



**MAGAZINE OF**

# **Mechatronics**

**ENGINEERING DEPARTMENT**



**PREDICTING THE FUTURE ISN'T MAGIC, IT'S ARTIFICIAL INTELLIGENCE.**

**- DAVE WATERS**

It's indeed such a joy to pen down the Editorial for this issue of ECHO. As we bid good-bye to 2021 and enter into a brand-New Year 2022, we all know that the world has witnessed turbulent, troublesome times as well as events that spurred hope, joy and comfort. In the technological front, lot of mind-boggling innovations and discoveries were made to stay connected and to make human lives smarter, swifter and more secure. I was fascinated to read about a news snippet on Electric Vertical Take-off and Landing (eVTOL) aircrafts in the November Issue of IEEE Spectrum Magazine. eVTOLs are poised to become the safest means of urban transportation. These revolutionary flying vehicles are not only faster, quieter, cleaner and cheaper than helicopters, they offer point-to-point travel between urban terminals. These eVTOLs employ propellers or fans driven by small electric motors that together generate lift. It has been estimated that several billion dollars of capital investments have already been made since 2020 towards this disruptive technology. Looking forward to greater innovations and findings in the coming days.

I take this opportunity to congratulate the faculty and student coordinators of ECHO, for coming up with yet another fascinating issue of ECHO. Sit back and enjoy reading!

Team MCT wishes all the readers a blessed and a delightful New Year 2022 – a year of seeing all your dreams fulfilled and your hard work rewarded!

“Every Moment is a fresh beginning!” – T. S. Eliot

**Dr. M. Lydia**  
 Professor & Head  
 Department of Mechatronics Engineering



## **FACULTY EDITOR:**

Mr. Madhankumar S, Asst.Prof.,MCT

## **STUDENT EDITORS:**

### **2018 - 22 BATCH**

Saktheeswaran G  
 Prawin Sankar T A  
 Rishikesh S S

### **2019 - 23 BATCH**

Bero C  
 Gedendhar S  
 Kishore P

### **2020 - 24 BATCH**

Deepak K V  
 Sooraj S

# SYNOPSIS:

- ✦ DEPARTMENT LEVEL EVENTS
- ✦ RESEARCH AND DEVELOPMENT
- ✦ EXPLORE THE TECH
- ✦ SPIRIT LIFE UNLEASHED
- ✦ A STORY WITHOUT LETTERS - ART
- ✦ THOUGHT MANIACS
- ✦ THINK! DO! TREAT!
- ✦ ACHIEVEMENTS
- ✦ UPCOMING EVENTS

THE AGE OF AUTOMATION IS GOING TO BE THE AGE OF "DO IT YOURSELF".

- MARSHALL MCLUHAN



## TRS STUDENTS CHAPTER INAUGURATION



The Robotics Society (TRS) Student's Chapter was inaugurated by Dr.B.Vinod, Professor and Head, Department of Robotics and Automation Engineering, PSG College of Technology, Coimbatore on 7<sup>th</sup> December 2021, in the Department of Mechatronics Engineering, with an aim to help the student community to get the awareness about recent trends in the field of robotics and also to provide the opportunity to get engaged with global robotics community.

## MOU SIGNING - DeepVisionTech



The Memorandum of Understanding (MoU) was exchanged with DeepVisionTech.Pvt.Ltd on 22.11.2021. Principal Madam signed and exchanged the MoU with Mr.Jayasudhan Munsamy, Founder & CEO, DeepVisionTech.Pvt.Ltd. The intention of this academic collaboration is to bridge the gap between Academia and Industry to explore new cutting edge niches from technologies and make the students industry ready.

## Workshop on GRE & IELTS: TIPS and TECHNIQUES



The Department organized a Workshop on "GRE & IELTS: TIPS and TECHNIQUES" on 7.10.2021 by Career Zone, Coimbatore. The Expert (Mrs. Nagalakshmi, VP Academics) discussed Exam structure, Preparation of test, Difference between GRE, IELTS & Other exams and How to take English proficiency tests.

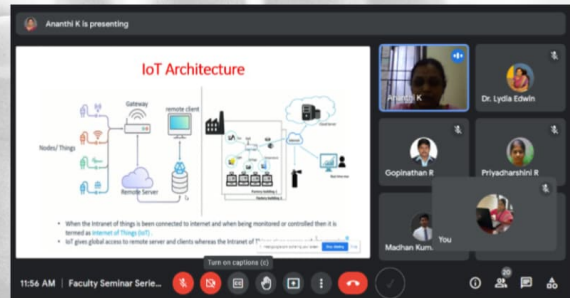
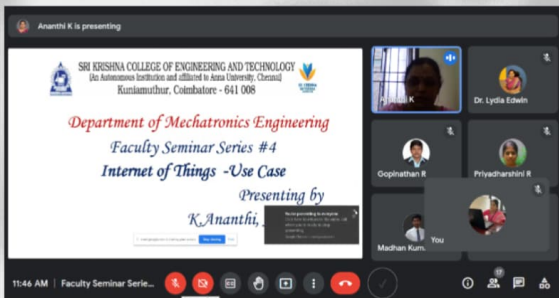


## FACULTY SEMINAR SERIES #3



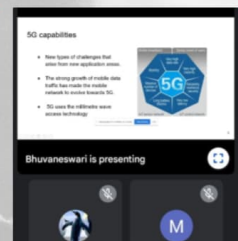
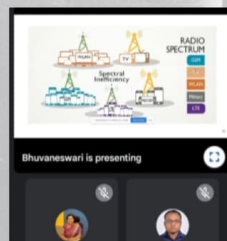
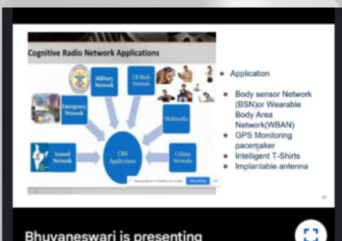
Mr. S. Madhankumar, Assistant Professor of MCT has shared his views on the topic #3 How to Write a Successful Research Manuscript on 17.09.2021 as a knowledge-sharing session for the benefit of the faculty members. Session Highlights were Manuscript Sections, Order of Manuscript Writing; Pathway in Journal publications, Reference citation and graphical tools.

## FACULTY SEMINAR SERIES #4



For the benefit of the faculty members, Mrs.K.Ananthi, Assistant Professor of MCT has shared her views on the topic #4 Internet of Things Use Cases on 27.10.2021. Session Highlights were IOT Applications, Communication Protocols in IOT, IOT cloud platform and Demo on using MQTT.

## FACULTY SEMINAR SERIES #5



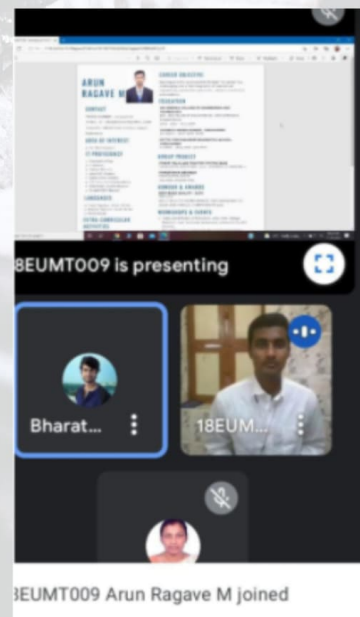
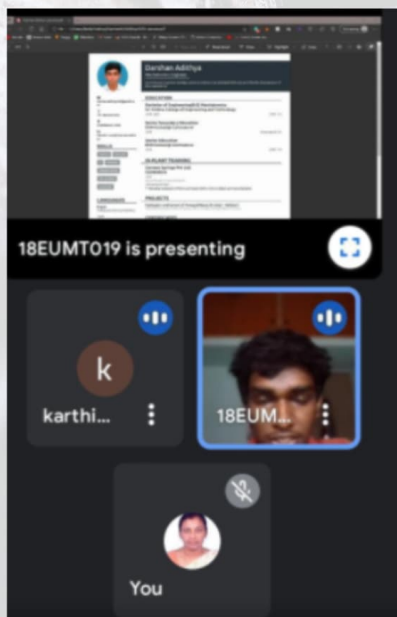
As a knowledge-sharing session, Mrs. M. Bhuvanewari, Assistant Professor of MCT has shared her views on the topic #5 Cognitive Wireless Power Ratio Network in Application to Healthcare on 3.12.2021. Session Highlights were Cognitive wireless network, Body sensor networks and GPS monitoring pacemaker.

## ASSOCIATION INAUGURATION & GUEST LECTURE ON ADVANCEMENTS IN ROBOTICS & ROBOTICS CAREERS



The department conducted “Association Inauguration & Guest Lecture on Advancements in Robotics & Robotics careers”. Mr. Sri Sabari Nathan, Chief Product Officer, Maxbyte Technologies, Coimbatore was the Resource Person. Session Highlights were: Importance of Mechatronics in Industries, Automation in all areas, Robotics in the upcoming era, Commercial Quadrupedal Robots and Smart Dust Robots.

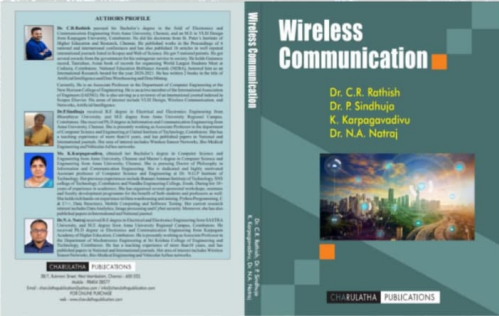
## MOCK INTERVIEW



Department of Mechatronics Engineering has conducted the mock interview session. Students attended passionately. Mechatronics Department alumni Mr.Karthikeyan working in Accenture and Mr.Bharathraj working in Deloitte has conducted a mock interview for MCT final year students. They have motivated the students to give their best in upcoming drives.



## BOOK PUBLICATION



Dr.N.A.Natraj, Associate Professor of MCT, has published a book entitled “Wireless Communication” (November 2021) in Charulatha Publications.

## PAPER PUBLICATION

Experimental Investigations on the Mechanical Properties, Microstructure and Corrosion Effect of Cu-20Al-4Ni/SiC Composites Synthesized Using Powder Metallurgy Route

L. Manohar Anand<sup>1</sup>, S. Natheegun<sup>2</sup>, G. Veerappan<sup>3</sup>, M. Raghavender<sup>4</sup>, S. Harithang<sup>5</sup>

Received 15 May 2021; Accepted 20 August 2021  
© Springer Nature 2021

**Abstract**

The present investigation pertains to synthetic distribution between silicon carbide composites by powder metallurgy route. Three various weight percentages of silicon carbide (0, 2, 4 & 6) were synthesized with aluminium bronze matrix (Cu-20Al-4Ni). The composite was heated at two different temperatures such as 600 and 700 °C using oil bath furnace. The effect of silicon carbide on density, porosity, compression test and hardness was investigated. The scanning electron microscope and energy dispersive spectroscopy were used to confirm the presence of alloying elements. The results showed that the sinterability and density were reduced with an increase in silicon carbide content. There was significant improvement in densification of composites sintered at 700 °C relative to composites sintered at 600 °C. The maximum percentage of increase in density was 7.34 %, which was noticed for a 6 % SiC reinforced aluminium bronze sintered at 700 °C. Aluminium bronze + 6 % SiC composite (700 °C) sintered exhibited maximum hardness of 220HB. Among the composites sintered at 700 °C, a 6 % SiC reinforced porous bronze exhibited highest compressive strength among other composites. The 4 wt% SiC reinforced composites sintered at 700 °C has highest corrosion resistance. There was significant improvement in densification of composite sintered at 700 °C relative to composite sintered at 600 °C. The maximum percentage of increase in density was 7.34 %, which was noticed for a 6 % SiC reinforced aluminium bronze sintered at 700 °C. Aluminium bronze + 6 % SiC composite (700 °C) sintered exhibited maximum hardness of 220HB. Among the composites sintered at 700 °C, a 6 % SiC reinforced porous bronze lowest sinterability of 0.84. The composite reinforced with a 6 % SiC exhibited lowest compressive strength among other composites. The 4 wt% SiC reinforced composites sintered at 700 °C has highest corrosion resistance.

**Keywords:** Bronze composite; Sinterability; Powder metallurgy; Silicon carbide; Corrosion

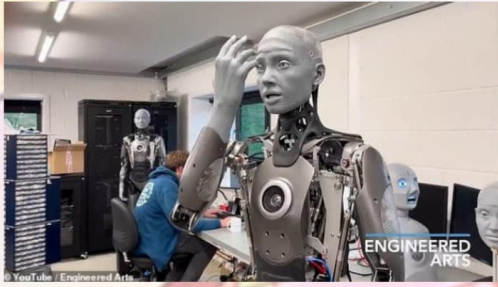
Dr. G. Veerappan, Assistant Professor of MCT has published a paper titled “Experimental Investigations on the Mechanical Properties, Microstructure and Corrosion Resistance of Cu-20Al-4Ni/SiC Composites Synthesized Using Powder Metallurgy,” in the Silicon (2021) (Springer-WOS indexed) DOI: <https://doi.org/10.1007/s12633-021-01363-2>

## CONFERENCE PROCEEDINGS

S. No	Name of the Faculty	Title of the Paper	Name of the conference
1	Dr. M. Lydia, HOD/MCT	A Comprehensive Overview on Impact of Trust Models in Internet of Things	2 <sup>nd</sup> International Conference on Smart Electronics and Communication (ICOSEC 2021)
2	Mr. P. M. Arunkumar, AP/MCT	Topology optimization of aluminium alloy wheel for SUV	Advancements in Aeromechanical Materials for Manufacturing (ICAAMM-2021)
3	Dr. N. A. Natraj, AP/MCT	An Efficient hybrid classifier for detection of oral cancer lesions	National Conference on Communication and Signal Processing Systems (NCCSS-2021)
4	Mrs. M. Bhuvanewari, AP/MCT	Resource allocation by Fuzzy based cluster using Greedy algorithm for secure communication	5th International Conference on Electronics, communication and Aerospace Technology (ICECA – 2021)

S. No	Name of the Faculty	Name of the Student	Batch	Paper title	Name of the conference
1	Mr. S. Panneerselvam, AP/MCT	S. Adhithyan, M.Monish, H. S. Kishoor and K.Muthukumar	2020-24	Performance Comparison of Domestic Refrigeration System with Latent Heat Storage Materials	International Conference on Smart Technologies, Communication, and Robotics 2021 (IEEE-STCR-2021)
2	Mrs. S. Kannaki, AP/MCT	K.AswinKumar, V.Ajith Kumaran, R. Ajai and M. Adhityan	2017-21	Design and Fabrication of Automated Cloth Pulling machine for Shed Work	International Conference on Smart Technologies, Communication, and Robotics 2021 (IEEE-STCR-2021)
3	Mr. T. Vignesh, AP/MCT	T.A.Prawin Sankar, Prince Paul, G.Saktheeswaran, S.Shibin Thomas and N.T.Vibunesh	2018-22	Technology in Design Aspect of BIN Bot Robot	International Conference on Smart Technologies, Communication, and Robotics 2021 (IEEE-STCR-2021)





## Ameca- The Humanoid robot

- **Mr.S.Panneerselvam**  
**Assistant Professor/MCT**

- The 'world's most advanced' humanoid robot has been unveiled in a UK lab.
- Machine, named Ameca, has eerily realistic facial expressions and movements.
- It's been designed by British company Engineered Arts and revealed on YouTube.
- The Company has not said how much the robot cost to make; it is still in development.
- It may bear a somewhat uncanny resemblance to the terrifying creation in the Will Smith blockbuster *I, Robot*.
- But this machine is actually real and has been billed as the 'world's most advanced' humanoid.
- Named Ameca, it was created in a British lab and has eerily realistic movements and facial expressions.
- Cornwall-based Engineered Arts, which brands itself 'the UK's leading designer and manufacturer of humanoid entertainment robots', unveiled the machine on YouTube to much excitement.
- Some people compared Ameca to the NS-5 series from *I, Robot*, 2004 science fiction film starring Will Smith that sees intelligent robots fill public service positions in a dystopian world.
- In the clip, the robot is seen warming up its shoulder, before opening its eyes and expressing a rather convincing look of shock or surprise.
- It even blinks multiple times and observes its machine arm with curiosity.
- The preview ends with Ameca reaching out its hand and admiring its combination of mechanical limbs and ligaments, actuators, and sensor arrays.
- It is certainly realistic and at the forefront of its field in terms of its expressions, but the next challenge will be enabling these robots to walk around.
- Engineered Arts said it was still a long way off that, but added that the face is housed on a 'human-like artificial body (AI x AB)' that boasts a 'powerful Tritium robot operating system'.
- It has not revealed how much the robot cost to make as it is still in development.





## Rolls-Royce: Spirit of Innovation

- Prince Paul  
(2018 - 22 Batch)

“Spirit of Innovation” looks like a famous quote from a great inventor, but it’s not. This is a project name which the good-old British engineering firm Rolls-Royce was entitled to their first electric powered propeller plane. This Electric-powered propeller plane, Spirit of Innovation smashed the zero-emission speed record hitting a top speed of nearly 556 kilometres per hour (345 mph) over a distance of three kilometres—and even maxed out at 623 km/h.

Aviation is responsible for about 915 million tonnes of CO<sub>2</sub> worldwide, or about 12% of transport-related emissions. It is however one of the hardest sectors to abate: the vast majority of CO<sub>2</sub> pumped into the atmosphere derives from flights longer than 1,500 km, for which there is no realistic green air-transport alternative.

When Rolls-Royce started this project three years ago to build the world’s fastest electric aircraft, they teamed up with two U.K. firms: the Daimler-owned automotive supplier YASA, and aerospace engineering start-up Electro flight. They are planning for the commercial business to deliver two electric aviation propulsion systems in the very near future, one for an electric vertical take-off and landing (e-VTOL) vehicle that will carry up to four passengers in 2024, and another for a small commuter plane with Nordic regional airline Widerøe.

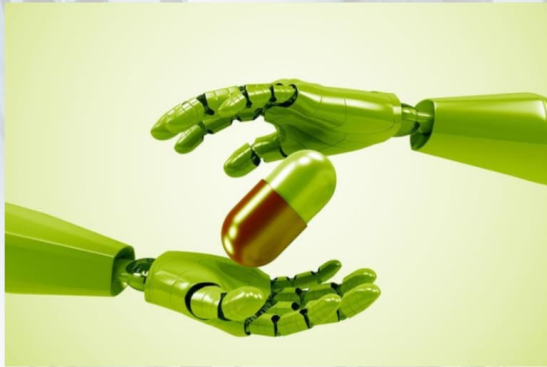
Rolls-Royce hopes to develop a complete portfolio of zero-emission power systems that can be used in urban air taxis and small aircraft. This would not only cover electric motors, but also power electronics, onboard wiring system, and batteries for an energy source. Rolls-Royce started with procurement of the off-the-shelf battery cells. For help, Rolls-Royce has turned to the very sector that gave birth to the company before the two went separate ways in the post-war period: the automotive industry. Rolls got out of the business of making cars in the 1990s to focus on aviation, defence, and power.

They will invest £80 million over the next decade to develop their electric flight business. One of the major problems they faced was High altitude short circuits, the safety of high voltage systems needed to enable battery-powered flight. The low-pressure environment prevailing at cruising altitudes degrades the electrical resistance of insulating material. Coupled with water condensation forming at cold temperatures, the risk increases over time that the wiring could short circuit, triggering an onboard fire. This issue was solved by months of research and simulation, and with the knowledge gained over there on these altitude issues.

While the company has said “the journey to net zero will create significant business opportunities”, the jet engine manufacturer believes entirely new technologies will not likely play a significant role in decarbonizing the sector prior to 2050.



## AI-developed antibiotics



The world is facing an antibiotic apocalypse as antimicrobial resistance increases, and the COVID-19 pandemic, which has resulted in a surge in antibiotic use to treat secondary infections and complications, is accelerating the process. New antibiotics are desperately needed and scientists are increasingly turning to artificial intelligence to develop them. By using a machine-learning algorithm, MIT researchers were able to identify a powerful new antibiotic that can kill antibiotic-resistant bacteria.

- Mr.P.M.Arunkumar, AP/MCT

## Smellicopter drone



Drones are quickly becoming a part of our day-to-day lives as photographers and hobbyists take them to beauty spots and big names such as Amazon are incorporating them into their delivery processes. But this new take on the drone, the Smellicopter, does a lot more than fly around. It can also seek out certain smells in its surroundings thanks to its live moth antenna, which is taken from an anaesthetised insect and then remains biologically and chemically active for up to four hours. It's hoped that the Smellicopter, which has been created by researchers from the University of Washington, will be useful in the future in detecting chemicals in the air, identifying gas leaks and explosives and even locating disaster survivors.

- Mr P.M.Arunkumar, AP/MCT



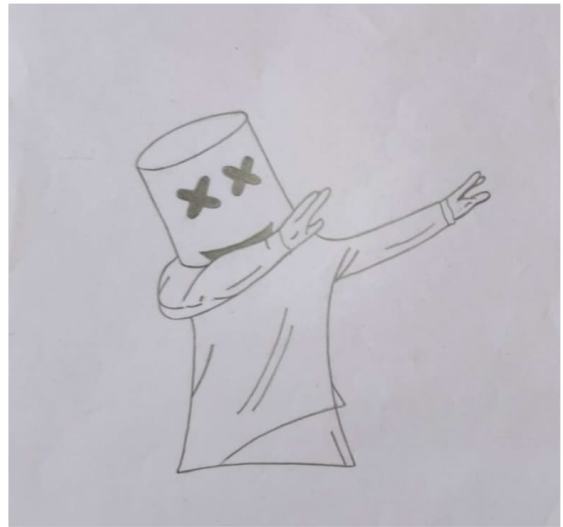


- Naveen Pandiyan  
( 2020 - 24 Batch )

- Bhrugunandana  
( 2019 - 23 Batch )



- Sriram K  
( 2020 - 24 Batch )



- Sri Hari P  
( 2020 - 24 Batch )



- Naveen Pandiyan  
( 2020 - 24 Batch )



- Medhun Krishnaa A  
( 2019 - 23 Batch )

## RIDDLES :

Mr. P.M.ARUNKUMAR AP/MCT

- 1) I have been around for millions of years but am only 15 days old. What am I?
- 2) I can rush, I can be hot, I can be cold, I can be hard, I can slip through anything. What am I?
- 3) Give me food and I will live. Give me water and I will die. What am I?
- 4) What is black when you buy it, red when you use it, and gray when you throw it away?
- 5) Many have heard it, but nobody has ever seen it. It will not speak back until spoken to. What is it?

## TONGUE -TWISTERS :

Asif Muhammed A  
(2019 - 23)

- The sixth sick sheik's sixth sheep's sick
- A dozen double damask dinner napkins
- A truly rural frugal rulers mural
- A soft shot-silk sash shop
- Freddy thrush flies through thick fog
- She sells sea shells on the seashore
- Stops chop shops selling chopped shop chops
- They threw three quick things.

(1) The Moon (2) Water (3) Fire (4) Charcoal (5) Echo

ANSWERS:



I know you don't see me the way I see you  
I know you don't love me the way I love you  
I know you don't waste hours by hours crying over me  
I know your smile and your laughter are not for me

And I know all of these scenarios that I have made  
in between my dreams and my sleeps  
are not true

And I know my dream is  
just a dream  
and soon, it will be fading away

I will still admire the way you are;  
a beautiful person who changes my world,  
and also my perspective in life  
And even if you don't feel the same about me,  
It is okay. I know you don't see me the way I see you

Gedendhar S  
(2019-23 Batch)

On a warm sunny day, I put on my skates and was destined to taste  
success. On the midway, Came an athletic angel crossed over me,  
I was clueless Completely lost in you as I gracefully lost the race!

I was not searching for you in the grand universe but in Instagram,  
I found you my girl!  
I messaged my heart regardless of your presence.

"Let's not love to the moon n back , let's be friends till the moon returns  
to me" I said until my mom shook my dream!

Medhun Krishnaa A  
(2019-23 Batch)

பெண்ணே நான் இறந்தப்பின்  
என் மலர் மாலையில், நான் உனக்கு கொடுத்த ரோஜாவை சேர்த்துக்  
கொடு! இறந்தப்பின் என்  
காதலையாவது எடுத்துச் செல்கிறேன்  
என் கல்லறைக்கு!

PREETHIVIRAJ M  
(2020-24 Batch)

## Tamil Nadu Open Inter District Skatting Championship



- Medhun Krishnaa A  
(2019 - 23)

## T1 Hack 2.0





## FACULTY ACHIEVEMENT

**Dr. Lydia Edwin**  
 Professor & Head, Dept. of Mechatronics Engg, Sri Krishna College of Engineering and Technology  
 Verified email at skcet.ac.in - [Homepage](#)

Wind Energy Optimization Data mining Neural Networks Compressed Sensing

ARTICLES	CITED BY	PUBLIC ACCESS	CO-AUTHORS
		All	Since 2016
Citations	1005		898
h-index	10		9
i10-index	10		9

**Dr. Lydia Edwin, Professor & HOD/ MCT, has made a big breakthrough with her research articles which got wide acceptance from all over the global research community. Especially the article “A comprehensive review on wind turbine power curve modeling techniques” published in Renewable and Sustainable Energy Reviews (2014) with a high impact factor of 14.98 has been a significant role in crossing a golden milestone of 1000 citation.**

## NPTEL CERTIFICATION

**Elite NPTEL Online Certification**  
 (Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to **AADHAVAN P** for successfully completing the course **Entrepreneurship and IP strategy** with a consolidated score of **91 %**

Online Assignments: 23.75/25 | Proctored Exam: 67.5/75

Total number of candidates certified in this course: 794

Jul-Sep 2021 (8 week course)

Prof. G P Raja Sekhar (Dean, Continuing Education, IIT Kharagpur) | Prof. Debjani Chakraborty (Coordinator, NPTEL, IIT Kharagpur)

swayam

Roll No: NPTEL21HS102524371809 | To validate and check scores: <https://npTEL.ac.in/ncoc>

**Elite NPTEL Online Certification**  
 (Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to **BLESSWIN SUHIRTHARAJ** for successfully completing the course **Entrepreneurship and IP strategy** with a consolidated score of **84 %**

Online Assignments: 24.17/25 | Proctored Exam: 60/75

Total number of candidates certified in this course: 794

Jul-Sep 2021 (8 week course)

Prof. G P Raja Sekhar (Dean, Continuing Education, IIT Kharagpur) | Prof. Debjani Chakraborty (Coordinator, NPTEL, IIT Kharagpur)

swayam

Roll No: NPTEL21HS102523810084 | To validate and check scores: <https://npTEL.ac.in/ncoc>

**Elite NPTEL Online Certification**  
 (Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to **YOGESH MUTHU RAM M** for successfully completing the course **Entrepreneurship and IP strategy** with a consolidated score of **79 %**

Online Assignments: 23.33/25 | Proctored Exam: 55.5/75

Total number of candidates certified in this course: 794

Jul-Sep 2021 (8 week course)

Prof. G P Raja Sekhar (Dean, Continuing Education, IIT Kharagpur) | Prof. Debjani Chakraborty (Coordinator, NPTEL, IIT Kharagpur)

swayam

Roll No: NPTEL21HS102524380506 | To validate and check scores: <https://npTEL.ac.in/ncoc>

**Elite NPTEL Online Certification**  
 (Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to **VISHNU GIRISHKUMAR** for successfully completing the course **Entrepreneurship and IP strategy** with a consolidated score of **72 %**

Online Assignments: 22.5/25 | Proctored Exam: 49.5/75

Total number of candidates certified in this course: 794

Jul-Sep 2021 (8 week course)

Prof. G P Raja Sekhar (Dean, Continuing Education, IIT Kharagpur) | Prof. Debjani Chakraborty (Coordinator, NPTEL, IIT Kharagpur)

swayam

Roll No: NPTEL21HS102523313509 | To validate and check scores: <https://npTEL.ac.in/ncoc>

## #EVENT 1:

**SRI KRISHNA**  
COLLEGE OF ENGINEERING AND TECHNOLOGY  
An Autonomous Institution, Accredited by NAAC with 'A' Grade.  
Department of Mechatronics Engineering

**Faculty Seminar Series**

**#9 Digital Assessment Techniques**

**Dr. V. Narasimharaj**  
Asso. P/MCT

yvx-byvn-udb

11.02.2022 11:40 am to 12:30 pm

## #EVENT 2:

**SRI KRISHNA**  
COLLEGE OF ENGINEERING AND TECHNOLOGY  
An Autonomous Institution, Accredited by NAAC with 'A' Grade.  
Department of Mechatronics Engineering

**Faculty Seminar Series**

**#8 Lean Management for Academic Excellence**

**Dr. D. Pritima**  
P/MCT

aex-yriw-xqw

28.01.2022 02:40 pm to 03:30 pm