

RESEARCH

FORUM

Volume 3, Issue 2



OFFICIAL NEWSLETTER

**RESEARCH & DEVELOPMENT CELL,
ST. MARTIN'S ENGINEERING COLLEGE**

Editor in Chief

Dr. P. Santosh Kumar Patra



St. Martin's Engineering College

UGC Autonomous

NBA & NAAC A+ Accredited

Dhulapally, Secunderabad-500 100

www.smec.ac.in



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RESEARCH FORUM

RESEARCH AND DEVELOPMENT CELL

The Newsletter



From July 2024 to December 2024

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Technology on Social Impact



In today's rapidly evolving world, technology has become a transformative force, revolutionizing the way we live, work, and interact. As social and environmental challenges continue to mount, leveraging technology on social impact has become an imperative. By harnessing the power of technology, we can unlock innovative solutions, amplify positive change, and drive sustainable development. Technology has the potential to democratize access to information, education, and resources. From artificial intelligence to block-chain, digital platforms to mobile applications, technology can be a game-changer for societal initiatives. As we navigate the complexities of the digital age, it is crucial to prioritize technology's role in driving social impact. By doing so, we can unlock a brighter future, where technology serves humanity's greatest needs.

BEST WISHES

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FROM THE EDITORS

Innovation is impossible without passion

Innovation is the process of creating something new that makes life better. Innovators see the world differently and end up becoming obsessed with taking the world from as it is to as it should be. They become obsessed with making the world better. Many innovators in the for-profit sector focus incessantly on bringing value to market.

With best wishes

Editors

RESEARCH FORUM



Research Promotion: Guidelines for Publications

For Doctorate:

- 2 SCIE OR (1 SCIE and 2 Scopus) OR (4 Scopus)
- 6 Patents or Copyright or Design
- Funded project submission is compulsory for Associate Professor and Professor.

For PG (10 years and above)

- 1 SCIE Or 2 Scopus
- 4 Patents or Copyright or Design
- [The indexing conference will be counted in the external conference category.]

PG (5 years and above)

- 1 Scopus indexed journal (mandatory)
- 1 Indexed conference or Book Chapter
- 2 Patent or copyright or Design

PG (less than 5 years)

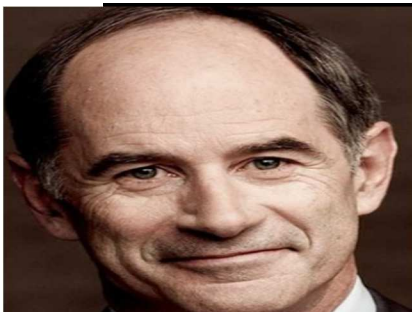
- 2 Indexed Conferences / Book Chapter or 1 Scopus/ESCI Journal
- 2 Patent / Design / Copyright

Common to all faculties:

- 1 Internal conference
- 1 External conference

Desirable:

- Awards
- NPTEL course
- Invited lecture



When it comes to innovation, business has much to learn from design. The philosophy in design shops is, 'try it, prototype it, and improve it'.

— Roger Martin —

Research Promotion: Incentive Policy

The R & D has mandated Research Funding Schemes through Seed Grants to encourage faculty researchers to set up the basic infrastructure through development of research centre /centre of excellence to carry out research achieving the outcomes such as:

- i. Research article publications
- ii. Patents/Design/Copyright (National and/or international)
- iii. Book / Book Chapter publications
- iv. Conference Proceedings
- v. Collaborations with National and International Institutions of repute
- vi. Applying for grants from External Agencies and Consultancy

This seed grant scheme shall offer financial assistance to individual or to team of faculty (Interdisciplinary/Multidisciplinary Research Centers) in establishing basic research infrastructure. In addition to financial assistance, RDC is providing Gold coin, Shield and felicitation on teacher's day and incentive / cash award as per Table 1.

Table 1: Promotional Policy.

Publication particulars	Cash Award
SCIE (Q1) with IF>7	25000
SCIE (Q1) with IF>5	20000
SCIE (Q1 or Q2) with 2<IF<5	15000
SCIE (Q1 or Q2) with IF<2	10000
SCOPUS (Q2 or Q3) with IF>1	10000
SCOPUS (Q3 or Q4) with IF<1	7000
ESCI	6000
Scopus / ESCI Non-Quartile	5000
UGC Care 1 (online)	3000

Google Scholar (Subjected to validation)	1000
Indexed Conference	5000
Conference with ISBN (Non-Indexed)	1000
Book Chapter: SCIE Indexed	10000
Book Chapter: Scopus Indexed	6000
Book Chapter: Non-Indexed	1000
Book: International Publisher	20000
Book: National Publisher (TMH & Equivalent)	15000
Book: State Level Publisher	10000
Book: Regional Publisher	5000
Patent Grant	20000
Copyright	5000
Design	5000
Consultancy	30%
Funding	20000 to 50000

Terms and Conditions:

1. Article must have maximum 4 authors.
2. Awardees must be either first author or corresponding author.
3. All communication must be submitted.
4. Claim will be entertained only after indexing.
5. For patent/Design/Copyright, maximum number of applicants and inventor: 6
6. Incentive for Funding will be decided by committee.



+ Introduction to Research and Development Cell

Research and Development Cell (RDC) is an extension of the vision, mission and commitment of **Dr. P. Santosh Kumar Patra, Professor and Group Director**, St. Martin's Children's Education Society, Secunderabad, since 2016, to move forward towards excellence in academic, research and sports in all areas which are important in country's development. The RDC of SMEC facilitates and encourages research culture among the faculty and students. Its prime role is to establish a connection with the real world and promote research through a range of publications. It has six dedicated laboratories to solving problems in cutting edge technological issue to future applications of national relevance.

It enables a congenial environment for technological development and monitors the research activities of the college. It takes upon the responsibility of creating a work place to attract the best talent and strives continuously in pooling of skills and internal resources, creating strategy, overcoming limitations, and makes the institute proud to be amongst the best institutions around the country.

Under the visionary leadership of **Chairman of RDC** and Group Director of SMEC: **Dr. P. Santosh Kumar Patra**, the college is able to obtain the grant in excess of **Rs. 630 crores** from various agencies like GHMC, HWMSSB, MSME, DST, IIT BOMBAY, AICTE, foreign funding etc. The publication statistics including **journals: 12886+**, **patents: 810+**, **books: 156+**, **conference proceedings: 1055+**, **copy rights: 36** and citations are credit worthy. The number of publications from inception is reaching towards 10,000. In addition, RDC holds a credit of **138 innovative products** which are developed by students and faculty and 40000 international certification courses.

**DO NOT FOLLOW WHERE THE PATH MAY LEAD.
GO INSTEAD WHERE THERE IS NO PATH AND
LEAVE A TRAIL.-RALPH WALDO EMERSON**

Vision, Mission and Objective: RDC

Vision

To implement, maintain and continually improve the research ecosystem of the Institute that contribute pragmatically towards the goal of a self-reliant nation.

Mission

- Provision of resource and favourable environment for enhancing the research productivity.
- To promote collaborative research, innovation, technology development, and enterprise activities with industry, government, non-government, state, national and international organisations and agencies.
- To identify and implement resource and funding mobilisation system for facilitating greater access to research to students, research scholars and faculty members.

Objectives

1. To develop an organization structure for proper functioning of various role of the cell.
2. To formulate and implement the research policy across the institute.
3. Identify major research areas across disciplines institute-wide, and set up a consortium of researchers.
4. To set up human resource, procurement, and financial management system with adequate autonomy to the Principal Investigator(s)
5. To publish the outcomes of research at the global level.
6. To establish a unique vehicle for promotion of researchers, innovators and star-ups.
7. To develop a consultancy services within the cell for to identify
8. To establish domain based centre of excellence

Editor in Chief



Dr. P. Santosh Kumar Patra, Group Director of St. Martin's Engineering College and trust is the only person in Telangana to receive continuously FOUR times "GOVERNOR AWARD from Governor of Telangana, in addition to "Rashtriya Gaurav Award", "Rashtriya Vikas Ratan Award", "Dronacharya Award",

Young leader of the year & IBAE International Award, Dubai; The Engineering Educators' Award 2019; NIRDPR Award (Govt. of India); IDF Best Partner Award; Dewang Mehta Award; TCS ION Award; CSI Award (Students Chapter); Best Innovation by Federation of Gujarat Industries, Street Cause-Most Dedicated Division, Best college award from Education Matter, Best College in sports facility and achievement by Stumagz, Telangana, National Leadership Excellence Award- 2019 by ICCI. Best Engineering College by American College of Dubai, Dubai. He has maintained the highest amount of consultancy and industry sponsored projects in Telangana state amount of Rs. 444 crores from GHMC, Hyderabad & Rs.150 crores from HMWSSB, Hyderabad, Govt of Telangana. He has received Rs. 1.8 Crores funds from DST, IIT Bombay and AICTE. He is bestowed with Rs. 31 lakhs from UGC as a PARAMARSH (Advisor). He had facilitated 300 Aakash tablets from IIT, Bombay. Rs.1 crore approval from MSME for Business Incubation. NIRF Ranked and ARIIA ranked under excellent band, Careers 360 Certified as AA+; Competition Success Review Ranked in top 3; and Wikipedia Ranked 2nd in Telangana. Rs. 21.46 Lakhs received from SERB, Government of India, Rs. 30 lakhs from NIELIT, Chennai, Govt of India, Rs. 29 lakhs from MSME, Govt of India. Rs.31 lakhs from UGC. Recently Rs.18 lakhs funding from AICTE was also received. He has also received international award and funding (4000 USD) from George Mason University Virginia, USA.

In his crowning glory he has achievements like publishing 280 patents and his 30 patents are selected by different companies for commercialization. He has published 100 books and more than 164 international & national research papers, 28 magazine articles , 109 MOUs & 300 newspaper coverage. He is an active member of ISTE, CSI, IAENG (Canada), MASPRS (USA), Senior Member of IACSIT (Singapore), Senior Member of CSTA (USA), SDIWC (USA), Senior Member of SCIEI (Canada), Senior Member of IEDRC (Hongkong), Member of WASET (USA) & Technical Advisor for Alaxia, Japan.

He also received the award titled “Outstanding Institute with best placements” by the world education summit on 3rd October 2023 in Malaysia. He has been honoured as an Advisor to NAAC, Bengaluru (Only person in India from private college), UGC-Paramarsh, National Cyber Safety & Security Standards, Govt. of India. He is on the editorial board of TATA MCGRAW HILL International Publication, Charulatha Publication, Hi Tech publication, Spectrum publication etc.

On 21st August 2022 he is the only one from Telangana to receive the most prestigious Award named “National Happiness Unicorn Award” from Chairman of AICTE and the Programme was attended by Smt.Kalvakuntla Kavitha garu, honourable M.L.C. of Nizamabad, Kamlesh D Patel, known as Daaji, Heartfulness Guide and other many icons from the globe. Under his excellency as a Principal, his innovative thinking, able leadership, meticulous planning, dynamism, dedication, diligence and commitment have achieved great laurels for St Martin’s Engineering College and few of them are like awarded with prestigious grade A+ from NAAC (only 27 colleges in India, awarded A+ grade by NAAC), 2(f) & 12(B) Recognized by UGC Act of 1956, all courses are NBA accredited, Received UGC-Paramarsh (only young college in Telangana to receive), ISO certified, DSIR Recognition, J-Hub certified (JNTUH), TASK certified (Govt. of Telangana), 5 star from Institute Innovation Council (MHRD-Govt. of India), Remote centre of IIT Bombay, Member of CII and MSME certified Institution

Honours and Minors from JNTUH (Only 10 colleges under JNTUH permitted for this), AICTE KARMA scheme approved. NCC girls and Boys wings approved. Students’ placement reached 100% along with high pay packages like 27 and 50 Lakhs which was witnessed across India and created a remarkable history in the glory of St. Martin’s.

Keynote Speech

3D PRINTED MEAT

Dr. P. Santhosh Kumar Patra, Group Director, St. Martin's Engineering College

3D printing meat sounds like something from science fiction. But interestingly, it isn't science fiction anymore, and has been realized in recent years to replace real meat. This is important, as the meat industry is currently environmentally unfriendly. This industry requires a lot of resources, for example to grow food for livestock. Also, the livestock sector emits a lot of greenhouse gases, currently 14.5% of all greenhouse gases we emit. Especially beef from cows that



are raised for meat only is problematic. To reduce the negative environmental impact of meat and mitigate climate change due to greenhouse gas emission, many different strategies have been proposed. For example, changing our diet, reducing food waste, improving technologies, and developing innovative products. One of these innovative products is 3D printed meat. 3D printing means making three dimensional objects based on a digital file by putting layer over layer. In this case, the solid object is meat.



When 3D printing food, different processes can be used, where extrusion is used most often for meat:

- Extrusion: this process involves pressing fibrous meat materials out of a nozzle to form 3D structures. Optimally, the system can also control the temperature.
- Inkjet printing: this process involves spreading thin, edible liquids in a continuous jet or single drops.
- Binder jetting: this process involves spreading single bio-ink droplets on a thin layer of powder, for example cocoa or sugar. This allows printing complex 3D structures.
- Bioprinting: this process is under development and involves constructing meat with bio-inks that contain cells, biomaterials, and other molecules.

No animals are harmed in any of these processes. 3D printed meat can be made from cells grown in the lab, animal byproducts or leftovers, plant-based materials, and insect-based materials. Although the expectations are high that 3D printed meat reduces energy use, greenhouse gas emissions, and food waste, it unknown how the environmental footprint is when produced on a large scale.

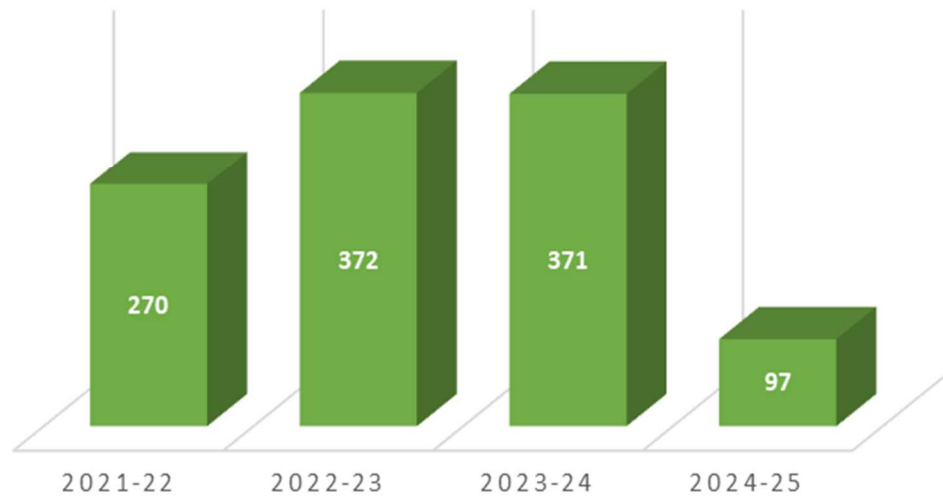
R&D PROGRESS OF JULY- DECEMBER 2024

Progress from July 2024 to December 2024					
S. No.	Dept	Published/Accepted		Patents	Books
		Journals	Scopus_CP & BC		
1	CSE	2	14	53	10
2	CSE Allied	3	11	37	10
3	IT	4	13	50	0
4	ECE	8	11	31	4
5	EEE	5	8	31	0
6	Mech	0	0	5	0
7	Civil	0	0	5	0
8	FME	16	4	29	23
Total		38	61	244	47
Publications					

Progress from July 2024 to December 2024			
S. No.	Dept	NPTEL	Internal and External International Conference
1	CSE	9	201
2	CSE Allied	15	92
3	IT	3	154
4	ECE	36	184
5	EEE	15	60
6	Mech	0	3
7	Civil	0	3
8	FME	34	0
Total		112	697
Publications			

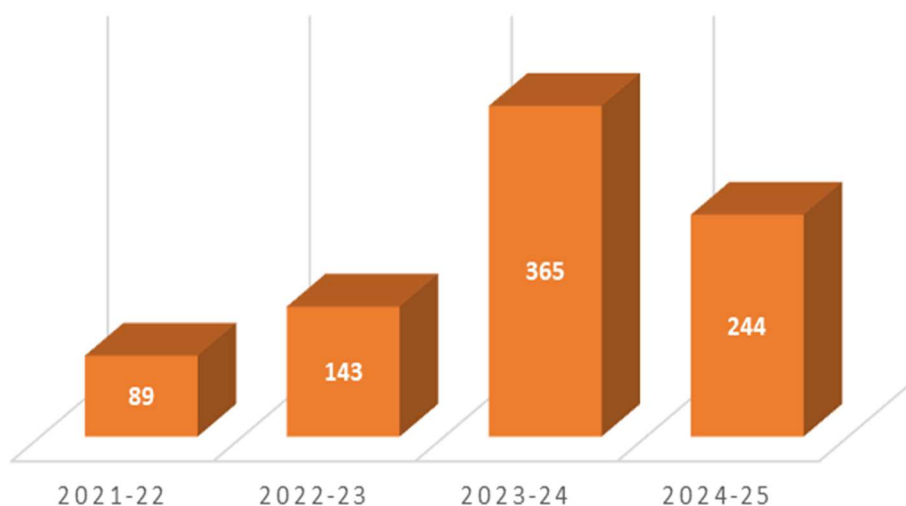
PUBLICATION REPORT **(For last Four years Consolidated data)**

CONSOLIDATED PUBLICATIONS DATA FOR JOURNALS AND SCOPUS CP/BC



+ Patents

CONSOLIDATED PUBLICATION DATA FOR PATENTS



Publications: Books



LET US KNOW



Li-Fi Technology



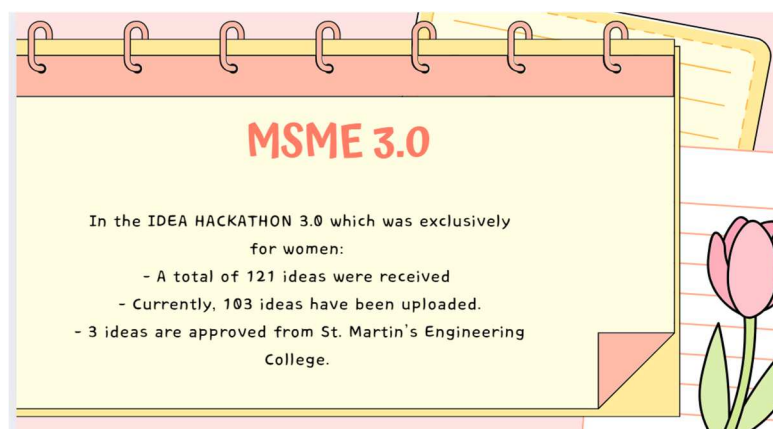
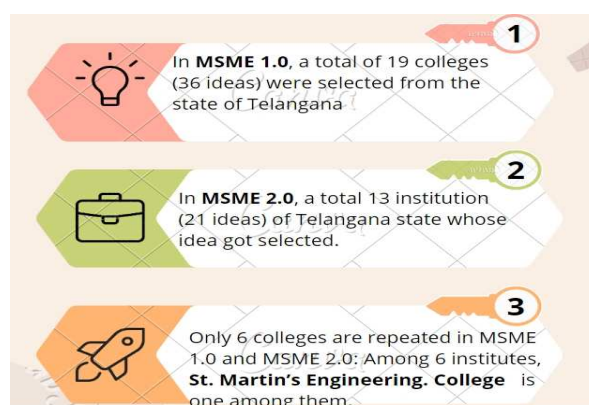
As the world embraces digital transformation, LiFi (Light Fidelity) emerges as a cutting-edge technology with the potential to revolutionize educational environments. LiFi is a wireless communication technology that uses visible light to transmit data. Unlike traditional WiFi, which relies on radio waves, LiFi utilizes the light emitted by LED bulbs to provide high-speed internet connectivity. This innovative approach offers several advantages, including higher data transfer rates, improved security, and reduced interference, making it an attractive option for educational settings.

GOVERNMENT FUNDED PROJECTS

Name of the Project/ Endowments, Chairs	Name of the Principal Investigator/Co- investivator	Depar tment of Princi pal Invest igator	Amount Sanctio ned	Durat ion of the projec t	Name of the Fundin g Agency
AY 2021-2022					
Comprehensive Road Maintenance plan (CRMP) GHMC	Mr. B Bhanu Prasad / Mr. V. Rajesh	Civil	344 crores	5 years	GHMC
GHMC - TPQC	Mr. B Bhanu Prasad/ Mr. V. Rajesh	Civil	100 crores	3 years	GHMC
HMWSSB	Mr. B Bhanu Prasad / Mr. V. Rajesh	Civil	50 crores	2 years	HMWS SB
Plastic Pavement Blocks	Mr. S. Naveen	Civil	8,75,00 0	1 year	MSME
Economic design of slabs using HDPE Balls	Mrs. K. Snehalatha	Civil	11,00,0 00	1 year	MSME
Development of Horticultural Manned Robot for Ripe Mango Fruit Plucking	Konga Bharathi	CSE	11,00,0 00	1 year	MSME
AY 2022-2023					
Artificial Intelligence Framework for Skin Cancer Detection and Classification	Parvathapuram Pavan Kumar	ECE	11,99,8 00	1 year	MSME
Waste Water Treatment by Electro-Coagulation using Iron Electrode	Dayapalle Naresh Kumar	Civil	12,00,0 00	1 year	MSME
NIELIT Academy	Dr. B. Hari Krishna	ECE	7,42,66 1	2 years	NIELIT
AY 2023-2024					
Mentor Institution	St. Martin's Engineering College		2,25,00 0	1 years	MHRD IIC
Smart litter-cam	Manaswini	CSM	13,50,0 00	1 year	MSME
Determining the nutritional content of dishes	T.Bhargavi	IT	11,41,0 00	1 year	MSME
AI powered one touch emergency services	Meeripelly Sanjana	EEE	13,35,0 00	1 year	MSME
AY 2024-2025					
Emerging Trends in 6th Generation Mobile Networks	Dr S Ravi kumar	ECE	1,00,00 0	1 year	ATAL FDP

MSME Achievements in SMEC

Within the vibrant ecosystem of SMEC, the emphasis on encouraging budding entrepreneurs is not just a philosophy but a tangible commitment to shaping the future of business leadership. Students at SMEC are not only exposed to theoretical knowledge but are also actively trained in the practical aspects of this world. In recognition of SMEC's dedication to fostering entrepreneurship, the institution secured Rs. 1 crore seed capital from MSME Government of India and 55 lakhs for 5 projects from the Innovation Scheme Incubation Component. Some of the MSME achievements in SMEC are:



MSME Version	Received	Uploaded	Approved	Project Cost	Sanctioned
MSME 1.0	44	28	3	30.75	29.438
MSME 2.0	33	31	2	23.998	20.398
MSME 3.0	121	103	3	38.26	-
MSME 4.0	160	46	Waiting for results		
Total				93.008	

MSME 4.0 for Young Innovators

The MSME Idea Hackathon 4.0 presents a unique opportunity for young innovators to contribute to India's economic growth and sustainable development by inviting them to present creative and viable solutions across diverse themes. Ideas are being invited under MSME Idea Hackathon 4.0 from people aged between 18-35 from all over India under MSME Innovative Scheme. For implementation of the scheme the Host Institutions (HI) approved for the scheme will be supported by the Office of DC-MSME. Incubatees' selected ideas will be provided funding support upto Rs. 15 lakhs per approved idea, through the Host Institutes chosen by them. The young innovators of SMEC has actively participated in idea Hackathon 4.0.

In the IDEA HACKATHON 4.0 which was exclusively for Young Innovator:

- A total of 180 ideas were received
- Currently, 46 ideas have been uploaded.

MSME 3.0 for women Innovators

The idea Hackathon 3.0 scheme for women innovators is launched on June 27, 2023, to promote and support untapped creativity and to promote adoption of latest technologies in MSMEs that seek the validation of their ideas at the proof-of-concept level. The women of SMEC has actively participated in idea Hackathon 3.0.

S. No.	Ref. No.	Incubatee Name and Category	Title of proposed idea/ innovation/ Sector
1.	IDEATS013165	Manaswini	Smart litter-cam
2.	IDEATS010947	T.Bhargavi	Determining the nutritional content of dishes
3.	IDEATS012378	Meeripelly Sanjana	Ai powered one touch emergency services

Idea Ref. No.	Project	Amount	Incubatee Share
	Cost	Sanctioned	
(in Lakhs)			
IDEATS013165	13.500	11.475	2.025
IDEATS010947	11.410	9.699	1.712
IDEATS012378	13.350	13.350	0.000

In the IDEA HACKATHON 3.0 which was exclusively for women:

- A total of 121 ideas were received
- Currently, 103 ideas have been uploaded.
- 3 ideas are approved from St. Martin's Engineering College.

MSME 2.0

A total of 276 Proposals approved during 4th PMAC Meeting of MSME Innovative Scheme held on 26.06.2023 & Announced by Hon'ble Prime Minister on the occasion of International MSME Day at Vigyan Bhawan, New Delhi on 27th June, 2023.

In the IDEA HACKATHON 2.0:

33 ideas were received, 31 were uploaded, and two ideas were approved.

The two innovative ideas presented were:

1. Wastewater treatment by electro coagulation using iron electrodes
2. AI framework for skin cancer detection and classification

S.No	Idea Ref. No.	Incubatee Name	Title of the Idea
1	IDEATS005608	PARVATHAPURAMPA VANKUMAR	ARTIFICIAL INTELLIGENCE FRAMEWORK FOR SKIN CANCER DETECTION AND CLASSIFICATION
2	IDEATS005756	DAYAPALLE NARESH KUMAR	WASTEWATERTREATMENTBY ELECTRO-COAGULATIONUSINGIRON ELECTRODE

Idea Ref. No.	Project Cost	Amount Sanctioned	Incubatee Share
	(in Lakhs)		
IDEATS005608	11.998	10.198	1.800
IDEATS005756	12.000	10.200	1.800

MSME 1.0

Academic Year 2021-2022

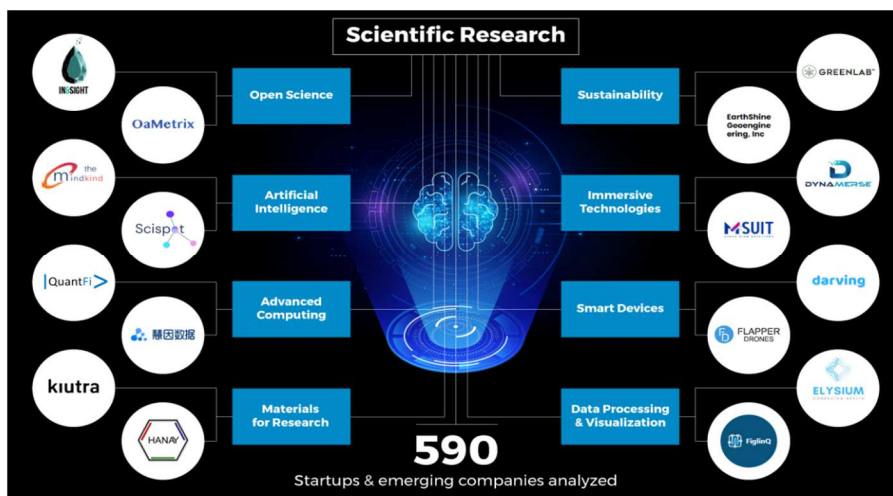
A total of 257 Proposals approved during 2nd PMAC Meeting of MSME Innovative Scheme held on 22.06.2022 & Announced by Hon'ble Prime Minister on the occasion of International MSME Day at Vigyan Bhawan on 30th June, 2022. Prototypes of these ideas are successfully completed.

IN IDEA HACKATHON 1.0 of the year 2022:

- 44 ideas were submitted, with 28 successfully uploaded.
- Excitingly, three of our ideas have gained approval in the MSME IDEA HACKATHON 1.0. The approved titles and cost of projects include:

1. Economical design of a slab using HDPE balls
2. Plastic pavement blocks
3. Horticultural Manned Robot for Ripe Mango Fruit Plucking

TOP TECHNOLOGY TRENDS AND INNOVATION



EVENTS:

Workshop	2
International Conference	8
Technical Seminar	1
Doctorates Meet	4

EVENTS: Technical Seminar

October 15th, 2024: Technical Seminar

The Research and Development Cell of SMEC had organized a technical programme on 15.10.2024. More than 50 participants has participated in this offline seminar including Dean, Doctorates and R&D coordinators of SMEC.



This technical seminar was aimed to provide comprehensive information on research progress to all faculty members of SMEC. Dr. R Santhohkumar, Associate Professor/ HOD of CSE department had invited as chair person of this program.



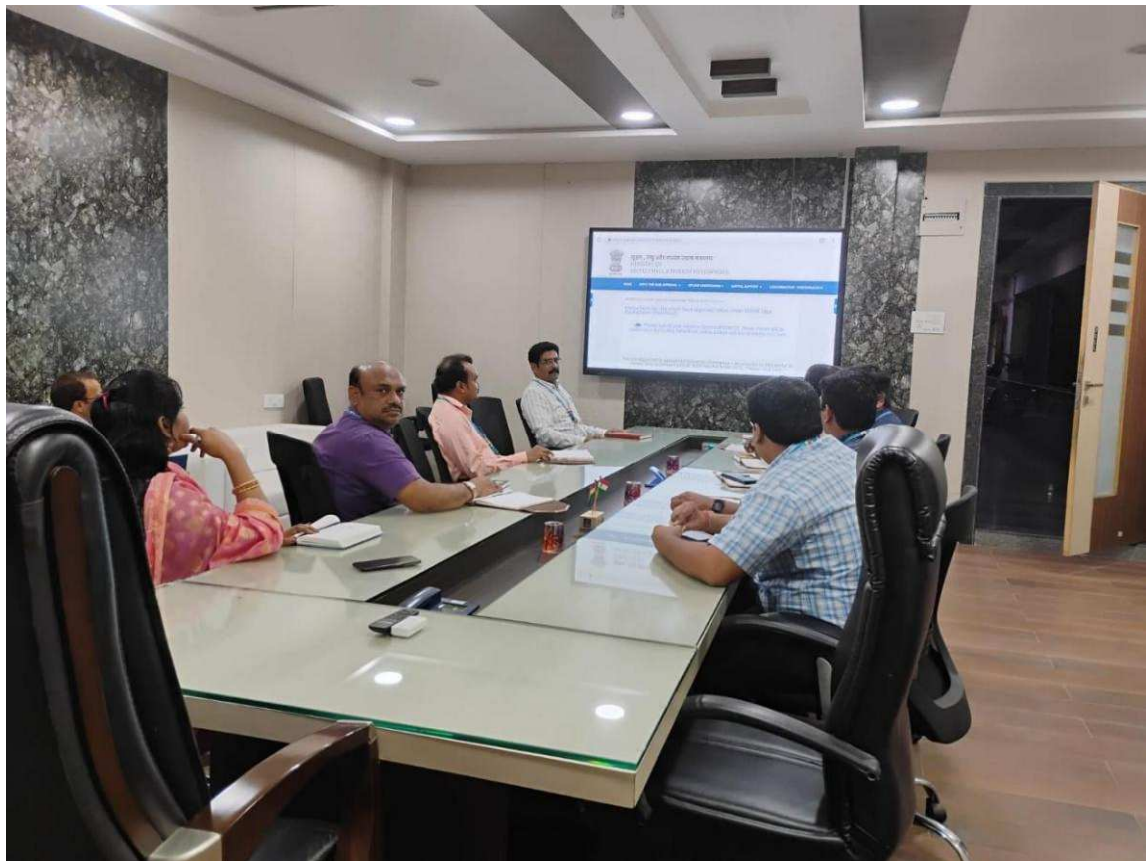
Dr. R. Nithya , Assistant Professor of Freshmen Engineering department had presented the topics on Physics oriented research. The following topics are focused in the seminar are nanoscience, Synthetic approaches for nanomaterials, Characterization Techniques of nanomaterials, Applications of nanoparticles, Nanowires and Nano-powders, Scaling induced phonon confinement effect in GaAs nanoparticles and Applications of nanomaterials. Dr. S.V.S. Ramakrishnam Raju, Dean Academics and Dr. Sanjay kumar suman, R&D dean, has concluded the full event with his motivation talk on “Importance of technical seminar.”



EVENTS: WORKSHOP

August 9, 2024: Workshop on MSME 4.0 Project Document Preparation

A one day workshop on “MSME 4.0 Project Document Preparation” was organized by the R&D Cell on 9 th of August, 2024 at St. Martin’s Engineering College, Dullapally, Secunderabad. This workshop encourage all young innovators (students/ MSMEs /others) to grab this opportunity to develop an innovative idea into a prototype by participating and winning **Rs. 15 lakhs!** It is indeed a great support being provided by the Ministry of Micro, Small & Medium Enterprises (MSME), Govt. of India.

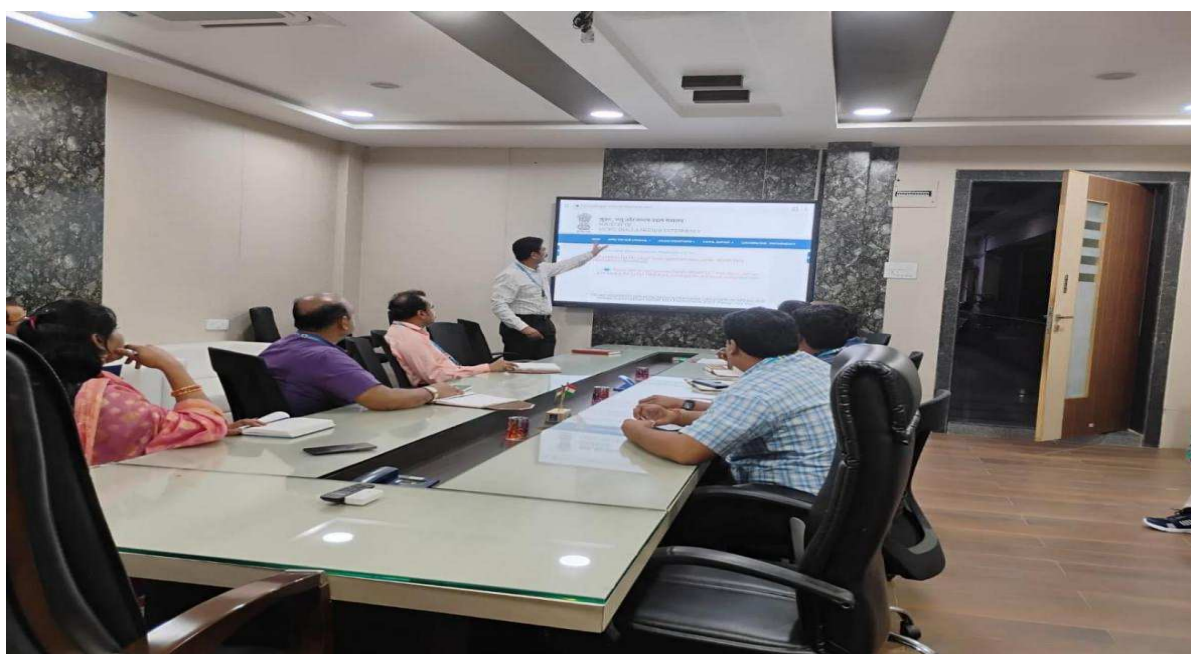


The resource persons Dr. D.V. Sreekanth, Professor, Dean Administration delivered about the benefits and document preparation of MSME 4.0 for woman. The other resource person Dr. Sanjay Kumar Suman, Professor, delivered how to register in the MSME websites and also applying concepts to all woman students and faculties. We have received 161 ideas so far, and we are thankful

to all the applicants, and wish them the very best. If an applicant has already submitted one or more ideas, she may kindly make use of this extended time and submit more ideas.



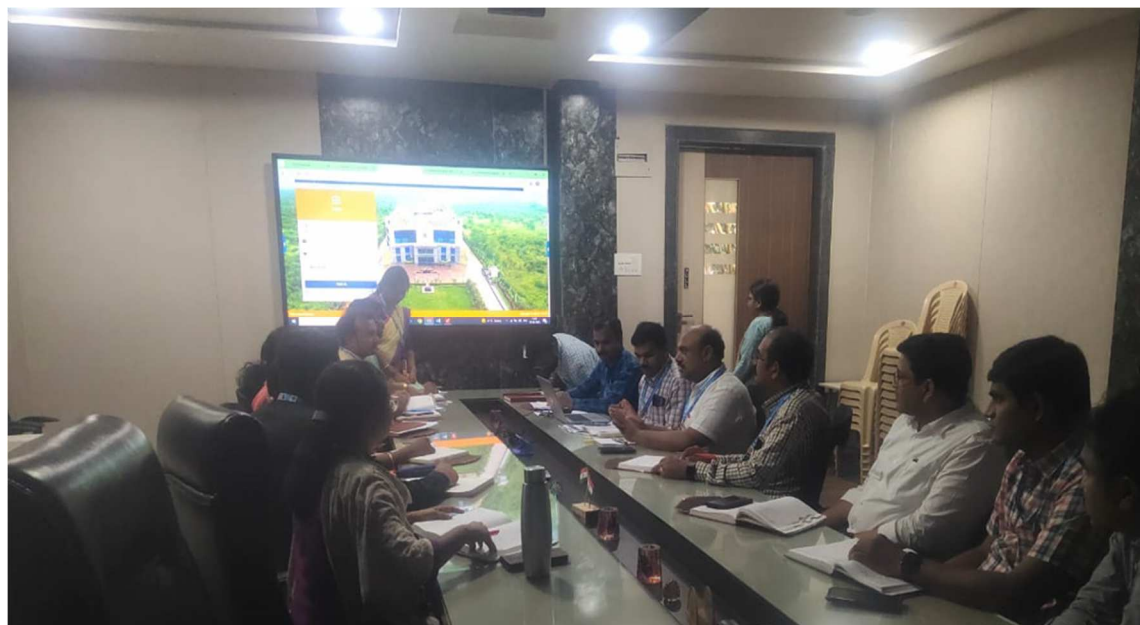
In this workshop, all young faculty and student advised to submit more ideas. If one hasn't submitted any ideas and we informed to utilize this golden opportunity. In either case, we suggested that all applicants might to submit the ideas after a quick review of department coordinator, before submitting it on the portal. There is no recommended format for submitting idea proposals.



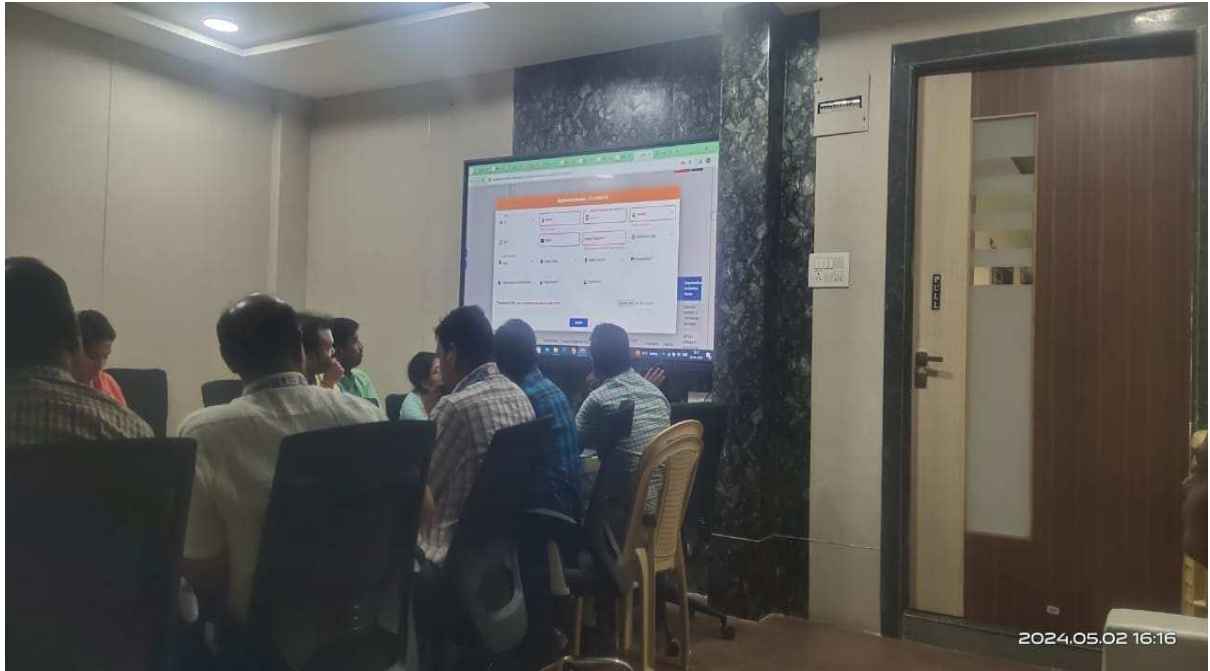
EVENTS: WORKSHOP

03 October, 2024: Workshop on Online FDP proposals submission

A one day workshop on “Online FDP proposals submission” was organized by the R&D Cell on 3rd of October, 2024 at St. Martin’s Engineering College, Dullapally, Secunderabad. We encourage all coordinators and co-coordinators of all department of St. Martin’s Engineering College to grab this opportunity to apply for ATAL faculty development programme. It is indeed a great support being provided by the AICTE Training and Learning (**ATAL**) Academy, Govt. of India.



The resource persons **Dr. Sanjay Kumar Suman**, Professor, Dean R&D delivered about the document preparation of ATAL proposal for submission. The other resource person **Dr. Santhoshkumar**, Associate Professor and HOD CSE delivered how to register in the ATAL websites and also applying procedures to all coordinators and co-coordinators. In this workshop, the agenda discussions are about online ATAL FDP proposal, What are all the document needs for submitting and FAQs related to submission procedures. All departments of our college had submitted 5 applications to online ATAL FDP.



In this workshop, all coordinators and co-coordinators advised to submit maximum two proposals. In this all participants discussed about the submission related document such as Journals list, brochure, FDP dates and also about the resource persons of ATAL FDP. All coordinators and co-coordinators are created a Whatsup group for further communication about ATAL FDP. Totally 5 proposals are submitted, and we are thankful to all the applicants, and wish them the very best.



EVENTS: International Conference-2024

17 & 18 December, 2024: International Conference-2024

The Research and Development Cell has organized Eight International Conferences on 17-18 December 2024 for the following titles:

- **ICIRTCS – 2024 by the Dept. of CSE**
- **ICRICEIT – 2024 by the Dept. of IT**
- **ICSMEC – 2024 by the Dept. of ECE**
- **ICAEEE – 2024 by the Dept. of EEE**
- **ICRAME – 2024 by the Dept. of ME**
- **ICRTCE – 2024 by the Dept. of CE**
- **ICIETAIML- 2024 by the Dept. of CSE (AI&ML)**
- **ICRAIML-24 by the Dept. of AI&DS, AI&ML and CSD**

This was one unique event where all Eight conferences were conducted on same time with common inauguration and common valedictory. It fetches an overwhelming response from participants.

Conference Brochures



These conferences were organized to provide a forum for faculty, research scholars and young academicians to share their scientific finding, innovative ideas in the form of paper presentations. A total of **1760 papers** were received.

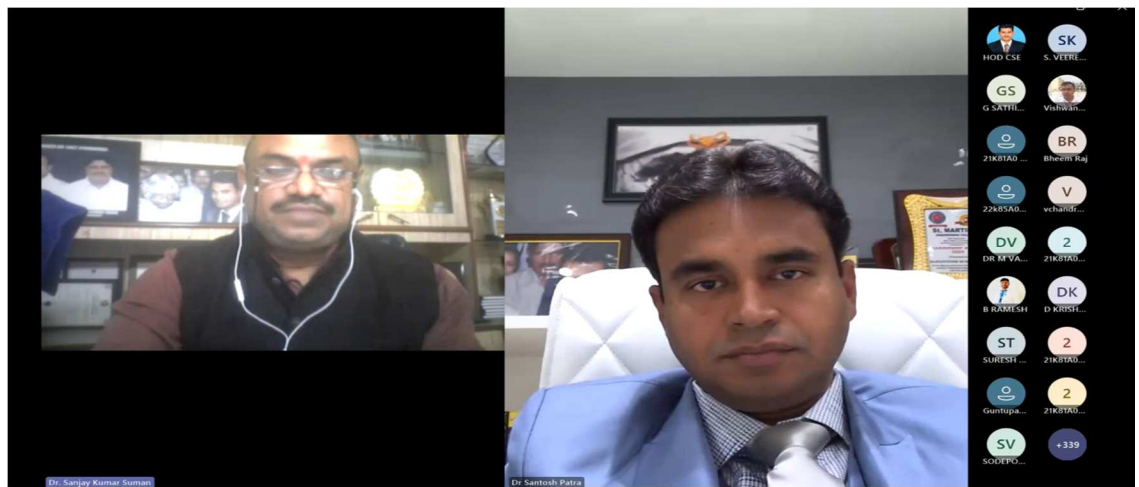
Out of which **850 papers** were selected for presentation. The event was divided into three sessions: Inauguration session; paper presentation in respective department and Valedictory.

An inaugural ceremony was held at 10:00 A.M with a Prayer Song by **M. Kaveri**, IV-CSE, followed by the introductory note about the college by **Ms. Nadia Shaikh**, IV-CSE. She has introduced and invited Dean R&D for his welcome note. Participants, Faculty members, HoDs, Deans, Principal Sir, Director Sir and Chairman Sir were welcomed by **Dr. Sanjay Kumar Suman**, Dean R&D.



Introduction to Organization

Then **Mrs. N. Sowmya** took over the charge to introduce our Group Director Sir **Dr. P. Santosh Kumar Patra** and she has invited Group Director Sir for his presidential address and keynote speech. Group Director Sir has addressed the dignitaries and delegates with his keynote speech on **Devika Robot, Human Washing Machine, Bhashini APP, 3D Printed Meet, Auto heal Concrete Road, Extended Reality, Wearable Gadget, Chip Integrated Brain, Li-Fi, and Electric Vehicle.**



Introduction to Conference



Introduction to Principal & Group Director



Presidential Address by Principal & Group Director



Releasing of Conference Proceedings

It was a phenomenal keynote speech on the application of future technology in domestic products. Specifically, Sir has explained the technology and the process of above inventions. It has undoubtedly enhanced the knowledge of the researcher and academic leaders. After his keynote speech, Sir has officially released the Conference Proceedings of International Conferences.



Finally **Dr. M. Vadivukarassi** has introduced and invited **Dr. R. Santhoshkumar** to propose vote of thanks. **Dr. R. Santhoshkumar** had concluded the session with his formal Vote of Thanks to Management, Group Director, Dignitaries and Delegated. After vote of thanks the session was switched over to the departments for paper presentation.

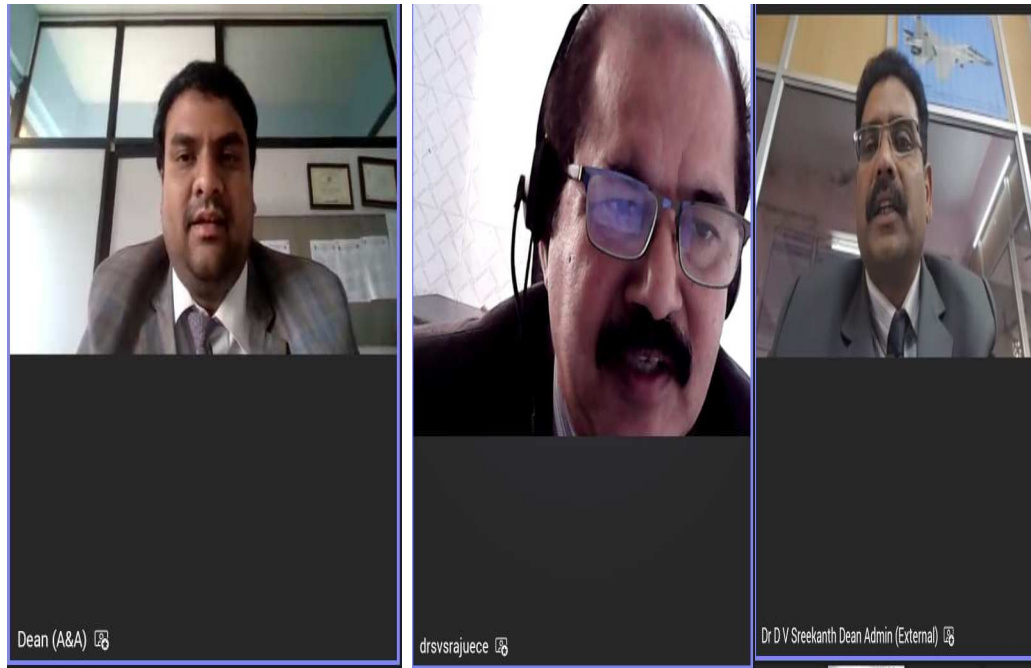


A common valedictory session was scheduled at 02:30 PM by invoking God for his blessing by **M. Kaveri**, IV-CSE again. Program was hosted by **Ms. Nadia Shaikh**, IV-CSE, **Ms. Priyanka**, AP, Dept. of CSM and **Mrs. K. Chaitra**, AP, Dept. of Civil Engineering. **Ms Priyanka** introduced HOD-EEE, Dean A&A and invited him for welcoming the virtual gathering. **Dr. N. Ramchandra**, **Dean A&A**, welcomed the dignitaries and participants and also presented a short report on conference. Then session moved on to presidential address by **Dr. S.V.S. Ramakrishnam Raju**, **Dean Academics**, who was introduced and invited for his keynote by **Ms. P. Priyanka**, AP-CSM. Sir has delivered a wonderful speech on “**Emerging Technologies**” concept. **Ms. P. Priyanka**, AP-CSM has taken the opportunity to introduce our Dean Administration and invited him for Conclusive Remark with virtual Certificate Distribution.

Paper Presentation

The screenshot shows a Microsoft Teams meeting in progress. The main content area displays a presentation slide titled "OUTPUT". The slide is divided into two main sections: "Smart Relief Distribution Platform" and "Registration". The "Smart Relief Distribution Platform" section includes a flowchart and an "Introduction" section. The "Registration" section shows a form with fields for "Name", "Email", and "Password". The meeting interface includes a grid of participants, a chat window, and a participants list on the right. The participants list includes Dr. M. Vadiv... (Unverified), HOD CSE, Ashigini Anulalan A S (External), Habiba Banu S (Unverified), John clinton p (Unverified), Karthika M S (Unverified), and S.PANDIMA DEVI (Unverified). The meeting title is "HOD CIVIL (Unverified)".

Dr. D. V. Sreekanth, Dean Administration, has concluded the full event with his motivation talk on **“Importance of International Conference”** and declared the certificate distribution. **Mrs. Chaitra**, AP-Civil introduced **Prof. Sandhya Kiran J. K.**, HoD-Civil Engg. And called her for formal Vote of Thanks.



Address by Deans & HOD's in Vaedictory Session



Vote of Thanks

Behalf of the institutions and on her behalf Madam has expressed her gratitude to management, group director and Principal Sir, all the fellow colleagues and all participants. Session was ended with National Anthem.

The overall response and feedback from the participants were fabulous and are interested to take part in further events. Technical support to organize the program was provided by **N.Vishwanath**, AP, ECE.

Research Review Meeting:

July 24, 2024: Dr. D.V. Sreekanth, Dean Administration and HOD-Mech, has encouraged all faculties to submit R&D research projects in NRDC. He discussed about the how many proposals should be applied in each department. He elaborated the procedure to apply for NRDC proposals. He motivated the faculties to develop more ideas for upcoming government funding proposals.



September 30, 2024: Dr. Sanjay Kumar Suman, R&D Dean, has reviewed the progress of the doctorates in research publications and delivered a talk on IPR awareness and patent writing. He has also suggested to submit for patents from all departments and informed to concentrate more on writing patents and to improve quality of writing patent.

November 30, 2024: Dr. SVS RamaKrishnam Raju, Dean Academic has reviewed the progress of the doctorates. He explained about the importance of research and publications for the all faculties. He also discussed about opportunities for young professor funding proposal and informed all doctorates faculties to concentrate to apply for funding proposals.



Innovation is taking two things that exist and putting them together in a new way.

-Tom Freston (born 1945), Co-founder of MTV



Research Review Meeting

December 30, 2024: Dr. P. Santosh Kumar Patra, Group Director has reviewed the progress of doctorates and non doctorates in each and every department. Begin by congratulating the faculty members who have been awarded their PhDs.

➤ **Group Director Sir** addressed the faculty, emphasizing the significance of academic publications and their impact on professional development and institutional excellence with a famous wood cutter story. Drawing parallels to academic life, the Group Director Sir explained how this story reflects the journey of faculty members in achieving excellence in research publications. This story mirrors the journey of faculty members striving to improve their research and publication output. While sincerity and dedication are crucial, strategic efforts yield greater success. Here are the takeaways:

1. **Sharpen Your Skills (Sharpen the Axe)**

Faculty should regularly update their research skills, attend workshops, and stay informed about the latest developments in their field. Just as a sharp axe cuts better, enhanced skills improve the quality of research and publications.

2. **Choose Research Topics Strategically (Select the Right Trees)**

Focusing on relevant, impactful, and trending research areas increases the chances of publishing in reputed journals. Faculty should identify topics that align with global challenges or industry needs.

3. **Plan Effectively**

Instead of working randomly, faculty should plan their research process carefully. Setting clear objectives, timelines, and milestones ensures better outcomes with less effort.

4. **Optimize Resources**

Ramesh used a sharp axe and targeted specific trees; faculty can similarly leverage institutional resources like research grants, access to databases, and collaborations with peers to enhance their research.

5. **Focus on Quality and Quantity**

For faculty, the goal is not to choose between quality and quantity but to integrate the two effectively. By adopting strategic research practices, leveraging institutional resources, and maintaining a steady workflow, faculty can achieve a strong and balanced publication record. A commitment to both quality and quantity ensures that research not only contributes to academic advancement but also drives innovation and real-world impact, reinforcing the faculty's role as a pillar of knowledge and progress in the institution.

Conclusion: The GD Sir also assured faculty members of the institution's commitment to fostering a robust research environment. This includes providing access to state-of-the-art laboratories, research grants, library resources, and training workshops on research methodology and publication ethics.

The pursuit of research and publication is not merely an academic exercise but a cornerstone of career advancement in an engineering college. It contributes to personal fulfillment, professional recognition, and institutional prestige. Faculty members are encouraged to embrace research with enthusiasm, leveraging the support and guidance provided by the institution. Together, their efforts will pave the way for a culture of excellence and innovation at St. Martins Engineering College.



DEVIKA, India's First AI Robot

**Dr.P.Santhosh Kumar Patra, Professor & Group Director,
St. Martin's Engineering College**

A 21-year old Kerala boy has created India's first AI software engineer that can understand human instructions and generate software code and even do bug fixing. Named Devika, the AI agent is inspired by Devin, the world's first fully autonomous AI software engineer developed by Cognition Labs in the US, its creator Mufeed VH. DEVIKA AI is an application that can create software from scratch from high-level instructions. It comprises AI agents that can think, plan, research, and write code to accomplish said tasks. Devika can sketch out a step-by-step plan, search and browse the internet, and write the code and instructions to develop a software, and even improve or modify it collaboratively with humans. Under the hood, It is further supported by advanced AI models like Claude 3, GPT-4, GPT-3.5, and Local LLMs. Devika can be of great help to software developers as an assistant. "Developers can offload boilerplate work in software engineering to AI agents like Devika and save time to focus on more of the complex parts of developing software. And it's just a matter of time when such agents will be able to develop complex software without human intervention," While Devin AI from Cognition Labs in the US is known as the world's first AI software engineer, India has introduced its own contender, Devika. Similar to Devin, Devika uses machine learning (ML) and natural language processing (NLP) to understand human commands. However, Devika's focus is on analyzing these commands and breaking them down into practical tasks. Devika AI includes features like User Interface, Advanced Filters, Knowledge Base and Database. Devin AI is known for functionalities like Cognitive Capabilities, High Performance, Autonomous Troubleshooting and Code insight. While Devika AI supports Web Based deployment; Devin AI is suitable for Web Based deployment. While selecting between Devika AI and Devin AI, figure out which one of the two is compatible with your devices. This will help in reducing the hassle after implementation.



Brain Chip Technology

**Dr. P. Santhosh Kumar Patra, Professor & Group Director,
St. Martin's Engineering College**

Elon Musk-led Neuralink implanted its brain chip, named Telepathy, in a human for the first time. It was an early stage of a six-year study and just one step on a very long path to making the technology safe and useful. This first device installed is part of a clinical trial Neuralink announced in 2023 testing how well the device works on people with quadriplegia because of a spinal cord injury or amyotrophic lateral sclerosis (ALS), also known as Lou Gehrig's disease. The idea is to intercept the brain's neural signals to move limbs, then retransmit those signals elsewhere in the body so the patient can control their limbs again. In an update on March 20, the company streamed live video of its patient, now identified as Noland Arbaugh, playing online chess on a laptop, using the brain chip to move the cursor on the screen. Neuralink got approval from the US Food and Drug Administration for the medical test in 2023, but Musk wants to go far beyond that, building what he's called a "generalized input-output device that could interface with every aspect of your brain." In other words, something everybody would use to connect their minds directly to the digital realm. It's radical sci-fi by the standards of today's computing technology. When Musk first announced Neuralink, he floated the idea of sending messages directly to another person's mind -- "consensual telepathy," as he called it in 2017. His ultimate objective: "a full brain-machine interface where we can achieve a sort of symbiosis with AI." Neuralink is founded on the idea that modern electronics and computing technology can register and interpret the electrical signs of brain cells, called neurons. That computing technology can then communicate back to the body by generating its own signals. The hope is to eventually connect to computers, for example sending signals from a camera to a blind person's visual cortex to enable sight.



BHASHINI APPLICATION

**Dr.P.Santhosh Kumar Patra, Professor &Group Director,
St. Martin's Engineering College**

The Prime Minister recently pitched for sharing India's AI-based language platform, Bhashini, with SCO member countries to remove language barriers within the international grouping. Digital India BHASHINI, is India's Artificial Intelligence (AI)-led language translation platform. It seeks to enable easy access to the internet and digital services in Indian languages, including voice-based access, and help the creation of content in Indian languages. It aims to make Artificial Intelligence and Natural Language Processing (NLP) resources available in the public domain to be used by -- Indian MSMEs, startups and individual innovators. This will help developers to offer all Indians easy access to the internet and digital services in their native languages. This online platform also has a separate 'Bhasadaan' section which allows individuals to contribute to multiple crowdsourcing initiatives, and it is also accessible via respective Android and iOS apps. The project is available on this website: <https://www.bhashini.gov.in/en/> and it is aimed to build and develop an ecosystem where various stakeholders like institutions, industry players, research groups, academia and individuals can unite to maintain an 'ever-evolving repository of data, training and benchmark datasets, open models, tools and technologies. The contribution can be done in four ways -- Suno India, Likho India, Bolo India and Dekho India -- where users have to type what they hear or have to validate texts transcribed by others.



Extended Reality

**Dr.P.Santhosh Kumar Patra, Professor & Group Director,
St. Martin's Engineering College**

Extended Reality (XR) is an umbrella term used to describe a range of immersive technologies that combine the physical world with the virtual. It encompasses Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR), each offering different levels of interaction between the real world and digital environments. XR refers to all real-and-virtual combined environments



generated by computer technology and wearables. It integrates human senses like sight, sound, and touch with virtual elements to create engaging, interactive experiences. Virtual Reality (VR): A fully immersive digital environment where users are completely separated from the physical world. Augmented Reality (AR): Digital elements are overlaid onto the real world, enhancing users' perception of their environment. Mixed Reality (MR): Combines both real and virtual elements in real-time, allowing for interaction with both the physical and digital worlds. Applications of XR technologies are being used across multiple industries to revolutionize how people interact with digital content: Health care: VR is used for medical training, simulations, and patient treatment (e.g., pain management or exposure therapy). AR provides real-time data overlays for surgeries, helping doctors navigate and access vital information. Education: XR allows students to engage in immersive learning experiences, such as virtual field trips or interactive anatomy lessons. Gaming & Entertainment: VR creates fully immersive gaming experiences where players are transported to entirely digital worlds. AR enhances gaming by integrating digital elements with the real world, such as in *Pokémon GO*. Retail: AR helps customers visualize products in their real-world environment before purchasing, such as virtual try-ons for clothes or furniture. Retailers use XR for interactive displays and personalized shopping experiences. Workplace Training & Collaboration: VR is used for simulations and training in hazardous or complex environments. MR enables remote collaboration, where team members can interact with 3D models and virtual elements in real-time.

Human Washing Machine

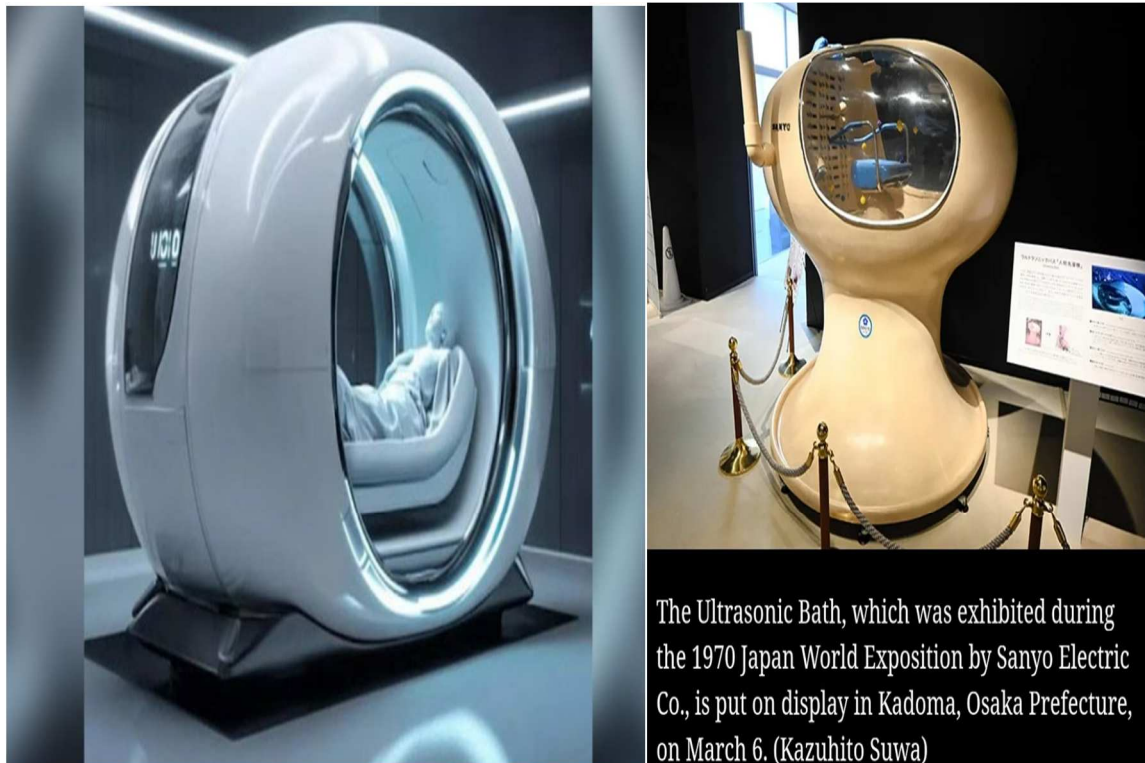
**Dr.P.Santhosh Kumar Patra, Professor &Group Director,
St. Martin's Engineering College**

Japan has long been a pioneer of groundbreaking innovations that simplify human life. With a rapidly aging population—where one in three people is over 65—Japan's Science Co. has shifted focus toward a solution that will make self-care and daily bathing routine easier, particularly for the elderly. Enter Mirai Ningen Sentakuki, a futuristic “human washing machine” that blends innovation with convenience. Created by Science Co., a



Japanese company known for advanced hygiene solutions, this device reimagines personal hygiene using AI, microbubble technology, and smart sensors. Surprisingly, the roots of this idea date back over 50 years to the 1970 Japan World Expo, where an ultrasonic bath prototype fascinated Yasuaki Ayama, now chairman of Science Co. He was a fourth-grader back then, and his childhood fascination with that futuristic bath inspired him to revive the concept for the modern world with the Mirai Ningen Sntakuki. At first glance, it resembles a sci-fi pod or a futuristic time capsule, if you may. Inside, users sit in a central seat embedded with sensors that collect biometric data, such as heart rate and body temperature. Once activated, the pod fills partially with warm water and uses high-speed water jets combined with microbubbles to deliver an ultra-deep wash. These tiny air bubbles burst against the skin, creating microscopic pressure waves that remove dirt and impurities without harsh scrubbing.

The machine does more than washing you. Using embedded artificial intelligence, the system analyzes the user's biometrics data and adjusts the water temperature and bathing experience accordingly. If the user appears stressed, calming visuals or soothing music are projected inside the pod to enhance relaxation. It transforms a routine bath into a wellness ritual, integrating physical cleansing with mental rejuvenation in just 15 minutes. The human washing machine can offer significant benefits to multiple demographics. For the elderly and people with mobility challenges, traditional bathing can be physically demanding and unsafe. This hands-free pod can be a safe, comfortable alternative, ensuring cleanliness without strain. Busy professionals, too, may find its time-efficient process appealing. While the Mirai Ningen Sentakuki human washing machine from Japan seems exciting, it raises concerns that cannot be ignored. The pod relies heavily on AI to monitor personal biometric data, such as heart rate and emotional state, which raises questions about user privacy and data security. How reliably this data will be handled and whether it could be misused remains a major concern for potential consumers.



The Ultrasonic Bath, which was exhibited during the 1970 Japan World Exposition by Sanyo Electric Co., is put on display in Kadoma, Osaka Prefecture, on March 6. (Kazuhiro Suwa)

INFINITY CHARGER



Introducing our cutting-edge next-gen technology, a revolutionary leap in the world of 'contactless' wireless charging. Specifically crafted for Light Electrical Vehicles (LEV) and Robots, our innovated autonomous charging station caters to a diverse range of applications, from material handling carts and e-shopping carts to mobility scooters, electric wheelchairs, food delivery robots, and more. It enable Real-Time Monitoring: Remotely track docked vehicles and battery charge 24/7, Flexible Monitoring Choices: Choose between Meredot's included fleet management portal or create a custom integration with your software, Boost Operational Efficiency: Reduce labor costs associated with manual fleet checks and device downtime and Proactive Maintenance: Detect and address issues early to prevent costly breakdowns, as well as depleted battery charges, and ensure uninterrupted fleet operation.

KOWWER



KOWWER is your ultimate solution for emergency power needs. With its innovative design, you can seamlessly swap gas canisters, ignite with ease, and enjoy endless power supply. No more anxieties about running out of power when you have enough gas canisters on hand. Experience uninterrupted electricity whenever and wherever you need it with KOWWER! From emergency rescues to powering your RV, KOWWER P1's multiple charging outputs (USB, Type-C, Car Charger, and KOWWER Inverter) ensure you have the power you need for 99% of common devices. Outdoor work, photography, or recreation – KOWWER P1 adapts to your needs. Much like the cutting-edge technology found in REEV(Range-Extended Electric Vehicle), our generator efficiently produces generate electricity, utilizing a smart system to store the generated power in its integrated LiFePO4 battery. Imagine the convenience of having a compact yet powerful generator that not only generates electricity on the go but also intelligently stores it for future use.

R&D Outreach : Award and Recognition



Gallery : Teachers Day-2024



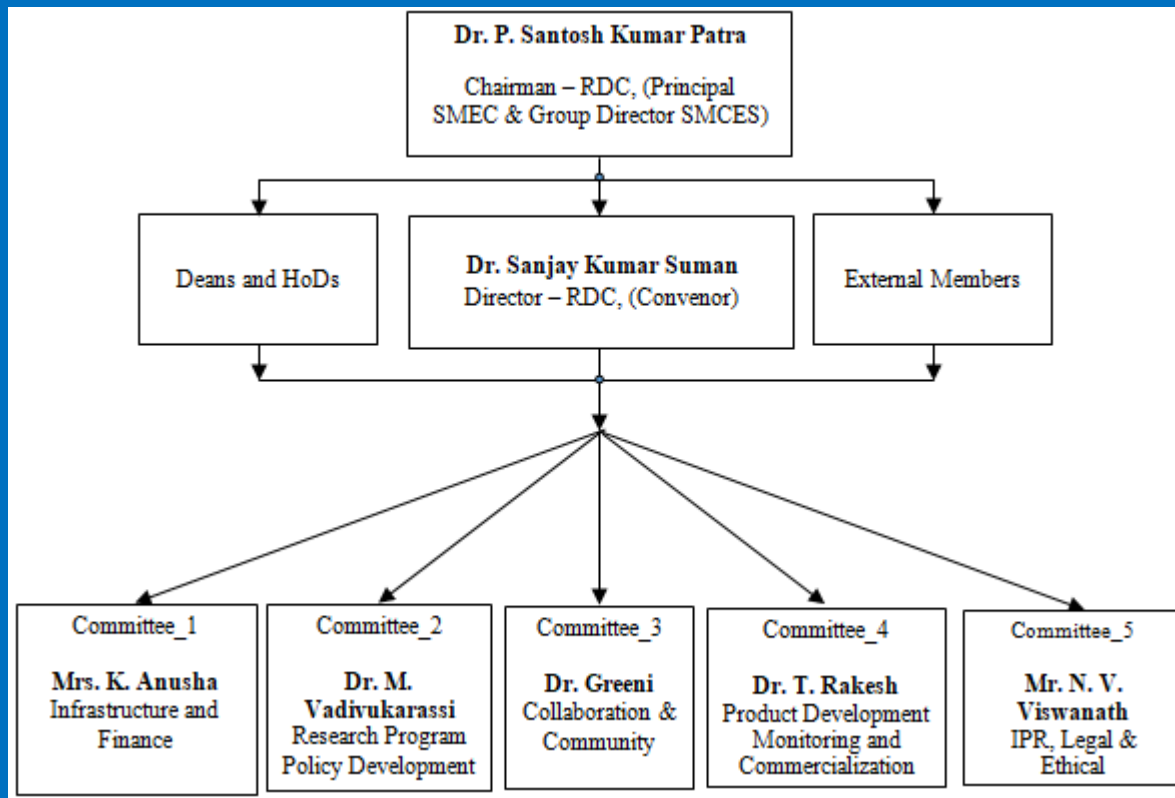








ORGANISATIONAL STRUCTURE OF RDC



Team RDC

 <p>Dr. Sanjay Kumar Suman Dean R&D</p>	 <p>Dr. T. Rakesh R&D Coordinator</p>	 <p>Dr. M. Vadivukarassi Coordinator: Dept. of CSE</p>	 <p>Dr. Greeni Coordinator: Dept. Of FME</p>
 <p>Mr. N. V. Viswanath Coordinator: Dept. of ECE</p>	 <p>Mrs. K. Anusha Coordinator: Dept. of EEE</p>	 <p>Mr. K. Sruthi Coordinator: Dept. of AIDS</p>	 <p>Mrs. K. Chaitra Coordinator: Dept. of CE</p>
 <p>Mr. B. Prasanth Coordinator: Dept. of CSD</p>	 <p>Mrs. C. Ushapriya Coordinator: Dept. of AIML</p>	 <p>Ms. K. Hemalatha Coordinator: Dept. of ME</p>	 <p>Mr. P. Priyanka Coordinator: Dept. of CSM</p>

“Research is formalized curiosity. It is poking and prying with a purpose”



MAHATMA GANDHI BLOCK

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 BALAJIGAR ESTD 1982
 ST. MARTIN'S CHRISTIAN SCHOOL
 ESTD 1980



Congratulations!!!
 (Left to Right)
Dr. Ramesh Reddy – ECE
Dr. K. Sunitha - ME
Dr. K. V. Goverdhan Rao – EEE
Dr. K. Balaram Krishna – FME
 For being awarded Ph.D



Flash: IC: 17-18 December 2024 –Received 1760 Papers. Accepted: 850 Papers. All Selected papers are presented.

