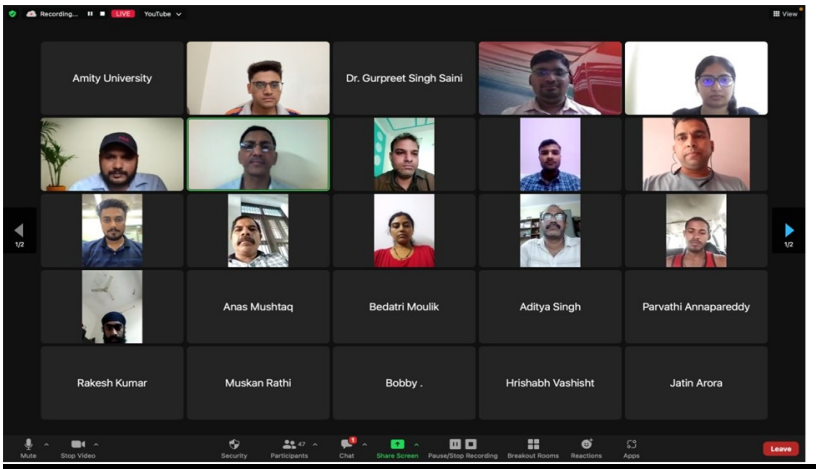
Event Date:20/08/2022: The webinar conducted on "Key roles of Drone in Civil and Defence" is an initiative to bring the aspiring students aware with the Drone technology in the field of Aerospace/ Aviation and Aeronautical Engineering. As it has many functions, ranging from monitoring climate change to carrying out search operations after natural disasters, photography, filming, and delivering goods. But their most well-known and controversial use is by the military for reconnaissance, surveillance and targeted attacks. In relation to emergency response, drones could be helpful during times of natural disaster. Drones may be able to access areas cut off by floods, hurricanes and earthquakes. They may be able to locate survivors, assess damage and deliver aid. The Key Speaker of the event was Mr. Vaibhav Sharma CEO of Aerobotix Techsoft. He is an experienced co-founder with a demonstrated history of working in the aviation and aerospace industry. He is skilled in MATLAB, Microsoft excel, Microsoft word and Microsoft Power Point.

Faculty Coordinator: Dr. Anil Kumar

Innovation and Design Thinking

Event Date:06/08/2022: The webinar conducted on "Innovation & Design Thinking" is an initiative to bring the upcoming students aware with the advanced technology that provides design solutions for end users with a single problem statement in mind. It not only imparts valuable skills but can also help students to advance their career. The session was very interesting because of the unique ideas, thoughts and examples put forward by speaker. The main speaker of the event was Mr. Jahir Khatib . He is a Team lead in TATA Technologies with the experience of 11 years. He had done engineering research and development for various industries such as Automobile, Auto-ancillary and defense industries. He has done his masters in Mechanical Design Engineering.

Faculty Coordinator: Prof. Vivek Kumar, Dr. Eswara Krishna Musaada



Conduction of Online Webinar

Upcoming Events

⇒ **International Conference on Future Mobility and Net Zero** : The International Conference on Future Mobility and Net Zero is being organized by Amity Institute of Technology in September 2023. The conference aims to bring researchers, academicians and industry experts on one platform to share their knowledge and findings about future mobility aspects on EVs, drones, smart materials, and digital manufacturing for sustainable mobility. It will be held on 28th – 29th September 2023

⇒ **Technical Quiz** : It will be held by the Piston Craft Club in the upcoming quarter inviting students from various branches for this quiz and test their knowledge.

⇒ Apart from this, other clubs– Vesuvius Club, Aerobotics Club, AEE Club, SAE Club will also hold activities from their respective clubs/chapters.

Token of Gratitude for teachers

Celebrations

Teachers Day Celebrations

Event Date:05.09.2022: For the month of September 2022, Vesuvius: the performing arts (cultural club of AIT) organised Teacher's day celebration within the Institute. The day is celebrated to commemorate the birth anniversary of Dr S Radhakrishnan (First Vice President of India and Second President of India). On this day, we pay our respects to our teachers and mentors for their teachings and contributions in our lives. Following the trend, this year too students at AIT planned a grand celebration to make the day special for the faculty members. The event was hosted by Mr. Anubhav Rawat and Mr. Nitish Rana, 4th year students where they were responsible for managing the flow of the event. The event kicked off with mementos distribution to all the professors and staff of AIT. Followed by a special dance performance given by Ms. Gnanvitha and Ms. Smriti Mathur from 2nd year. The event included several games for faculty and staff members to add more zest to the celebration. The games were followed by an exuberant dance performance by Ms. Payal Kadam and Ms. Shivi Singh from 3rd and 4Th year, followed by an energetic powerful performance by Ms. Tanushri Saini from 3rd Year, and a soulful music performance by Mr. Vaibhav Sharma, from 3rd Year.

Prof Vivek Kumar, HOI, AIT was also invited on stage to speak a few words about the importance of teachers in a student's life and how this beautiful relationship between teachers and students should be nurtured every day. This event was wrapped up by organising a small cake cutting ceremony for the professors. The event ended up with students receiving appreciation and compliments from the teachers.

" The more you praise and celebrate your life, the more there is in life to celebrate"
-Oprah Winfrey

Freshers' Day

Event Date:11.10.2022: On 11th October 2022, a colorful, vibrant, and memorable Freshers Party was organized by our department. This event was from 2:30-5:00 pm and was held in the Technology Center of our block(E3-LG08). In this mega event, students from all the years, of the department participated to welcome and get familiar with the freshers. The grand show commenced by the arrival of freshers and our respected faculty members, followed by the arrival of Chief Guest, our head of department, Dr.Vivek Kumar. There was a colorful welcome followed by fun and cheerful anchoring by the students of 4th year- Mr. Anubhav Rawat and Mr. Nitish Rana. It was accompanied by very interesting games organized for the freshers. The games were full of fun and zest and each one of us enjoyed it. This was then followed by the competition for the title of Mr. and Ms. Freshers of our department. The competition included 3 phases: Talent Round, Ramp Walk and then your introduction. The freshers were excited and enthusiastic for the competition. Soon we began with the rounds, and it was truly mesmerizing to see the freshers performing so well. In the talent round there was singing, dancing, poetry recitation etc. of several foot tapping numbers. Everyone sat glued to the show. The judges (which included the faculty members of our department) praised the entire event a lot. Finally, the head of our department Dr. Vivek Kumar guided us with his inspirational words and inspired us to do better. It was then followed by the announcement of the winner. The title for Ms. Fresher was bagged by Ms. Ananya Sadera and Mr. Vaibhav Atri won the title of Mr. Fresher. Followed by the title of Mr. and Ms. Talented which was won by Mr. Dhruv Dabas and Ms.Shreya Sharma respectively. Finally sash and a gift was presented to the winners, everyone complimented each another followed by a formal vote of thanks and the event concluded.

We really enjoyed a lot and dispersed with a sincere thanks to our seniors for organizing such an amazing event for their freshers, giving them a chance to display their talents and making them more familiar and comfortable with everyone within the department.

University Freshers' Day

Students' Achievements

Swachh Innovative Technology Challenge– 1st Prize

Event Date:2022: NOIDA invited participation from Institutes, Universities, Groups & NGOs of NOIDA to present their ideas for an innovative solution under Swachh Sarvekshan 2022. This Contest was organized by Public Health Department, Noida Authority and had free participation. The About 154 candidates had participated in this event. After screening, 84 entries were shortlisted and invited for round 2-The online interaction round. Further, 26 projects were invited for online presentation where only top 14 solutions were shortlisted by the 3 Jury members evaluated as per the parameters. Top 2 solutions got **1st prize,** which were Smart Segregation Dustbin and Digital Sewer Management System, invented by Rajat Tyagi and Nikhil Kumar of AIT, Amity University, Noida. The details of the same are as follows:

1. Digital Sewage Management System: The main idea of a Digital Sewage Management Systems (DSMS) is to alert the monitoring cells, before overflow of sewer lines, SPS and septic tanks. The DSMS works on the principle of working of ball float. So, when the water level rises in the sewage system due to the buoyancy force, DSMS device will trigger the sensor switch. Following this the IOT device, which is situated in DSMS, will dispatch a text message alerting the authority about the overflow. This message will help the authority to react within a minimum time and prevent the damage that could be caused by the overflow of sewage system.

2. Smart Segregation Dustbin: The main sources of waste are industrial and domestic waste. Also, the environmental risks associated with poor waste management are well known and understood. This project mainly concentrates on domestic and commercial waste whose value is unrecognized since people don't spend time on segregating waste into their basic streams. The wet waste generated can be used to generate biogas and dry waste can be used for recycling, and making other valuable products (and production other SSDs). The main aim of this project is to segregate waste at source level to wet and dry, such that waste is not wasted but their value is understood and can be converted to a source of energy and for making other products, that too in a cost-effective way.

निखिल कुमार और रजत त्यागी का मॉडल अव्वल

वस, नोएडा : शहर की सफाई व्यवस्था तकनीक से कैसे और बेहतर की जा सकती है इस विषय पर हुई प्रतियोगिता में लोगों ने कई शानदार इनोवेशन किए हैं। जन स्वास्थ्य विभाग के प्रभारी एससी मिश्रा ने बताया कि पहले नंबर पर 2 मॉडल रहे, जिनको अथॉरिटी 51-51 हजार रुपये का नकद

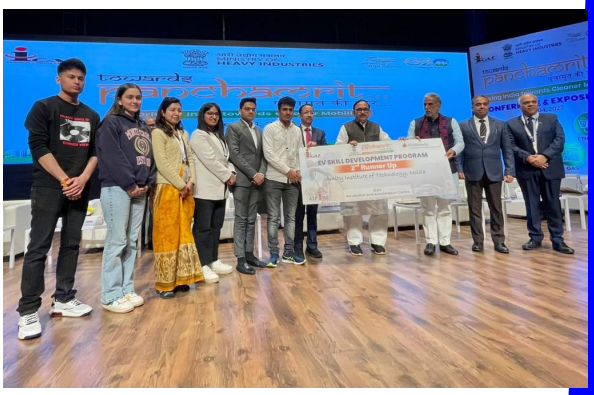
स्वच्छ इनोवेटिव चैलेंज में सामने आई तकनीक के क्षेत्र की प्रतिभाएं इनाम देगी। इसमें एक मॉडल निखिल कुमार का है, जिन्होंने स्मार्ट सेग्रीगेशन डस्टविन बनाया है। दूसरा मॉडल रजत त्यागी का है। रजत ने सीवर ओवरफ्लो मॉनिटरिंग सिस्टम डिवेलप किया है। दूसरे नंबर पर राघव शर्मा का प्लास्टिक वेस्ट मैनेजमेंट व एन्वायरो केयर वेंचर्स का मॉडल है। तीसरे नंबर पर रवि का मैनुअल सफाई में सहयोग करने वाला मॉडल, जीरो डंप के लिए प्रकृति मनोचा का मॉडल व प्लास्टिक वेस्ट मैनेजमेंट का सुमित आनंद का मॉडल है।

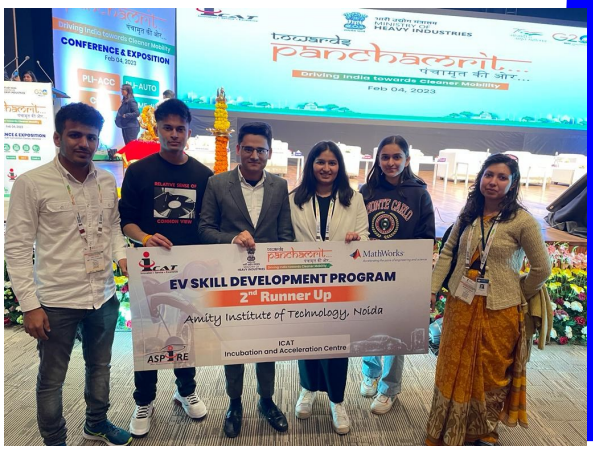
निखिल ने बनाया स्मार्ट सेग्रीगेशन डस्टबिन

"Achievements of today are stepping stones of the future"
-Invajy

MATLAB ICAT Competition– 3rd Prize

Event Date:04.02.2023: ICAT organised an EV Skill development program competition in collaboration with MathWorks and Bosch from Oct 2022 to Jan 2023. A team of five students from AIT participated in this competition. Mr. Ankit Khatri (MTech EVT), Ms. Gyanvi Bhardwaj (BTech AME), Mr. Armaan Mattoo (BTech AME), Mr. Nakul Kaushik (BTech AME) and Ms. Tanushri Saini (BTech ANE) were in the team. There were 76 teams from 20 Universities including NITs which took part from all over the India (including 3 teams from North East India). Total of 380 students were part of this competition. Problem statement was given to the teams on EV designing and modelling. Teams had to solve the problem on MATLAB/ SIMULINK. MathWorks provided the team with MATLAB license and free onramp courses. There were special sessions arranged with the industry experts from EV domain in which AIT team interacted well and learned a lot. AIT team completed all the onramp courses and attended all the sessions organised during the event and submitted the solution of problem statement before the deadlines. The results were announced, and AIT team achieved **2nd runner up position** in this competition. Team was invited to visit the ICAT premises for "towards panchamrit" event on 4th Feb 2023 and collect the awards. Dr. Mahendra Nath Pandey (Honourable Union Minister of Heavy Industry), Shri Krishan Pal Gurjar (Honourable State Minister for Power and Heavy Industry Haryana), Shri Kamran Rizvi (Secretary Ministry of Heavy Industry), Dr Hanif Qureshi (Joint Secretary Ministry of Heavy Industry), Shri Vijay Mittal (Joint Secretary Ministry of Heavy Industry), Shri Vikas Dogra (Director Ministry of Heavy Industry), Shri Rajnesh Singh (Director Ministry of Heavy Industry) and Shri Saurabh Dalela (Director ICAT) was present to give award to AIT team for this EV Skill Development Competition. AIT team is looking forwards to participate in more events like this.





About the Theme-
Future Mobility and Net Zero

The future of mobility is closely intertwined with the goal of achieving net-zero emissions. The transportation sector is responsible for a significant portion of global greenhouse gas emissions, and reducing these emissions is crucial for mitigating the effects of climate change. To achieve net-zero emissions, the transportation sector must undergo a significant transformation, driven by technological innovation, policy incentives, and changes in societal attitudes towards transportation. One of the key drivers of the shift towards net-zero emissions in the transportation sector is the development of electric vehicles (EVs). EVs are powered by electricity, rather than fossil fuels, and produce zero emissions while driving. In recent years, the development of battery technology and the expansion of charging infrastructure have made EVs more practical and affordable for consumers. Governments around the world are also providing incentives for the purchase of EVs, including tax credits and rebates, as well as funding for the development of charging infrastructure. However, the shift towards electric vehicles is not the only solution for achieving net-zero emissions. Other forms of sustainable transportation, such as public transit, cycling, and walking, will also play an important role. Encouraging the use of these alternative modes of transportation can reduce the number of vehicles on the road and the associated emissions. The future of mobility also includes the development of autonomous vehicles (AVs). AVs have the potential to reduce emissions by improving traffic flow and reducing congestion. They can also be optimized for energy efficiency, with the ability to avoid unnecessary acceleration and braking. Additionally, AVs can be shared, reducing the need for individual car ownership and further reducing emissions. The development of AVs also raises important ethical and social questions, such as who is responsible in the case of an accident involving an AV, and how the technology can be designed to benefit all members of society. Ensuring that AVs are designed with safety and accessibility in mind will be crucial for their widespread adoption. Another important factor in the future of mobility is the development of sustainable fuels. While EVs are currently the most promising solution for achieving net-zero emissions, there are still challenges associated with their production and use, such as the environmental impact of battery production and the limited range of electric vehicles. Sustainable fuels, such as hydrogen or biofuels, can provide a complementary solution to EVs, particularly for heavy-duty vehicles such as trucks and buses. In addition to technological innovation, policy incentives will be crucial for achieving net-zero emissions in the transportation sector. Governments can provide incentives for the purchase of EVs and the development of charging infrastructure, as well as mandates for the use of sustainable fuels. Pricing policies, such as a carbon tax or cap-and-trade system, can also incentivize the reduction of emissions in the transportation sector. Finally, changes in societal attitudes towards transportation will be crucial for achieving net-zero emissions. Encouraging the use of sustainable modes of transportation, such as public transit, cycling, and walking, can reduce the number of vehicles on the road and the associated emissions. Additionally, reducing the need for individual car ownership through shared mobility solutions can further reduce emissions. In conclusion, the future of mobility is closely linked to the goal of achieving net-zero emissions. The shift towards electric vehicles, the development of autonomous vehicles, the use of sustainable fuels, and policy incentives will all play a crucial role in achieving this goal. However, changes in societal attitudes towards transportation will also be necessary for widespread adoption of these solutions. With a concerted effort from policymakers, industry leaders, and consumers, the transportation sector can play a significant role in mitigating the effects of climate change and achieving a more sustainable future.

- Sai Viswakesh
B.Tech ANE (2022-26)

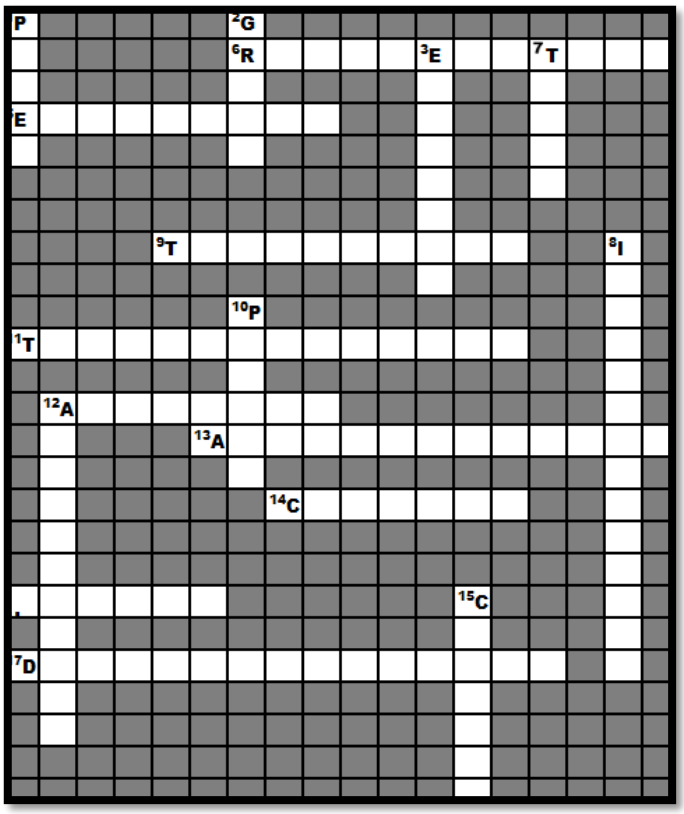
Creative Corner– Poem

A country with a wide spectrum of multiple opportunities
A land of beautiful landscape and endless festivities
In this great land we have diff race and all of them develop with their own pace
As calm as water as fierce as fire
Indians are someone who have always aimed higher
India is an abode where varied cultures blend the saga of our country is something that can never end
Jai Hind

- Ananya Sadera
B.Tech ANE (2022-26)

" Creativity is seeing what others see and thinking what no one else ever thought"
- Albert Einstein

Crossword



HINTS

ACROSS

5. A low-carbon vehicle
6. The circular economy
9. A smart city
11. Future mobility mode
12. Role of electric vehicles in achieving net zero transportation
13. Role of public transportation in reducing emissions
14. Role of renewable energy in achieving net zero transportation
16. Benefit of sustainable transportation
17. Goal of net zero transportation

DOWN

1. Electrification
2. Sustainable mobility
3. Carbon neutrality
4. Importance of active transportation
7. Example of sustainable transport
8. Challenge to achieve net zero transportation
10. Role of governments in achieving net zero transportation
12. Role of innovation in achieving net zero transportation
15. Paris agreement topic

Competitions

Dimensions by Piston Craft

27.01.2023: The event-cum-competition organized under the name Dimensions - CREO/CATIA was initiated to let participants showcase their skills using Computer Aided Designing CAD software essential for expression of your ideas in form of 2D sketches and 3D extrudes. A specific challenge or problem through science, technology, or engineering was provided. Many of these challenges or problem were rooted in prototyping-stages, encouraging participants to use creativity and critical thinking to come up with innovative products designed by them. The event was organised by Piston Craft Club, the technical club under Amity Institute of Technology. The judges of the event were: Mr. Anil Kelapure, Dr. Anil Kumar and Dr. Eswara Krishna Mussada. The Student Coordinators of the event were Mr. Nakul Kaushik and Ms. Tanushri Saini(from 3rd Year) , and Mr. Hardik Sehgal and Mr. Abhay Kumar Kaushik(from 2nd Year), who worked under the guidance of Dr. Anil Kumar.

Awarding the winners

Students Participation in the event

Sing Your Moment Competition

23.02.2023: For the month of February 2023, Vesuvius: the performing arts (cultural club of AIT) organized a Singing Competition 'SING YOUR MOMENT' at the university level. The event was conducted to appreciate the aspiring singers, find new talent, and give them a platform to display their talent. The executive committee planned, promoted, and executed make the event special and successful. The event was hosted by Ms. Jaya Kushwaha, President of the Vesuvius club where she was responsible for managing the flow of the event. The event kicked off by greeting our judges Dr.Bedatri Moulik and Dr.Eswara Krishna Mussada and the Head of Institution, Prof. Vivek Kumar. After which the singing performances began one after the other. All the performances were full of energy and mesmerizing. It was thoroughly enjoyed not only by students but professors and judges too. More than 17 participants were there to compete for the positions. Prof. Vivek Kumar, HOI, AIT was also invited on stage, towards the end of the event, to speak a few words about the event and motivate the participants. Finally, the results were announced by the judges which were as follows: 1st prize was bagged by Ms. Nandini from AIB department, 1st runner up was Ms. Khushi from AIPS department and 2nd runner up was presented to Ms. Anoushka Verma from AIT department. Efforts of the participants were deeply appreciated by the judges and several compliments were received too.

Group photo with winners and judges

Message from the Editorial Desk

It gives us, the editorial team, immense pleasure to take part in publishing the first ever edition of our Departmental Quarterly Newsletter. It was an all new experience for us to learn more about the happenings in our department and contribute towards it as well.

The theme was **"Future Mobility and Net Zero"** taking into considerations today's environment and the need of it. There were many activities held for the same which included the EV visits and the EV charging seminars which were very helpful to understand the scenario for EVs.

Many webinars, seminars, competitions were held which taught us various important things and encouraged us to always keep learning..

We thank all those who supported us in publishing this newsletter and wish that all our readers will look forward for the many more editions of our quarterly newsletter to come.

- Gnanvitha Kosaraju (B.Tech ANE 2021-25)
  Smriti Mathur (B.Tech ANE 2021-25)
  Jaya Kushwah (B.Tech ANE 2021-25)
  A. Sai Visvakesh (B.Tech ANE 2022-26)

ABOUT AMITY INSTITUTE OF TECHNOLOGY

Amity Institute of Technology, established in close collaboration with Tata Technologies Limited, is committed to provide excellent education to enthusiastic students for becoming a well-qualified industry ready engineer in the field of Automobile Engineering, Aeronautical Engineering, Unmanned Aerial Vehicles (UAVs), and Electric Vehicles. AIT is a globally recognized Institute for imparting outstanding education for developing all the required competencies in our next-generation engineers. For doing so, AIT has established 6 Competency Centres namely Technology Centre, Innovation Centre, Learning Centre, Virtual Reality Centre, Teardown and Bench Marking Centre, Drone Centre, and Advance Manufacturing Centre. Our state-of-the-art Competency Centres consist of Industrial Robots, Conveyor Assembly Line, Manufacturing Execution System, Teardown and Benchmarking, Vehicle cut section, Automobile Components and systems, 3D Printers, Aircraft Simulator, Aircraft Components and systems along with the other core labs. The Technology competency centre is equipped with software such as MATLAB, Ansys, MSC Nastran, MSC Patran, MSC Apex, Catia V5, CREO etc. to train the students as per industry standards.

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