

# DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

*(Accredited by NBA)*

ECSA



Electronics & Communication  
Students' Association

## C O N N E C T C H I P

NEWS BULLETIN 2022 - 23

MITE



Invent Solutions

**MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING**

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# Department of Electronics & Communication Engineering

## *VISION*

To excel in the field of technical education and research by perseverance to produce high quality engineers and technologists having high levels of creativity and ethical standards, contributing effectively to the growth of our society and country.

## *MISSION*

To impart knowledge in the fields of Electronics, Communication and related areas with a focus on developing the necessary competencies, virtues and qualities expected of an electronics engineer by the society at large.

To familiarize the students with the state of the art technology to meet the growing demands of modern industries.

To foster self-development leading to positive social transformation.

## *Program Educational Objectives (PEOs)*

**PEO1:** To produce technically competent graduates with the ability to analyze, design, develop, optimize and implement electronic systems.

**PEO2:** To excel in professional careers or pursue higher education by acquiring requisite knowledge in the field of Electronics & Communication Engineering.

**PEO3:** To inculcate adaptability to current and changing trends by engaging in lifelong learning activities by research.

## *Program Specific Outcomes (PSOs)*

The graduates of the Electronics & Communication Engineering Department will be able to

**PSO1:** Understand the concepts and applications in the field of communication /networking, signal processing, embedded systems and semiconductor technology.

**PSO2:** Design the analog and digital systems for given specifications and functions.

# A MESSAGE

*The news bulletin "Connect Chip" for the academic year 2022–2023 is being released by the Department of Electronics & Communication Engineering, and it brings me great joy to list the numerous accomplishments and activities of our faculty and students. The department aims to develop professionals who are self-assured and aware of the demands of the modern workplace. With a staff of highly experienced teaching members, the department provides a first-rate academic atmosphere that encourages students to advance their technical knowledge, abilities, and attitudes. In addition, exercises are carried out to foster a sense of cooperation among them.*

*I want to express my gratitude to the management, the principal, the faculty, the students, and other stakeholders for their encouragement and direction in helping us succeed in the academic, extracurricular, and co-curricular arenas. I am grateful to the editorial committee for their hard work in creating this news bulletin. I wish them all the success in their future endeavors.*

**Dr. Vinayambika S Bhat**  
**Head of the Department**

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# Department Activities

## 1. THREE DAYS WORKSHOP ON 'VLSI DESIGN USING CADENCE TOOL SUITE

The department organized a three days workshop on "VLSI Design using Cadence Tool Suite" from 8th to 10th September 2022. The objective of the workshop was to give exposure to work on Cadence Tool Suite and its usage in the industry. The workshop provided a forum for members of the research and academic community to get awareness on recent technologies, software tools like Virtuoso, Incisive, Genus and developed the utilization skills of faculty. Sessions were enriched by a well experienced resource person who has great skill in the VLSI Design domain.



In his sessions Mr. Shivaprasad B K covered Analog and Digital Design flow using Cadence Tool Suite. Hands on sessions were conducted by the resource person where exposure was given on Cadence Virtuoso design platform which is optimized for design migration and automation of TSMC FinFET technologies. He explained the full custom Virtuoso layout suite which supports custom analog, digital and mixed -signal designs of the device, cell, block and chip levels. Full custom IC design flow was demonstrated using CMOS inverter as a design example. Sessions were conducted on Semi-Custom IC Design flow using 8-bit counter as a design example. Practical exposure was given on various concepts like functional verification using Incisive, RTL synthesis using Genus, physical implementation using Innovus, timing analysis, power analysis, parasitic extraction and generation of GDSII.

## 2. ONE DAY WORKSHOP ON "LITERATURE REVIEW & REFERENCE MANAGEMENT TOOLS"

The department organised a one-day workshop on "Literature Review & Reference Management Tools" on 27th September. The objective of the workshop was to provide information on using institute library, e-consortium resources and the reference management tools to do better literature & bibliography management.

The resource persons for the program were Dr. Sri Krishna Shastri C, Associate Professor and Dr. Ramaligam H M, Senior Assistant Professor, Department of Electronics & Communication Engineering, MITE, Moodabidri.



In this workshop, students were briefed about Mendeley reference management software. Mendeley Reference Manager is a free web and desktop reference management application. It helps you simplify the reference management workflow so that one can focus on achieving the goals. With Mendeley Reference Manager we can: Store, organize and search all our references from just one library.

### 3. WEBINAR ON “INDUSTRY OF KNOWLEDGE-NOW & IN THE NEXT DECADE”

The department organized a webinar on 'Industry of Knowledge - Now & in the next Decade' on 07th October 2022. The main objective of the talk was to brief the students about the industry knowledge – now & in the next Decade which will help the students in their career perspective.

The Speaker Mr. Bhawik Raja Principal Data Scientist at AT&T's Customer Advocacy Group, started the session with briefing the journey of shifts in industrialization.

In the session he gave an insight on Data scientists who are basically analytical experts who utilize their skills in both technology and social science to find trends and manage data. A discussion on What skills make a Good Data Scientist was made. The basic skills are Mathematics & Statistics, Programming Language, Data Engineering, Machine Learning, Communication Skills. Important Emerging industry trends was briefed in the session which helped the students in understanding more about the career choices.



### 4. INVITED TALK ON “CREATIVE THINKING, INNOVATION AND DESIGN THINKING”

The department organized an invited talk on “Creative Thinking, Innovation and Design Thinking” on 13th October 2022. The objective of the Talk was to brief the students about the creative and design thinking.

In his talk the resource person, Dr Dasharathraj K Shetty briefed that the design thinking, which is an iterative process in which we seek to understand users, challenge assumptions, redefine problems and create innovative solutions which we can prototype and test.

He mentioned that the design thinking begins with the skills, designers have learned over many decades in their quest to match human needs with available technical resources within the practical constraints of business. He told design thinking takes the next step, which is to put these tools into the hands of people who may have never thought of themselves as designers and apply them to a vastly greater range of problems. Creativity is the development of fresh ideas while innovation is the procedure of making these ideas tangible so that they can be used in a design process, for instance. Then the creativity is often an individual activity and innovation is a team process. The process of innovation creates a need which leads to creativity.



## 5. TECHNICAL TALK ON “EMBEDDED CONTROL SYSTEMS AND OPPORTUNITIES”

The department organized a technical talk on “Embedded Control Systems and Opportunities” on 14th October 2022. The objective of the talk was to brief the students about the Embedded Control Systems and Opportunities.

In her talk the resource person, Dr Kanthi M, Professor, Department of Electronics & Communication Engineering, Manipal Institute of Technology, Manipal, briefed about the embedded system, combination of a computer processor, computer memory, and input/output peripheral devices that has a dedicated function within a larger mechanical or electronic system.



It is embedded as part of a complete device often including electrical or electronic hardware and mechanical parts. Because an embedded system typically controls physical operations of the machine that it is embedded within, it often has real time computing constraints. She also explained about the embedded system which is defined as the system that is placed in another system. It is defined as a group of a system that is used to design some particular task. In the embedded system the software system is placed in a hardware system for some particular task. The embedded system can be categorized as a microcontroller-based system that can be used to serve any particular type of operation. She mentioned embedded system can be independent or can reside in another large system. The embedded system is a type of system that is very powerful, fast, and small size in nature so that it can easily fix in other systems and perform their task. She told that the embedded system can be categorized as a computer system but they do not perform the operations performed by computer systems.

## 6. TECHNICAL TALK ON “MIMO TECHNOLOGY”

The department organized a technical talk on ‘MIMO Technology’ on 04th November 2022. The objective of the talk was to brief the students about MIMO Technology and its applications in engineering.

Dr. Prashanth Kumar H, Assistant Professor, Dept. of E & C at NITK Surathkal briefed about the MIMO Technology and its need in International research.



It offers significant increase in data through put and link range without additional bandwidth or transmit power. The propagation mechanisms in a wireless channel is briefed by the speaker with the help of graphical analysis. Performance of binary signalling on a Rayleigh fading channel was discussed in the session. The two formats for MIMO namely Spatial diversity and Spatial multiplexing was briefed. Some of the commercial standards that use MIMO technology with antenna configuration gave a broader sight on the topic.

## 7. INAUGURAL FUNCTION OF “ ELECTRONICS & COMMUNICATION STUDENTS ASSOCIATION (ECSA) ACTIVITIES”

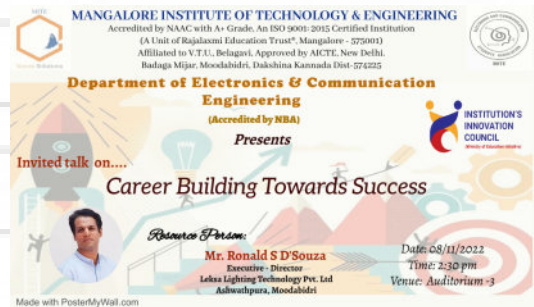
The inaugural ceremony of Electronics & Communication Students Association (ECSA) Activities – 2022-23 was held on 8th November 2022. The chief guest of this function, Mr. Ronald S D’souza, Executive Director, Leksa Lighting Technology Pvt. Ltd, Moodabidri, shared his words of wisdom with students. He congratulate the new office bearers and explained the responsibilities to fulfill.



He shared a brief thought on the corporate life and how he built a Lighting industry. He also presented the progress the industry achieved during short period of time. He suggested the students to cultivate the habits of working on new technology and update them with the present industry era.

## 8. INVITED TALK ON “CAREER BUILDING TOWARDS SUCCESS”

Electronics & Communication Student’s Association (ECSA) in association organized an invited talk on ‘Career Building Towards Success’ on 8th November 2022. The objective of the talk was to brief the students about knowing the purpose of life and aiming towards a fruitful career. Mr. Ronald S D’Souza, Founder and Executive Director of Leksa Lighting Technologies Pvt Ltd, briefed about the different factors to be considered while building a career which leads towards successful life.



The speaker also emphasised more on how to make oneself as an asset by following the ten important tips for success. In order to make use of these tips process to be followed are Plan, Do, Check and Action. He explained that the definition for success is increasing the materialistic possession in all the ways in the process of growth. Growth in combination with Ethics always gives us Progress he said. He also highlighted that problems are Golden Eggs for improvements. Just in Time & Quality Actions are the two pillars for the standardised way of life. He also advised the students to always set direction-based targets.

Leksa is engaged in Manufacturing and giving Specialised lighting solutions for TV Channels, Film and Serial Shoots, Auditoriums & stages, Stadiums, Projection mapping and Architectural façade lighting, sound and light shows.



## 9. EXHIBITION ON OUTCOMES OF INTER/ INTRA INSTITUTIONAL INTERNSHIP

Department of Electronics & Communication Engineering organized an Exhibition on Outcomes of Inter/Intra Institutional Internship on 15th November 2022. The objective of the event was to showcase student internship work in different themes of engineering domains.



The students of the 3rd semester Electronics & Communication Engineering as a part of their academic requirement performed 3 weeks internship from 11th to 31st October 2022. The internship includes coding, short film making on contemporary /technical aspects, Study & Survey of published literature and Hackthon. Students were actively participated and presented their exhibits on 15th November 2022. The exhibition was reviewed by the Expert committee headed by the Principal of MITE Dr M S Ganesh Prasad and various other Heads of the Department. The students were able to demonstrate the ability to conduct internship activity with promising results.

## 10. WORKSHOP ON SIGNAL AND IMAGE PROCESSING USING PYTHON

Department of Electronics & Communication Engineering in association with IEEE Mangalore Subsection and MITE-IEEE Student chapter organized a Student Workshop on Signal and Image Processing from 23rd November 2022 to 25th November 2022. The objective of the workshop was to brief the students about the fundamentals and applications of Signal and Image Processing and its usage in the industry.



Dr Ramakrishna Mundugar, Associate Professor, Department of Data Science and Computer Applications (DSCA), Manipal Institute of Technology (MIT) delivered a hands-on session on "Introduction to Digital Image and Video Processing Techniques". The speaker started the session with the introduction about what is an image. He added details on techniques of Image capture and Video Capture techniques that are used in Digital Imaging. He explained about different Image and Video capture methods using Image Sensors. He also explained about the different color components in an image and explained about Pixel Processing.

Dr Manjunath K N, Associate Professor, Department of Computer Science & Engineering, MIT Manipal delivered a hands-on session on "Introduction to Medical Image Processing Techniques using Python". The session started with an introduction to Medical Image Processing which is a current trend after Covid-19. He gave an insight into the Medical Image workflow and modalities.

Dr Sunil Saumya, Assistant Professor, Indian Institute of Information Technology Dharwad delivered a hands-on session on Introduction to fundamentals of Image Processing, concept of Machine learning and explained the correlation between Artificial Intelligence, Machine learning, and Deep learning. The resource person highlighted the importance of Machine Learning algorithms in the classification tasks with respect to Image.

## 11. CODING COMPETITION - "FANATICO DEL CODIGO"

Electronics & Communication Student's Association (ECSA) organized a Coding Competition – "Fanatico del Código" on 29th November 2022. The aims of this coding contest are as follows,

- To makes a good team player
- To helps the students more focused on their goal
- To provides the much-needed exposure
- To enhance their programming skills



It thoroughly prepares students for coding interviews purpose of participation in coding competitions and it will also influence the students to work on the most interesting projects.

## 12. TALK ON "SKILL AWARENESS IN IT FIELD "

The department organized a Talk on "Skill Awareness in IT Field" on Dec 10th 2022. The speaker, Mr. Pramod, an alumnus of batch 2013-17, currently working as a Software Engineer at Torry Harris, Bengaluru.

Alumni interaction aims to build a bridge between college life and career life so that the fresh graduates are made proactive to face the current challenges of the competitive professional world.



Mr. Pramod started his session by giving an insight to the full stack development. He informed that although this additional skillset might be useful to a developer, they are certainly not a requirement for the job. The speaker also briefly explained about the back end process. He mentioned some of the back end technology like springboot, firebase, express.js, Django, Laravel and many more. He also mentioned a frontend technology like bootstrap, HTML, CSS, jQuery, angular, Redux, React, Flutter and many more. Difference between website and web application was also discussed.

The speaker discussed the responsibilities of a full stack developer. The speaker had given an idea on how a person can become a full stack developer. He mentioned that HTML, CSS, JavaScript- DOM, JavaScript frame works could be learned to begin as a front end developer. To begin journey as backend developer one need to learn core JAVA and then Spring and then Microservices. The speaker ended the session by practically showing the difference between websites and web app.

## 13. TALK ON “EMBEDDED SYSTEMS IN AUTOMOTIVE AND EMPLOYMENT OPPORTUNITIES”

The department organized a Talk on “Embedded Systems in Automotive and Employment Opportunities” on Dec 10th 2022. Alumni interaction aims to build a bridge between college life and career life so that the fresh graduates are made proactive to face the current challenges of the competitive professional world.



Mr. Vinay Dongre, a Module Lead at LTI Mindtree, Bengaluru, started his session by giving an insight to the Embedded Systems. He explained the key characteristics and working of Embedded System. The role of Embedded Systems in Automobiles was explained with the block diagram of an Event Data Recorder. The concept of Controller Area Network (CAN) protocol and its benefits was briefed to the students. He also mentioned about the applications of embedded systems in automobiles. The few applications he listed includes Airbags, Black box (Event Data Recorder), Anti-lock braking system, Traction control, Cruise control, Adaptive cruise control, Vehicle to Vehicle communication, Drive by Wire Technology. He discussed some of the latest trends in automobiles like electric vehicles, hydrogen car, LiDAR, MEMS Technology, electromagnetic compatibility, gesture recognition.

He also listed few points which are driving India’s automotive sector. The current market situation, job opportunities and skill that might help in automobile industry were also discussed. He ended his talk by informing how one can build career in automotive field.

## 14. EUREKA 2.0- PUZZLE & QUIZ COMPETITION

The department organized a Puzzle & Quiz Competition Eureka 2.0 on 20th & 21st December 2022.

It was initiated with an objective of helping the students to enhance their conceptual understanding, critical thinking skills, problem-solving strategies and lateral thinking.

DEPARTMENT OF ELECTRONICS & COMMUNICATION  
ENGINEERING  
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INSTITUTION'S INNOVATION COUNCIL  
Member of Electronics Education Society

**ECSA PRESENTS**

**EUREKA 2.0**  
A FUSION OF PUZZLES AND QUIZ

**Rules:**  
1) A Team must consist of 2 people  
2) Judges decision is final.

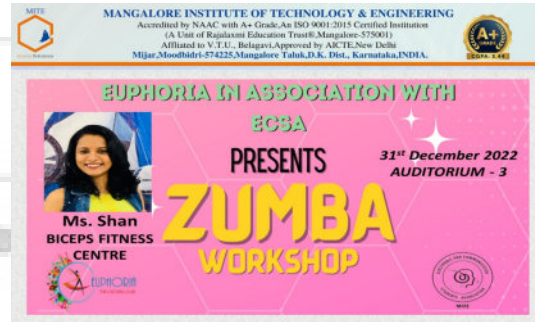
**Venue: Auditorium 2**  
**Date: 20/12/2022 & 21/12/2022**

SCAN TO REGISTER  
  
<https://forms.gle/6XghaCV3UcmjYGMAM>

**For any queries contact:**  
NISARGA (8618331725)  
DHANUSH (9353010770)

## 15. ZUMBA WORKSHOP

A Zumba workshop was organized by Euphoria in association with Electronics & Communication Student Association (ECSA) on 31st December 2022. The objective of this workshop is to guide students to plan their fitness activities in order to maintain a healthy lifestyle. Ms. Shan, Fitness Trainer, Biceps Fitness Centre, Mangaluru. She conducted many fitness training sessions in around the mangaluru region.

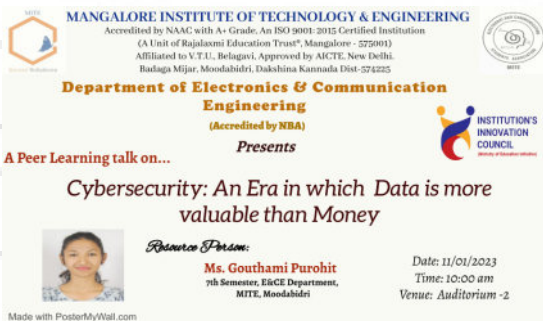


The Resource person interacted with the student participants. She briefed about the importance of fitness and how students can plan their fitness activities in order to maintain a healthy lifestyle. She also discussed about Zumba and how it is different than the normal fitness exercises. She highlighted that Zumba is an aerobic fitness concept featuring movements inspired by various styles dance. It increases flexibility. Improves neuromuscular co-ordination. Boosts self-confidence and self-esteem. It is also a perfect stress reliever. She added that than normal cardio workouts, youngsters enjoy doing Zumba as it fun doing workouts with dance.

## 16. A PEER LEARNING TALK ON "CYBER SECURITY: AN ERA IN WHICH DATA IS MORE VALUABLE THAN MONEY"

Electronics & Communication Student's Association (ECSA) organized a peer learning talk on "Cyber security: an Era in which Data is more valuable than Money" on 11th January 2023.

The objective of the talk was to brief the students about the importance of data privacy & security in real life. Ms. Gothami Purohit is studying in 4th year engineering in the department of Electronics & Communication Engineering, MITE Moodabidri.



In an era where everyone information is preferred to be stored on the internet rather than in physical records. Data of all kinds is equally vulnerable to getting stolen and misused. Threats of different kinds were discussed with scenarios based applications. A few past incidents and their brief responses were presented and defenses against these cyber threats in a normal users prospective were discussed. Finally she concluded with importance of privacy, confidentiality and integrity of any system is very much important.

## 17. THREE DAYS WORKSHOP ON ANALOG CIRCUITS DESIGN & PCB DESIGN: AN INDUSTRY PERSPECTIVE

The department organized Three Days Workshop on Analog Circuits Design & PCB Design: An Industry Perspective, sponsored by ISTE-MITE Chapter in association with Institution Innovation Council (IIC) on 25th, 27th & 28th January 2023.

The main objective of this workshop was to provide students with elegant and effective practical design strategies that focus on common circuit design challenges, also two-layer PCB design. Mr. Manjunath Shet, Analog & Mixed Signal Circuit Design Engineer at Synopsis,

Bangalore, CEO of Octawave Technology, Mangalore and Mr. Uday J, Senior Assistant Professor, Dept. of Electronics & Communication Engineering, MITE were the resource persons for the workshop.

With the growth of digital systems, wireless communications, complex industrial and automotive systems, designers are challenged to develop sophisticated analog solutions. LTspice is a SPICE-based analog electronic circuit simulator computer software. It is the most widely distributed and used SPICE software in the industry. LTspice provides schematic capture to enter an electronic schematic for an electronic circuit, an enhanced SPICE type analog electronic circuit simulator, and a waveform viewer to show the results of the simulation. KiCad is an open-source software suite for Electronic Design Automation (EDA). The programs handle Schematic Capture, and PCB Layout with Gerber output also 3D visualization. The focus in this workshop was purely on Amplifiers, Single Stage, Multistage (Cascode and Cascade) and some practical aspects of PCB design were discussed which will be beneficial for students in analog circuit design. About the tools of Analog Circuit Design & PCB design, which includes KiCad, LTspice etc. were briefed.

## 18. WEBINAR ON "OPPORTUNITIES AND CHALLENGES IN SEMICONDUCTOR INDUSTRY : AN OVERVIEW"

The department organized a Webinar on "Opportunities and Challenges in Semiconductor Industry : An Overview" on 4th March 2023. The main objective of this webinar is to get the knowledge about opportunities in semiconductor industries and the work flow. Mr. Pramod Baliga, MTS Silicon Design Engineer, AMD Bengaluru was the resource persons for the webinar.

Mr. Pramod Baliga highlighted the pivotal role of integrated circuits (ICs) as the cornerstone of modern electronics. He

emphasized that ICs serve as critical components powering a wide range of electronic devices, underscoring their indispensability in our technology-driven world. He underscored the crucial role of ICs in shaping modern life, particularly in the context of handheld devices that have become integral to daily living, thanks to the efficiency and power of ICs. He also provided insights into the fundamental categories of semiconductor companies, including Fab makers, Fabless makers, and service provider companies. He also provided insights into prominent companies in the semiconductor industry, categorizing them into product companies, Electronic Design Automation (EDA) companies, and services companies, and discussed examples such as Samsung, Cadence, Qualcomm, and Wipro.



## 19. PROFESSIONAL DEVELOPMENT PROGRAM ON ROLE OF ARTIFICIAL INTELLIGENCE, MACHINE LEARNING, DATA SCIENCES & IOT IN ENGINEERING DISCIPLINES

Department of Electronics & Communication Engineering in association with Internal Quality Assurance Cell (IQAC) and ISTE-MITE Chapter hosted a professional development event on "Role of Artificial Intelligence, Machine Learning, Data Sciences & IoT in Engineering Disciplines" on March 6, 2023. Dr. Ashok Rao, Former Head, Network Project, CEDT, IISc, Bengaluru was the resource person for the program.

Understanding the significance of AI, ML, DS, and IoT in the curriculum was the program's goal. A brief background

of Artificial Intelligence (AI), Machine Learning (ML), Deep Learning (DL), and Data Science (DS) was provided by Dr. Ashok Rao, to kick off the program. He also explained how these technologies relate to one another. He described how AI tools were employed in traditional board games like checkers, chess, and go. Dr. Rao centred his discussion on the various classifiers used in pattern recognition. He discussed the functions of ML, DL, and DS. Dr. Ashok Rao started the session by giving brief history of Artificial Intelligence (AI), Machine Learning (ML), Deep Learning (DL) and Data Science (DS). He also briefed the relation between these technologies. He explained how AI tool was used in classical gaming such as checker player, Chess, Alpha Go etc.



## 20. THREE DAYS WORKSHOP ON "APPLICATION SPECIFIC IC DESIGN USING CADENCE INCISIVE AND VIRTUOSO"

The department organized Three Days Workshop on "Application-Specific IC Design using Cadence Incisive and Virtuoso", sponsored by ISTE-MITE on 27th to 29th April 2023.

The workshop aimed to provide the participants with an overview of the Cadence EDA tool for VLSI design. The workshop comprised of live demonstration of tools and lectures delivered by design engineers to give awareness of recent technologies and software tools like Virtuoso, Incisive, and Genus and develop the utilization skills of Students/ Research scholars.



The workshop intended to provide opportunities for participants to enrich their intellectual strength and professional growth. The major focus of the workshop is the upgradation of outcome-based teaching & learning skills and research for the participants in the field of VLSI design in nanoscale using the Cadence tool. Each session is enhanced by a well-experienced resource person with extensive knowledge of the VLSI Design domain. Dr. Madhushankara M Bhat, Associate Professor, Manipal School of Information Sciences, Manipal, Dr. Rashmi Samanth, Assistant Professor, Mangalore Institute of Technology & Engineering, Mr. Jayasheel Shetty, Senior Member Technical Staff, Karnataka Microelectronic Design Centre (KarMic Design) and Mr. Ravichandra R G, Junior Engineer, Karmic Design Private Limited, Manipal were the resource persons for the workshop.

## 21. INVITED TALK ON "SEMICONDUCTOR INDUSTRY AND CAREERS"

The department organized an invited talk on "Semiconductor Industry and Careers" on 29th April 2023. The main objective of the session is to provide career opportunities and skills required in the embedded industry, mapping out career progression from entry-level roles to managerial positions.

Mr. Jayasheel Shetty initiated the session, delving into VLSI career prospects. He also introduced students to diverse industries, including Telecommunication, Software

development, Embedded Systems, Consumer Electronics, Semiconductors, and more. Function and services of these industries were discussed, with the speaker providing examples and insights. Mr. Ravichandra R G provided insights into ASICs customized for specific uses. FPGA technology was introduced as a versatile choice for prototyping and low-production-volume projects, contrasting with the high NRE costs associated with ASICs. FPGAs play a significant role in embedded system development, enabling early software and hardware development, performance simulations, and system architecture trials.



## 22. INVITED TALK ON "ALL ABOUT BEING PROFESSIONAL"

The department organized an invited talk on "All about being Professional" on 4th May 2023. The main objective of this webinar is to gain a profound understanding of the fundamental principles and practices that govern ethical behavior in professional settings.

Ms. Verina D'Souza covered an array of critical aspects, highlighting the paramount importance of ethics, values, and morals in the workplace. She defined ethics as a set of widely accepted social norms, codes, or

beliefs that delineate right from wrong, especially in professional contexts. It was established that workplace ethics comprise a collection of values and behaviors tailored to professional environments. Values were spotlighted as the bedrock of ethical decision-making, serving as deeply ingrained belief systems guiding individuals through moral quandaries. Core values like compassion, kindness, loyalty, teamwork, and honesty were emphasized as the cornerstones of ethical conduct. She also addressed Illegal/Immoral Acts, vehemently condemning bribery, fraud, coercion, dishonesty, theft, insider trading, and conflicts of interest. It left no room for doubt: integrity and honesty are non-negotiable in the professional arena. Ms. Verina D'souza is currently working as an Assistant Professor in the Department of Management Studies.



## 23. "PLACEMENT DAY CELEBRATION"

The department celebrated "Placement Day" on 13th May 2023. The objective of celebrating Placement Day is to acknowledge and commemorate the achievements of students who have successfully secured job placements.



Dr. Vinayambika S Bhat introduced the chief guest, followed by Mr. Narendra U P detailing the placement process and training at the college. Ranjith H D presented the Training & Placement report for 2022-23, covering training sessions, assessments, and achievements. Placed students shared their experiences, highlighting challenges, skills, and advice for juniors. The chief guest Mr. Guruprasad S A, Senior Project Manager, Semnox Solutions Private Limited gave an inspirational speech about the training and company process and also how to train ourselves for the betterment of the future. He also shared his experience of the corporate world. He told the students it's essential to constantly upskill and adapt to the changing minds of the industry.

Dr. Prashanth C M, Principal encouraged excellence and positive contributions. Interactive sessions, cultural program and refreshments added vibrancy to the event. The day concluded with a selfie session for lasting memories. The chief guest Mr. Guruprasad S A is working as a Senior Project Manager at Semnox Solutions Private Limited.

## 24. AWARENESS SESSION ON "MISSION LIFE TOWARDS PROTECTION OF ENVIRONMENT"

Department of Management Studies and Department of Electronics & Communication Engineering in association with ECO CLUB organised an awareness session on "Mission LiFE Towards Protection of Environment" on 16th May 2023. The speaker of the event was Dr. Ravi D R, Environmental Officer, Karnataka State Pollution Control Board (KSPCB), Mangaluru.



Speaker spoke about Mission LiFE – LiFEstyle for Environment ie, Mission LiFE is an India-led global mass movement to nudge individual and community action to protect and preserve the environment. He also said Honourable Prime Minister Shri Narendra Modi Launched Mission LiFE. , "The mantra of Mission LiFE is 'LiFEstyle for Environment'. Which connects the powers of the people for the protection of this earth and teaches them to utilise it in a better way." He further elaborated and said, "Mission LiFE makes the fight against climate change, in which everyone can contribute within their capacity. Mission LiFE follows the P3 model, which stands for Pro Planet People, focusing on a LiFEstyle of the planet, for the planet, and by the planet. It advocates for a circular economy, where the concept of reduce, reuse and recycle is crucial to balance development, economic growth, and sustainability.



## 25. THREE DAY WORKSHOP ON "RESEARCH DISSEMINATION THROUGH PUBLICATION AND PATENTS"

The department organized Three Day Workshop on "Research Dissemination Through Publication and Patents" sponsored by IEEE-MITE on 18th to 20th May 2023. This workshop is well structured and focused on building a strong community of researchers with ethics. The workshop intends to give an insight into the importance of publications by highlighting the need for ethics, plagiarism checks, and understanding required



to edit the paper template. The workshop aims at giving participants an overview of the process of identifying the quality journal for publication, conference selection, the publication process, and the importance of data sharing.

The workshop also focused on the overview of Intellectual Property Rights (IPR) and their importance, submitting patent applications, and Grant Writing. The three-day session aimed to make the participants understand the process of Filing and getting a patent. This workshop will enable researchers to understand the critical component of the scientific research process and will play an essential role in advancing their knowledge and providing solutions to real-world problems.

Dr. Manjunath K N Associate Professor, Department of Computer Science & Engineering Manipal Institute of Technology (MIT), Manipal and Dr. Siddhalinga Swamy P C Professor, Department of Computer Science & Engineering Manipal Institute of Technology (MIT), Manipal were the resource persons of the workshop.

## 26. TECHNICAL TALK ON "ELECTRONICS CORE INDUSTRY AND SCOPE OF VLSI IN IT"

The department organized Technical talk on "Electronics Core Industry and Scope of VLSI in it" on 20th May 2023. Ms. Fazila Naz is an alumna of batch 2014-18, Design Verification Engineer, MaxLinear Technology, Bengaluru was the speaker of the event.



The objective of the session was to give an insight to the jobs in Electronics core industry. Speaker mentioned various electronics job roles in the industry which included Design Engineer, ASIC Engineer, Embedded Engineer, Network Support Engineer, Pre-Post Si Validation, Quality Analyst, Physical Designer, Architect, RTL Designer, DFT Engineer, FPGA Emulation Engineer etc. She highlighted that The primary responsibility of a VLSI Design Engineer is to design and develop high-performance, low-power, and cost-effective integrated circuits. ASIC Design Engineers create Product Design Specification (PDS) statements for ASIC, optimize logic design, and create architectural design models. Pre-Silicon Validation allows for earlier identification of bugs further upstream, reduces development times and enables more developers to access the latest simulated silicon.

## 27. TECHNICAL TALK ON “CYBER SECURITY”

The department hosted a technical talk on “ Cyber Security”, on 20th May 2023. Mr. Prasanna Poojari is an alumnus of batch 2013-2017, Senior Security Analyst at London Stock Exchange Group, Bengaluru was speaker for the event.



The speaker addressed by illustrating how firewalls are integrated into a network by displaying a simple firewall network design. Later, he explained briefly about Cyber Security and Cyber Attacks. Also the importance of Cyber Security was briefed to the audience. He stated that the primary victims of Cyber Attacks are Businesses, Government, Banking & Financial, Energy Companies, Educational Institutions, Media Outlets. He also informed about the most common cyber security threats and ways to prevent them which included Malware, Ransomware, Social Engineering/Phishing, Password Cracking Attacks and Man-in-the-Middle Attacks.

## 28. INVITED TALK ON “JOURNEY TO SALESFORCE”

A Talk on “Journey to Salesforce” was organized on 5th June 2023. The Talk was delivered by Ms. Jasmin Caron Santhmayor, Senior Software Engineer, Apisero, Bengaluru. She briefed the students on Customer Relationship Management (CRM). CRM is a strategy that companies use to manage interactions with customers and potential customers. She gave an overview of the salesforce. She discussed several salesforce clouds, including Sales Cloud, Service Cloud, Marketing Cloud, Commerce Cloud, and Community Cloud.

She talked about the benefits of working with Salesforce. The students were also briefed on different roles within the Salesforce ecosystem. She outlined several technical and soft skills required for Salesforce professionals. Ms. Jasmin Caron Santhmayor, 2020 alumni is currently working as Senior Software Engineer at Apisero, Bengaluru. She is passionate about dancing and compering, with strong communication and presentation skills. She is a Salesforce Certified Admin predominantly worked on Sales Cloud, Service Cloud, Financial Service Cloud and Experience Cloud. She has an experience in Designing and Developing Solutions in Salesforce. Experience with project management tools like JIRA, Azure Boards. Her top skills includes Solution engineering, Salesforce Service Cloud, Salesforce.com Administration, Salesforce Implementation, Salesforce.com Development.

## 29. HANDS-ON SESSION ON "GITHUB: A STEP BY STEP PROCEDURE TO CREATE A PROJECT REPOSITORY"

The department organized a hands on session on "GitHub : A step by step procedure to create a project repository" on 12th June 2023 & 13th June 2023. The objective of the session is to familiarize participants with the process of creating project repositories on GitHub and understanding the importance of version control and collaboration in software development.

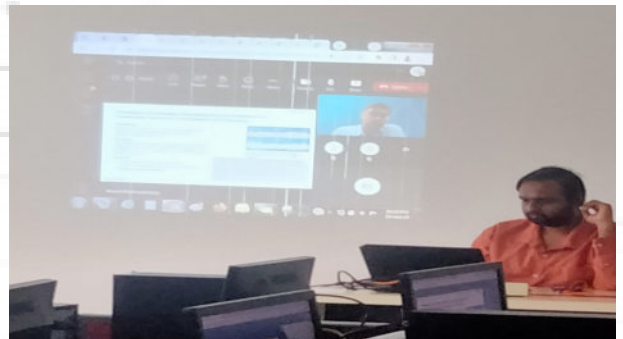


The workshop provided hands-on training and practical exercises to enhance participants' skills in using GitHub effectively. During the initial session of the workshop, participants were introduced to the fundamental aspects of GitHub and its significance in project management and collaboration. The topics covered on this day included an Introduction to Version Control, where concepts, benefits, and best practices of version control were explained. The participants also gained an understanding of Git and how it integrates with GitHub. Additionally, they learned the process of Setting Up GitHub Environment, which involved signing up for GitHub accounts and configuring user profiles. Creating a Project Repository was also covered in detail, providing a step-by-step procedure to create new repositories on GitHub while adhering to naming conventions and visibility settings (public or private).

Mr. Ranjith H D, working as a Senior Assistant professor in the department of ECE at MITE Moodabidri. His area of interest in the field of Wireless Communication, Image Processing and Computer Vision. He undergone the Industrial Training on Model based Design, Testing, Automotive System, UDS, Controller Area Network at L&T Technologies Services (LTS) Mysore.

## 30. MATLAB TECH DAY: GET WIRED INTO SIGNAL PROCESSING"

Department of Electronics & Communication Engineering organized MATLAB TECH DAY: Get wired into Signal Processing" on 13th June 2023. Ms. Niveditha Mohankumar, Mr. Rakshith B S, Mr. Anand Geethagovindan, CoreEL Technologies, Bengaluru were the resource person for the event. The workshop on MATLAB with signal processing provided participants with valuable insights into practical applications of MATLAB and overview of AI applications in communication and Signal processing.



She emphasized the importance of adopting the right mindset for learning any software tool. She encouraged participants to explore MATLAB daily and become familiar with its features and capabilities. Additionally, she provided definitions of MATLAB as a programming environment for algorithm development, data analysis, visualization, and numeric computation and Simulink as a graphical environment for designing, simulating, and testing systems. Mr. Rakshith B S demonstrated the generation of sinusoidal, triangular and ramp signal for different time period and duty cycle. He then explained the four stages of AI

## 31. INVITED TALK “BUILT TO LAST”

Department of Electronics & Communication Engineering organized an invited talk on “Built to Last” on 17th June 2023. The objective of this talk is to provide the importance of self confidence in the work environment and in the organization.

Dr. Malini Hebbar, Personality Development Trainer & Principal, Swastika National School, Mangalore was the resource person for the event. She is a guest faculty at St. Agnes Centre for PG Studies and Research. Also a member of the Research Ethics Committee of Kasturba Medical College.



The resource person interacted with the student participants. She briefed about the importance of self-confidence in the work environment and in an organization. She also mentioned about the importance of being receptive. Dr. Malini, addressed about the attitude of being in comfort zone and consequences of this as this one of the very important factors in personality development. She highlighted that one should be flexible enough to get adapted to the circumstances. “You cannot prepare the future for yourself in this era of Artificial Intelligence, you got have preparedness to be flexible. We need to upskill ourselves by binding to the universal human values existing” she mentioned. She also emphasized on Intelligent Quotient (IQ) and Emotional Quotient (EQ) which are very important in the life to be effective people, which also defines success.

## 32. INTERNATIONAL YOGA DAY: FLOW TO GLOW - AN INTRODUCTION TO SURYANAMASKARA FLOW"

Department of Electronics & Communication Engineering and Dept. of ISE in association with NSS-MITE organized International Yoga Day: Flow to Glow - An Introduction to Suryanamaskara Flow" on 21st June 2023. Ms. Nagashree T S, certified yoga practitioner and an alumna from the 2016 batch introduced yoga and its benefits to oneself. In her address, she said by practising yoga regularly one can imbibe very good qualities like good physical and mental health which works as a permanent friend for life.



### 33. INVITED TALK ON " MASTERING THE ART OF BUSINESS"

A Talk on "Mastering the Art of Business" was organized on 13th July 2023. The Talk was delivered by Ms. Nidhi Shetty, Senior Associate Specialist, Factset Research Systems, Hyderabad. The speaker began her session by posing three questions to the students: What are you good at? What do you love to do? How highly are you paid? She advised the students to ask themselves these three questions before choosing a career.



She motivated the students by sharing a few challenges she faced in her life and the steps she took to overcome them. She gave an overview of the MBA course. Candidates who want an MBA degree can consider pursuing any MBA course: MBA/PGDM, Executive MBA/PGDM, Distance MBA, Online MBA, Part-Time MBA, etc. She explained the difference between MBA and PGDM courses. She motivated them to keep updated every single day, as life is difficult once you graduate. She advised the students to make use of the W3Schools website, where they can learn coding.

Ms. Nidhi Shetty, 2020 alumni is currently employed by Factset Research Systems in Hyderabad as a Senior Associate Specialist. She completed her MBA (PGDM) programme at Jagadish Sheth School of Management, Bengaluru, formerly known as IFIM Business School.

### 34. A VISIT TO SPOORTHI SPECIAL SCHOOL & TRAINING CENTER, MOODABIDRI

The Department of Electronics & Communication Engineering in Association with NSS-MITE conducted an activity visit to Spoorthi special school, Moodabidri on 24th July 2023 at 10.00AM. During the visit, Mr. Prakash, the school's founder, provided a succinct introduction to Spoorthi Special School, shedding light on the available facilities and the unique teaching methods tailored for disabled students. He shared insights into the challenges they navigated amid the pandemic, while also acknowledging the previous visit by MITE to their premises and extending gratitude for MITE's contributions.



MITE students orchestrated a variety of engaging activities such as drawing, singing, dancing, and games, specifically designed to cater to the special students' interests and abilities. Notably, the exceptional talents of some students were readily apparent. Additionally, the MITE students distributed chocolates, fostering a sense of joy among the students of the special school. A significant contribution of Fourteen Thousand Five Hundred rupees was made to the special school by the Department of Electronics & Communication Engineering, reflecting their commitment to the well-being of the students and the school's mission.

## 35. SUBSTANCE ABUSE AWARENESS PROGRAM AT SWAMI VIVKANANDA PU COLLEGE, MOODABIDRI

Department of Electronics & Communication Engineering in association with NSS MITE organized NSS activity under Non-Credit Mandatory Course (2INS83) on "Substance Abuse Awareness Program" at Swami Vivekananda PU College, Yedapadav on 18th August 2023. The objective of this activity is to educate the students about the risks, consequences, and prevention of substance abuse.



Substance Abuse Awareness Programs often emphasize the importance of adopting healthy coping mechanisms, stress management techniques, and other positive habits that can serve as alternatives to substance use. This activity also provided information about available treatment and support services. This includes highlighting counseling, therapy, helplines, rehabilitation centers, and other resources that can assist individuals struggling with substance abuse.

Students presented the following topics with brief explanation, The use, abuse and consequences of Alcohol, Marijuana, Opiates/Heroin and Prescription Drugs, Why college Students Use Alcohol and Drugs, Impacts of Using Alcohol and Drugs, What Needs to be Known on substance abuse, Handling emergency, Physical and mental effects of substance abuse, The Counseling Center.

## 36. ONE DAY WORKSHOP ON IDEATION AND DESIGN THINKING

A One-day Workshop on Ideation and Design Thinking for High school students under ATL scheme was organised by Department of Information Science & Engineering, Electronics & Communication Engineering, CSE (IoT & Cyber Security with Blockchain Technology), Mechanical Engineering & New Age Innovation Network-MITE in association with District Institute of Education & Training (DIET) Mangalore on 2nd September 2023. Dr. Ramalingam H M, Senior Assistant Professor, Dept. of E&CE and Mr. Sunil Kumar, Sr. Assistant Professor & Head Dept. of AIML, Mr. Sandeep S Naik, Assistant Professor, Dept. of CSE(IoT) were the resource persons for the event.



The workshop aimed to empower students with essential skills in ideation and design thinking, fostering creativity, empathy, and innovative problem-solving ideas. Ideation and Design Thinking are two related concepts commonly used in the fields of innovation, product development, and problem-solving. They are methods and approaches that encourage creativity, empathy, and user-centric thinking to develop innovative solutions. In the Out-of-the-Box Thinking and Poster Presentation, aimed to equip participants with the skills and mindset required to think creatively and present their ideas effectively through posters. Out-of-the-box thinking is essential for innovation and problem-solving. Students were divided into teams and given real-world problems to solve. The themes for ideating solutions were "Impact of Globalization", "Waste Management", "Challenges for improving Health care in rural areas". Participants were introduced to the importance of breaking away from conventional thought patterns and fostering creativity.

# Activities in association with IEEE-MITE Student Chapter

## 1. INVITED TALK ON "IEEE PROEDGE: EMPOWERING STUDENT PROFESSIONAL AWARENESS"

The department organized "IEEE ProEdge: Empowering Student Professional Awareness" program on 07.06.2023. The main objective of this workshop was to provide awareness about IEEE membership, access to technical, innovation, cutting-edge information, networking opportunities, and exclusive member benefits. Dr. Mohit P. Tahiliani, Chair IEEE Mangalore Sub-Section & Assistant Professor Department of Computer Science and Engineering NITK, Surathkal, India was the resource persons for the awareness program.

The poster for the IEEE ProEdge workshop includes the following details:

- Chief Patron:** Mr. Rajesh Chavra, Chairman, MITE, Moodabidri.
- Patron:** Dr. Prashanth C.M, Principal, MITE, Moodabidri.
- Head of the Department:** Dr. Vinayambika S Bhat, Professor & HoD, E&CE, Dean Quality Assurance.
- Coordinators:** Mrs. Deeptha, Assistant Professor, Dept. of E&CE; Mr. Prakash L S, Assistant Professor, Dept. of E&CE.
- Resource Person:** Dr. Mohit P. Tahiliani, Chair IEEE Mangalore Sub-Section & Assistant Professor, Department of Computer Science and Engineering, NITK, Surathkal, India.
- Registration:** Registration is FREE. Registration Link: <https://forms.gle/8Ea3z2PCF9KQ833E>. Last date for Registration: 05<sup>th</sup> Jun 2023.
- Date:** 07.06.2023, **Time:** 10 AM, **Venue:** Auditorium-IV.
- Organized by:** Department of Electronics & Communication Engineering, Mangalore Institute of Technology & Engineering.

The awareness program stressed better understanding the IEEE's role in advancing technology, its various technical societies, publications, standards, and resources available to members. The program provided a platform for participants to connect with like-minded individuals, industry experts, and professionals in their field of interest. It created awareness about the benefits and value of IEEE membership, the program led to an increase in new members joining the organization. Through the awareness program, participants gained access to valuable technical knowledge, research findings, and cutting-edge advancements in their areas of interest. This helps disseminate information and promotes the sharing of ideas. It helps establish IEEE as a go-to resource for individuals seeking reliable information and professional connections.

## 2. A PEER LEARNING TALK ON "MACHINE LEARNING USING TENSORFLOW"

The department in association with IEEE student chapter organized peer-to-peer learning on Machine Learning using TensorFlow on 24.06.2023. The main objective of this peer-to-peer learning session is to facilitate collaborative and interactive learning among individuals who are interested in understanding and applying Machine Learning concepts and techniques using the TensorFlow framework. The peer-to-peer learning session was delivered by Mr. Ruchira, student 6th Semester, Dept. of ECE, MITE, Moodabidri.

The poster for the peer-to-peer learning session includes the following details:

- Organized by:** MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING, An Autonomous Institution under VTU Belagavi, Karnataka. Accredited by NAAC with A+ Grade, An ISO 9001:2015 Certified Body (A Unit of Karnataka Education Trust, Mangalore-575003), MITE, Moodabidri-574225, Dakshina Kannada Dist., Karnataka.
- Department:** DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING (Accredited by NBA).
- In association with:** IEEE Student Chapter.
- is organising:** Peer-to-Peer Learning on Machine Learning using TensorFlow.
- By:** Ruchira R, 6th Semester, Dept. of ECE.
- Venue:** Auditorium-4, **Date:** 24.06.2023, **Time:** 2:00 PM.

The session mainly focused on understanding fundamental Machine Learning concepts, algorithms, and techniques. The concepts were discussed in a more relatable and approachable manner, which can help deepen everyone's understanding. Peer-to-peer learning helped participants navigate TensorFlow's features, APIs, and best practices for efficient model development and deployment. Further sharing code implementations of Machine Learning models and TensorFlow applications were discussed to provide constructive feedback and suggest optimizations. This iterative process can improve coding skills and model performance. The Machine Learning Workflow was discussed briefly which included Data Preparation, Building the Model, Training, Evaluation and Deployment. Real-World Applications of TensorFlow were discussed which includes healthcare, Autonomous vehicle, Natural Language Processing Finance etc.

### 3. A PEER LEARNING ON “GETTING STARTED: IMAGE ANALYSIS USING MATLAB”

The department in association with IEEE student chapter organized peer-to-peer learning on “Get Started: Image Analysis using MATLAB” on 01.07.2023. The main objective of this peer-to-peer learning session is to introduce participants to the basics of image analysis using MATLAB, a powerful programming language and environment commonly used for various scientific and engineering applications, including image processing. The peer-to-peer learning session was delivered by Prabal Raj, Ullas Pai and Akhil MB, students of 4th Semester, Dept. of EC, MITE, Moodabidri.

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**DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING**  
(Accredited by NBA)

**INSTITUTION'S INNOVATION COUNCIL** is organising  
Peer-to-Peer Learning on  
**Get Started: Image Analysis using MATLAB**

**Venue: Embedded Systems Lab & Digital Signal Processing Lab**

**Student Coordinators:**  
Prabal Raj, M Ullas Pai, Akhil M B  
4th Sem ECE

**Date: 01.07.2023**  
**Time: 02:00PM**

Getting started with image analysis using MATLAB is a great way to explore the field of image processing and computer vision. MATLAB offers a comprehensive set of tools and functions for image analysis. MATLAB provides a wide range of functions and toolboxes specifically designed for image processing tasks. The session started with the Introduction to MATLAB and Image Processing, where participants understood the MATLAB environment and its capabilities in handling and processing images and the concept of digital images, image representation, and the importance of image analysis in various fields. Basic Image Manipulation techniques were discussed ie how to load, display, and save images using MATLAB. Covered fundamental image manipulation tasks such as resizing, cropping, rotating, and flipping were executed with hands-on session. Basic image enhancement methods such as adjusting brightness, contrast, and gamma correction were also discussed with hands-on sessions.

### 4. A PEER LEARNING ON "TECHNICAL DEBATE"

the department in association with IEEE student chapter organized peer-to-peer learning on “Technical Debate” on 01.07.2023. The objective of organizing a peer-to-peer learning on Technical Debate is to foster meaningful discussions, critical thinking, and collaborative learning among participants on a specific technical topic. This format encourages participants to engage in a structured debate where they present arguments, counterarguments, and evidence to support their viewpoints. The session was Co-ordinated by Ruthu V Nayak, Sanjana Nayak, K P Shwetha, Maithreyi and Sharan S Shetty students of 4th Semester, Dept. of ECE, MITE,Moodabidri.

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**DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING**  
(Accredited by NBA)

**INSTITUTION'S INNOVATION COUNCIL** is organising  
Peer-to-Peer Learning on  
**Technical Debate**

**Student Coordinators:**  
Ruthu V Nayak, Sanjana Nayak,  
K P Shwetha, Maithreyi,  
Sharan S Shetty  
4th Sem ECE

**Venue: Auditorium-II**

**Date: 01.07.2023**  
**Time: 02:00PM**

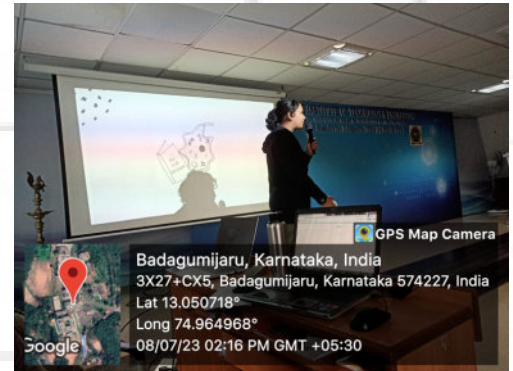
The ongoing debate surrounding technology reflects the complex relationship between progress and concerns in our increasingly digital world. Privacy, data security, automation, ethics in AI, cyber security, and access to technology are among the key areas of contention. Striking a balance between embracing technological advancements and mitigating the associated risks is crucial. Policymakers, industry leaders, and society as a whole must engage in thoughtful discussions to shape the future of technology in a manner that benefits all stakeholders and upholds core values.



## 5. A PEER LEARNING ON “THE ART OF COMMUNICATION”

The department in association with IEEE student chapter organized peer-to-peer learning on “The Art of Communication”, on 8th July 2023. Dhriti Rao, 6th Semester, Dept. of ECE MITE, Moodabidri, was the resource person. Peer-to-peer learning in “The Art of Communication” is a collaborative and interactive educational approach where participants actively engage with one another to enhance their communication skills. In this context, individuals in the learning group, often with common goals related to improving their communication abilities, come together to share knowledge, experiences, and insights.

The speaker shared personal experiences and challenges related to communication. By hearing stories and strategies for improvement, individuals gained valuable insights and empathize with different communication styles and contexts. Peer-to-peer learning in “The Art of Communication” encourages a holistic approach to skill development. Participants explored various dimensions of communication, from verbal and emotional intelligence.



## 6. A PEER LEARNING ON “MATLAB IMAGE ANALYSIS AND PROCESSING: A STEP-BY-STEP APPROACH”

The Department in association with IEEE student chapter organized peer-to-peer learning on “MATLAB Image Analysis and Processing: A Step-by-Step Approach” on 22.07.2023. The objective of the session “MATLAB Image Analysis and Processing: A Step-by-Step Approach” is to provide participants with a comprehensive understanding of how to use MATLAB for analyzing and processing images. The session likely covers various techniques, tools, and functions available in MATLAB’s Image Processing Toolbox. The step-by-step approach indicates that the session aims to guide participants through the process of

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**INSTITUTION'S INNOVATION COUNCIL**  
In association with IEEE Student Branch  
is organising

**Peer-to-Peer Learning on**  
**MATLAB Image Analysis and Processing: A Step-by-Step Approach**  
**Venue: Embedded Systems Lab & Digital Signal Processing Lab**

**Student Coordinators:**  
Prabal Raj, M Ullas Pai, Akhil M B  
4th Sem ECE

**Date: 22.07.2023**  
**Time: 02:00PM**

image analysis and processing using MATLAB in a systematic manner. The peer-to-peer learning session was delivered by Prabal Raj, Ullas Pai and Akhil M B, students 4th Semester, Dept. of ECE, MITE, Moodabidri. “MATLAB Image Analysis and Processing: A Step-by-Step Approach” focuses on teaching participants how to use MATLAB for image analysis and processing tasks. Participants are guided through various concepts and techniques in a systematic manner. Participants are introduced to the significance of image processing and the role of MATLAB. They learn how to set up the MATLAB environment for image analysis. Attendees grasped essential MATLAB concepts, such as syntax and image loading/display, crucial for effective image processing. Enhancing Image Quality techniques like histogram equalization, contrast stretching, and gamma correction are explored to enhance image visual quality. Participants discovered the power of image filters for tasks like blurring and sharpening. They understand the convolution process and explore spatial operations like edge detection. Attendees learned to identify and extract significant features from images, including textures, shapes, and colors.

## 7. ONE DAY WORKSHOP ON "PYTHON APPLICATION IN MEDICAL IMAGE PROCESSING"

The department organized One day Workshop on "Python Application in Medical Image Processing" on 15th July 2023. Dr. Niranjan U C, Director, Research & Training, Manipal DoT Net, was the speaker for the event. Dr. Niranjan started the session with introduction to Python language and gave an indepth knowledge into the Python. Later he emphasised on the realworld applications of Python language in Medival and data mining filed.



Students learned the basics of medical image analysis using Python and to display and interpret X-ray and CT scans. This course focussed on relevant Python libraries and commands on medical images for format conversion, segmentation, and analyzing metadata. The goal is to familiarize with concepts around medical imaging and specifically Computed Tomography (CT). It is critical to understand how far one can go without deep learning, to understand when it's best to use it.

## 8. PEER LEARNING ON EXPLORING PERSPECTIVE AND SOLUTION USING TECHNICAL DEBATE"

The department in association with IEEE student chapter organized peer-to-peer learning on "Exploring Perspectives and Solutions using Technical Debate" on 22.07.2023. The objective of "Exploring Perspectives and Solutions using Technical Debate" is to provide a platform for participants to engage in thoughtful and constructive discussions about complex issues, challenges, and solutions in a specific technical or professional domain. Through the medium of a debate, participants can explore different viewpoints, analyze problems from multiple angles, and collaboratively work towards identifying innovative solutions. The peer-to-peer learning session was Co-ordinated by Ruthu V Nayak, Sanjana Nayak, K P Shwetha, Maithreyi and Sharan S Shetty, students 4th Semester, Dept. of ECE, MITE, Moodabidri. Technical debates encourage participants to think critically about various aspects of a topic. They need to analyze information, assess its validity, and formulate well-reasoned arguments. Participants delve deep into the subject matter, gaining a comprehensive understanding of its complexities and nuances. Debates provide a platform for individuals with different backgrounds, expertise, and opinions to express their viewpoints. This diversity fosters a broader perspective on the topic. Participants enhance their communication skills by articulating their thoughts clearly and persuasively. They learn how to present complex ideas in an understandable manner.

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INSTITUTION'S INNOVATION COUNCIL  
In association with IEEE Student Branch  
is organising  
Peer-to-Peer Learning on  
Exploring Perspectives and Solutions using Technical Debate

Student Coordinators:  
Ruthu V Nayak, Sanjana Nayak, K P Shwetha, Maithreyi, Sharan S Shetty  
4th Sem ECE

Venue: L101 & L102  
Date: 22.07.2023  
Time: 02:00PM

## 9. CIRCUIT TINKERING: AN APPROACH TO ELECTRONIC CIRCUIT EXPLORATION

the department in association with IEEE student chapter organized "Circuit Tinkering: An Approach to Electronic Circuit Exploration" on 05.08.2023. The objective of "Circuit Tinkering: An Approach to Electronic Circuit Exploration" is to provide participants with a hands-on and experiential learning opportunity to explore and understand electronic circuits through practical experimentation. This approach aims to foster a deeper comprehension of circuit theory, components, and their interactions. The session was conducted by Ms. Deepthi Kotian Asst Professor & Mr. Prakash L S Asst Professor, Dept. of E&CE, MITE Moodabidri.

An LED (Light Emitting Diode) circuit is a simple yet fundamental electronic circuit that can serve as an excellent starting point for participants to learn about basic components, circuitry, and practical experimentation. LED circuit exploration is to introduce participants to the basics of electronic circuits by having them build a functional LED circuit. Through hands-on experience, participants will understand circuit components, concepts, and the process of creating a simple electronic circuit. Briefly introduced the participants to LEDs, resistors, and breadboards. Explained their roles in the circuit. Guided participants to set up the breadboard with the LED circuit components. Shown them how to place LEDs and resistors on the breadboard. Discussed the role of the resistor in limiting current to the LED.

## 10. A PEER LEARNING TALK ON "EXPLORING THE JOURNEY THROUGH IEEE"

The department in association with IEEE student chapter organized peer-to-peer learning on "Exploring the Journey Through IEEE" on 12.08.2023. The objective of "Exploring the Journey Through IEEE" is to provide participants with insights into the IEEE (Institute of Electrical and Electronics Engineers) organization, its significance, contributions, and opportunities it offers in the fields of technology, engineering, and related disciplines.. The session was delivered by Alwin D'Souza student 6th Sem, Dept. of E&CE, MITE Moodabidri.

IEEE is a prestigious and globally recognized professional organization. Diverse Technical Fields exploration of the wide range of technical domains that fall under IEEE's umbrella, from electrical engineering and computer science to telecommunications and beyond. Showcased IEEE's contributions to technological advancements, industry standards, research dissemination, and innovation. Discussed on how IEEE serves as a platform for connecting professionals, researchers, and experts worldwide. Information on the benefits of becoming an IEEE member, including access to technical resources, publications, and networking opportunities. Insight into how IEEE supports professional growth through conferences, workshops, certifications, and collaboration. Explanation of IEEE's initiatives aimed at students and early-career professionals, such as scholarships, mentorship, and student chapters. Discussion on IEEE's commitment to ethical practices in technology development and its role in shaping responsible innovation. Encouragement to engage in leadership roles and volunteer opportunities within IEEE to contribute to the organization's activities.

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**INSTITUTION'S INNOVATION COUNCIL** In association with IEEE Student Branch

is organising  
**Circuit Tinkering: An Approach to Electronic Circuit Exploration**

**Venue:** Analog & Digital Electronics Lab & BEE Lab

**By:** Ms. Deepthi Kotian & Mr. Prakash L S  
 Asst Professor, Dept. of E&CE  
 MITE Moodabidri

**Date:** 05.08.2023  
**Time:** 02:00PM

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is organising  
**Peer-to-Peer Learning on Exploring the Journey Through IEEE**

**By:** Alwin D'Souza  
 6th Sem, Dept. of E&CE

**Auditorium-2**  
**12.08.2023**  
**02:00PM**

## 11. A PEER LEARNING TALK ON "INSIGHTS ON AREA IN SEMICONDUCTOR INDUSTRIES"

The department in association with IEEE student chapter organized a session on "Insights on Areas in Semiconductor Industries" on 19.08.2023. The objective of "Insights on Areas in Semiconductor Industries" involves providing participants with a comprehensive understanding of the various segments, trends, and challenges within the semiconductor industry. The goal is to equip participants with valuable insights that can inform their career choices, research pursuits, or business decisions. The session was delivered by Prabal Raj student 4th Sem, Dept. of E&CE, MITE Moodabidri.



**MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING**  
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**DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING**  
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**INSTITUTION'S INNOVATION COUNCIL**  
Member of the Institution

**In association with IEEE Student Branch**

is organising a session on

**Insights on Areas in Semiconductor Industries**

By:  
Prabal Raj  
4th Sem, Dept. of E&CE

**Auditorium-2**  
19.08.2023  
02:00PM



Integrated Circuits (ICs) focus on the design, fabrication, and testing of integrated circuits that power electronic devices. Memory Devices delve into the development of memory technologies such as DRAM, NAND flash, and emerging non-volatile memory types. The session focused on Semiconductor Materials their properties and fabrication processes of semiconductor materials like silicon, gallium arsenide, and more. Discovering how nanoscale technologies are shaping the development of advanced semiconductor components. Learning about technologies that combine optics and electronics, such as LEDs, lasers, and optical communications. Gaining insights into microelectromechanical systems (MEMS) and sensors used in various applications, including IoT devices and automotive. Learn about cleanroom processes, photolithography, etching, and other techniques used in semiconductor manufacturing.

## 12. MIND THE MASTER OF BODY: A MIND MAPPING PROGRAM

The department in association with IEEE Student Branch organized a session on "Mind the Master of Body": A Mind Mapping Program on 26th August 2023. The objective of the "Mind the Master of Body" Mind Mapping Program is to empower participants with effective mind mapping techniques and tools to enhance their cognitive abilities, boost productivity, and streamline their thought processes. Mr. Prakash L S Assistant Professor, Dept. of E&CE, MITE was the resource person for the session.



Participants were introduced to the core principles of mind mapping, including hierarchical structure, visual representation, and the use of keywords. Interactive sessions allowed participants to brainstorm and create mind maps on various topics, fostering creativity and problem-solving. Participants learned strategies for using mind maps to improve memory and information recall, making learning more efficient. The program covered the use of mind maps for clear and concise communication, including presentations, reports, and project planning. Participants explored real-world applications of mind mapping in education, business, project management, and personal development.

### 13. A TALK ON " POWER OF MUSIC IN FACILITATING PROFESSIONAL GROWTH"

The department in association with IEEE Student Branch organized a talk on "Power of Music in Facilitating Professional Growth" on 2nd September 2023. Dr. Sruthi Dinesh Assistant Professor, Dept. of E&CE, MITE Moodabidri was the resource Person for the session.



The objective of a "Power of Music in Facilitating Professional Growth" session is to explore and harness the potential benefits of music as a tool for personal and career development. Such a session aims to educate participants on how music can positively impact various aspects of their professional lives and provide them with practical strategies for integrating music into their daily routines to enhance their professional growth.

The session started with the Awareness and Understanding of Music's Impact. Discussion on the emotional, cognitive, and behavioural effects of music and the Presentation of research findings on the power of music in professional settings were discussed. Music has a unique ability to affect our emotions and physiology. Research has shown that listening to music triggers the release of neurotransmitters like dopamine and serotonin, which promote relaxation and reduce stress. Moreover, music has been linked to the regulation of heart rate and blood pressure, making it an effective stress-reducing therapy. Classical music, with its intricate compositions and soothing melodies, has been a timeless remedy for stress. The works of renowned composers like Bach, Mozart, and Chopin create a serene ambiance that helps in calming the mind and alleviating stress. The intricate harmonies and symphonic arrangements provide a sense of order and tranquillity amidst chaos

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**Visit to Spoorthi Special School**

# Industrial Visits

## 1. LEKSA LIGHTING TECHNOLOGIES PVT. LTD.

The department organized an Industrial Visit to Leksa Lighting Technology Pvt. Ltd, Ashwathapur, Moodabidri. The main objective of this visit is to get the practical knowledge on LED lights and its application. Also, to make students understand the workflow of a lighting industry.



Mr. Ganesh, Sr. Manager, Research & Development, Leksa Lighting Technology Pvt. Ltd briefed about the industry. He explained that, the entertainment industry is a vast playing field with increasing volume. There is a need for change in thinking, work way and technology innovation for the future growth. One of the key requirements of the entertainment industry is lighting. From live, recorded broadcasting to theatre and music festivals, lighting is one of the most important aspects. Similar to other technologies, there is a constant demand for dynamic and ever-changing professional lighting solutions. But this comes with a literal cost, as professional lighting gets less and less affordable. Students visited different department of manufacture of LED lights, viz PCB Board Manufacture Section, Assembly Section, Testing Section, Packing Section.

Leksa Lighting is known for its Excellent Team Work, Respect for People, Professional Work Ethics with Excellent Knowledge in lighting. Brand Leksa Lighting committed to serve and add value to the specialized lighting and give the best experience to respected customers in this new era of smart lighting. Leksa manufactures products and provide solutions with a personal touch. A bunch of experienced professionals moving forward completely by focusing on Lighting excellence with customer satisfaction and continuous improvement. Our skilled and talented Research and Development Team is always ahead of time to give customers innovative products.



## 2. Hydro Power Plant, Soham Energy, Iruvail, Yadapadav

The department in association with organized an Industrial Visit to Hydro Power Plant, Soham Energy, Iruvail, Yadapav on 13th & 14th December 2022.

The main objective of this visit is to get the practical knowledge on, steps involved in power generation using hydro energy and also power distribution.



Soham is a power generating company purely focusing on renewable energy. It aims to be among India's top three companies in this space. With a firm belief in the future of renewable energy, Soham has been directing its efforts in this regard for the past fifteen years. Soham prides itself on working with the best professionals in the industry & its team of hydro professionals collectively add over 150 years of experience. Soham has built and continues to operate India's largest hydro power plant in the small hydro private sector. This plant is located near one of Southeast Asia's largest waterfalls, Jog Falls. Its second plant has been operational from November 2008.

Mr. Ananth, Sr. Manager, Hydro Power Plant, Soham Energy, briefed about the power generation unit. He explained about how flow of water from river stream is collected in reservoir and separate the water from waste material (plastics, wooden material, etc). Flow of water streams to the turbine which is present an approximate 60 feet below the surface through the penstock. Once the water flow inside turbine, the turbine rotates and power generated. The manager explained that the power generated by the turbine is controlled and distributed by the control unit. In this hydro power plant an approximate 10 – 12 MW power will be generated.



### 3. Industrial Visit to “Varahi Hydro Power Project”

The department organized an Industrial Visit to Varahi Hydro Electric Project, Hosangadi, Udupi on 24th March 2023. The main objective of this visit is to get the practical exposure on power generation using hydro. Varahi is a 460MW hydro power project. It is located on Varahi river/basin in Karnataka, India. Post completion of construction, the project got commissioned in 1989.



In the first stage, 2 x 115 MW Generating units with Vertical Pelton type turbines manufactured by M/s.BHEL were installed and commissioned in the Varahi Underground Power House during 1989-90. In stage II, 2 x 115 MW Generating units with Vertical Pelton type turbines were installed and commissioned by Consortium led by M/s. Andritz Hydro GmbH, Austria in the Varahi Underground Power House during 2009. The units have been designed for a head of 460m. Project headquarters of Varahi hydroelectric project is Hosangadi, in Udupi District. Hosangadi is situated at a distance of about 70 Kms from Udupi. [4Units x 115 MW=460 MW].

Industrial visits enhance the practical knowledge of students to empower them with the recent technologies in the field of Engineering and also to provide with idea of the work environment at the power station. In this concern 35 students of 3rd year & 2 faculty of Electronics & Communication Engineering, visited Varahi Hydro Electric Power Plant. Power plant consists of 4 x 115 MW Generating Units at Varahi underground Power house. Students learnt about different aspects of power generation in detail. During the visit, the students learnt about the plant's facilities, observed various stages of power generation and distribution, and interacted with the plant's technical staff to understand the plant's operations better. The students observed the various components of the power plant, including turbines, generators, transformers, and other control systems.





# AICTE Activity Point Program

## 1. Social Awareness programme

With connection to AICTE activity point program the students of 3rd year ECI of Electronics & Communication department made an attempt for the conduction of awareness program for school children's in Govt. Higher primary school, Kallamundkur, for one day on 30/7/2022 . Total 50 students were participated in this event. A different team of students gave the information regarding importance of moral education, importance of health& hygiene, how to maintain clean campus, involvement in making simple science projects, craft making, memory games, benefits of indoor and outdoor games also its importance.

## 2. Swachh Bharath Programme

Swachh Bharat Programme is one of the most significant and popular missions to have taken place in India. The department undertaken a Swachh Bharat programme in Belthangady, Dakshina Kannada on 7/10/2022 Total 87 students from the third year E&CE along with faculty members were actively participated in Swachh Bharath Programme. The students of Electronics & Communication cleaned up various venues in surroundings of Belthangady (Dakshina Kannada district) in association with JCI Manjushri Belthangady for five days. The students were cleaned the areas of Belthangady city, Balanja grama panchayath, river cleaning in Laila grama panchayath and Ujire grama panchayath.

## 3. Digital awareness programme

Digital India is a campaign to ensure the government services are available to all the citizens of this country electronically through increasing internet connectivity and improved online infrastructure or by making the citizens of this country empowered (digitally) in the field of technology. Electronics and Communication department students of final year students along with faculty members were actively participated in spreading digital awareness in Kallamundkur village on 27/12/2023. Total of 98 students were actively participated in this awareness campaign. Students visited the houses and conveyed the awareness to the village people about digital India.

#### **4. Science and Technology Awareness programme**

Science and technology are important parts of our day-to-day life. Electronics and Communication department students of final year EC2 students along with faculty members were actively participated in spreading Science and technology revolutions awareness programme in Govt. higher primary school, Kallamundkur on 27/12/2023. Total of 49 students were actively participated in this awareness programme. Students gave the information regarding science and technology in daily life with charts and demonstration of few science models and projects.

#### **5. Election Awareness Programme**

An election is considered the prime pillar of democracy. Not only for the country but the election can also be conducted in any case where public opinion matters the most. In this regard the 2nd year Electronics & Communication Engineering students made an effort to spread the election awareness along with faculty members in Kallamundkur village 07/03/2023. Total of 122 students were actively participated in this social awareness programme. Students provided the information regarding election procedure through ballot voting machine and explained does and don'ts via posters and charts.

#### **6. Awareness Programme on "Environment Protection**

Environmental protection is a practice that aims to protect the natural environment from the hands of individuals, organizations, and governments. It is the need of the hour because the Earth's environment is deteriorating every day, and the reasons are human beings. In this regard the 3rd year Electronics & Communication Engineering students made an effort to spread the awareness along with faculty members in Kallamundkur village on 19/05/2023. Total of 87 students were actively participated in this social awareness programme. Students provided the information regarding environment protection and also related to rain water harvesting & water borne diseases through posters and charts.

#### **7. River Cleaning Abhiyan**

Swachh Bharat Programme is one of the most significant and popular missions to have taken place in India. Swachh Bharat Abhiyan translates to Clean India Mission. The department undertaken a River cleaning Abhiyan programme in Thodar village, near Vishnu Moorthy temple on 03/06/2023 . Total 124 students from the 2nd semester E&CE along with faculty members were actively participated in River Cleaning abhiyaan. The students of Electronics & Communication cleaned up the surroundings of Nandini river in association with NSS MITE . The students were cleaned the River Nandini in Neerkere grama panchayath.

# AICTE Activity Point Program



# Student Corner - Achievements

## Project Outcomes

The project titled "**Medical Bed with Integrated Toilet System**" was selected for 46th Series of Student Project Program:2022-23 supported by Karnataka State Council for Science & Technology, Govt. of Karnataka (KSCST) and Won **Best Project of the Year & Received funding of worth Rs.6,000/-**. The team members were **SANTOSH SHIRAHATTI, PAVAN.L, PRANEETH, HRITHIK MUKKOTH** guided by **Mr. Uday J**, Senior Assistant Professor, Dept. of EC&E.

The project titled "**Energy Harvesting Using Magnetic Wing Turbine**" was selected for 46th Series of Student Project Program:2022-23 supported by Karnataka State Council for Science & Technology, Govt. of Karnataka (KSCST) and **Received funding of worth Rs.5,000/-**. The team members were **PUNITH M S, KULAL JNANESH SURESH, SADEED A, SRIDEEP** guided by **Mrs. Vishwitha A**, Assistant Professor, Dept. of EC&E.

The project titled "**Design of Efficient Flow Field Pattern for Fuel Cell**" was selected for 46th Series of Student Project Program:2022-23 supported by Karnataka State Council for Science & Technology, Govt. of Karnataka (KSCST) and **Received funding of worth Rs.6,000/-**. The team members were **MUFIZA S I, MANOJ SHETTY, RAJASHRI, ROSILDA RAFAIL DSOUZA** guided by **Mr. Ranjith H D**, Senior Assistant Professor, Dept. of EC&E.

The project titled "**A Power Supply Using Supercapacitor Storage Powered by Solar PV Cells**" was selected for 46th Series of Student Project Program:2022-23 supported by Karnataka State Council for Science & Technology, Govt. of Karnataka (KSCST) and **Won Best Project of the Year & Received funding of worth Rs.6,000/-**. The team members were **ADITHI V SHETTY, ADITHYA N KATEEL, AKASH N SALIAN, HARSHITHA B** guided by **Dr. Vinayambika S Bhat**, Professor & Head of the Department, Dept. of EC&E and **Dr. Raghavendra Sagar**, Professor & Head of the Department Physics.

The project titled "**Design And Implementation of IOT System for Monitoring Wind and Solar Energy Parameters Using Tulip Turbine**" was selected for 46th Series of Student Project Program:2022-23 supported by Karnataka State Council for Science & Technology, Govt. of Karnataka (KSCST) and **Received funding of worth Rs.8,000/-**. The team members were **RITHIKA H POOJARY, FRITHA CARDOZA, POOJA P SHETTY NIHAL RAMESH SALIAN** guided by **Dr. Anand S N**, Professor & Head of the Department, Aeronautical Engineering and **Dr. Ganesh V N**, Associate Professor, Dept. of EC&E.

# Student Participation in National & International Level Innovation Challenges and Contests

**Ms. Dhrithi Rao** Participated in **International Astronomy and Astrophysics Competition Edition of 2023**, organized by IAAC Space and Qualified for final round & received **Silver Honor Certificate**.

**Ms. Dhrithi Rao** Participated in **World Environment Day Celebrations, 2023, National level youth conclave** organized by Indian institute of forest management (IIFM), Bhopal in collaboration with Environmental Information, Awareness, Capacity building and Livelihood programme (EIACP) Division, MoEF & CC from June 1st to June 2nd 2023.

**Mr. Chinthan Krishna Bhat** Participated in **BAJA SAE INDIA 2023**, Vehicle design & Racing, organized by SAE INDIA at Chitkara University, Baddi, Punjab.

The Start-Up **"ROSETTE, Smart Bottles"** lead by **Mr. Likhith kumar**, is recognized by **Government of India, Ministry of Commerce & Industry, Department for promotion of Industry and Internal Trade**.

The team Infinite loop involving **Ruchira R**, won **second Runner Up** in **Hackothsava - 2023** organized by SMVITM.

The project titled **"Medical Bed with Integrated Toilet System"** won **first place in Project Exhibition competition organized by Vemana Institute of Technology, Bangalore** in association with **Indian Society for technical Education - Student Chapter**. The team members were **SANTOSH SHIRAHATTI, PAVAN.L, PRANEETH, HRITHIK MUKKOTH** guided by **Mr. Uday J**, Senior Assistant Professor, Dept. of EC&E.

**Mr. Alwin Dsouza**, won **1st prize** in the **Online Quiz Competition organized by SIGHT activities committee of IEEE Mangalore Subsection** with the theme : Sustainable Development Goals.

**Mr. Alwin Dsouza**, awarded with **IEEE Bangalore Subsection Student Scholarship worth Rs. 10,000**.

# Technical Sneak Peak - Student Articles

## 5G Technology & Wi-Fi

Sharan S Shetty (4EC2)

5G technology and Wi-Fi are both wireless communication technologies but serve different purposes and have distinct characteristics. Here are some key differences between 5G and Wi-Fi:

- 1. Connectivity Range:** 5G (Fifth Generation) is primarily designed for wide-area coverage, offering cellular network connectivity over long distances, potentially spanning several kilometers. On the other hand, Wi-Fi (Wireless Fidelity) typically operates within a limited range, generally up to a few hundred feet or meters.
- 2. Speed and Bandwidth:** 5G provides faster data transfer speeds compared to Wi-Fi. It has the potential to reach peak speeds of up to 10 Gbps (Gigabits per second), while Wi-Fi generally offers speeds up to a few hundred Mbps (Megabits per second). The increased bandwidth of 5G enables it to support a higher number of simultaneous connections.
- 3. Network Infrastructure:** 5G requires a cellular network infrastructure with a network of towers and base stations spread across a geographic area. It operates on licensed frequency bands that are regulated by telecommunication authorities. Wi-Fi, on the other hand, relies on a localized network infrastructure consisting of routers and access points connected to a wired network, typically within a building or a limited area.
- 4. Mobility:** 5G is designed to provide seamless connectivity while on the move, making it suitable for mobile devices such as smartphones, tablets, and vehicles. It enables uninterrupted communication even when switching between different cellular towers. Wi-Fi, however, offers localized connectivity and is more commonly used in fixed locations like homes, offices, and public hotspots.
- 5. Network Congestion:** Due to its wider coverage and ability to handle a higher number of connections, 5G can handle network congestion better than Wi-Fi in densely populated areas. Wi-Fi networks, especially in crowded places, may experience slower speeds and reduced performance when many devices connect simultaneously.
- 6. Use Cases:** 5G technology is envisioned to support a wide range of applications, including autonomous vehicles, smart cities, Internet of Things (IoT) devices, and industrial automation. It aims to provide reliable and low-latency connectivity for mission-critical applications. Wi-Fi, on the other hand, is commonly used for internet access in homes, businesses, and public spaces, and as a primary means of connectivity for personal devices.
- 7. Security:** Both 5G and Wi-Fi can offer secure communication when implemented properly. However, Wi-Fi networks have had a longer history of security protocols and mechanisms, making them more mature in terms of encryption and authentication methods. 5G networks also incorporate advanced security features, but their implementation and standardization are still evolving.

It's important to note that 5G and Wi-Fi are not mutually exclusive technologies. They can complement each other in various scenarios, and, some devices, such as smartphones, can utilize both 5G cellular networks and Wi-Fi for connectivity, depending on availability and user preferences.

## Beyond Distraction

Ruchira (6EC2)

In the hustle and bustle of our daily lives, entertainment often takes the back seat, dismissed as a mere distraction. However, it's time to peel back the layers and recognize the profound role that entertainment plays in shaping our experiences, emotions, and overall well-being.

Entertainment serves as more than just a fleeting escape from reality; it is a powerful catalyst for joy and emotional well-being. Whether it's the laughter induced by a comedy, the tears stirred by a poignant drama, or the adrenaline rush of a thrilling action sequence, these emotional journeys contribute significantly to our psychological health. In the tapestry of our lives, entertainment stitches together moments of respite and rejuvenation.

Contrary to the misconception that entertainment isolates individuals into solitary experiences, it often acts as a communal glue. Shared laughter during a comedy show, the shared awe inspired by a visually stunning movie, or the collective cheers during a sports event create bonds that transcend the confines of the screen. Entertainment, in its various forms, becomes a universal language that brings people together, fostering a sense of community and shared experiences.

Consider the impact of a captivating novel, a soul-stirring piece of music, or a visually breathtaking film on one's quality of life. Entertainment, when chosen thoughtfully, has the power to inspire, educate, and elevate. It opens windows to new perspectives, broadens horizons, and enriches our understanding of the world. As we navigate the complexities of modern life, these moments of intellectual and emotional engagement become indispensable.

While the digital age has introduced us to an abundance of entertainment options, it's essential to recognize that the essence of entertainment goes beyond screens. From live performances to outdoor activities, the spectrum of entertainment is vast. The key lies in curating experiences that resonate with our individual preferences and contribute positively to our lives.

Acknowledging the necessity of entertainment does not negate the importance of balance. The ubiquity of screens in our lives necessitates a mindful approach to consumption. Striking a balance between the digital and the tangible, between passive consumption and active engagement, ensures that entertainment remains a source of joy rather than a distraction.

In conclusion, let's move beyond viewing entertainment as a mere diversion. Instead, let's recognize its pivotal role in shaping our emotional landscapes, fostering connections, and enhancing our overall quality of life. It's time to embrace the multifaceted nature of entertainment and appreciate its capacity to elevate our human experience.

So, the next time you find yourself immersed in a captivating book, enthralled by a movie, or dancing to your favourite tunes, remember, it's not just a distraction – it's an integral part of a life well-lived.

## 5 Effective Time Management Techniques for Increased Productivity

Sushmitha Poojary (4EC2)

### Introduction:

Time management is a crucial skill in today's fast-paced world. With numerous responsibilities and distractions, effectively managing your time can significantly enhance productivity and reduce stress. In this article, we will explore five practical time management techniques that can help you make the most of your time and accomplish your goals efficiently.

### Prioritize Tasks:

One of the keys to effective time management is prioritizing tasks. Start by identifying your most important and urgent tasks and focus on completing them first. Use techniques like the Eisenhower Matrix, which categorizes tasks into four quadrants: urgent and important, important but not urgent, urgent but not important, and neither urgent nor important. This approach helps you allocate your time and attention appropriately, ensuring important tasks receive due priority.

### Create a Schedule:

Developing a schedule or a to-do list can significantly improve your time management skills. Break down your day into blocks of time and allocate specific tasks to each block. Set realistic deadlines for each task, considering their importance and complexity. Be mindful of your energy levels throughout the day and schedule challenging or critical tasks during your peak hours of productivity.

### Practice the Pomodoro Technique:

The Pomodoro Technique is a popular time management method that involves working in short, focused bursts. Set a timer for 25 minutes and fully dedicate yourself to a specific task during that period. Once the timer goes off, take a short break of around 5 minutes. After completing four cycles, take a more extended break of 15-30 minutes. This technique helps maintain focus, improves concentration, and prevents burnout.

### Eliminate Time Wasters:

Identify and eliminate activities that consume a significant amount of your time without adding much value. Common time wasters include excessive social media usage, unnecessary meetings, excessive multitasking, or spending too much time on unimportant tasks. Minimize distractions, set specific time limits for non-essential activities, and create a conducive work environment to maximize your productivity.

### Learn to Delegate and Say No:

Recognize that you don't have to do everything yourself. Delegating tasks to capable colleagues or outsourcing certain activities can free up valuable time for more critical responsibilities. Additionally, learn to say no to requests or commitments that do not align with your priorities or overload your schedule. Setting boundaries and prioritizing your own tasks is essential for effective time management.

### Conclusion:

Time management is a skill that can be learned and honed with practice. By implementing these five effective time management techniques - prioritizing tasks, creating a schedule, using the Pomodoro Technique, eliminating time wasters, and learning to delegate and say no - you can take control of your time, increase productivity, and achieve a better work-life balance. Remember, managing your time effectively is not just about getting more done; it's about achieving meaningful results and living a more fulfilling life.



# Edge Computing

Prathvi (8EC2)

Edge Computing is a distributed computing paradigm that brings computation and data storage closer to the sources of data. This is expected to improve response times and save bandwidth. Edge computing is an architecture rather than a specific technology, and a topology- and location-sensitive form of distributed computing. The origins of edge computing lie in content distributed networks that were created in the late 1990s to serve web and video content from edge servers that were deployed close to users. There are many benefits to edge computing, including:

- Reduced latency:** Edge computing can significantly reduce latency by bringing computation closer to the data source. This is important for applications that require real-time processing, such as self-driving cars and virtual reality.
- Improved bandwidth utilization:** Edge computing can help to improve bandwidth utilization by reducing the amount of data that needs to be sent to the cloud. This is important for applications that generate a lot of data, such as video surveillance and IoT.
- Increased security:** Edge computing can help to increase security by reducing the amount of data that needs to be stored in the cloud. This is important for applications that handle sensitive data, such as healthcare and financial services.
- Enhanced user experience:** Edge computing can enhance the user experience by providing a more responsive and reliable experience. This is important for applications that require users to interact with the data in real time, such as gaming and streaming media.

Some of the Challenges of edge computing are:

- Cost:** Edge computing can be more expensive than traditional cloud computing, especially for small businesses.
- Complexity:** Edge computing can be more complex to manage than traditional cloud computing.
- Security:** Edge computing can be more vulnerable to security threats than traditional cloud computing.

Applications of edge computing can be generally be classified as:

- Self-driving cars:** Edge computing is being used to process data from sensors in self-driving cars in real time. This allows the cars to make decisions about how to drive without having to send data to the cloud.
- Virtual reality:** Edge computing is being used to stream virtual reality content to headsets in real time. This allows users to experience virtual reality without having to worry about latency.
- Video surveillance:** Edge computing is being used to process video footage from security cameras in real time. This allows security personnel to quickly identify and respond to threats.
- IoT:** Edge computing is being used to process data from IoT devices in real time. This allows businesses to collect and analyse data from their devices to improve their operations.

Future of edge computing is very rapidly growing field Edge computing is a rapidly growing field, and it is expected to continue to grow in the coming years. The growth of edge computing is being driven by the increasing demand for real-time applications, the growth of the IoT, and the need for increased security. As edge computing continues to grow, it is likely to have a significant Impact on the way we use technology. Edge computing will make it possible for us to use applications that require real-time processing, such as self-driving cars and virtual reality. Edge computing will also make it possible for us to use IoT devices in new and innovative ways. Overall, edge computing is a promising technology that has the potential to revolutionize the way we use technology.

# Will India be a super-power in the next 50 years?

Amisha Salian (4EC1)

## Vision: India on the path of becoming a technological super-power

From a booming high-tech sector to elite educational institutes, India has the potential to become a superpower with rapid digitalisation.



There are various claims to this statement and some contrary to this as well. But are we even near to the destination? Let's see

### World's fastest growing economy

According to the recent data of Growth Rate 2023, USA, the world's largest economy, grew 1.1 percent. China's GDP rose 4.5 percent, the Japanese economy expanded by 1.6 percent, and Germany slipped into a recession with a 0.3 percent contraction of its GDP during January–March 2023. India's GDP grew 6.1 percent (compared to 4 percent in the same quarter of 2021–22), making it the fastest-growing among the world's top economies. The Gross Value Added (GVA) growth in the manufacturing sector accelerated to 4.5 percent in the March quarter, as against 0.6 percent a year ago.

### Make in India

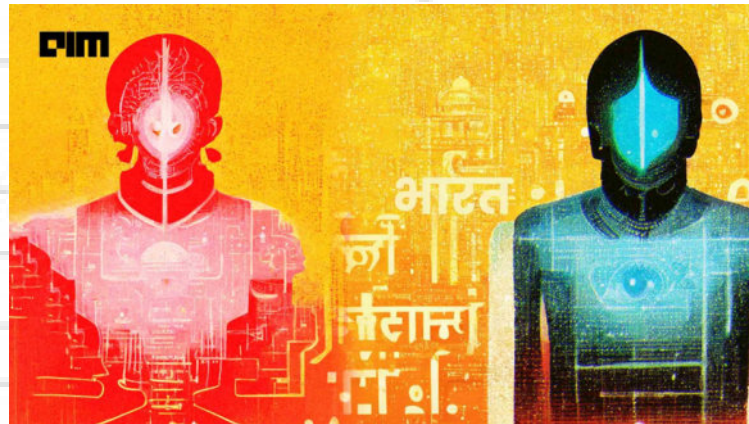
The Make in India initiative was launched by Prime Minister in September 2014 as part of a wider set of nation-building initiatives. Encourage companies to develop, manufacture and assemble products made in India.

### Space missions and Defense

India has recently launched the Chandrayan-3 which is more efficient than the previous one, and that too with lesser budget with 615 crore Rupees. The launcher has the capacity to carry weight up to 4500kg and the success of it will take Indian Space and research to the next level. Coming to defense, India is fourth in terms of Military Strength Ranking in the world. Also, in September 2016, India and France signed a €7.87 billion Intergovernmental Agreement (IGA) for 36 Rafale multi-role fighter jets in fly-away condition.

## Artificial Intelligence Revolution

India sees AI as a tool for social empowerment and inclusion, and focuses on developing AI tools for the global south. India's AI policy has firm roots which includes several government platforms such as Aadhar (Aadhar is currently the world's largest biometric ID system), UPI, CoWIN platform during the pandemic COVID-19, Digilocker (Indian online digitization service) and so on. In November 2022, India marked a new milestone in its journey as it took the G20 chair and became the the Global Partnership on Artificial Intelligence's (GPAI) chair in waiting.



## Innovations in eV's and sustainability

India's role in technology innovation has been game-changing, especially over the past few years. The electric vehicle industry in India is growing exponentially with every passing day. It registered sales of 4,42,901 units in 2022-23 alone. Earth's natural resources are depleting, the adoption of renewable sources of energy is of paramount importance. It is a key catalyst to decarbonization, and it has the potential to make India an innovation hub. According to Deloitte's Global Automotive Consumer Study 2022, 59% of Indian consumers are concerned about climate change, pollution, and fossil fuel emissions.

## Aim to become 5 trillion economy by 2030

The Indian Finance ministry informed the Rajya Sabha that it is taking steps to make India a \$5 trillion economy earlier than the International Monetary Fund's forecast year of 2026-27.

## Role of an ECE engineer in this vision

ECE engineers design and develop the technology that powers India. They help India grow its economy, improve its standard of living, and become a superpower. ECE engineers work on new energy technologies, medical technologies, financial technologies, transportation systems, communication networks, and water and sanitation systems. They also work on developing new weapons systems, communication systems, and command-and-control systems. The demand is high for ECE engineers as industries seek cutting-edge solutions and innovations to meet the evolving needs of a digitally connected world.

When the country is booming in all terms especially in digitalization, communication, IoT, AI, microelectronics, nanotechnology and so on, it is safe to say that ECE engineers do play a key role in taking India towards a position of becoming a global tech super-power.

# Technical Sneak Peak - Faculty Articles

## Why are you still using Google?

**Dr. Ramalingam H M**  
**Senior Assistant Professor**

Google offers a wide range of competent search results, free photo hosting, and free email services, among many others. Their extensive collection of free services has been a boon for users around the world. One notable example is YouTube, a platform that provides free video hosting. However, the cost associated with running such a massive platform is not insignificant.

To offset expenses, Google allows advertisements to be displayed on YouTube videos, but they also offer content creators the opportunity to share in the revenue generated by those ads. This revenue-sharing model has attracted many creators to the platform, making it a popular choice for hosting and sharing videos. However, it's worth noting that running a platform like YouTube involves significant costs and infrastructure, which may explain why it is not offered entirely free of charge.

Apart from their numerous services, Google has made significant contributions to the technical community and has pioneered several best practices from a systems perspective. Additionally, their development of the Go programming language has gained popularity among developers. The language's simplicity and efficiency have garnered a loyal following and have contributed positively to the programming landscape.

Despite these positives, there are certain aspects of Google that I despise. The notion that "free" comes at a cost is particularly relevant when it comes to Google's services. Users are essentially the product, as their data is collected and utilized for various purposes, including targeted advertising. Previously, Google was known for its commitment to transparency and equal access to data and opinions. However, over time, there has been a noticeable shift in their approach.

Google's bias has become a significant concern. Whether individuals agree with the company's biases or not, the fact remains that Google's algorithms and policies can subtly shape the information users are exposed to on a large scale. This manipulation of data has led me to seek out alternatives that prioritize unbiased search results and data privacy.

One such alternative to Google Search is DuckDuckGo, a search engine that emphasizes privacy and neutrality. DuckDuckGo does not track users or personalize search results based on their past behavior, providing a more objective and unbiased search experience.

In terms of email services, Tutanota stands as a viable alternative to Gmail. Tutanota offers end-to-end encryption by default, ensuring that user communications remain private and secure. With a focus on privacy, Tutanota provides an alternative for those who value data protection and want to break away from Google's ecosystem.

For video hosting, Bitchute has emerged as an alternative to YouTube. Bitchute aims to provide a platform that promotes freedom of speech and expression without imposing unnecessary restrictions on content. It has gained traction among individuals who feel that YouTube's policies have become overly restrictive and politically biased.

In conclusion, while Google has undoubtedly provided valuable free services and made significant contributions to the technical community, the underlying costs and biases associated with their platform have led me to explore alternatives such as DuckDuckGo, Tutanota, and Bitchute. These alternatives offer privacy, neutrality, and freedom of expression, providing viable options for those seeking to move away from Google's services.

# The Technologies and Challenge Tracking Clean Energy Progress 2023

## Assessing critical energy technologies for global clean energy transitions

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**Senior Assistant Professor**

The IEA's Tracking Clean Energy Progress (TCEP) assesses recent developments for over 50 components of the energy system that are critical for clean energy transitions. The components assessed include sectors, subsectors, technologies, infrastructure and cross-cutting strategies.

### Where do we need to go?

The IEA's Net Zero Emissions by 2050 Scenario (NZE) is a pathway for the global energy sector to achieve net zero CO<sub>2</sub> emissions by 2050, while also achieving universal energy access by 2030 and major improvements in air quality.

### How do we get there?

Progress is assessed at the global level against the Net Zero by 2050 Scenario trajectory for 2030, and recommendations are provided on how they can get "on track" with this pathway. The assessed components include technologies, infrastructure, sectors, subsectors and cross-cutting strategies.

### How are we doing?

Of the over 50 components tracked, in the 2023 edition 3 are evaluated as fully "On track" with the Net Zero by 2050 Scenario trajectory – solar PV, electric vehicles and lighting. Solar PV was upgraded in this edition, as the annual growth in generation in 2022 of 26% is now aligned with the average compound annual growth rate needed from now to 2030 in the Net Zero Scenario.

Progress on clean energy technology deployment has been very rapid in 2022, even if many components are not yet fully on track at the global level. The momentum towards the clean energy economy is clearly accelerating. Some highlights in 2022 include the following:

- Electric vehicle sales grew by 55%, reaching a record high of more than 10 million. And for the first time ever, announced manufacturing capacity for electric vehicle batteries is sufficient to fulfil expected demand requirements in 2030 in the NZE Scenario.
- Nuclear capacity additions grew by 40%, with 8 GW newly installed. While higher deployment is needed in the Net Zero Scenario, the growth in 2022 represents a clear step forward after capacity additions had remained stable from 2019 to 2021.
- Heat pumps saw another record year, with 11% growth in sales. This is close to the 15% average compound annual growth needed to fully align with the Net Zero Scenario.
- Electrolyser installed capacity grew by more than 20%, while electrolyser manufacturing capacity grew by more than 25%. The bigger story though is likely yet to come – based on the current pipeline of projects under development and their expected operation dates, electrolyser capacity could reach almost 3 GW by the end of 2023, a more than four-fold increase in total capacity compared to 2022.
- Energy efficiency of the economy overall grew by more than twice the level the previous year. This is a positive step forward following several years of relatively weak improvements.

Progress is occurring faster in those parts of the energy system for which clean technologies are already available and costs are falling quickly, such as for electricity generation and passenger cars. But a full transition to net-zero emissions will require decarbonising all areas of energy production and use. Rapid innovation is needed to bring to market clean technologies in particular for those parts of the energy system where emissions are harder to address, such as heavy industry and long-distance transport. Positive steps forward on innovation have been made in the past few years, but an acceleration is needed in order to soon move to deployment of novel low emission technologies for these areas.

The transition is also occurring at different speeds across regions and sectors. For example, nearly 95% of electric car sales in 2022 occurred in China, the United States and Europe. Meanwhile, nearly 75% of operating and planned carbon capture capacity is in North America and Europe. As such, the global evaluation that a technology is “on track” does not mean that it is on track in all countries, and, conversely, a technology that is “not on track” globally could be progressing more quickly in some specific countries. Stronger international cooperation and robust policy development is needed to spread progress to all regions, particularly emerging market and developing economies.

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**Placement Day Celebration**

## Biomimicry: Creations Inspired by Nature

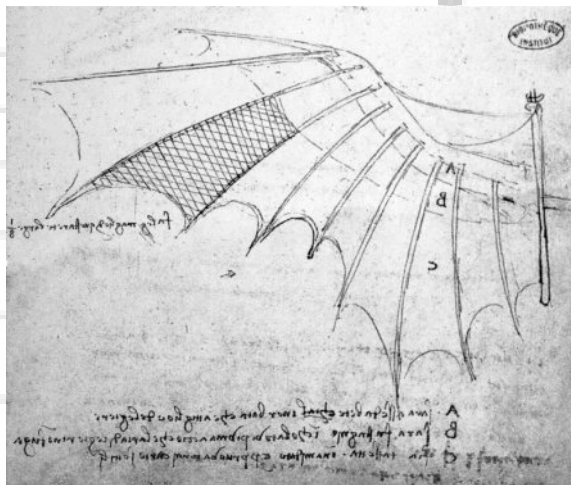
**Ms. Deepthi Kotian**  
**Assistant Professor**

Biomimicry, as the word states Bio means nature, and mimicry means to imitate. Biomimicry is an approach to innovation that looks to nature for inspiration in solving complex human problems. It involves studying and imitating biological systems, processes, and strategies found in nature to create sustainable and efficient designs, products, and technologies.

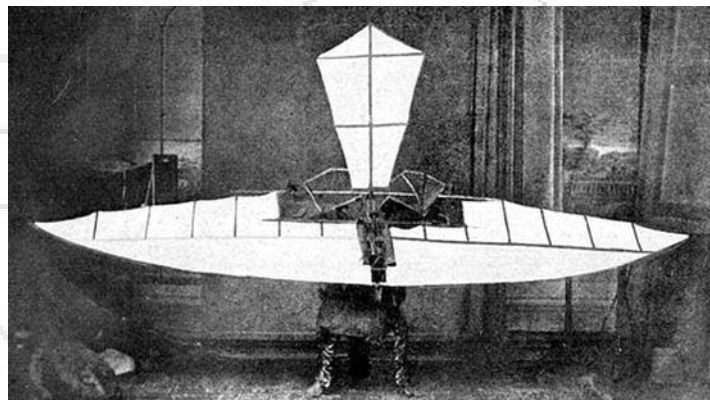
It would be interesting to explore where innovation and creativity have met nature in architecture, science, technology, energy, fashion, and transport, with some pertinent examples.

### 1. Flight

Leonardo da Vinci is arguably the founding father of biomimicry. His detailed study of birds' anatomy led to the design of human 'wings' with which he intended to glide through the air with a flapping motion. It serves as one of the earliest examples of biomimicry in creation and innovation. The Wright Brothers, who are credited with the creation of the world's first motor-operated aeroplane, were keen bird watchers, and it is said that they studied pigeons to understand the physics behind staying aloft.



*Study of wing articulation. Source: Zöllner, Frank. Leonardo da Vinci:*



*John Stringfellow's glider, 1848*

## 2. The Eastgate Centre, Harare, Zimbabwe

Building and construction are responsible for 39% of all carbon emissions in the world. Furthermore, a major issue office blocks face is cooling down or heating up the offices. They use pollutant- and energy-intensive air conditioning units that recycle the air that is already within the offices, resulting in air pollution within the building.

Zimbabwean architect Mick Pearce came up with a unique solution in his ground-breaking design of the Eastgate Centre in Harare, Zimbabwe, in 1996. This shopping centre and office block has a structure very similar to that of a termite mound. Termites are farm fungi that must be kept at exactly 30.5°C, while external temperatures range from 1-40°C. They maintain a constant internal temperature by opening and closing heating and cooling vents, which are located at the top and bottom of the mound, respectively. Similarly, in the Eastgate Centre, during the day the building warms with sunshine and human and computer activity, although not to a significant extent since the very fabric of the building has a high heat capacity. As the external temperatures drop in the evening, the warm internal air is vented up through chimneys, assisted by fans but also rising naturally because it is less dense, drawing in denser cool air at the bottom of the building. During the night, more cool air is drawn in by filtered air vents at the bottom of the building, creating an ideal temperature within the building with fresh, not recycled (and polluted) air for the start of the day. The exterior also prevents the building from overheating with overhangs that provide shade and vegetation on the walls.



Source: <http://surl.li/javdn>

## 3. Aquatic Organisms in Engineering

The 30 St Mary Axe skyscraper in London—colloquially known as “The Gherkin”—was inspired by a marine animal called a Venus flower basket. This sea sponge is supported by a network of spikes arranged ‘vertically, horizontally, and diagonally to create a cage-like structure’. It turns out that this lattice formation is incredibly strong and structurally sound, and as such, it was incorporated into the external structure of the Gherkin building, making it very stable.



Furthermore, the cylindrical shape of the skyscraper allows air to flow around it more easily and quickly than a traditional building with rectangular sides. This air is sucked in via vents and funnelled upwards through the building, halving the use of air conditioning.



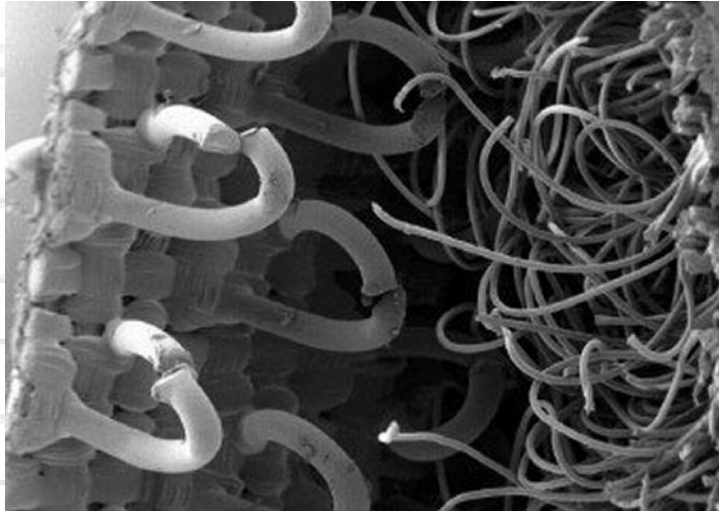
*Venus Basket sponge (left) Gherkin tower (right). Source: Nkandu*

#### **4. Velcro**

George de Mestral, a Swiss engineer, observed how the seeds of the burdock plant stuck to his socks and his dog when walking in the mountains. Upon further inspection, he noticed that the seed, referred to as a 'bur', had tiny hooks that fastened themselves to soft fur or fabric. Inspired, de Mestral invented an applicable product founded on this basis, with tiny, strong hooks attaching themselves to softer fabric, known as 'loops'. He called it Velcro, and it has been used internationally in a wide variety of applications since the late 1950s.



*Cocklebur, the inspiration for hook and loop fasteners (Photo: Matt Lavin). Source: WIPO*



*Velcro Close Up. Source: Case-GasMarts, Umbilical Cords, and Eco Bridges – Scientific Figure on ResearchGate.*

### **5. Bullet Train**

Early high-speed trains in Japan created sonic booms when exiting tunnels due to the buildup of air pressure as the train travelled through the tunnel. These loud bursts of air disturbed local residents. Eiji Nakatsu, the general manager of the technical department, was a keen bird watcher. He noticed that when kingfishers enter the water to catch prey, they barely make a splash due to the shape of their beaks. After testing several 'bullet' designs, the one deemed most efficient and functional was that modelled most closely to the beak of the kingfisher.

The steadily increasing diameter design of the front of the train made it more aerodynamic, reducing the air pressure when travelling through tunnels, thus reducing the noise pollution at the exit of the tunnel and rendering it acceptable to national regulation.



Bullet train design compared to a Kingfisher. Source: Jolie Li, Medium 2021

### **6. LEDs**

A problem found in early LEDs was reduced light efficiency due to the light being reflected back inwards and lost, hence reducing the brightness. Chang-Jiang Chen, a doctoral student in electrical engineering, noticed that fireflies have 'asymmetric microstructures in their lanterns' which have a larger surface area than that of a flat surface and hence allow a greater interaction of light with that surface, trapping less light. Moreover, when the light hits the slopes of the asymmetric pyramids, 'there is

a greater randomization effect of the reflections, which gives light a second chance to escape'. Applying these microstructures to LEDs resulted in an improvement in light extraction efficiency of around 90%.



Source: Futurity, 2019



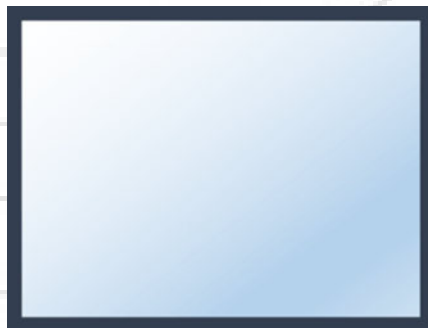
Alburno studio "LED 1.0"

## 7. Spider glass

In 2012, a special coating on the glass of the Lindisfarne lookout tower off the coast of North East England was implemented, and it was inspired by spider webs. Specifically, by the web of an orb weaver spider, whose web's silk reflects ultraviolet rays, making them visible to birds who steer clear.



A German company called Arnold Glas incorporated a coating of ultraviolet light-reflective material in a similar pattern to that of a spider's web. The results showed that '76% of birds managed to recognise and avoid the glass laced with ultraviolet-reflective patterns'. Interestingly, this coating is not visible to the human eye yet still warns birds to stay away, thus potentially saving their lives.



What people see



What birds see

This system has been included in the lookout tower of Lindisfarne, both saving birds' livelihoods and allowing visitors to enjoy the stunning views from the island. It is encouraging to think that an invention inspired by nature is also protecting nature, fitting in with the harmonious cyclical character of the natural world.

## Yoga for Mental Health and Wellbeing

**Mr. Prakash L S**  
**Assistant Professor**

Yoga is considered one of the oldest forms of exercise, and although there are many different styles, from gentle to rigorous, yoga practice generally involves stretching, breathing, and a period of deep relaxation or meditation. A growing number of studies from the 1970s through today suggest that yoga can have a positive outcome for people managing symptoms of depression, anxiety, or stress, among other benefits. In fact, Harvard Medical School believes there is growing evidence that yoga practice is a relatively low-risk, high-benefit approach to improving overall health. This month, the UN International Day of Yoga on June 21 aims to raise awareness of the many benefits, including physical and psychological, of practicing yoga. Here's a brief guide to getting started with yoga for mental health and wellbeing. Yoga is a form of physical exercise that involves different body poses, breathing techniques, and meditation.

Regular practice of yoga may help to:

- Relieve stress
- Lower anxiety levels
- Decrease depression
- Improved sleep quality
- Enhance the quality of life

Yoga is taught to achieve these benefits in several ways:

- As an exercise, it naturally produces serotonin, sometimes called the happy chemical because it contributes to feelings of wellbeing and happiness. Serotonin in the brain is a natural mood stabiliser and has been associated with helping regulate anxiety and stress.
- Regular yoga practice teaches deep focus and mindful breathing, two important elements in helping to relieve depression. Participants can better focus on the present, clear their mind, and strengthen the mind-body connection.
- Mental endurance and physical stamina are tested through holding postures and extended breaths. This increases endurance, strength, and flexibility.
- It helps modulate the stress response by reducing heart rate, lowering blood pressure, and easing respiration. This may also help in managing pain tolerance.

Getting the Most from Yoga:

If you're considering trying yoga to improve your mental health and wellbeing, keep in mind that it should be seen as a complement to your existing therapies, such as medication and psychotherapy. You will find that yoga is available in many styles and adaptable for all skill levels. When starting out, explore several styles to find the one that suits you best.

#### Types of Yoga:

##### Hatha

Incorporates gentler and slower-paced movements, best suited for beginners. It aims to introduce beginners to the main relaxation techniques and asanas (postures or positions) used in yoga practice.

##### Vinyasa

Links breathing and movement together; pacing starts slow and gradually gets faster. Vinyasa aims to increase strength and help build lean muscle mass throughout the body.

##### Bikram

It takes place in a hot room where you practice a set series of moves to help blood flow. It consists of evenly paced, low-impact moves to stretch muscles and improve circulation.

##### Restorative

Move slowly through five or six poses for an hour to help you relax. This style is about slowing down and opening your body through passive stretching. Restorative classes are very mellow and a good way to de-stress.

##### Iyengar

Uses props, such as blocks, chairs, and straps, to help you find proper body alignment. Moves focus on precision, timing, and the use of props to build strength and stability.

##### Ashtanga

It focuses on quick, sequenced poses and is more physically demanding. This is a highly energetic, very vigorous form designed to make you sweat.

The ancient science of yoga unites poses with breathing and concentration to build strength, awareness, and harmony between mind and body. Now more than ever, we realise its important role in our mental wellness too.

# Faculty

# Articles

## Our Food Our HEALTH

**Dr. Rashmi Samanth**  
Assistant Professor

How emotions will affect your Health?

How emotions affect your health?

Anger weakens the liver

Fear weakens the Kidney

Grief weakens the lungs

Stress weakens the heart and brain

Worry weakens the stomach

“Food is the mother of all diseases and at the same time food remedy for all diseases”.

“Every disease begins in our thoughts and grows in the Body”.



Laughter is the best medicine and Laughter has a curative on the body, mind and emotions.

Food is more than just a source of sustenance; it plays a vital role in our overall health and well-being. The choices we make regarding what we eat can have a profound impact on our physical and mental health. In this article, we will explore the significant link between food and health, and how making informed dietary choices can improve our quality of life.

### 1. Fueling Your Body with Nutrients:

The food we consume serves as fuel for our bodies, providing the essential nutrients needed for growth, repair, and daily functioning. A balanced diet rich in fruits, vegetables, whole grains, lean proteins, and healthy fats ensures that our bodies receive an array of vitamins, minerals, antioxidants, and phytochemicals necessary for optimal health. These nutrients support various bodily functions, including immune system function, brain health, bone strength, and energy production.

### 2. Disease Prevention and Management:

Proper nutrition plays a crucial role in preventing and managing chronic diseases. Research shows that a healthy diet can lower the risk of conditions such as heart disease, diabetes, obesity, and certain types of cancer. For example, consuming a diet low in saturated and trans fats, sodium, and added sugars while rich in fruits, vegetables, whole grains, and lean proteins can help maintain healthy blood pressure, cholesterol levels, and body weight.

### 3. Gut health and microbiome:

The gut microbiome, a complex community of microorganisms residing in our digestive system, has gained significant attention in recent years. Emerging research suggests that the health of our gut microbiome is closely linked to our overall health. A diet high in fibre, prebiotics, and probiotics promotes a diverse and balanced gut microbiota, which in turn supports digestion, immune function, mental health, and even weight management.

### 4. Mental Well-being:

The impact of food on mental health is increasingly recognized. Nutrient deficiencies, imbalances, and unhealthy dietary patterns have been linked to an increased risk of mental health disorders such as depression and anxiety. On the other hand, certain nutrients, such as omega-3 fatty acids, B vitamins, and antioxidants, have been associated with better cognitive function and mood regulation. Adopting a diet rich in these nutrients, along with practicing mindful eating habits, can contribute to improved mental well-being.

## 5. Lifestyle and longevity:

Food choices are an integral part of a healthy lifestyle that promotes longevity. A nutritious diet, combined with regular physical activity, good sleep, and stress management, forms the foundation for overall well-being. Studies have shown that adhering to a healthy eating pattern, such as the Mediterranean or DASH diet, is associated with a lower risk of premature death and age-related diseases.

As the saying goes, "You are what you eat." The impact of food on our health cannot be overstated. By making conscious choices to include a variety of nutrient-dense foods in our diet, we can nourish our bodies, prevent chronic diseases, support mental well-being, and enhance our overall quality of life. Embracing a holistic approach to food and health empowers us to take control of our well-being and cultivate a healthier future.

### Foods That Look Like the Body Parts They're Good For

1) Slice a carrot in half crosswise to examine how it resembles an eye. Look attentively, and you'll discover a pattern of radiating lines that mirror the pupil and iris. Eating carrots promotes healthy eyes. "Carrots are high in vitamins and antioxidants, such as beta-carotene, which lower the risk of macular degeneration, the leading cause of vision loss in the elderly," explains Sasson Moulavi, MD, medical director of Smart for Life Weight Management Centres in Boca Raton, Florida.



2) A walnut's wrinkles and folds remind me of another human organ: the brain. The nut's form even resembles a bodily component, appearing to have left and right hemispheres. It's no wonder that walnuts are dubbed "brain food": "they have a very high content of omega-3 fatty acids, which help support brain function," says Lisa Avellino, dietician for Focus28 Diet.



3) Long, slim celery stalks resemble bones—and they're excellent for them, too. "Celery is a great source of silicon, which is part of the molecular structure that gives bones their strength," Dr. Moulavi explains. Another amusing bone coincidence: "Bones are 23 percent sodium, and so is celery," Avellino writes.

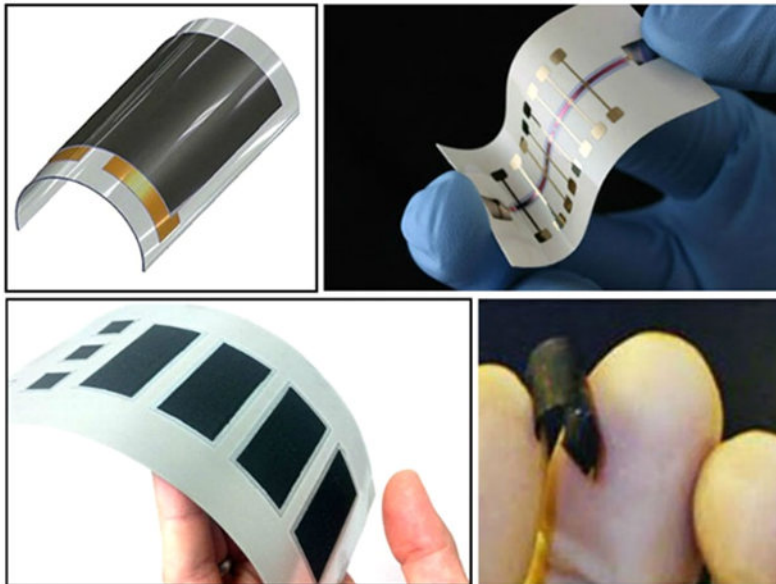


Every youngster has heard the health-food mantra, "You are what you eat." However, there may be many more similarities between good-for-you food and your body than you realize.

## FUTURE OF BATTERIES – “PAPER BATTERY”

**Ms.Deeksha Bekal Gangadhar**  
Assistant Professor

Batteries are so prevalent; still, they are a remarkable invention with a storied history and an equally exciting future. Batteries are part of our everyday life. There is no single day without using our handphones, or the remote controls to switch channels while watching television. We unconsciously bump with batteries in everyday events. The battery is a device used to generate electrical energy. It powers hand phones, remote control, flashlights, hearing aids and helps cars to start easily. The electric energy stored in the batteries is used to operate even the automobiles today. All the electric vehicles derive power from battery packs and do not use gasoline. Portability is what makes batteries so important. The ease brought by batteries led to the invention of more gadgets, appliances and equipment. They allow us to operate our handphones, laptop, mp3 players and alarm clocks whenever and wherever we are.



Batteries continue to exist with us for a long time. Alessandro Volta was the first Italian physicist who invented the first true battery in 1800. Volta stacked discs of zinc (Zn) and copper (Cu) separated by a cloth soaked in salty water. The term 'battery' was first used by Benjamin Franklin, an American scientist and inventor in 1749 when he was experimenting with electricity using a set of toxic, batteries can be used as a power source to next-generation medical devices, electronic devices, hybrid vehicles, etc.

A research team consisting of Dr Robert Linhardt, Dr. Omkaram Nalamasu and Dr. Pulickel Ajayan developed the Paper battery in August 2007 at Rensselaer Polytechnic Institute at Stanford University in December 2009, Yi Cui and his research team successfully invented the original working prototype that provides 1.5 V as its terminal voltage. There are a lot of separate components found in a normal battery, while all these components are made to a single unit in a paper battery which makes it more energy efficient.

The main components of a paper battery are carbon nanotubes having thickness one-millionth of a centimetre. The presence of carbon is the reason for the thick black colour for the battery. These nanotube films acts as the electrodes which are embedded in the cellulose-based paper, soaked in ionic electrolytic liquid. The electrolyte does not contain any water content. It can be used in any environmental conditions as there is nothing to freeze or evaporate. Power is produced even if the battery is folded or cut.



The manufacturing process of the battery happens in 7 simple steps or stages.

- i) A black carbon ink on a cellulose-based paper.
- ii) The ink is spread on the paper.
- iii) A thin film is laminated over the cellulose surface after the ink has been spread.
- iv) The cellulose paper is then heated for 5 minutes at 80 degrees Celsius.
- v) The paper is then peeled off from the substrate.
- vi) A film forms the electrodes of the paper battery. The electrolytes LCO and LTO are connected to different films.
- vii) The battery is checked for its functionality by connecting the battery terminals to the LED.

The paper battery is Light, flexible, rugged, can be cut, crunched, rolled, made into any shape. The nano composite paper is compatible with a number of electrolytes, like blood, sweat etc. If 500 sheets are stacked together in a ream, that's 500 times the voltage and if we rip the paper in half we cut power by 50%. By doing so, we can control the voltage and power issue. The paper batteries are non-toxic and hence can be used to power pacemakers and RF tags. The organic radical materials inside the battery are in an "electrolyte-permeated gel state," which helps ions make a smooth move, allowing the batteries to charge at lightning speeds, it could charge 10-20 times faster than conventional Li-ion batteries. Paper Battery would be the answer to electrical energy storage problems. These environment friendly, no toxic devices can be used as an energy source for the next-generation electronic devices, medical devices and hybrid vehicles, etc.

The disadvantages of paper batteries are they have Low Shear strength, the Set-ups and the techniques used in the production of Carbon Nanotubes are less efficient and very expensive.

It is also seriously hazardous to human health as the Microphages present in the lungs is similar to that with Asbestos fibres when inhaled or interacted.

It can be said that the major component of the paper battery is the cost, if kept economical the batteries will revolutionize the electronics industry. The shear strength of a paper battery can be increased by adding glass fibre, resins, plastics etc. Further researches are needed in nanotoxicology to make it non-hazardous for our health. A whole new world of possibilities and endless applications can be expected with the use of paper batteries which will one day change our daily lives.

# ECSA

## Uncovering the Secret of Ternary Polymer Solar Cell Success

**Ms. Deeksha Bekal Gangadhar**  
**Assistant Professor**

Solar cells will doubtlessly play a significant part in a sustainable energy future. Polymer solar cells (PSCs) specifically provide an excellent option because they are cheap to produce and can be both flexible and semitransparent. Ternary polymer solar cells are showing encouraging power conversion efficiencies, but it isn't always clear why.

PSCs generally contain a material that is the p-type semiconductor mixed with one that is the n-type semiconductor. This blend gives the right combination of charge carriers, holes and electrons -- for a current to flow when sunlight shines on the cell.

found that adding an extra ingredient to the mix giving what is known as a ternary PSC can improve the power conversion efficiency (PCE) and stability of the solar cell. The trouble is that up until now nobody has thoroughly investigated why.

The researchers therefore conducted electron spin resonance (ESR) spectroscopy while the PSC was operating. This gave them the chance to observe the behavior of the electrons and holes when the cell was irradiated with sunlight and to get answers on a molecular level.

"It has been reported that the accumulation of charge over time contributes to the performance of cells deteriorating. Therefore ESR is used to look at a system made up of the polymer PTzBT and large molecule PC61BM. It has been found that adding an acceptor molecule, known as ITIC, to this system improves the PCE and the stability of the cell, so it is looked closely at cells with and without ITIC to determine why."

The ESR spectroscopy experiment showed that the short-circuit current decreased as a result of the accumulation of electrons in the PC61BM and holes in PTzBT. Adding ITIC was found to reduce this accumulation by enhancing the orientation of the chainlike PTzBT polymer molecules in the active layer.

Being able to understand why something works is important for ensuring that effects are optimized to their full potential. By getting a molecular level picture of the effects of ITIC on a very promising PSC system, we believe we have taken a step closer to the commercial reality of polymer solar cells as part of a greener future.

## Golden Ratio

**Ms.Sowjanya**  
Assistant Professor

The golden ratio, also known as the golden number, golden proportion, or the divine proportion, is a ratio between two numbers that equals approximately 1.618. Usually written as the Greek letter phi, it is strongly associated with the Fibonacci sequence, a series of numbers wherein each number is added to the last. The Fibonacci numbers are 0, 1, 1, 2, 3, 5, 8, 13, 21 and so on, with the ratio of each number and the previous number gradually approaching 1.618 or phi.

**History of the golden ratio:** The first known mention of the golden ratio is from around 300 BCE in Euclid's Elements, the Classical Greek work on mathematics and geometry. Euclid and other early mathematicians like Pythagoras recognised the proportion, but they didn't call it the golden ratio. It wasn't until much later that the proportion would take on its mystique. In 1509, Italian mathematician Luca Pacioli published the book De divina proportione, which, with illustrations by Leonardo da Vinci, praised the ratio as representing divinely inspired simplicity and orderliness. Because of Pacioli's book and Leonardo's illustrations, the golden ratio gained fame among mathematicians and artists. In the centuries since Pacioli's book, many enthusiasts have claimed that the number is naturally pleasing to the eye, that it is a mathematical distillation of beauty and that golden ratio line segments, golden rectangle side lengths and golden triangles are represented throughout art history.

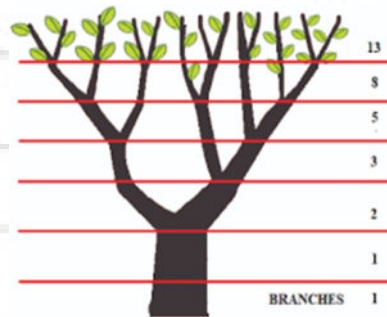


The body of the human satisfies golden ratio. People whose body structure is in golden proportion are normally look more attractive. Thus mathematics gives a formal definition of beauty. The ratio of distances from foot to navel to navel to head is the golden proportion or golden ratio. This proportion is also applicable to human faces. The proportions of length of the nose, the position of the eyes, and length of the chin, all to some aspect of the golden ratio makes the face mathematically beautiful. Similarly great architectures, famous heritage structures and monuments like pyramids, Taj Mahal etc. also designed according to the Golden proportion. Leonardo Da Vinci, adopted the golden ratio in his well known painting, "Mona Lisa".



Some amazing things found in nature satisfy the golden ratio are flower petals, seed heads, shells spiral galaxies, hurricanes, animal flight pattern, DNA molecules. Few flowers have 3 petals, few have 5 petals, some have 21, 34 and so on. According to Darwinian principle the ideal packing arrangement where each petal is placed  $0.0618034$  per turnout of 3600 circle. This arrangement allows best possible way to exposure to sunlight. Seeds of sunflower are generated at the center and this move towards outside to fill in the space. The seed placement is spiral pattern and total number of seeds in a sunflower tend to match Fibonacci series.

The same pattern is also found in Pineapple. Pinecones are seed pods that are also arranged in a spiral pattern. Tree branches also exhibit this sequence.



These are the few examples picked up from the mother nature. Everything in this nature has a beautiful structures, geometry, shape and colour.

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**Zumba Workshop**

## New discovery using quantum microscopes

**Dr Vishwanath M S**  
**Associate Professor**

Researchers at the Macroscopic Quantum Matter Group laboratory at University College Cork (UCC) have discovered a spatially modulating superconducting state in a new and unusual superconductor, Uranium Ditelluride (UTe<sub>2</sub>). This new superconductor may provide a solution to one of quantum computing's greatest challenges. Their finding has been published in the journal Nature. Lead author Joe Carroll, a Ph.D. researcher working with UCC Prof. of Quantum Physics Séamus Davis, explains the subject of the paper. "Superconductors are amazing materials that have many strange and unusual properties. Most famously, they allow electricity to flow with zero resistance. That is, if you pass a current through them, they don't start to heat up; in fact, they don't dissipate any energy despite carrying a huge current. They can do this because, instead of individual electrons moving through the metal, we have pairs of electrons that bind together. These pairs of electrons together form a macroscopic quantum mechanical fluid. What our team found was that some of the electron pairs form a new crystal structure embedded in this background fluid. These types of states were first discovered by our group in 2016 and are now called Electron Pair-Density Waves. These Pair Density Waves are a new form of superconducting matter, whose properties we are still discovering. What is particularly exciting for us and the wider community is that UTe<sub>2</sub> appears to be a new type of superconductor. Physicists have been searching for material like it for nearly 40 years. The pairs of electrons appear to have intrinsic angular momentum. If this is true, then what we have detected is the first Pair-Density Wave composed of these exotic pairs of electrons." When asked about the practical implications of this work, Mr. Carroll explained: "There are indications that UTe<sub>2</sub> is a special type of superconductor that could have huge consequences for quantum computing."

"Typical, classical computers use bits to store and manipulate information. Quantum computers rely on quantum bits or qubits, to do the same. The problem facing existing quantum computers is that each qubit must be in a superposition with two different energies -- just as Schrödinger's cat could be called both 'dead' and 'alive'. This quantum state is very easily destroyed by collapsing into the lowest energy state -- 'dead' -- thereby cutting off any useful computation. "These place huge limits on the application of quantum computers. However, since its discovery five years ago, there has been a huge amount of research on UTe<sub>2</sub>, with evidence pointing to it being a superconductor that may be used as a basis for topological quantum computing. In such materials, there is no limit on the lifetime of the qubit during computation, opening up many new ways for more stable and useful quantum computers. In fact, Microsoft has already invested billions of dollars into topological quantum computing, so this is a well-established theoretical science already," he said. "What the community has been searching for is a relevant topological superconductor; UTe<sub>2</sub> appears to be that."

"What we've discovered then provides another piece to the puzzle of UTe<sub>2</sub>. To make applications using materials like this, we must understand their fundamental superconducting properties. All of modern science moves step by step. We are delighted to have contributed to the understanding of a material that could bring us closer to much more practical quantum computers. Congratulating the research team at the Macroscopic Quantum Matter Group Laboratory in University College Cork, Professor John F. Cryan, Vice President of Research and Innovation, said: "This important discovery will have significant consequences for the future of quantum computing. In the coming weeks, the university will launch UCC Futures: Future Quantum and Photonics, and research led by Professor Seamus Davis and the Macroscopic Quantum Matter Group, with the use of one of the world's most powerful microscopes, will play a crucial role in this exciting initiative."

## Artificial Intelligence Role in Agriculture Sector

**Dr. Sri Krishna Shastri C**  
**Associate Professor**

Artificial intelligence (AI) technology is supporting various sectors including agriculture to boost productivity and efficiency. AI in agriculture is helping farmers to improve their efficiency and reduce environmental hostile impacts. Artificial Intelligence is revolutionizing the agriculture industry by offering innovative solutions to improve productivity, sustainability, and efficiency. After the inception of the AI industry, applications for agriculture have started to emerge and represent a very promising future.



*Drone used in Agriculture for spraying pesticides (Credit: Getty Images via Internet)*

Some of the key applications of AI in agriculture are highlighted in the succeeding section.

### **Crop Monitoring and Management**

AI-powered systems can analyze satellite imagery, drone data, and IoT sensor data to monitor crop health, detect diseases, pests, and nutrient deficiencies. This enables farmers to take timely action, optimize resource usage, and maximize crop yields.

### **Precision Farming**

AI enables precision agriculture by using data analytics to optimize farming practices. AI algorithms process data on weather conditions, soil composition, and historical crop performance to provide tailored recommendations for irrigation, fertilization, and pesticide application. This reduces waste, minimizes environmental impact, and improves resource efficiency.

### **Autonomous Farming**

AI-driven robotics and autonomous vehicles are transforming farming operations. Robots equipped with computer vision can autonomously harvest crops, weed fields, and perform labor-intensive tasks. Autonomous drones can survey vast areas and collect data for crop monitoring and mapping.

### **Livestock Monitoring**

AI-based systems can monitor the health and behavior of livestock using sensors and computer vision. They can detect early signs of diseases, monitor feeding patterns, and optimize breeding processes. This helps farmers improve animal welfare, prevent diseases, and increase productivity.

### **Disease and Pest Prediction**

AI models can analyze historical data, weather patterns, and other relevant variables to predict disease outbreaks and pest infestations. Early detection and intervention help farmers take preventive measures, minimize crop loss, and reduce the need for chemical interventions.

### Precision Agriculture

AI algorithms can process data on soil composition, weather patterns, and crop health to provide precise recommendations for irrigation, fertilization, and pesticide application. This helps farmers optimize resource usage, minimize environmental impact, and increase crop yields.

### Yield Prediction

AI models can analyze historical data, weather patterns, and other relevant factors to predict crop yields. This information enables farmers to make informed decisions regarding planting, harvesting, and market planning, leading to improved efficiency and profitability.

### Soil Health Monitoring

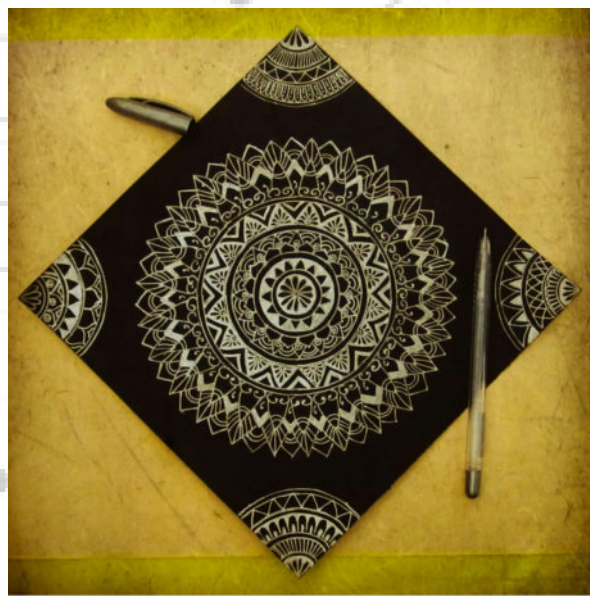
AI-based systems can monitor soil health by analyzing soil samples and sensor data. This helps farmers understand soil conditions, nutrient levels, and potential soil degradation issues. With this information, farmers can implement targeted soil management practices and optimize soil health.

### Advantage of implementing AI in Agriculture

The use of Artificial intelligence in agriculture helps the farmers to understand the data insights such as temperature, precipitation, wind speed, and solar radiation. The data analysis of historic values, offers a better comparison of the desired outcomes. The best part of implementing AI in agriculture that it won't eliminate the jobs of human farmers rather it will improve their processes.

Today AI-powered technologies are used for solving several industries' purposes. AI is being utilized in sectors such as finance, transport, healthcare, and now in agriculture. AI is helping the farmers to monitor their crops without the need to invigilate personally into the farm. Many startups and enterprises are looking forward to AI development in agriculture. AI is redefining the traditional pattern of agriculture. The future of AI in agriculture is way ahead in offering radical transformation with advanced approaches.

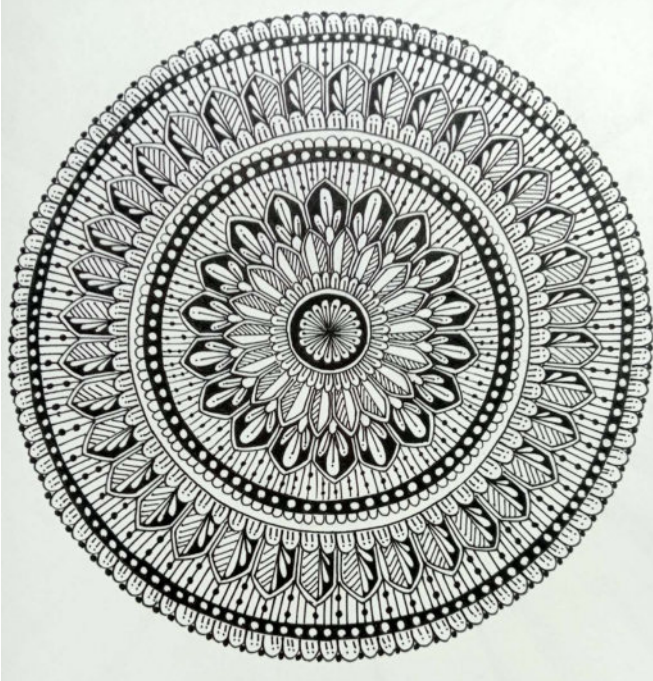
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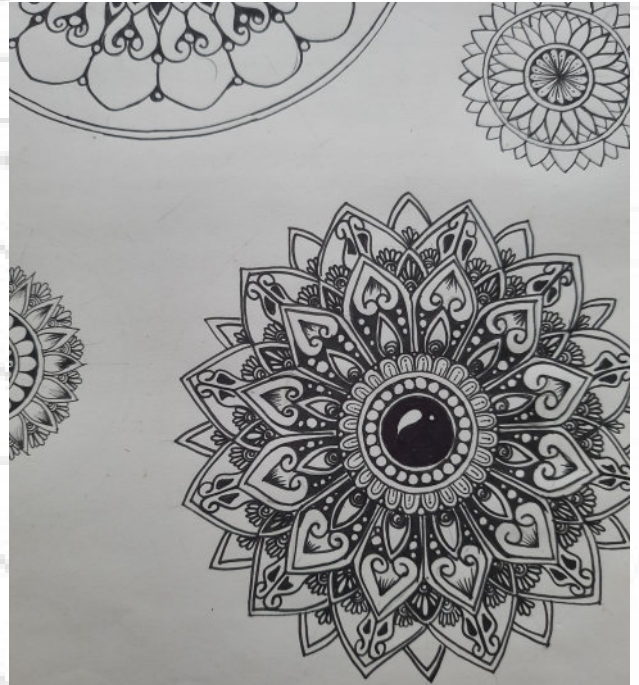
**Photography & Art Work by  
Shreeya Wadeyar - 4EC2**

# Art Gallery

Anusha Shetty - 4EC1



Shreeya Wadeyar - 4EC2



Deepthi D Hegde - 6EC1

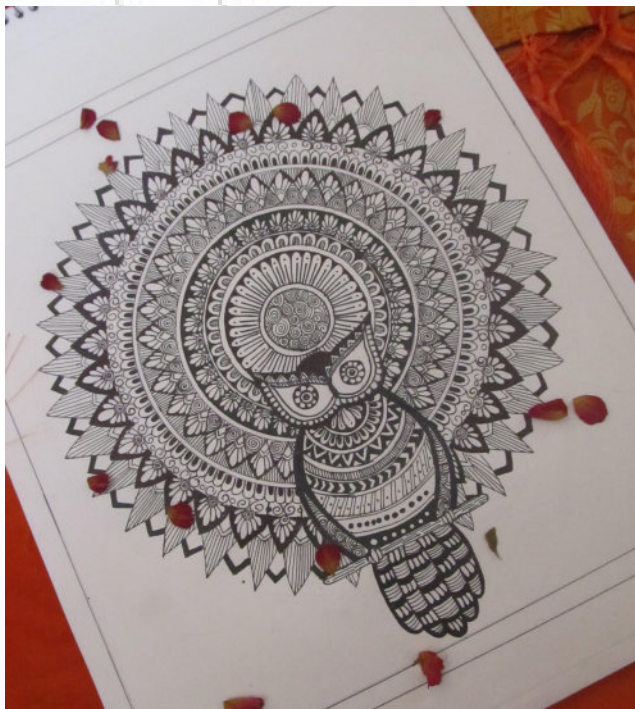


Akhila - 8EC

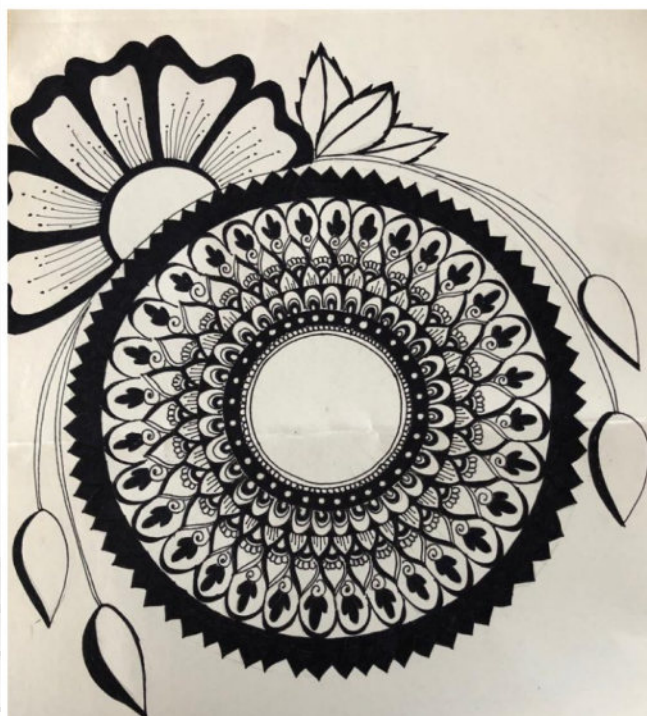


# Art Gallery

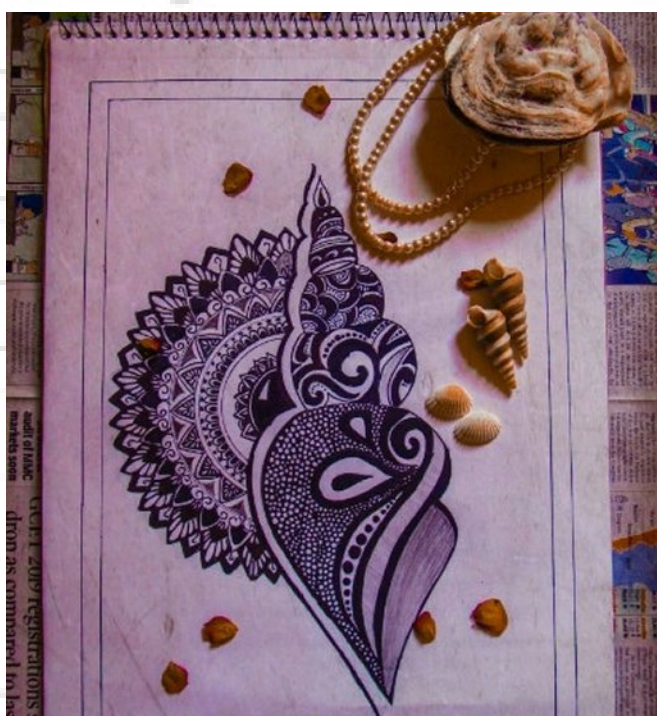
Shreeya Wadeyar - 4EC2



Pavan - 4EC2



Ramya Poojari - 4EC2



Shreeya Wadeyar - 4EC2

# Alumni Testimonials



**Hisham Afzal Ahamed**

**(Batch 2012 - 16)**

**Engineering Manager  
Simplify 360**

*My time at MITE was a memorable journey, filled with invaluable learnings and complemented by the top-notch education I received there. Looking back now, these experiences have shaped my life and my career in more ways than I could have ever imagined.*

*MITE opened me up to a broader and diverse community, with each person having unique perspectives and aspirations. Meeting and establishing long-lasting relationships with these folks altered my worldview for the better. This would not have been possible without the mentorship of our faculty, who helped turn this melting pot of aspiring engineers into better problem solvers and ardent lifelong learners.*

*They say first impressions are the best impressions, and the campus left a mighty good impression on my mind, right from Day 1. The state-of-the-art lab facilities, well-stocked libraries, and various learning centres provided an ideal environment for learning and growth. Beyond that, the greenscaping and the inspired building designs always helped keep things fresh.*

*Beyond academics, MITE encouraged me to explore my passions and engage in extracurricular activities. During my time at MITE, I helped convene several symposiums and workshops, which helped hone my communication and leadership skills, and helped me personally to come out of my shell and engage on a more proactive basis.*

*MITE also plays host to its annual fest, Sentia, which personally was a great time for me to unwind, have good fun and watch as my peers put on an exhibition of their unique skills and feats. Each Sentia fest always outperforms the preceding one, and each one has left a joyous memory.*

*I am immensely grateful for my time at MITE and I look forward to seeing how it continues to shape the lives of future generations of students. MITE has recently obtained its well-deserved NAAC accreditation, a testament to the college's commitment to quality and innovation, and a sign of even better prospects for the institution.*

*My experience at MITE was incredibly impactful. The dedicated faculty and diverse courses empowered me to explore my academic interests. MITE's supportive community and challenging coursework helped me develop essential skills and confidence, setting me up for success in my career.*

**Adithya**

**(Batch 2012-2016)**

**Infineon technologies**

**(Senior analog design engineer)**



**Prasanna Kulal**

**(Batch 2012 - 16)**

**IS2 Technology GmbH**

**(Senior software engineer)**

*My journey of 4 years at MITE (Mangalore Institute of Technology and Engineering) wasn't easy, but with the right lecturers and one's hard work made this possible. My college provided me with the proper environment for better education from study libraries for students to computer labs for research. However, it would not have been possible without my faculty teachers of electronics and communication department who always encouraged me to do more to find my true capabilities.*

*So, I am thankful to MITE for providing such wonderful teachers and the best environment where students like me can have quality education and learn to work hard from what they can and grow toward what they want.*

# Alumni Article

## BASIC PRINCIPLES OF CLOUD MIGRATION

**Ms. Ashwini**  
**Senior project engineer, Wipro**  
**(Batch 2015-19)**



Cloud computing and its applications have been one of the hot spots in IT industry for recent years. Cloud computing provides virtualized computing resources such as servers, network resources, storage, database etc. as services on demand. Many businesses is moving from their current mode of operation to future mode of operation in other terms migrating from legacy datacenter to cloud platform. Migration objectives: the objectives of cloud migration can vary depending on the specific needs and goals of the organization, but some common objectives include cost reduction, scalability, flexibility, reliability, enhanced security and compliance, disaster recovery and business continuity. Following these basic principles can significantly contribute to a successful cloud migration, ensuing a smooth transition and maximizing the benefits of cloud environment.

Basic Principles of Cloud migration: Cloud migration is the whole process of migrating digital assets, services, applications and its resources. The process involves:

**Assessment and Planning:** Assess existing IT infrastructure, applications, and data to understand what needs to be moved to the cloud, what can be retired, and what might require modifications.

**Data Security and Compliance:** Address data security and compliance requirements. Ensure that data is encrypted both in transit and at rest.

**Cost Management:** Understand the cost implications of cloud migration.

**Selecting the Right Cloud Model:** Choose the appropriate cloud model based on needs, whether it's public, private, hybrid or multi-cloud.

**Application Modernization:** Consider modernizing applications for the cloud. This might involve refactoring, re-architecting, or re-platforming applications to make them cloud-native.

**Data Transfer and Backup:** Plan for data transfer to the cloud and implement backup and disaster recovery solutions to protect data. Ensure that you have multiple copies of your critical data in different regions.

**Performance and Scalability:** Leverage the cloud's scalability to meet variable demands. Design applications to auto-scale, and use load balancing to distribute traffic efficiently.

**Training and Skill Development:** Invest in training and skill development for your IT staff to ensure they are proficient in cloud technologies and best practices.

**Monitoring and Optimization:** Continuously monitor your cloud resources, and use cloud management tools to optimize infrastructure and control costs.

**Backup and Recovery:** Have a robust backup and recovery strategy in place. This ensures that in case of data loss or system failure, how quickly one can recover data and applications.

**Documentation and Knowledge Sharing:** Document cloud architecture, configurations, and processes. Share this knowledge within your organization to facilitate collaboration and troubleshooting.

**Continuous Improvement:** Cloud migration is not a one-time project but an ongoing process. Continuously assess and refine your cloud strategy to align with evolving business needs and technology advancements.

**Cloud migration strategies:** It can be deployed in different ways depending on business needs. The first thing to consider is the deployment model. There are basically 4 types of cloud deployment model namely public, private, hybrid and multi-cloud. Second comes service category. They are as follows SaaS (software as a service), PaaS (platform as a service) and IaaS (Infrastructure as a Service).

There are a number of different migration approaches one can adopt. From a basic lift & shift basically known as re-host- involving the transfer of data and applications from a local/on-premises data center to the public cloud, moving whole infrastructure to new cloud based operating system known as re-platform, an upgrade of application components or making changes to the application to work in cloud is known as re-factor. However, a cloud migration also offers moving data and applications from one cloud platform provider to another, a model known as cloud-to-cloud migration.

Successful cloud migration involves careful planning, continuous monitoring, and adapting to changing requirements. These principles can serve as a foundation for a successful cloud migration strategy. The journey of cloud is not an easy one, but clear understanding and strategy apply can have many benefits.

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## Variety Competition

# Artificial Intelligence in Cybersecurity

**Mr. Prasanna Poojari (Batch 2013-17)**  
**Senior Security Analyst**  
**London Stock Exchange Group**



## **Traditional cyber security countermeasures:**

Countermeasures in relation to cyber security face several difficulties. The increasing prevalence of cyber-attacks and malware poses a serious challenge that requires immediate action. Traditional approaches to attack detection, such as virus detection and encryption, have limitations and may not be effective at lower levels. Additionally, the complexity and urgency of the situation have attracted specialists from other scientific sectors, such as psychology and law, to contribute to finding integrated solutions. Furthermore, the different categories of individuals who perform cyber-attacks, including criminals, spies, nation-state warriors, and terrorists, add to the challenges faced in implementing effective countermeasures. Overall, the escalation of security breaches in web systems and the need to maintain current operational schemes while ensuring security further complicate the implementation of countermeasures.

## **Challenges in traditional approach:**

Before the advent of AI, traditional cybersecurity relied heavily on signature-based detection systems. These systems worked by comparing incoming traffic to a database of known threats or malicious code signatures. While this approach was effective against known threats, it was inadequate against new and unknown threats. Cybercriminals could easily bypass signature-based detection systems by modifying the code or creating new variants of malware that were not yet in the database. Traditional cybersecurity also relied on manual analysis. Rule-based systems worked by setting up rules or policies that defined acceptable behaviour on a network. If traffic violated these rules, it would trigger an alert. While rule-based systems could be effective in certain situations, they were often inflexible and could not adapt to new and emerging threats.



## **Accelerate security defences using AI:**

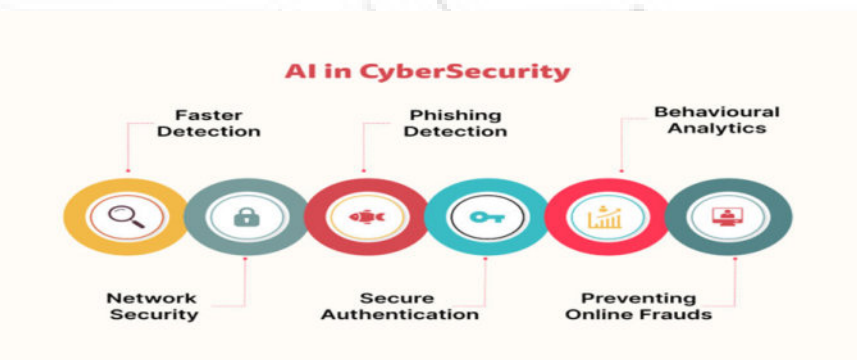
The cyberattack surface in modern enterprise artificial intelligence graphics Source environments is massive, and it's continuing to grow rapidly. This means that analysing and improving an organization's cybersecurity posture needs more than mere human intervention.

AI and machine learning are now becoming essential to information security, as these technologies are capable of swiftly analysing millions of data sets and tracking down a wide variety of cyber threats – from malware menaces to shady behaviour that might result in a phishing attack. AI & ML technologies continually learn and improve, drawing data from past experiences and present to pinpoint new varieties of attacks that can occur today or tomorrow.

### Detecting new threats using AI:

By using sophisticated algorithms, AI systems are being trained to detect malware, run pattern recognition, and detect even the minutest behaviours of malware or ransomware attacks before it enters the system. AI allows for superior predictive intelligence with natural language processing which curates data on its own by scraping through articles, news, and studies on cyber threats. This can give intelligence of new anomalies, cyberattacks, and prevention strategies. After all, cybercriminals follow trends too so what's popular with them changes constantly. AI-based solutions use machine learning algorithms that are trained using vast amounts of data, including historical threat data and data from the network and endpoints, to identify patterns that are difficult for humans to see. This allows AI-based solutions to identify and respond to threats in real-time, without the need for human intervention.

### How AI is used in cyber security:



**Malware Detection:** AI-based solutions use machine learning algorithms to detect and respond to both known and unknown malware threats.

**Phishing Detection:** AI-based phishing detection solutions use machine learning algorithms to analyse the content and structure of emails to identify potential phishing attacks.

**Security Log Analysis:** AI-based security log analysis uses machine learning algorithms that can analyse large volumes of security log data in real-time.

**Network Security:** AI algorithms can be trained to monitor networks for suspicious activity, identify unusual traffic patterns, and detect devices that are not authorized to be on the network.

**Endpoint Security:** AI-based endpoint security solutions use machine learning algorithms to analyse endpoint behaviour and detect potential threats.

### Conclusion:

AI is fast emerging as a must-have technology for enhancing the performance of IT security teams. Moreover, AI can help discover and prioritize risks, direct incident response, and identify malware attacks before they come into the picture. AI increases the efficiency, improves the Accuracy, reduces the costs, improves the scalability in cyber security.

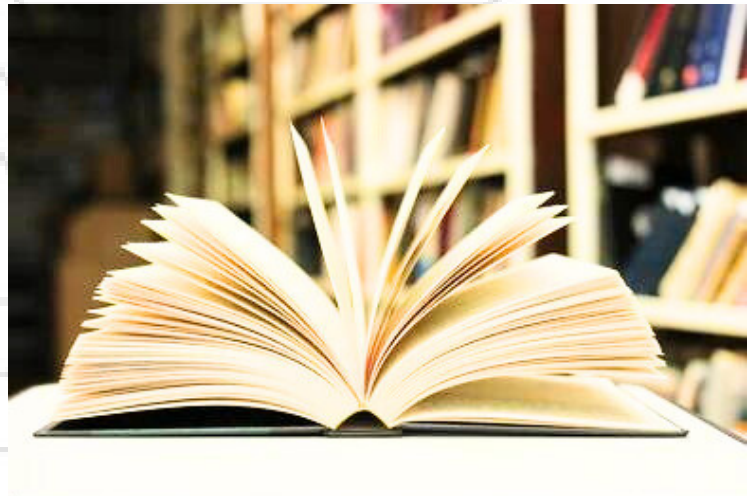
# Alumni Achievement

*Our alumna (2020 Graduate) Ms Clayona Crissle Avril Lewis has been awarded with Best Electrical Engineering Postgraduate Project Award by University of HUDDERSFIELD.*



## Treasure of knowledge Department Library

*The Library has a good number of technical, non technical, Aptitude & GATE preparation books which are utilized by the students of the department. There are total of 491 books contributed by the students, faculty members and publishers.*





# Press Gallery

## ರಾಜ್ಯಮಟ್ಟದ ಸೆಮಿನಾರ್, ಪ್ರದರ್ಶನದಲ್ಲಿ ಮೂರು ಪುರಸ್ಕಾರ ಮೈಟ್ ಗೆ ಬೆಸ್ಪ್ ಪ್ರಾಜೆಕ್ಟ್ ಆಫ್ ದಿ ಇಯರ್ ಪ್ರಶಸ್ತಿ

ಮಂಗಳೂರು: ದಿವ್ಯಾನ ವೆಂಕಟ ಅಲೇಷಿಯಾ ಪ್ರಾಜೆಕ್ಟ್ ಪ್ರೋಗ್ರಾಂ (ಎಸ್‌ಪಿಪಿ) ರಾಜ್ಯಮಟ್ಟದ ಸೆಮಿನಾರ್ ಮತ್ತು ಪ್ರದರ್ಶನದಲ್ಲಿ ಮಂಗಳೂರು ಇನ್ಸ್ಟಿಟ್ಯೂಟ್ ಆಫ್ ಟೆಕ್ನಾಲಜಿ ಆಂಡ್ ಇಂಜಿನಿಯರಿಂಗ್ ವಿದ್ಯಾರ್ಥಿಗಳು ಮೂರು ಬೆಸ್ಪ್ ಪ್ರಾಜೆಕ್ಟ್ ಆಫ್ ದಿ ಇಯರ್ ಪ್ರಶಸ್ತಿ ಗೆದ್ದಿದ್ದಾರೆ.



ರಾಜ್ಯಮಟ್ಟದ ಸೆಮಿನಾರ್ ಮತ್ತು ಪ್ರದರ್ಶನದಲ್ಲಿ ಜಯಿಸಿದ ಮಂಗಳೂರು ಇನ್ಸ್ಟಿಟ್ಯೂಟ್ ಆಫ್ ಟೆಕ್ನಾಲಜಿ ಆಂಡ್ ಇಂಜಿನಿಯರಿಂಗ್ ವಿದ್ಯಾರ್ಥಿಗಳು.

**ಐದು ವರ್ಷಗಳಿಂದ ಸಾಧನೆ**  
ಶೇಕಡಾ ಐದು ವರ್ಷಗಳಿಂದ ಈ ಪ್ರಕ್ರಿಯೆ ಪ್ರಾರಂಭವಾದ ಸಾಧನೆ ಪ್ರಾಥಮಿಕವಾಗಿ ಎಂಎಂ ಪಿಎಂಸಿ ಎಐಐಟಿ ಎಐಐಇಎಂ ಟ್ರಸ್ಟ್ ಅಧ್ಯಕ್ಷ ರಾಜೇಶ್ ಕೆ.ಟಿ ಅಧ್ಯಯನಿಸಿದ್ದಾರೆ. ವಿಶ್ವವಿದ್ಯಾಲಯ ಶಿಕ್ಷಣ ಕಾರಣದಿಂದ ಗುರಿಯೊಂದಿಗೆ ಸುಧಾರಿತ ಮನೋಕರ್ಯ ಸ್ಥಾಪಿಸುವಲ್ಲಿ ಸಂಸ್ಥೆಯ ಪ್ರಗತಿ ಮನಾರ್ಹ ಎಂದಿದ್ದಾರೆ. ಐದು ವರ್ಷಗಳಲ್ಲಿ 10ಕ್ಕೂ ಹೆಚ್ಚು ಯೋಜನೆಗಳಿಗೆ ಅನುದಾನ ಮತ್ತು ಅತ್ಯುತ್ತಮ ಪ್ರಾಜೆಕ್ಟ್ ಪ್ರಶಸ್ತಿಗಳನ್ನು ಗಳಿಸಿದ ಐದು ಕಾಲೇಜು ಸಂಯೋಜಕ ಪ್ರೊ.ಅಶೀಶ್ ಮೂರ್ತಿ ಪ್ರಕಟಣೆಯಲ್ಲಿ ತಿಳಿಸಿದ್ದಾರೆ.

ಕಂಪ್ಯೂಟರ್ ಸೈನ್ಸ್ ಮತ್ತು ಇಂಜಿನಿಯರಿಂಗ್ಸ್ ಪ್ರದೀಪ್ ಬಿ.ಎನ್. ಮಾರ್ಗದರ್ಶನದ ಪ್ರಾಜೆಕ್ಟ್ ಗುಂಪಿನ ಅನುಜ್ ಕುಮಾರ್, ಪೂಜಾ ಪಿ.ಪೂಜಾರಿ, ಪ್ರತಿಕ್ಷಾ ಪಿ.ಶೈಲ ಮತ್ತು ಪ್ರತಿಕ್ಷಾ ಶೈಲಿ ಮಂಡಿಸಿದ ಹೈಟೆಕ್ನಾಲಜಿ ಟೆಕ್ನಿಕಲ್ ಸ್ಪನ್ ಕ್ಯಾನ್ಸರ್ ಹೇಗ್ ಕಂಪ್ಯೂಟಿಯೋಲು ಕೆಲಸದ ಕಿರ್ಕಿಶೆ ಪ್ರಶಸ್ತಿ ಗಳಿಸಿದೆ.

ಸರಬರಾಜು ಪುಸ್ತಕ ಪ್ರಕ್ರಿಯೆ ಗಳಿಸಿದೆ. ಅಡಿತಿ ವಿ.ಶೈಲಿ ಅಡಿತಿ ಎನ್.ಕಬೀರ್, ಅಶಾ ಎನ್.ಸಾಲ್ಮಾನ್, ಮತ್ತು ಹರ್ಷಿತಾ ಪಿ. ಕಂದ ನದನ್ ರಾಜ್, ಡಾ.ವಿನಯಾದಿತಿ ಎನ್.ಶಶಿ ಮತ್ತು ಡಾ.ರಾಘವೇಂದ್ರ ನಾಗ್ ಮಾರ್ಗದರ್ಶನ ನೀಡಿದ್ದರು. ಇತರ ವಿಭಾಗದ ಸಂಯೋಜಕರನ್ನು ಅವರೊಂದಿಗೆ ಕಂದ ಪ್ರೊ.ಉದಯ್ ಚ ಎಮರ್ಜೆನ್ಸಿ ಇಂಡಂ ಕಂದ ಪ್ರೊ.ಉದಯ್ ಚ ಮಾರ್ಗದರ್ಶನದಲ್ಲಿ ಸಿದ್ಧಪಡಿಸಿದ ಇಂಟೆಲಿಜೆಂಟ್ ಟಾನ್ಯಾಟ್ ಸಿಸ್ಟೆಂಎಂದಿಗೆ ಪ್ರಶಸ್ತಿಯ ಹಾಗೆ ಯೋಜನೆ ಪ್ರಕ್ರಿಯೆ ಗಳಿಸಿದೆ.

ಇಲೆಕ್ಟ್ರಾನಿಕ್ಸ್ ಮತ್ತು ಸಂವಹನ ಇಂಜಿನಿಯರಿಂಗ್ ವಿಭಾಗದ ಕಂದ ಸೌರ ಕೆ.ವಿ ಸಿಲ್‌ಗಳಿಂದ ನಡೆಸಲ್ಪಡುವ ಸೂಪರ್ ಕೆವಾಟಿಲ್ ಸಂಗ್ರಹಣೆ ಲಭಿಸುವ ವಿನ್ಯಾಸ



ಮಂಜುಶ್ರೀ ಜೆಸಿಐಬಿ ಬೆಳಗಂಡಿ, ಮೈಟ್ ಕಾಲೇಜು ಮೂಡಬಿದ್ರೆ ಇಂಜಿನಿಯರಿಂಗ್ ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ... ಮಂಜುಶ್ರೀ ಜೆಸಿಐಬಿ ಬೆಳಗಂಡಿ, ಮೈಟ್ ಕಾಲೇಜು youtube.com

### ಇಂಜಿನಿಯರಿಂಗ್ ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸ್ಪಷ್ಟತೆಯ ಅರಿವು ಮೂಡಿಸುವ ತಿಳಿವರ

**ಮಂಗಳೂರು ಸಮಾಚಾರ**  
ಬೆಳಗಂಡಿ ಮಂಜುಶ್ರೀ ಜೆಸಿಐಬಿ, ಮೂಡಬಿದ್ರೆ ಮೈಟ್ ಕಾಲೇಜಿನ ವಿದ್ಯಾರ್ಥಿಗಳು ಜಂಟಿಯಾಗಿ ಐದು ದಿನಗಳ ಸ್ಪಷ್ಟತಾ ಜಾಗೃತಿ ಅಭಿಯಾನ

- ಸಂಪೂರ್ಣ ಪ್ರಸಾರ
- YouTube Link

## ಜೆಸಿಐಬಿ ಬೆಳಗಂಡಿ ಮಂಜುಶ್ರೀ ಮತ್ತು ಮೈಟ್ ಕಾಲೇಜಿನಿಂದ ಸ್ಪಷ್ಟತಾ ಕಾರ್ಯ



ಸುದ್ದಿ ಬರಹ

**ಬೆಳಗಂಡಿ:** ಪ್ರತಿಷ್ಠಿತ ಜೆಸಿಐಬಿ ಬೆಳಗಂಡಿ ಮಂಜುಶ್ರೀ ಆಫ್ ದಿ ಇಯರ್ ಮೈಟ್ ಕಾಲೇಜು ಮೂಡಬಿದ್ರೆ ಇವರ ಸಹಭಾಗಿತ್ವದಲ್ಲಿ ನಗರ ಸ್ಪಷ್ಟತಾ ಕಾರ್ಯ ಆ.7 ರಂದು ಬೆಳಗಂಡಿಯಲ್ಲಿ ನಡೆಯಿತು. ಸ್ಪಷ್ಟತಾ ಕಾರ್ಯದ ಅಧ್ಯಕ್ಷತೆಯನ್ನು ಪುಟ್ಟಣ್ಣ ಪಂಚಾಯತ್ ಸದಸ್ಯ ಜಗದೀಶ್ ಡಿ.ನೋಡೇಂದ್ರಿ ವಹಿಸಿಕೊಂಡರು.

ಅಧ್ಯಕ್ಷತೆಯನ್ನು ಜೆಸಿಐಬಿ ಬೆಳಗಂಡಿ ಮಂಜುಶ್ರೀ ಅಧ್ಯಕ್ಷ ಪ್ರಸಾದ್ ಬಿ.ಎಸ್ ವಹಿಸಿದ್ದರು. ಮುಖ್ಯ ಅತಿಥಿಗಳಾಗಿ ಸಾರ್ವಜನಿಕತೆ ಕಾರ್ಯಕ್ರಮ ಸಮಿತಿಯ ಪ್ರಧಾನ ಕಾರ್ಯದರ್ಶಿ ಪೂಜಾರಿ, ಮೈಟ್ ಕಾಲೇಜಿನ ಉಪಾಧ್ಯಕ್ಷರಾದ ಪ್ರಕಾಶ್ ನಿರ್ಮಲಾ, ದೀಕ್ಷಾ, ಚಿರಂಜೀವಿ ಸಂಜೀವಾನಿ ಸಾವಿತ್ರಿ ಭೈಮ ಉಪಸ್ಥಿತರಿದ್ದರು.

ಪೂರ್ವಾಧ್ಯಕ್ಷ ಚಿದಾನಂದ ಇಡ್ಲಿ ವೆಂಕಟೇ ಆಶ್ವಾಸಿಸಿದರು, ಪ್ರಸಾದ್ ಬಿ.ಎಸ್ ಸ್ವಾಗತಿಸಿದರು. ಆಶಾಲತಾ ಚಿರಂಜೀವಿ ಉದ್ಘೋಷಿಸಿದರು, ಪೂರ್ವಾಧ್ಯಕ್ಷ ಸಂಜೀವ್ ಪಿ ಕೋಟ್ಯಾನ್ ಲಲಿತಾ ವಂದಿಸಿದರು. ಪೂರ್ವಾಧ್ಯಕ್ಷ ಜಾನಾರ್ದನ್ ಶೆಟ್ಟಿ, ಸದಸ್ಯರಾದ ಪ್ರೀತಮ್, ನಿಲಯಾ, ರವಿಶಂಕರ್, ಸಹಕರಿಸಿದರು.

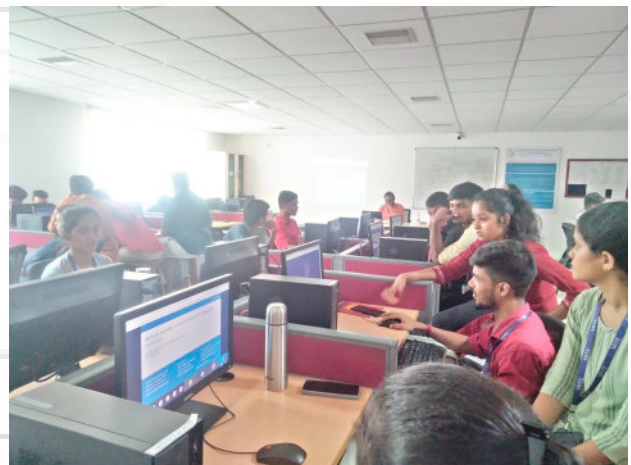
## ಸುದ್ದಿ ಬರಹ ಜೆಸಿಐಬಿ ಬೆಳಗಂಡಿ ಮಂಜುಶ್ರೀ ಮತ್ತು ಮೈಟ್ ಕಾಲೇಜಿನಿಂದ ಸ್ಪಷ್ಟ ಭಾರತ್ ಅಭಿಯಾನ



ಉಬೆರೆ: ಜೆಸಿಐಬಿ ಬೆಳಗಂಡಿ ಮಂಜುಶ್ರೀ ಮತ್ತು ಮೈಟ್ ಕಾಲೇಜು ಸಹಯೋಗದೊಂದಿಗೆ ಆ. 07ರಂದು ಆ.12 ರ ತನಕ ಸ್ಪಷ್ಟತಾ ಅಭಿಯಾನ ಕಾರ್ಯಕ್ರಮವು ಬೆಳಗಂಡಿ, ಉಬೆರೆ, ಲಲಿತಾ ಪ್ರದೇಶದಲ್ಲಿ ನಡೆಯಿತು.

ಜೆಸಿಐಬಿ ಬೆಳಗಂಡಿ ಮಂಜುಶ್ರೀ ಆಫ್ ದಿ ಇಯರ್ ಮೈಟ್ ಕಾಲೇಜು ಮೂಡಬಿದ್ರೆ ಇಂಜಿನಿಯರಿಂಗ್ ವಿದ್ಯಾರ್ಥಿಗಳು ಜಂಟಿಯಾಗಿ ಐದು ದಿನಗಳ ಸ್ಪಷ್ಟತಾ ಜಾಗೃತಿ ಅಭಿಯಾನ ನಡೆಸಿದರು. ಅಧ್ಯಕ್ಷತೆಯನ್ನು ಪುಟ್ಟಣ್ಣ ಪಂಚಾಯತ್ ಸದಸ್ಯ ಜಗದೀಶ್ ಡಿ.ನೋಡೇಂದ್ರಿ ವಹಿಸಿಕೊಂಡರು. ಅಧ್ಯಕ್ಷತೆಯನ್ನು ಜೆಸಿಐಬಿ ಬೆಳಗಂಡಿ ಮಂಜುಶ್ರೀ ಅಧ್ಯಕ್ಷ ಪ್ರಸಾದ್ ಬಿ.ಎಸ್ ವಹಿಸಿದ್ದರು. ಮುಖ್ಯ ಅತಿಥಿಗಳಾಗಿ ಸಾರ್ವಜನಿಕತೆ ಕಾರ್ಯಕ್ರಮ ಸಮಿತಿಯ ಪ್ರಧಾನ ಕಾರ್ಯದರ್ಶಿ ಪೂಜಾರಿ, ಮೈಟ್ ಕಾಲೇಜಿನ ಉಪಾಧ್ಯಕ್ಷರಾದ ಪ್ರಕಾಶ್ ನಿರ್ಮಲಾ, ದೀಕ್ಷಾ, ಚಿರಂಜೀವಿ ಸಂಜೀವಾನಿ ಸಾವಿತ್ರಿ ಭೈಮ ಉಪಸ್ಥಿತರಿದ್ದರು.

# Photo Gallery



# Photo Gallery



# Photo Gallery



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