



### Mechanical Engineering Students Association (MESA)

The Mechanical Engineering Student Association (MESA) is the premier body of Mechanical Engineering department in KITSW and is formed out of voluntary enthusiasm and extreme passion of its students to discover the deepest knowledge of their interests.

Under the extraordinary guidance of Head of the department, faculty and with their unconditional and invaluable support, students here in the association improve their every skill and strive with an obsession of carving their capabilities to perfection and mastery.

The executive council of MESA is constituted for the academic year 2023-24. The following are the office bearers nominated for various positions of MESA.

**Prof. P. Srikanth**, Head, MED

**Sri. K. Kishor Kumar**, Asst. Prof, Faculty In-charges (MESA)

**Smt. P. Anitha**, Asst. Prof, Faculty In-charges (MESA)

**Sri V. Rajesh**, Asst. Prof Faculty In-charges (MESA)

S.No	Position	No. of Positions
1.	<b>President</b>	<b>IV/IV Mech</b> Kalva Vishnu Vardhan(7M2) B20ME119
2.	<b>General Secretary</b>	<b>IV/IV Mech-I</b> Thalla Ajay Kumar (7M1) B20ME047 <b>IV/IV Mech-II</b> M. Kavya sree(7M2) B20me109
3.	<b>Joint secretary</b>	<b>III/IV Mech-I</b> Porika Abhinay Naik B21me020 <b>III/IV Mech-II</b> MOHAMMED SUMEER(5M2) B21ME037
4.	<b>Treasurer</b>	<b>IV/IV Mech</b> Akash kanagala (7M1) B20ME007 R.Shravani B22ME139L(5M2)
5.	<b>Media &amp; PR Head</b>	<b>IV/IV Mech</b> RUPESH KUMAR NEERLA(7M2) B21ME130L Y. V. V. Sai Sri Sumanth (5M2)

		B22ME121L
6.	<b>Publications Head</b>	<b>IV/IV Mech</b> Saini Ganesh Kumar (7M1) B20ME059 VINITHA SUNKU(5M2) B22ME132L
7.	<b>Discipline Head</b>	Nandan Darak (7M1) B20me008 A. Srinidhi nayak(5M2) B21ME051 Syed Shadman Hussain(3M1) B22ME001
8.	<b>EVENT COORDINATORS</b>	<b>7M1</b> M. Deekshitha B20ME038 J. Bindu B20ME045 <b>7M2</b> S. Nithin Kumar B21ME137L K. Niharika B20ME116 <b>5M1</b> Saranya Louise Marie B21ME012. BITLA VARUN B22ME123L <b>5M2</b> MALOTHU SATHISH B21ME042 S. Ravalika(5M2) B21ME057 <b>3M1</b> S. Adithya B22ME004 Shoib Ali Khan B22ME017

## Events Proposed under Mechanical Engineering Student Association for the academic year 2023-2024

All the activities in MESA have been handpicked by the veterans of the department with meticulous efforts put into the design process and the following gives the detail information and schedule of various programs to be conducted in this year.

An hour i.e. from 11.40 am to 12.30pm on every Tuesday is completely devoted to MESA activity with the information properly disseminated to every corner of student community prior to the event.

S.no	Date	Name of the event
1.	25.07.2023 (Tuesday)	Inauguration of MESA and Introduction of MESA Body
2.	01.08.2023 (Tuesday)	Interactive session to understand the importance of mechanical engineering in daily life. <b>"Unveiling the Marvels: The Indispensable Role of Mechanical Engineering in Our Daily Lives"</b>
3.	08.08.2023 (Tuesday)	A game based on the basic mechanical components in a vehicle- <b>"Tech Dumb charades"</b>
4.	19.08.2023 (Saturday)	<b>World photography day</b>
5.	21.08.2023 (Monday)	<b>World Entrepreneur's Day Celebration.</b>
6.	22.08.2023 (Tuesday)	A session to understand the importance of AI to automate mechanical things- <b>"AI-Mech Fusion"</b>
7.	29.08.2023 (Tuesday)	<b>Problem statement and Idea pitching.</b>
8.	05.09.2023 (Tuesday)	<b>Teachers' Day Celebration</b>
9.	15.09.2023 (Friday)	<b>Engineer's Day' Celebration</b>
10.	19.09.2023 (Tuesday)	<b>Importance of SAE activities for Mechanical Engineering students</b>
11.	26.09.2023 (Tuesday)	<b>Career opportunities</b> for mechanical engineering students
12.	03.10.2023 (Tuesday)	A brief Explanation of successful mechanical start-ups in India- <b>"MechTech India"</b>
13.	10.10.2023 (Tuesday)	Introduction to basic electrical components and TinckerCAD software for prototyping of PCB- <b>"ElectroCAD Essentials"</b>

14.	14.10.2023 (Saturday)	<b>World Standards day</b>
15.	17.10.2023 (Tuesday)	<b>Build Your Own Robot</b>
16.	20.10.2023 (Friday) - 21.10.2023 (Saturday)	<b>SUMSHODHINI TECHNICAL FEST</b>
17.	31.10.2023 (Tuesday)	<b>Auto-quiz &amp; Ingenious Solutions</b>
<b>SEMESTER BREAK</b>		
18.	19.12.2023 (Tuesday)	<b>Group discussions and Debate</b>
19.	26.12.2023 (Tuesday)	<b>Exploring new methods of recycling waste and idea development</b>
20.	02.01.2024 (Tuesday)	<b>Mock press</b>
21.	09.01.2023 (Tuesday)	<b>Design competition using CAD software's</b>
22.	23.01.2024 (Tuesday)	<b>General Quiz</b>
23.	30.01.2023 (Tuesday)	<b>Poster Presentation</b>
24.	06.02.2024 (Tuesday)	<b>Business Plan Presentation.</b>
25.	28.02.2024 (Wednesday)	<b>National Science day</b>
26.	05.03.2024 (Tuesday)	Hands-on session to understand basic electronics using IOT- <b>"IOT Electrified"</b>
27.	12.03.2024 (Tuesday)	<b>Introduction to FEA through ANSYS.</b>
28.	19.03.2024 (Tuesday)	<b>JAM (Just a minute)</b>
29.	26.03.2024 (Tuesday)	<b>Role play, National Girl Child day of India</b>
30.	02.04.2024 (Tuesday)	<b>MESA Valedictory</b>

Mechanical Engineering Student Association actively planned and organized several activities to make students enthusiastic in learning other things apart from the curriculum. Main motto of the association is to develop the students in the path of technical and also improvement in the communicational skills. We organized few expert lectures to expose the students of Mechanical engineering to new methodology adopted.

## MESA INAUGURAL 2023

On July 25, 2023, the inaugural session of the Mechanical Engineering Students Association marked the beginning of the academic year 2023-24. The event unfolded smoothly, thanks to the collaborative efforts of the backstage team. Attendees included esteemed faculty members from the Department of Mechanical Engineering: Dr. K. Raja Narendra Reddy HoD, Dr. K. Sridhar, Dr. P. Srikanth, Dr. U. Shrinivas Balraj, as well as our MESA coordinators, Sri. K. Kishor Kumar, smt. P. Anitha, and Mr. V. Rajesh. Additionally, students from the department joined in to participate.

### Summary of the Inaugural Session:

The session commenced during the MESA hour, scheduled from 11:40 am to 12:30 pm. To begin, the session anchor, Srinidhi Nayak, welcomed the dignitaries to the platform, followed by the lighting of the lamp and introductory remarks. Sri. K. Kishor Kumar, the faculty coordinator of MESA, then took charge of the session, inviting Mr. K. Vishnu Vardhan, the President of MESA 2023-2024, to join him on the dais.



The President briefly reflected on MESA's journey over the past years and outlined this year's schedule, emphasizing MESA's pivotal role within the mechanical engineering department. Subsequently, the executive council members were introduced, followed by impactful speeches from the General Secretary (M. Kavya Sree), the Media & PR Head (N. Rupesh Kumar), and the Discipline Head (Nandan Darak). A group photo was taken with the faculty of mechanical engineering, marking the occasion. Sri. K. Kishor expressed his pleasure in meeting the new MESA team, expressing his hopes to surpass the achievements of the previous team by allocating time to planned events while ensuring not to overwhelm himself in the process.

Prof. P. Srikanth expressed his delight at the significant presence of I2RE-affiliated students within the MESA body, emphasizing the importance of fostering innovation in the upcoming academic year to encourage students to expand their horizons beyond their academic disciplines.

Prof. K. Sridhar delivered an inspiring speech, providing an insightful overview of the Mechanical Engineering Department and encouraging students to serve as ambassadors to attract new students to the field.

Prof. K. Raja Narendra Reddy delivered an engaging speech, highlighting the rapid skill development opportunities awaiting MESA members. He also emphasized the importance of cultivating essential professional qualities for a prosperous future. The session concluded with a vote of thanks delivered by Kavya.



The session commenced at the scheduled time of 11:40 am and extended until 12:30 pm. Ms. K. NIHARIKA (B20ME116) initiated the session by introducing herself to the students. She provided an in-depth overview of Industry 4.0, elaborating on its concepts and implications.

Industry 4.0 is ushering in a new era of intelligent factories and smart manufacturing, aiming to enhance productivity, efficiency, and adaptability. This paradigm shift enables more informed decision-making and customization throughout manufacturing and supply chain processes. Key technologies driving Industry 4.0 include

- a. Industrial IoT networks,
- b. artificial intelligence (AI),
- c. big data analytics,
- d. robotics, and
- e. automation.

The industrial revolutions can be categorized into four distinct phases:

- 1) Industry 1.0: Emergence of mechanical production equipment powered by water and steam.
- 2) Industry 2.0: Introduction of mass manufacturing production lines fueled by electric energy.
- 3) Industry 3.0: Integration of electronics, PLC devices, robots, and IT for production automation.
- 4) Industry 4.0: Adoption of IoT and cyber-physical systems facilitated by augmented reality and real-time intelligence.

Today, the notion of industry has expanded to encompass various sectors and economic endeavors, spanning manufacturing, technology, finance, healthcare, education, and beyond. This evolution of the term "industry" mirrors the multifaceted and intricate nature of economic activities in contemporary societies. It adapts continuously in response to technological advancements and shifts in global markets.

Industry 4.0 stands as a significant initiative undertaken by the German government to propel industrial sector growth. It serves as a strategic move to uphold Germany's prominence in machinery and automotive manufacturing industries.





The Hannover fair in 2011 introduced key concepts centered around leveraging emerging technologies and innovative ideas. These included harnessing the internet and IoT, integrating technical and business processes within companies, digital mapping and virtualization of real-world environments, and the concept of the Smart Factory, encompassing intelligent approaches to industrial production and products.

There are six foundational design principles within Industry 4.0:

**Interoperability:** This refers to the seamless connection and communication between cyber-physical systems, humans, and smart factories through the Internet of Things and Services.

**Virtualization:** It involves creating a virtual replica of the Smart Factory by integrating sensor data with virtual plant and simulation models.

**Decentralization:** This principle empowers cyber-physical systems within Smart Factories to autonomously make decisions.

**Real-time Capability:** It denotes the ability to collect, analyze, and derive insights from data instantly.

**Service Orientation:** This involves providing services (by cyber-physical systems, humans, and Smart Factories) through the Internet of Services.

**Modularity:** This principle facilitates the flexible adaptation of Smart Factories to accommodate changing requirements of individual modules.

The session commenced punctually, focusing on the DUMSHARATS game to enhance engineering thinking skills. However, the poster launch, initially scheduled for the first week, faced delays due to unforeseen circumstances. Thanks to the collaborative efforts of the entire team, Y.V.V. SRI SAI SUMANTH and P. ABHINAV NAIK successfully prepared the poster.



Following the unveiling of the poster, the game commenced, eliciting excitement from the participants. The orator began by posing simpler questions before gradually escalating to more difficult ones as the game unfolded.



*5 SEPTEMBER,2023*

The session kicked off with the introduction of a jam session, where the orator posed questions to the audience. Dividing them into Groups A and B, the orator initiated with a query on spur gears for Group A, elucidating the concept for second-year students. Meanwhile, Group B tackled a question on motors, with the orator clarifying the concept to assist second-year participants.

Initially smooth, tensions arose when Group A resorted to cheating with online assistance, prompting Group B to retaliate. Amidst the chaos, the MESA disciplinary team intervened, demonstrating their adeptness in managing conflicts. The president then took the stage, emphasizing the importance of fair play and integrity in the game.

Following this, the orator encouraged all participants to share something on stage to overcome stage fear, essential for ensuring attendance. Participants took turns introducing themselves by name and year before exiting the MESA hall.

Artificial Intelligence (AI) encompasses computer systems that simulate human intelligence processes like learning, reasoning, problem-solving, perception, language understanding, and decision-making. AI technologies automate tasks requiring human intelligence, enabling machines to perform complex functions, adapt to new situations, and enhance performance through data-driven learning.

- **Data Explosion:** The digital age has generated vast data volumes. AI's capacity to process and analyze extensive datasets has yielded transformative insights and opportunities.
- **Computing Power Advancements:** Powerful hardware, such as GPUs and specialized AI chips, have bolstered AI's computational capabilities, facilitating efficient execution of complex algorithms.

- **Machine Learning Progress:** Machine learning, a subset of AI, has achieved significant advancements in areas like image recognition, natural language processing, and game playing, driving applications across industries.

- **Automation and Efficiency:** AI-powered automation has streamlined processes, reducing human intervention and enhancing efficiency in sectors like manufacturing, logistics, and customer service.

- **Personalization and Recommendation Systems:** AI algorithms analyze user preferences and behaviors to offer personalized recommendations, transforming shopping, content consumption, and online interactions.

- **Healthcare Revolution:** AI aids in disease diagnosis, drug discovery, and personalized treatment plans, particularly impacting medical imaging interpretation and genomics research.

- **Financial Services Transformation:** AI algorithms improve fraud detection, risk assessment, and algorithmic trading, while chatbots streamline customer support and financial processes.

- **Retail and Marketing Enhancement:** AI optimizes inventory management, trend prediction, and customer experiences through targeted marketing campaigns.
- **Autonomous Systems:** Self-driving cars and drones demonstrate AI's potential to reshape transportation and logistics industries.

- **Energy and Sustainability:** AI optimizes energy consumption, enhances renewable energy production, and supports environmental monitoring to advance sustainability efforts.

- **Entertainment and Content Creation:** AI generates music, art, and text, revolutionizing creative industries, while streaming platforms use AI for content recommendations.

- **Security and Cybersecurity:** AI aids in threat detection, anomaly identification, and cybersecurity, analyzing real-time data patterns to prevent breaches.

26 AUGUST, 2023

Established in 1905, SAE International is a premier organization dedicated to uniting and educating professionals in the field of mobility. With a commitment to fostering safe, clean, and accessible mobility solutions, SAE serves its primary constituents through various channels. Notably, its globally recognized magazines - Automotive Engineering International, Aerospace Engineering, and Off-Highway Engineering - disseminate the latest advancements and insights within the mobility community.

**Practical Application:** Engagement in SAE activities often involves hands-on construction and design of vehicles or components. This practical experience enables students to translate theoretical knowledge into real-world projects, thereby refining their practical skills.

- **Collaborative Environment:** SAE projects are typically team-oriented, mirroring the interdisciplinary teamwork prevalent in the industry. Strong teamwork abilities are vital for mechanical engineers, given the interdisciplinary nature of most projects in their field.

- **Critical Thinking:** SAE projects pose intricate engineering dilemmas, prompting students to think critically and devise innovative solutions. These problem-solving skills are fundamental for mechanical engineers.

- **Professional Networking:** Participating in SAE activities facilitates connections with professionals and firms in automotive and aerospace industries. Such networking opportunities can lead to internships or employment prospects.

- **Resume Enhancement:** Involvement in SAE activities adds weight to a resume, showcasing a candidate's dedication to their field and their capacity to contribute to practical projects.

- **Competitive Edge:** SAE competitions offer a platform for students to gauge their abilities against peers from other institutions, instilling a spirit of competition and driving excellence.



SAE-INDIA organizes several events tailored to engage and challenge students in various fields of engineering:

- SAEINDIA Supra: This collegiate design competition tasks student teams with creating formula-style race cars to participate in dynamic and static events.
- SAEINDIA Baja: Student teams design and manufacture off-road vehicles to tackle technical and dynamic challenges.
- SAEINDIA Aero Design Challenge: Focused on aerospace engineering, this competition involves designing, building, and piloting radio-controlled aircraft.
- SAEINDIA Efficycle: Student teams develop fuel-efficient hybrid vehicles optimized for urban commuting.
- SAEINDIA Go-Kart: In this design competition, students craft go-karts and vie in performance-based events.



*3 OCTOBER,2023.*

As an official KITSW Racing Team established in 2010, Team Force Racing prides itself on cultivating world-class engineers poised to undertake cutting-edge engineering endeavors. Comprising forty talented automobile enthusiasts from KITSW, Force Racing is dedicated to designing, fabricating, and marketing formula student-type vehicles.

Annually, the team participates in esteemed competitions like FORMULA BHARATH, SAE SUPRA, and FFS, providing students with invaluable hands-on experience in applying classroom engineering theories. Through events such as SAE SUPRA, FFS\_FMAE, and FORMULA BHARAT, Force Racing aims to nurture engineering and management skills among participants from across the nation.

Driven by a vision of fostering innovation, Force Racing operates autonomously while fostering knowledge sharing from year to year. United by a shared aspiration to excel in global student motorsports, the team of young automobile enthusiasts collaborates to fabricate life-size Formula-style vehicles, competing in engineering design, overall cost, marketability, and dynamic performance.

Moreover, participation in such endeavors equips students with essential skills in management and teamwork, vital for navigating the challenges of the professional world.



*Hands on session on Automobile*



Students are taken to the SAE workspace explained to them how to build a vehicle starting from designing to production and also explained various achievements, they are

- The team started its legacy with Off-Road SAE BAJA vehicle-2010& 2011 and placed All INDIA 30& 13 respectively.
- It started its race with FORMULA STUDENT VEHICLE in 2012 and placed All INDIA in 16th position.
- In continuation with the race team started the EFFI CYCLE project in 2013 and placed All INDIA in the 39th position.
- Unfortunately, the delay made us fortunate in building concepts.
- In 2015, the Effi -car project made a huge impactable and memorable achievements, it placed All INDIA 2nd in Highway Run with a cash prize of 15,000/- and 3rd place in Overall Championship with a cash prize of 50,000/-.
- With a force again formula student event was taken up in 2016 and placed All INDIA 40TH POSITION IN SUPRA.
- In the same year, it achieved 30th position FORMULA BHARATH.

- IN 2017, our formula student vehicle achieved an overall 9th position in FFS INDIA.
- In the same year, we participated in the SAE SUPRA and EFFI CYCLE competitions.
- In 2018, we participated in the FORMULA STUDENT competition.
- In 2018 team took up a new project E-KART and achieved a “BEST TEAM SPIRIT AWARD” with a cash prize of 5,000/-.
- In 2019, our E-KART achieved the “DRONACHARYA AWARD” with a cash prize of 5,000/-.
- In 2019, our formula student vehicle team achieved All INDIA 2nd runner-up in “SALES PRESENTATION” & 5TH place in the overall competition.
- In 2020 We participated in Formula Bharat and secured All India 28th position.
- In 2020 Our team participated in NEKC -2020 and secured 5th in endurance and also won the lightest vehicle award.
- In 2021 We participated in Formula Bharat virtual and secured India's 20th position in engineering design presentation.

17 OCTOBER, 2023

## GUIDANCE FOR ABROAD STUDIES

Today's session was dedicated to providing guidance for students planning to pursue their studies abroad. Ms. Pooja Agarwal, the training manager from IMFS Warangal, generously shared her expertise to raise awareness about the intricacies of studying overseas.

Ms. Pooja initiated the discussion on studying abroad by highlighting the significant cost associated with such education, which surpasses that of MTech programs. However, she emphasized that the potential returns justify the investment. She emphasized that her consultancy offers a remarkable opportunity for students, boasting an impressive success rate of 99%. It's noteworthy that the few instances of unsuccessful cases were typically due to colleges not accepting students or other legitimate reasons, with no instances of illegal documentation.



Our consultancy ensures authentic documentation for students applying to study in countries such as the USA, Canada, UK, Australia, New Zealand, Germany, Ireland, and several others. Additionally, our mentors provide necessary support upon students' arrival, assisting them with essential needs. In cases where students face financial constraints, our consultancy offers assistance in obtaining loans to facilitate their study abroad aspirations. Towards the end of the session, several students raised inquiries, which were promptly addressed and clarified.

MESA extends its gratitude to Ms. Pooja on behalf of the Mechanical Engineering students for graciously visiting our college and dedicating her valuable time to engage with our students.



31 October, 2023

The MESA meeting commenced at 11:45 AM, with a warm welcome from a representative of YATHAPU consultancy.

YATHAPU CONSULTING Empowering Students with the Right University Connections  
i20fever is a global education consultancy based in Hyderabad, dedicated to guiding students towards great universities. With over 16 years of experience and having assisted over 25,000 students, i20fever understands the needs and aspirations of students seeking overseas education. Founded by individuals who have studied abroad themselves, i20fever comprehends the challenges and the impact of your choices on your future. Backed by a team of seasoned counselors, trained by partner universities, i20fever ensures a smooth journey for students, guiding them in the right direction every step of the way.



After starting the process by filling out the online admission counseling form, students will proceed to select universities and later apply to their chosen institutions. Throughout this journey, i20fever consultancy will provide guidance and support.

With over 16 years of experience and having assisted more than 25,000 students, the founders of i20fever have personally navigated the complexities of studying abroad. Motivated by their own experiences, they established i20fever in 2006 with a team of six members in Hyderabad. By 2007, i20fever had already helped over 350 students realize their dreams, and their dedication to assisting students continues to this day.



i20fever consultancy is connected with the USA, UK, CANADA, AUSTRALIA, and IRELAND, and courses to prepare for are GRE, TOEFL, IELTS, PTE, GMAT, SAT.

*7 November, 2023*

Today's event features group discussions and a debate, with students divided into two groups to discuss whether core jobs or IT jobs are preferable. MESA Coordinators allotted five minutes for preparation before the debate commenced.

Both groups exhibited enthusiasm for the event, and students raised several crucial points during the debate:

Core engineering job opportunities have significantly decreased compared to IT jobs, which are more abundant.

Although IT jobs are plentiful, companies are hiring fewer students directly.

Core jobs may offer lower initial salaries compared to IT jobs, but there's optimism that core engineering opportunities will gradually increase.

As time flew by, everyone remained engaged in the debate, and by 12:30 PM, the coordinator promptly conducted attendance.

19 December, 2023

Today's event focused on exploring innovative methods for recycling waste and idea development, presented by Md. Ghouse. The key points he covered included:

- Introduction: Emphasizing the significance of recycling waste and fostering idea development.
- Traditional Recycling Approaches: Overview of conventional methods used in waste recycling.
- Limitations of Traditional Methods: Identifying shortcomings in traditional recycling practices.
- Innovative Recycling Approaches: Introduction to novel techniques and approaches in waste recycling.
- Collaborative Recycling Initiatives: Highlighting the importance of collaborative efforts in waste recycling endeavors.
- Role of Idea Generation: Discussing the pivotal role of generating new ideas in the recycling process.
- Benefits of Idea Generation: Exploring the advantages of promoting idea generation in waste recycling.
- Strategies for Encouraging Idea Generation: Proposing methods to foster and stimulate the generation of innovative ideas in waste recycling.





An illustration of technology-enabled recycling solutions involves the integration of robotics and artificial intelligence for waste sorting. These cutting-edge technologies enable precise identification and separation of various types of waste materials, enhancing recycling process efficiency and accuracy. Embracing such innovative methods enables substantial waste reduction, resource conservation, and mitigation of the environmental repercussions of our consumption patterns.

To promote idea generation in recycling, various strategies can be employed. These encompass establishing an environment that fosters collaboration and inclusivity, arranging brainstorming sessions and workshops, motivating employees to express their ideas and viewpoints, offering incentives for innovative thinking, and cultivating partnerships with research institutions and technology firms. Through the implementation of these strategies, we can inspire creativity and cultivate groundbreaking ideas that will transform waste management and advance towards a more sustainable future.