



# SWARNANDHRA

College of Engineering and Technology  
(Autonomous)

Seetharampuram, Narsapur, Andhra Pradesh 534280



# MECHAZINE

BI - ANUAL MAGAZINE

## DEPARTMENT OF MECHANICAL ENGINEERING

### *Editorial Members*

1. Dr. A Gopichand, HOD-ME
2. Dr. R. Lalitha Narayana, Assoc. Prof - ME

### *Student Coordinators:*

1. P S S S Prasad (20A21A0354)
2. D Niranjana (21A21A0321)

**DECEMBER - 2023**

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# About the Department of Mechanical Engineering

The Department of Mechanical Engineering was established in the year 2004. The department offers B.Tech from the academic year 2004-2005 (Mechanical Engineering), M.Tech (CAD/CAM) from the academic year 2008 – 2009 and M.Tech (Thermal Engineering) from the academic year 2021 – 2022. Our vision is to educate and enrich effective and responsible Mechanical Engineers to fulfil the needs of industry and society, where teaching, learning and research synergize to deliver technical education and scientific research for public good. Our mission is to create efficient mechanical engineers who can compete at the global level. The projects and hands-on activities are designed to foster a spirit of entrepreneurship among students and to enable a few to launch their own ventures.



The department was accredited by National Board of Accreditation (NBA) in 2013 and was recognized as research centre by Jawaharlal Nehru Technological University Kakinada (JNTUK) in 2016. The department has six Ph.D. doctorates and experienced faculty members in all streams of Mechanical Engineering and skilled supporting staff. The faculty members have published around 130 research papers in various International and National Journals/Conferences and actively engaged in research and consultancy works. The department regularly organizes technical workshops/Seminars/FDPs for the student and faculty members to expose them to emerging areas. The department has state-of-the art facilities for laboratories, department library and classrooms to support e-learning (Smart and Interactive boards). The department has a well-equipped centralized workshop facility which caters to the needs of various departments. Guest lectures and industrial visits are periodically arranged for the students to supplement their curriculum. We strive for all round excellence in students, encouraging them in all extracurricular and club activities.

The department is very well equipped with computational facilities and resources both in terms of hardware and software. Department has more than 180 computing systems and workstations loaded with wide range of software products covering all areas of Mechanical Engineering. The department having DASSAULT System Lab associated with APSSDC. The Department has Association of Mechanical Engineering (IEI, ASME & ISTE) which is a forum for students to develop their professional skills. Students are also encouraged to take part in awareness campaigns that have social relevance. Alumni of the department have occupied very high positions at National and International level.

# VISION & MISSION

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## Institution Vision

V

"To produce global competent, ethical and dynamic professionals by creating Centre of Excellence in Technical Education for societal empowerment."

## Institution Mission

M1

To provide quality education with knowledge and skills for rural and urban students.

M2

To collaborate the industries with academia for empowering the students to meet global standards.

M3

To induce highly ethical entrepreneurship in young minds with good leadership quality for the society.

M4

To enhance the institution in Research and Development by human intellectual capability.

## Department Vision

V

To educate and enrich effective and responsible Mechanical Engineers to fulfill the needs of industry and society.

## Department Mission

M1

To lay a strong foundation of technical knowledge by concentrating on fundamental concepts of Mechanical engineering.

M2

To develop creative thinking and innovative methods for solving complex engineering problems.

M3

To develop team spirit, leadership and professional qualities.

M4

To strengthen research abilities in collaboration with industry.



**Dr. S. Suresh Kumar**

BE,MS, M.Tech, Ph.D

PRINCIPAL

## PRINCIPAL'S DESK:

Never underestimate the power of perseverance and determination. There will be times when the road ahead seems daunting, but remember that with hard work and dedication, you can overcome any obstacle. Believe in yourselves and your abilities, for you are capable of achieving greatness.

Never forget the importance of kindness and empathy. Treat others with respect and compassion, for we are all on this journey together. Support your classmates, lend a helping hand, and strive to make a positive impact in the lives of those around you.

*"AS YOUR PRINCIPAL, I AM HERE TO SUPPORT YOU EVERY STEP OF THE WAY. TOGETHER, LET US EMBARK ON THIS EDUCATIONAL JOURNEY WITH ENTHUSIASM, DETERMINATION, AND A COMMITMENT TO EXCELLENCE."*

Wishing you all a successful and fulfilling academic year ahead.



**Dr. A Gopichand**

B.TECH, M.Tech, Ph.D

VICE PRINCIPAL, HOD-ME

## HOD'S DESK:

Remember that your education is not only about absorbing information but also about developing critical thinking skills, problem-solving abilities, and a deep understanding of your chosen field. Take advantage of the resources available to you, including our experienced faculty, state-of-the-art facilities, and opportunities for research and practical application.

Remember the importance of collaboration and teamwork. Your peers can be invaluable sources of support and inspiration, so don't hesitate to work together, share ideas, and learn from one another.

*AS YOUR HEAD OF DEPARTMENT, I AM HERE TO SUPPORT YOU IN YOUR ACADEMIC JOURNEY. WHETHER YOU NEED GUIDANCE, ADVICE, OR ASSISTANCE, PLEASE DOESN'T HESITATE TO REACH OUT. TOGETHER, LET US STRIVE FOR EXCELLENCE AND MAKE THE MOST OF THIS ACADEMIC YEAR*

Wishing you all the best for a successful and rewarding year ahead.



# Student Paper Publications



S.No	Authors	Article Title	Journals Name	ISSN
1	Ram Ganesh	Design And Analysis of Car Wheel Rim With Composite Materials	Indian Journal of Technical Education	0971-3034
2	Madhu Kiran	Fabrication of blade system stirrer setup for stir casting	Juni Khyat	ISSN: 2277-7067
3	K Ganesh	Fabrication of solar water pump for gardening	Journal of Management and Entrepreneurship	2229-5348
4	M Jagadish	Earing and Fabrication using Additive manufacturing and FEM	Indian Journal of Technical Education	0971-3034
5	Mr. G Janaki Ram	Kinematic Analysis of 4R Robot Manipulator using Roboanalyzer and CProg	Indian Journal of Technical Education	0971-3034
6	Subrhamanyam	Fabrication of dichlorination and thermal cracking equipment for PVC electrical cables	Journal of Management and Entrepreneurship	2229-5348
7	Saranya, D Ganesh	performance enhancement of passive solar still with paraffin wax	Juni Khyat	2278-4632

## Faculty Publications

S.No	Authors	Article Title	Journals Name	ISSN
1	Mr. P Satya Narayana Raju Dr. Allaka Gopichand	Inexpensive production of hydrophobic and corrosion resistance titania-silica composite coating for deep water sandwich pipe applications	Australian Journal of Mechanical Engineering	1448-4846
2	Mr. P Satya Narayana Raju Dr. Allaka Gopichand	Optimization of sandwich pipes for deep water applications: An designing approach	Materials Today: Proceedings	2214-7853
3	Dr. A Gopichand	Inexpensive hydrophobic and infrared reflective coating on the cotton and silk fabrics using sol gel dip coating technique	Materials Today: Proceedings	2214-7853
4	Dr. M. Francis Luther King Dr. A. Gopichand Dr. R. Lalitha Narayana	Synthesis of silver oxide nanoparticles using gomutra mediation and their investigation on anti oxidant property	Materials Today: Proceedings	2214-7853
5	Dr. M. Francis Luther King	Enhancement of corrosion resistance of CrMoV low alloy steels using cryogenic treatment	Engineering Research Express	2631-8695

# Book Chapter Publication



Name of the Faculty	Book Title	Chapter Title	ISSN / Published year	Publisher
Dr. M. Francis Luther king, Dr. G. Robert Singh, Dr. A. Gopichand	Advanced Materials and Manufacturing Techniques for Biomedical Applications	Challenges and Perspective of Manufacturing Techniques in Biomedical Applications	doi.org/10.1002/9781394166985.ch14	Wiley
B. Mahesh Krishna, Dr. M. Francis Luther king, Dr. G. Robert Singh, Dr. A. Gopichand	Advanced Materials and Manufacturing Techniques for Biomedical Applications	3D Printing in Drug Delivery and Healthcare	doi.org/10.1002/9781394166985.ch10	Wiley
Dr. M. Francis Luther king,	Mechanical Properties and Characterization of Additively Manufactured Material	Review of properties of additive manufactured material and composites	9781003430186	CRC Press
Dr. M. Francis Luther king	Laser based Technologies for sustainable Manufacturing	Introduction to Optics and Laser based Manufacturing Technologies	9781003402398	CRC Press
Dr. M. Francis Luther king	Laser based Technologies for sustainable Manufacturing	Laser Micromachining in Biomedical Industry	9781003402398	CRC Press
Dr. M. Francis Luther king	Hybrid Metal Additive Manufacturing: Technology and Applications	Additive manufacturing for Industry 4.0	9781032460550	CRC Press
Dr. M. Francis Luther king	Sustainable Utilization of nano particles and nano fluids in Engineering Publication	Applications of Nanoparticles in the cosmetic field	9781668491355	IGI Global
Dr. R. Sanjeev Kumar	Trends, Paradigms, and Advances in Mechatronics Engineering	Hydroponics, Aeroponics, and Aquaponics Technologies in Modern Agricultural Cultivation	ISBN13: 9781668458877, 2022	IGI Global
Dr. M. Francis Luther king	Biodegradable composites for Packaging applications	Degradation studies of biodegradable composites	ISBN 9781032131511, July 21, 2022	CRC Press



# Important Events in the Department



S.No	Name of the Event	Date	Resource Person / Organized
1	Expect lecture on Electric & Hybrid Vehicles	28-07-2023	Dr K Kamalakkannam, Assoc.Prof SRM University, Chennai
2	Guest Lecture on Biomechanics and Gait	05-08-2023	Dr. N Sharmila, Professor, VIT University, Vellore, Tamil Nadu.
3	Webcast/YouTube	18-08-2023	Department of ME, Swarnandhra College
4	Seminar on World Entrepreneurs day	21-08-2023	Mr. Y. Venkatesh, Industrialist
5	Seminar on National Fest	22-08-2023	Retd. Major General BV Rao, Indian Army
6	PPT Presentation	26-08-2023	Mr. B. Mahesh Krishna, SCET-ME
7	Coding Club Activity	02-09-2023	Dr G Robert Singh, Professor, ME, SCET
8	Drawing & Painting	02-09-2023	Mr. G. Veereandra Kumar, Dept of ME, SCET
9	Photography Students Chapter Competition	02-09-2023	Mr. N. Bulli Raju, Department of Mechanical Engineering, SCET
10	Innovation Ideas Club	14-09-2023	IEI & ISTE India Students' Chapter, SCET.
11	Engineers Day Celebration	15-09-2023	Association of Swarnandhra mechanical Engineering (ASME)
12	Essay Writing Competition	15-09-2023	Association of Swarnandhra mechanical Engineering (ASME)
13	Quiz & Aptitude Competition	16-09-2023	Dr. R Sanjeev kumar Professor, SCET
14	Guest Lecture on Biomedical Devices	19-09-2023	Dr. Prasad Patnaik B.S.V
15	PPT Presentation & Analysing the project idea.	23-09-2023	Mr. B. Mahesh Krishna, Department of Mechanical Engineering, SCET
16	Coding Club Activities	23-09-2023	Dr G Robert Singh, Professor, ME,SCET
17	Quiz Competition	30-09-2023	IEI & ISTE India Students' Chapter, SCET
18	Faculty development Program (FDP) on Recent advancements in Materials, Manufacturing and Technology	13-10-2023 To 04-11-2023	Department of Mechanical Engineering

# List of Participants in FDP/STTP



SN	Faculty Name	Title of the FDP/STTP Program	Program Organized by
1	Mr. Rambabu Mr. L Ravi Kishore Mr. S Surendar Mr. Abdul Azeez Dr. D Bhanu Prakash	Instruction Design & Delivery Systems	NITTR, Chennai
2	Mr. G Veerendra Kumar Mr. S Surendar	Role of 3D printing in Digital Manufacturing	Anurag University, Telangana State
3	Ms.B.Haritha	Recent Advancements in Materials, Manufacturing	Swarnandhara College
4	Mr. N Bulli Raju Ms. B Haritha Dr. R Lalith Narayana	Cloud Infrastructure	Swarnandhara College
5	Mr. G Veerendra Kumar Mr.CH Harish Kumar Mr. N Bulli Raju	Integrating Autodesk Fusion 360 in Engineering Subjects	Lendi Institute of Engineering & Technology, Vizianagaram, A.P
6	Dr. Francis Luther King M	Innovative Teaching methodology	D.Y.Patil College of Engineering, Akurdi
7	Mr. S Surendar	Unlocking Innovation:	SVERI College
8	Ms. B Haritha Dr. Francis Luther King M Mr. M Sarvanan	Artificial Intelligence and Machine Learning	Dhanalakshmi College of Engineering, Chennai
9	Dr. Francis Luther King M	CO PO Mapping & Attainment	JIS group of Colleges
10	Dr. Francis Luther King M	Current trends in Engineering	Sree Sakthi Engg. College
11	Dr. Francis Luther King M Mr. S Surendar Mr. N Bulli Raju Mr. G Veerendra Kumar Mr. Abdul Azeez Dr. D Bhanu Prakash Dr. R Sanjeev Kumar Dr. R.Lalith Narayana	Advances in Materials and manufacturing Technologies	Kallam Haranadhareddy Institute of Technology, Andhra Pradesh
12	Mr. CH Harish Kumar	Data Analyst	APSSDC
13	Dr. Francis Luther King M Mr. CH Harish Kumar Mr. N Bulli Raju	Sustainability in Environmental Remediation	Hindustan College of Engineering and Technology, Chennai
14	Mr. V Durga Rao	Python for Data science	NPTEL-AICTE
15	Mr. G Veerendra Kumar	The Joy Of Computing Using Python	NPTEL
16	Mr. G Veerendra Kumar	Internship on Artificial Intelligence	Pantech e learning Chennai





## GENERATIVE AI

### WHAT IS GENERATIVE AI



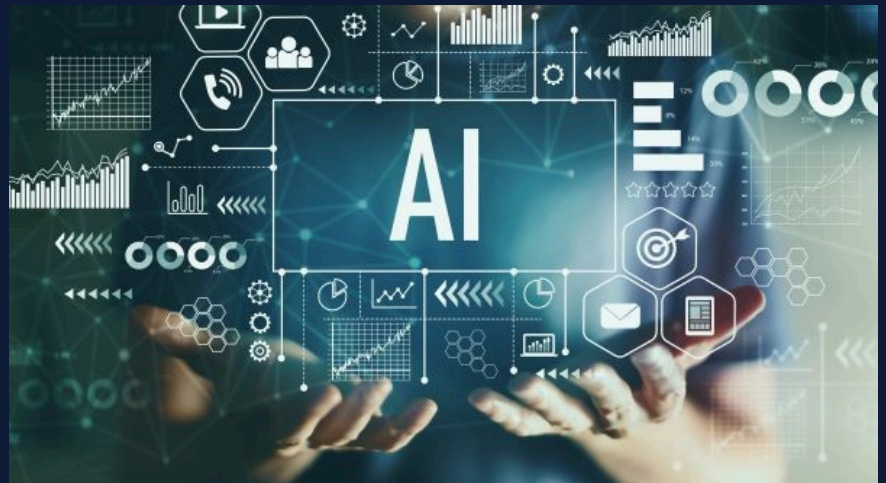
Generative AI is a system capable of generating content or data like images, text, music, and other media in response to a single word or phrase prompt. Teams are using generative AI to help tackle repetitive, mundane tasks such as responding to emails, creating graphics or images, drafting articles, and creating presentations— among many other things.

An astounding 95% of managers have already started using AI for work-related content, but that doesn't mean it isn't overwhelming trying to navigate where to start. The best place to start is the beginning: education and self-testing. In fact, 93% of managers say that they will encourage their employees to test and use AI tools if the tools will help them perform better at work. Where are your employees allocating the majority of their time each day? Is there an AI tool that can help them be more productive to make room for new projects and tasks?

### HOW BUSINESSES CAN LEVERAGE AI NOW

Many businesses are already implementing AI into their workflows to increase productivity. Here are 5 easy ways teams can use generative AI to work smarter, and faster.

1. Gaining Customer Insights
2. Developing New Revenue Streams
3. Strengthening Customer Support
4. Maximizing Marketing Performance
5. Supporting Sales Teams
6. Making Informed Business Decisions
7. Enhancing Productivity
8. Simplifying Recruiting and Talent Sourcing
9. Optimizing Pricing
10. Forecasting Demand
11. Improving Employee Morale
12. Financial Forecasting



Two additional recent advances that will be discussed in more detail below have played a critical part in generative AI going mainstream: transformers and the breakthrough language models they enabled. Transformers are a type of machine learning that made it possible for researchers to train ever-larger models without having to label all of the data in advance. New models could thus be trained on billions of pages of text, resulting in answers with more depth. In addition, transformers unlocked a new notion called attention that enabled models to track the connections between words across pages, chapters and books rather than just in individual sentences. And not just words: Transformers could also use their ability to track connections to analyze code, proteins, chemicals and DNA.

The rapid advances in so-called large language models (LLMs) -- i.e., models with billions or even trillions of parameters -- have opened a new era in which generative AI models can write engaging text, paint photorealistic images and even create somewhat entertaining sitcoms on the fly. Moreover, innovations in multimodal AI enable teams to generate content across multiple types of media, including text, graphics and video. This is the basis for tools like Dall-E that automatically create images from a text description or generate text captions from images.

These breakthroughs notwithstanding, we are still in the early days of using generative AI to create readable text and photorealistic stylized graphics. Early implementations have had issues with accuracy and bias, as well as being prone to hallucinations and spitting back weird answers. Still, progress thus far indicates that the inherent capabilities of this generative AI could fundamentally change enterprise technology, how businesses operate. Going forward, this technology could help write code, design new drugs, develop products, redesign business processes and transform supply chains.

### HOW BUSINESSES CAN LEVERAGE AI NOW

Generative AI focuses on the creation of new content, generating outputs that are original and novel. It leverages techniques such as Generative Adversarial Networks (GANs), Variational Autoencoders (VAEs), and Autoregressive Models to learn patterns and distributions from existing data and generate new samples. Generative AI models have the ability to generate realistic images, compose music, write text, and even design virtual worlds.

The key characteristic of generative AI is its ability to create something that does not exist in the training data explicitly. It captures the underlying complexity and diversity of the input and produces unique outputs that exhibit creativity and originality.

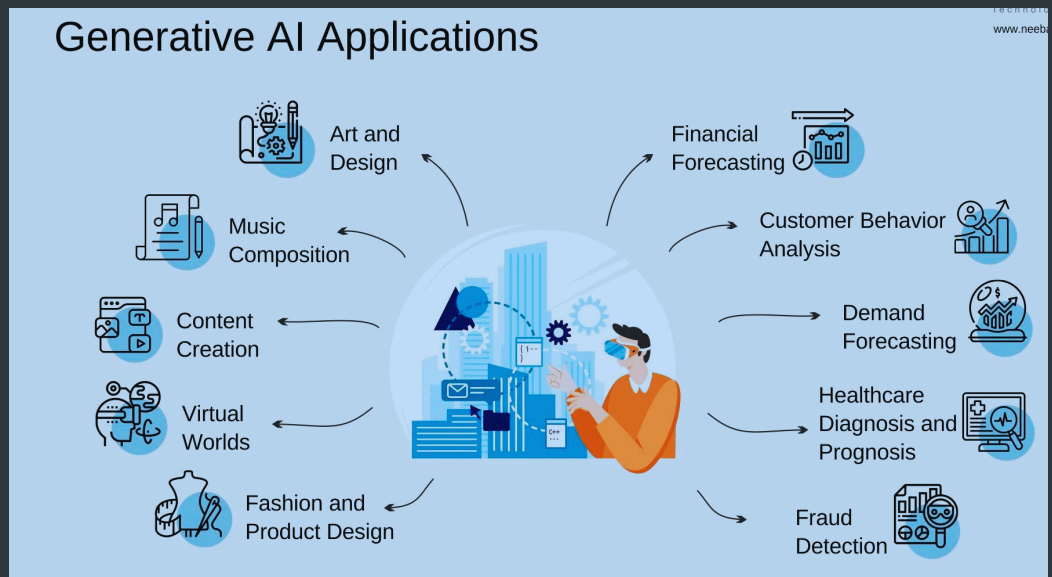
# Trend in Technology - Generative AI



## GENERATIVE AI APPLICATIONS AND USE CASES



Generative AI



### Generative AI and predictive AI find applications in distinct domains, each offering unique advantages and capabilities:

- **Art and Design:** Generative AI enables artists and designers to create unique artwork, generate new design concepts, and explore novel styles and compositions.
- **Music Composition:** Generative AI tools can compose original music tracks, remix existing compositions, and experiment with new genres and styles.
- **Content Creation:** Generative AI facilitates the generation of text, images, and videos, streamlining content creation processes and enabling personalized experiences.
- **Virtual Worlds:** Generative AI models are used to design and populate virtual environments in video games, simulations, and virtual reality experiences.
- **Fashion and Product Design:** Generative AI assists in creating new fashion designs, optimizing product aesthetics, and predicting fashion trends.

#### Predictive AI Applications

- **Financial Forecasting:** Predictive AI models analyze historical financial data to predict stock market trends, forecast investment opportunities, and assess financial risks.
- **Customer Behavior Analysis:** Predictive AI enables businesses to analyze customer data, predict purchasing patterns, and personalize marketing strategies.
- **Demand Forecasting:** Predictive AI models can anticipate future demand for products or services, optimizing inventory management and supply chain operations.
- **Healthcare Diagnosis and Prognosis:** Predictive AI aids in disease diagnosis, prognosis, and treatment planning, assisting healthcare professionals in making informed decisions.
- **Fraud Detection:** Predictive AI helps identify fraudulent activities, enabling businesses to prevent financial losses and protect against cyber threats.

### Conclusion

Generative AI and predictive AI represent two distinct approaches within the broader field of artificial intelligence. Generative AI focuses on creating original and novel content, while predictive AI aims to forecast future outcomes based on historical data patterns. Each approach has its unique applications and use cases, empowering different industries and domains.

By understanding the distinctions between generative AI and predictive AI, organizations and individuals can leverage the strengths of each approach to drive innovation, enhance creativity, and make informed decisions. As AI continues to evolve, the synergistic combination of generative and predictive techniques holds the potential to unlock new opportunities and shape the future of intelligent systems.



# Student Achievements



- D Niranjana, K Vinay Shankar Babu, B Prathyusha, R N Anasuya Durga Bhavani, S Dhanalakshmi, B Sai Krishna have got Second prize in the event of Drone Workshop, conducted by SRKR Engineering College
- B H V N Bhasker Teja mechanical III Year student got prize Money for project Competition organized by PALS, Chennai, Tamil Nadu
- Congratulations to First year students for securing FIRST PRIZE in ROBO race and Third yr Mechanical students for securing SECOND prize in DRONE competition in the event SANKETA 2K24 organised by SRKR engineering college
- M. Bhavani, B Bhargavi, D Likhitha won third prize in event PROJECT EXPO of VALIANT 2K23 organized by Vishnu Institute of Technology, Bhimavaram.
- Congratulations to III BTech students for securing First and second prizes in Project Expo conducted by Shri Vishnu engineering college for women's

*Congratulations..*

As we celebrate our students' achievements today, let us also remember that success is not just measured by accolades or awards, but by the impact we have on the lives of others. Let us continue to support and uplift one another, to strive for excellence in all that we do, and to never lose sight of our dreams.

Once again, congratulations to all our students on your remarkable achievements. May you continue to shine brightly and inspire others with your talents, your passion, and your unwavering commitment to excellence.





"THE JOURNEY OF A THOUSAND MILES  
BEGINS WITH A SINGLE STEP."  
- LAO TZU

"EDUCATION IS NOT PREPARATION  
FOR LIFE; EDUCATION IS LIFE ITSELF."  
- JOHN DEWEY

Your journey does not end here, as you stand on the pinnacle of your academic achievements, remember that this is just the beginning of an even greater adventure. The world awaits your brilliance, your ingenuity, and your boundless potential.

Remember that with great achievements come great responsibilities. Use your knowledge and skills to uplift others, inspire those around you, and make a positive difference in the lives of those less fortunate. Let your success be a beacon of hope and inspiration to all who dare to dream and aspire to greatness

## ACADEMIC TOPPERS

As we stand at the threshold of our engineering journey, it's crucial to remind ourselves of the incredible path we've chosen. Ours is a field that shapes the world around us, where imagination meets innovation, and where every challenge is an opportunity to create something truly remarkable



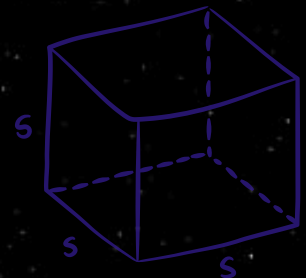
### 7th Semester Topper

NAME: AINAPUDI SURENDRA

H.T NO: 21A25A0301

SGPA: 9.12

CGPA: 8.96



### 5th Semester Topper

NAME: DUNNA SANATH KUMAR

H.T NO: 22A25A0315

SGPA: 9.27

CGPA: 9.21

$V = s^3$   
*Long calculations..*



### 3rd Semester Topper

NAME: VASA BALA GANESH

H.T NO: 23A25A0349

SGPA: 9.43

CGPA: 9.43



# Student Focus

One of the hallmarks of Mechanical department is its commitment to academic excellence. Our esteemed faculty members are not just educators; they are mentors, guiding lights who ignite the flames of curiosity within each student. With their expertise and passion, they transform classrooms into crucibles of learning, empowering students to push the boundaries of their intellect and creativity..

Alumni- MANIKANTA VAMSINADH -IPS



Our college is not merely about textbooks and lectures; it's about holistic development. Our institution cherishes diversity, recognizing that true enlightenment stems from embracing a multitude of perspectives. Here, students from all walks of life converge, fostering an environment where cultural exchange thrives, and stereotypes dissolve into understanding and respect.

Alumni - UJJEVJOEL KORAPALLI M.S (USA) Automation Engineer



To our esteemed mechanical faculty members, I want to extend my deepest gratitude. You are not just educators; you are mentors, guides, and guardians of knowledge. Your wisdom, passion, and dedication lay the foundation upon which our students will build their futures. As you embark on this journey, I encourage you to forge meaningful connections with your professors, seek guidance when needed, and embrace the wealth of knowledge they have to offer.

B S Phani Chandan, Graduate\_2023



I want to express my admiration and pride for each and every one of you. Starting college or school marks a significant milestone in your lives, a testament to your hard work, perseverance, and dedication. Your presence here today is a testament to your potential, your aspirations, and your unwavering commitment to embracing new horizons.

Surya , Fourth year Student



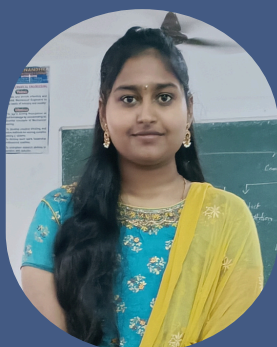
My college life was filled with lots of excitement and love. It made me understand the value of time and became a wonderful chapter in my life. It is definitely the period where I found myself and learned a great deal about myself. My school life helped me learn dedication and self-actualization.

D Nirranjan, third year Student



It is with great joy and excitement that I stand before you today to extend a heartfelt welcome to the newest members of our academic family. As you step through the threshold of Swarnandhra college, you embark on a journey of discovery, growth, and transformation—a journey that promises to be both exhilarating and rewarding.

K Chaitanya Eswari, Second year Student



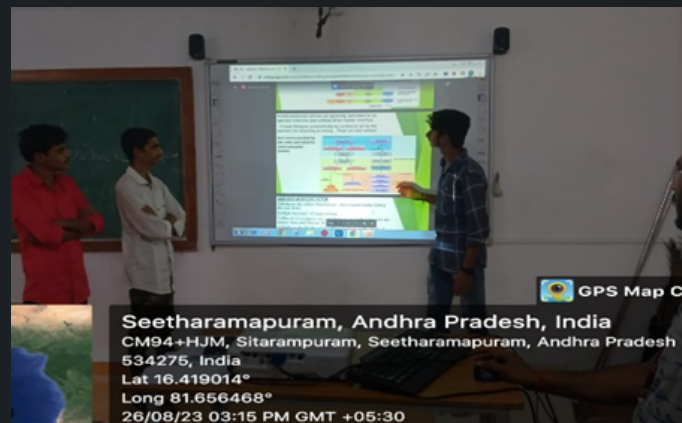
# Gallery



Drone Workshop Certificates SRKR College



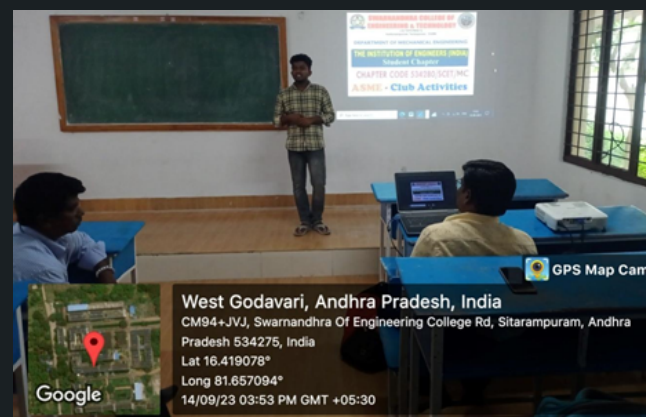
Seminar on World Entrepreneurs day



Student PPT Presentation



Bhaskar received price money from PALS Chennai



Innovation Ideas by students



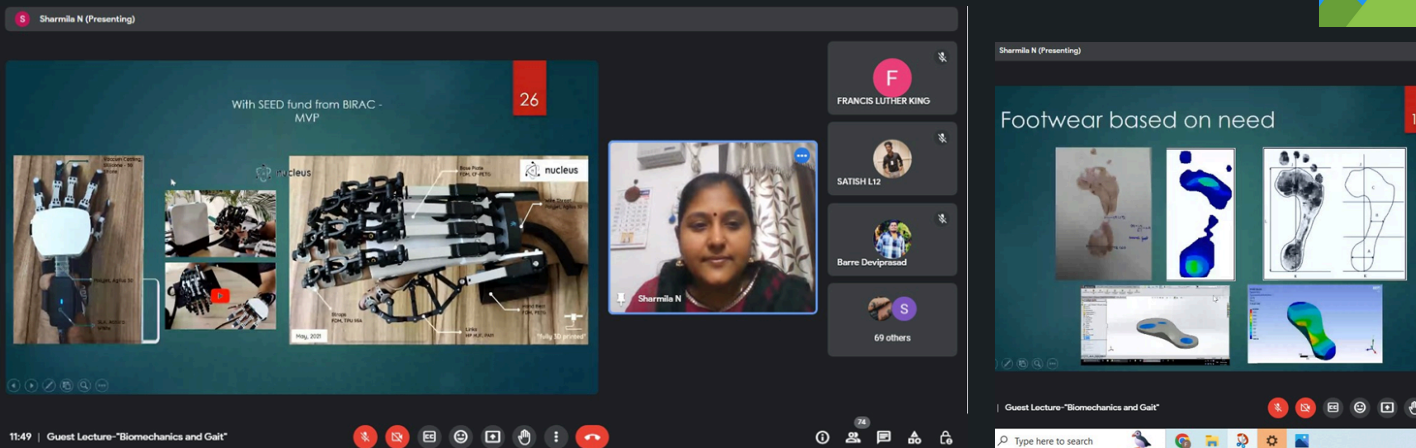
Guest Lecture on Biomedical Devices



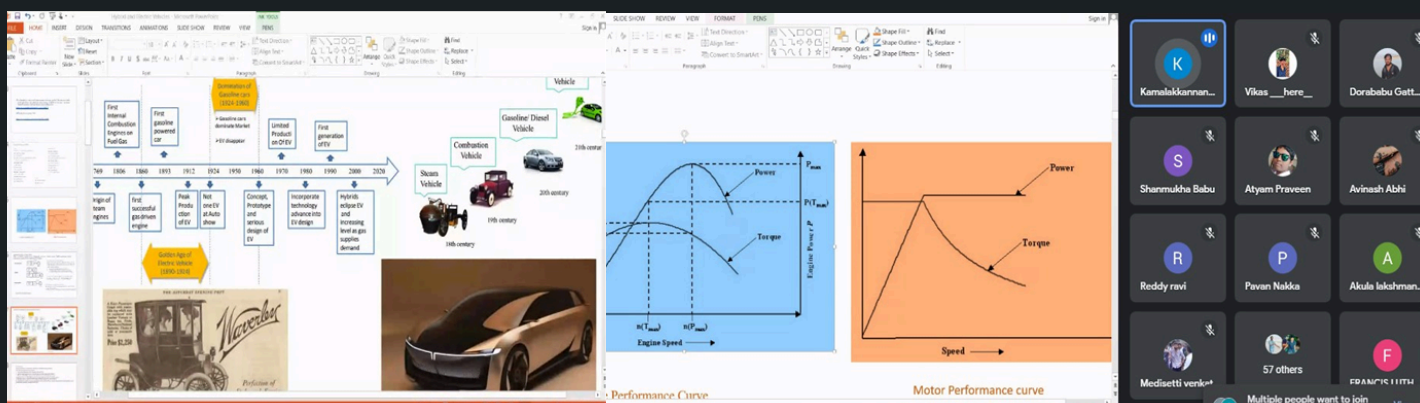
FDP on Recent advancements



# Gallery



**Guest Lecture on Biomechanics and Gait Dr.N.Sharmila, Professor, VIT University, Vellore**



**Guest Lecture- Electric & Hybrid Vehicles, Dr. K.Kamlakannan, Professor, SRM University**



**seminar on "Nation First" on 22nd August 2023**



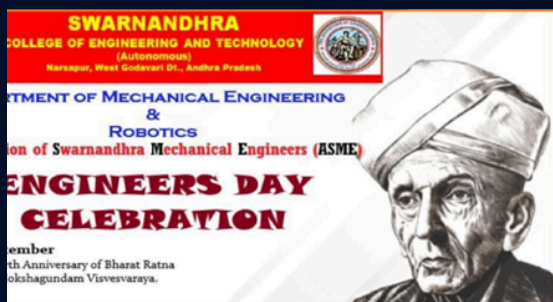
**Webcast/YouTube**



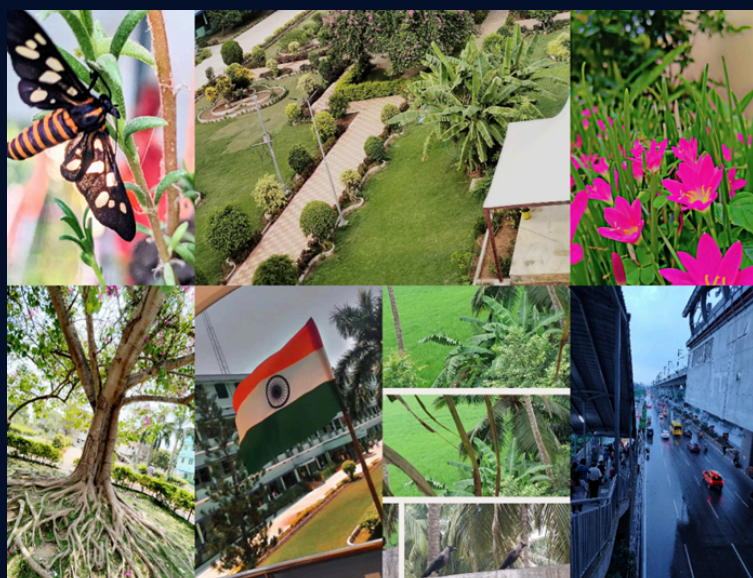
# Gallery



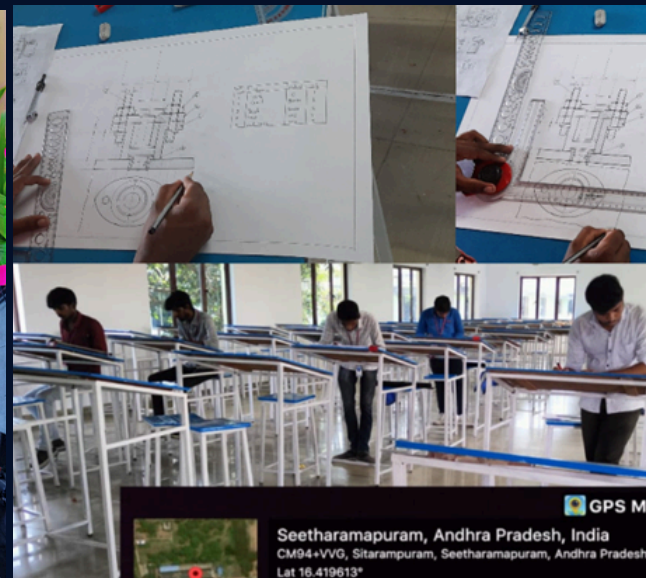
## Freshers Day celebrations Academic Year: 2023-24



## Engineers Day Celebration



## Photography Students Chapter Competition



## Drawing & Painting Competition