

INDUSTRY INSTITUTE INTERACTION CELL

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VOLUME 1 ISSUE 1



2023 Newsletter from The "IIIC"

FROM THE

COORDINATOR'S DESK

#### **WELCOME!**

We're delighted to have you on board as reader. Here, you'll find a curated collection of insightful activities and exciting updates. Thank you for joining us on this journey. Let's explore, learn, and grow together!

- Dr. L Priya, Professor IT & Coordinator - IIIC





Industry-Institute Interaction Cell (IIIC) was established in the year of 2021 with the primary goal of bridging the gap between the industry and academia. Its mission is to augment the employability of young students by immersing them in the latest technologies and industrial practices. The IIIC serves as a crucial platform for both students and faculty members, fostering awareness of the skill sets expected by the industries. The IIIC facilitates extensive interaction between students and faculty with the industry through various means, including internships, industrial visits, expert lectures, in-plant training, consultancy, and collaborative research & development projects. The overarching objective is to create a symbiotic relationship, ensuring benefits for both academia and industries.

"Consultancy is the bridge between Industry and Academia, problems and solutions, expertise and execution,

Guidance and achievements of goal



Consultancy, the quintessential bridge, gracefully spans the realms of Industry and Academia, fostering a symbiotic relationship of knowledge exchange. It elegantly navigates the turbulent waters between problems and solutions, leveraging expertise to illuminate the path forward. With meticulous attention, it orchestrates the seamless execution of strategies leading to the achievement of intended goals.

Echoing the wisdom of tradition,

Sincere thanks to fellow members for being supportive for making this newsletter a success!

We worked together on this issue with a motto to kindle your curiosity and entrap you in the world of Technology and inspire you to innovate.

#### HOPE THIS NEWSLETTER FULFILLS ITS MISSION!!!

#### REGARDS CONCOR TEAM

Dr L.Priya, Professor/IT and Coordinator IIIC Mrs K.Poornimathi, Assitant Professor(SG)/CSBS Mr. V.Ghadhatharan, Project Associate



# **HEADLINES**

- 1 CONSULTANCY PROJECTS
- 3 MOUS SIGNED

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#### VISION BASED QUALITY INSPECTION OF BRAKE PISTON CYLINDER



The Brake Piston Cylinder (BPC) assumes a pivotal role within the braking system of four-wheelers, incorporating 16 peripheral holes. The presence of even the minute burr within these apertures has the potential to result in substantial malfunctions within the brake system. This project endeavors to identify and rectify such imperfections by implementing a vison and servo controller to facilitate the rotation of the component. The system has been intricately crafted to function with unparalleled reliability across a spectrum of 12 distinct variations of brake piston cylinders.

#### MACHINE VISION SOLUTION FOR BURR IDENTIFICATION

The Brake Piston Cylinder (BPC) plays a crucial role in the braking system of four-wheelers as stated earlier. The present model features 18 peripheral holes. Here also, the presence of even the smallest burr within these holes can lead to severe breakdowns in the brake system. This project aims to detect and address such burrs by employing a servo controller to rotate the component. Vision system is employed to perform the automatic inspection of 4 variants of this 18 hole product and will segregate the parts in accept and reject bin accordingly.



#### DEVELOPMENT OF READY TO DRINK COCONUT NEERA FROM THE CONCENTRATE THROUGH VENDING MACHINE

The project involves standardizing process protocols for producing ready-to-drink neera, both in concentrate form and with added spice/herbal/fruit flavors (four variations), dispensed through vending machines. There is a significant potential for market expansion by offering flavored coconut sap through this method, appealing to students, housewives, and the general public due to its nutritious and delicious features.

#### MACHINE VISION SOLUTION FOR TULIP ASSEMBLY LINE

This project aims to inspect the presence and absence of Spline Profile, Thread, and Keyway operations (Station 1) and measure the dimensional attributes of Tulip at the assembly line (Station 2). To focus on sharp edges, a Bi-Telecentric lens and Bi-Telecentric Light will be used to capture images, with the lens adapted to accommodate various tulip sizes. The captured images will undergo processing within the system, segregating parts based on decision criteria. The conveyor will then separate the parts into accepted and rejected categories.



#### DEVELOPMENT OF ORGANIC WATER DISPERSIBLE SPICE OLEORESIN EMULSIONS



Oleoresins are predominantly traded and supplied by ingredient companies, given their extensive use in processed foods and pharmaceutical applications. As the global trend shifts towards integrating natural products into everyday life, organic oleoresin emulsions emerge as excellent flavoring agents, tastemakers, preservatives, and sources of therapeutic and antioxidant benefits. There is a significant opportunity for market expansion by reaching out to caterers, industrial canteens, housewives, and wedding catering agents. Research advancements are crucial to exploring new applications that can be introduced into this growing market.

#### **ROOT-CAUSE FAULT ANALYSIS**

- Analyzing Power Module Failures in the Induction Generator.
- Evaluating the Instantaneous Reactive Power Requirements of the Machine.
- Computing Cable Energy Losses from the Machine to the Feeder.
- Capturing Harmonic Flow and Relay Transients in the Power Network.



# DESIGN AND DEVELOPMENT OF GRAVITY FEED ROLLER CONVEYOR



The goal of this project is to create and implement a gravity feed roller conveyor for the hot forging component within the current assembly line. This system aims to material optimize handling, reducing the need for manual labor and enhancing overall productivity.

#### CONTROL PANEL REFURBISHMENT

#### - MACHINE VISION INSPECTION SYSTEM



This project is designed to detect the presence of any burr, regardless of its size, by rotating the component through a servo controller. The system has been developed for optimal reliability and is compatible with 12 variants of brake piston cylinders.

### TESTING OF LIGHTWEIGHT AERATED/FOAMED CONCRETE BLOCKS

The Project is proposed to test the lightweight Aerated/Foamed concrete blocks



#### TYRE JAM DETECTION USING COMPUTER VISION

This project delineates the strategy for creating a resilient and effective system for detecting tire jams, through computer vision techniques, thereby minimizing downtime and enhancing safety in the manufacturing processes. This solution harnesses cutting-edge algorithms and technologies to achieve precise and real-time detection of tire jams, facilitating prompt intervention and mitigating operational disruptions.





DESIGN AND DEVELOPMENT OF AUTOMATIC STACKING SYSTEM FOR ASSEMBLY LINE CONVEYOR

The goal of this project is to create an automated stacking system that seamlessly integrates the current assembly line conveyor. This system will facilitate the efficient stacking of assembled components onto pallets or containers, thereby improving productivity and minimizing the need for manual labor.

#### **POWER QUALITY ANALYSIS**

- Analyzing the Effects of Harmonics in Distribution Systems.
- Measuring the Substantial Impacts
  Caused by Harmonics.
- Ensuring the Optimal Utilization of APC Systems.

# TESTING OF LIGHT WEIGHT CONCRETE BLOCKS

The project involves designing and producing prototypes of FRP-CLC panels with a sound absorption surface. Testing of the prototypes was conducted in accordance with relevant standards, and specifications were prepared. Additionally, a study on the cost economics of the final product has been undertaken.



#### STUDYING THE CAUSE OF DISCOLORATION OF 301LNMT STAINLESS STEEL DURING RESISTANCE SPOT WELDING

Austenitic stainless steels, prized for their optimal blend of mechanical strength, conformability, corrosion resistance and find applications in diverse industries, including food, transportation, nuclear, and petrochemical sectors. Among these, AISI 301LN steel stands out for its exceptional mechanical strength. It is prominently used the construction of wagons for metropolitan surface trains. This project involves a comprehensive microstructural characterization of AISI 301LN steel using various techniques like metallography, optical microscopy, scanning electron microscopy, and atomic force microscopy to analyze the discoloration effects during resistance spot welding.



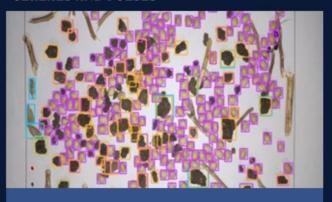
### FABRICATION OF MICROFLUIDIC DEVICE FOR MICROBIOLOGY

The aim of this project is to outline the process flow and manufacture microfluidic devices according to the specifications provided by Matrix Labs. The fabrication process includes optimizing the workflow for both the primary molds and their replicas.

## MICROBIAL TESTING OF RAW MATERIALS AND PAINTS AND PACKAGING MATERIALS

This consultancy project is dedicated to avert microbial contamination in diverse samples of Nippon paints, with the aim of ensuring the utmost quality of the final product. Samples are gathered from different points within the production plant situated in Sriperumbudur and are subjected to testing for microbial presence using standardized protocols refined at the Microbiology laboratory of the Biotechnology department at REC. Upon identifying the presence of microbes at the source, appropriate implemented are measures contamination. eliminate ensuring the production of the highest quality products.

## MACHINE VISION QUALITY ASSESSMENT OF CEREALS AND PULSES



The task involves coding to assess the count, size, and color of all grains, particularly for the classification accuracy of Green Moong and Soya Beans. The generated code and system design should be compatible for seamless integration with the existing mobile application of WayCool. Through this application, the quality of grains of 36 commodities can be identified and packed accordingly.

## OPTIMIZATION OF FOUNDRY SAND IN SOIL FOR LAND FILLING



This project is aimed to provide reports on the soil testing present at client site. The soil samples were extracted from the site and was tested to find the safe bearing capacity with which the foundation was designed and constructed.

## DEVELOPMENT OF WEB AND MOBILE APPLICATION FOR THE HR MANAGEMENT



The scope of the project involves creating software for Human Resource Management, streamlining workflows, and ensuring prompt data maintenance. The primary goal of this application is to enhance the operations management efficiency. Following a Business Analytics assessment, the team has identified specific challenges that can be addressed through an IT system, ultimately delivering a digitalized experience for Rane Employees across India.

#### CONSULTANCY WORK FOR PWD FOR MATERIAL TESTING



A consultancy work from Public Works Department (PWD) for Strengthening the damaged portions of the Krishna Water Supply Project Feeder Canal from LS 14285 m to LS 21500 m in Avadi Taluk of Tiruvallur District-Design Mix for concrete and Materials testing was carried and the reports were submitted to PWD. Based on the suggestions given in the report the construction work was executed. Consultancy work for PWD on Comprehensive restoration & rejuvenation of Adyar Drains of Malaipattu Somangalam (Reach-I) in Kundrathur Taluk of Kanchipuram District was carried out for Mix Design and Material Testing. All the materials used for the construction-Cement, sand, coarse aggregate and steel were tested for all the parameters as per IS code and the results were submitted to PWD. Further, the cubes from site concreting were brought to the lab and tested for strength. Around 80 concrete cubes were tested and the report has been submitted to PWD.

## CUSTOMIZED TRAINING DATA MANAGEMENT PORTAL - TMAP

A Customized Training Data Management Portal streamlines machine learning workflows by offering secured user authentication, dataset management, annotation tools, metadata tagging, and collaboration features. The portal prioritizes security, compliance, and analytics, with APIs for extensibility. It promotes scalability, performance optimization, and provides comprehensive documentation and training materials for users. This all-in-one solution provided in this project facilitates efficient storage, organization, retrieval, and management of training data, enhancing the development of machine learning models.

#### SOIL TESTING

This project is executed based on the need for soil testing to design the foundation for a residential building near Mahabalipuram along the ECR road. The soil samples were extracted from the site by a core cutter and brought to the lab. The soil was tested to find the safe bearing capacity with which the foundation was designed and constructed.

# FIMA MEMBERSHIP







**Federation of Industry & Management Association** 

Registered Society - Chennai South/648/2022

### **MEMBERSHIP CERTIFICATE**

This	is	to	certify	that

M/sRAJALAKSHMI EDUCATIONAL TRUST												
is a <u>Associate</u> member of Federation of Industry & Management												
Association	(FIMA)	with	effect	from	22 <sup>nd</sup> Nov 2023	Your	FIMA					
membership	numbe	er is	A-00027	7-2324								

Date of issue: 22<sup>nd</sup> November, 2023

Authorised Signatory

For current membership status of the member please visit our official website www.fima-india.org.in

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Ph: +91-44-29515016 | Email info@fima-india.org.in | Web: www.fima-india.org.in

# Mous Signed



From left-

Dr. S. Geetha Professor/HOD - Civil

Dr. S. N. Murugesan, Principal

Mr. Ramkumar, Managing Director

Dr. L. Priya, Coordinator / IIIC

**WALFLOWER DESIGN & ENGINEERS. CHENNAI** 

MoU signed on 20th May 2023, to enrich students' knowledge in terms training, internship, quest lectures, industry visits and placements. Students Civil Engineering from beneficiaries.

#### IVORY GULL CANDY, SALEM.

MoU signed on 26th December 2022, to enrich students' knowledge in terms of training, internship, guest lectures, industry visits and placements. Students from Food tech, Bio tech can be benefited out of it.



From left-

Dr. K. Ramalakshmi, Professor/HOD - FT

Dr. L. Priva, Coordinator / IIIC

Mr. Manikandan Kumar,

Dr. S. N. Murugesan, Principal



From left-

Mr. J. Vishwanath, Founder

Dr. S. N. Murugesan, Principal

Mr. Balamurugan, General Manager

Dr. S. Geetha, Professor and HOD- Civil

#### SHASHEE REINFORCEMENTS PVT LTD, CHENNAI

MoU signed on 4th August 2023, signed to Design and manufacture Prototypes of FRP-CLC Panels with sound absorption surface, testing of the prototype as per relevant standard , preparing the specification, study the cost economics of the final product.



From left

Dr. Suresh Chandra Khandai, HOD - Aero Dr. S. N. Murugesan, Principal, Mr. Yogesh, Mr. Ajay Prasath, Dr. N. Muthusamy,

Mr. Balaji Rajendran

# >>> FABHEADS AUTOMATION PVT LTD., CHENNAI

MoU signed on 14th July 2023, to carry out collaborative additive manufacturing and 3D Printing workshop, training and for student internship.

# EMCOG SOLUTIONS, CHENNAI

MOU has signed on 25th
May 2023, to enrich the
Research in Embedded
Systems and IOT,
Internship to Students and
Faculty



From left

Dr. Kamalakannan, HOD- EEE,

Dr. V. Murali Bhaskaran, Dean Academics

Mr. S. V. Sreeraj, Director Technical and Operarion

Dr. K. Bhaskar, HOD - Automobile Engg.

Dr. S. Rama Reddy, Dean EEE



#### From left

Dr. C. Kamalakannan, HOD- EEE,

Dr. S. Rama Reddy, Dean EEE

Dr. S. N. Murugesan, Principal

Mr. G. Kuandayan, Director

Mr. I. Philip Praveen, Dean Student Affairs

#### >>> EVTRON, KANCHIPURAM

MOU has signed on 24th May 2023, to enhance the Research in EV and charging station and Internship to Students and Faculty

# TRAINING OFFERED BY INDUSTRY





























## **ULTRASERVE SYSTEMS**















# **INDUSTRY COLLABORATIONS**











































# Gallery (a) Industry































# INTERNSHIP





























DMW CNC Solutions India Pvt Limited

Precision Machined components manufacturers



# MSME FUNDED PROJECTS

#### **INCUBATEE:**

Dr.L.PRIYA

#### PROJECT TITLE:

TIMELY DETECTION OF STEM BORER PEST INFESTATION USING AERIAL IMAGERY FOR SMARTER RICE CROP MANAGEMENT

#### **INCUBATEE:**

Dr.S.GEETHA

#### PROJECT TITLE:

DEVELOPMENT OF LIGHTWEIGHT
PRECAST WALL PANELS USING
FOUNDRY SAND

2

3

#### **INCUBATEE:**

Mrs.S.HEMAMALINI **PROJECT TITLE**:

DEVELOPMENT OF BIODEGRADABLE EDIBLE PACKAGING FILM USING ASH GOURD PEEL

#### **INCUBATEE:**

Mr.ARJUN BHATTACHARYA

#### PROJECT TITLE:

AUGVIS-AN AR PLATFORM TO VISUALIZE AND CONTROL THE 3D ANATOMICAL PARTS OF THE HUMAN BODY 4

### FACULTY SABBATICAL TRAINING

## Sabbatical Training (Summer '23)

SLOT 1 - FROM: 22.05.2023 - TO: 26.05.2023

COMPANY: SHIVPREMA INDUSTRIES PRIVATE LIMITED

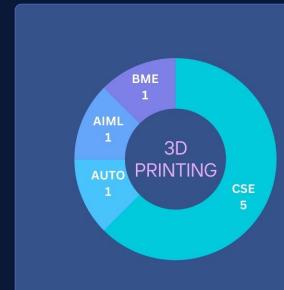


SLOT 2 - FROM: 29.05.2023 - TO: 02.06.2023

COMPANY: CHASE TECHNOLOGIES, AVADI



#### **COMPANY: SHIVPREMA INDUSTRIES PRIVATE LIMITED**



#### CSE

Dr. K. Ananthjothi, Associate Professor Ms. M. Jaeyalakshmi, Assistant Professor Mrs. S. Vinothini, Assistant Professor

Mrs. Roxanna Samuel, Assistant Professor (SG)

Mrs. M. Santhiya, Assistan Professor

#### **AUTO**

Mr. K. Mohanraj, Assistant Professor

#### **AIML**

Mr. B. Devendar Rao, Consultant Trainer

#### **BME**

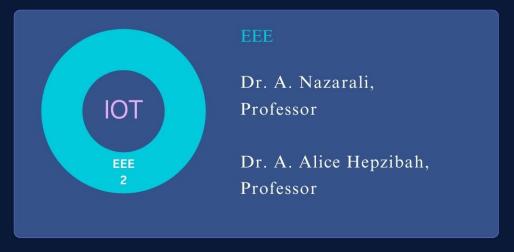
Dr. R. Ramachandran, Associate Professor

#### COMPANY: CHASE TECHNOLOGIES, AVADI



SLOT 3 - FROM: 05.06.2023 - TO: 09.06.2023

COMPANY: CHASE TECHNOLOGIES, AVADI



#### **COMPANY: SHIVPREMA INDUSTRIES PRIVATE LIMITED**



#### COMPANY: QMAX SYSTEMS, POONAMALLEE



#### COMPANY: SAASAM BIOLOGICAL SCIENCES, CHENNAI

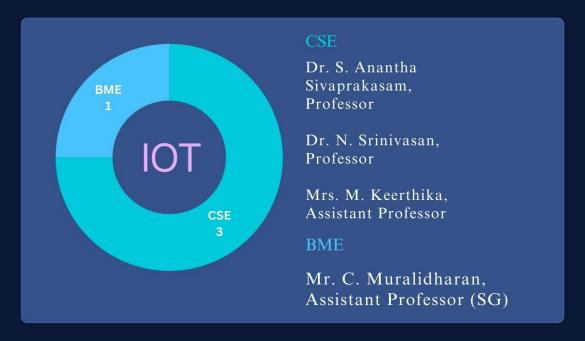


#### COMPANY: VOICE SNAP SOLUTIONS, TNAGAR

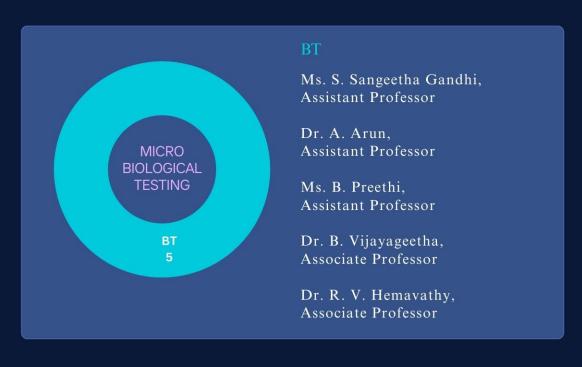


SLOT 4 - FROM: 12.06.2023 - TO: 16.06.2023

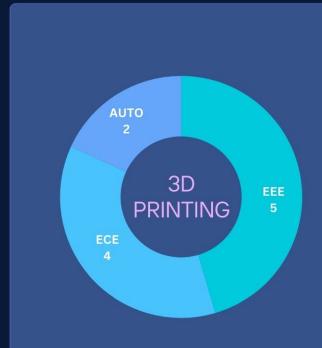
COMPANY: CHASE TECHNOLOGIES, AVADI



#### COMPANY: SAASAM BIOLOGICAL SCIENCES, CHENNAI



#### COMPANY: SHIVPREMA INDUSTRIES PRIVATE LIMITED



#### BIBIB

- Dr. R. Kalaivani, Professor
- Dr. A. Selvaraj, Professor
- Dr. V. Geethapriya, Professor
- Dr. V. Venkatesh, Assistant Professor
- Dr. A. Rajalakshmi, Professor

#### ECE

- Mrs. V. Radhamani, Assistant Professor (SG)
- Dr. M. Palanivelan, Professor
- Mrs. T. Mariammal, Associate Professor
- Mrs. T. Helan Vidhya, Assistant Professr (SG)

#### **AUTO**

- Mr. R. Anbalagan, Associate Professor
- Dr. B. Mullai Sudaroli, Assistant Professor

#### COMPANY: QMAX SYSTEMS, POONAMALLEE



#### COMPANY: SUPER AUTO FORGE, CHENNAI



#### AUTO

Mr. P. Pavan, Assistant Professor Mr. M. Zahirhussain, Assistant Professor

#### **MECH**

Dr. C. Devanathan, Assistant Professor (SG) Mr. M. Ajin, Assistant Professor

#### **MCT**

Mr. E. Prakash, Assistant Professor

#### **COMPANY: VOICE SNAP SOLUTIONS, TNAGAR**



#### IT

Mrs. Aruna Jameela, Assistant Professor

Mrs. T. Sangeetha, Assistant Professor

Mrs. P. Mahalakshmi, Assistant Professor

Mrs. K. Indhumathy, Assistant Professor

Mrs. M. Sandhiya, Assistant Professor

Mrs. R. S. Nisha, Assistant Professor (SG)

#### **CSBS**

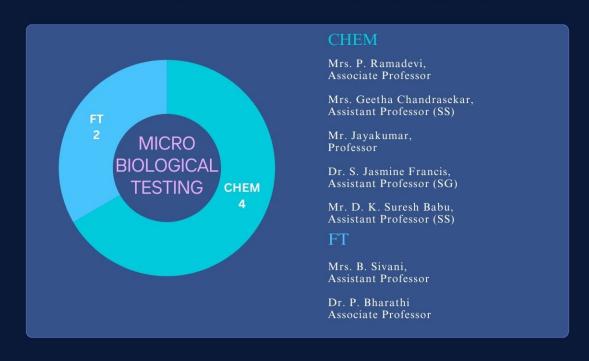
Dr. P. Tamil Selvi, Professor

SLOT 5 - FROM: 19.06.2023 - TO: 23.06.2023

COMPANY: CHASE TECHNOLOGIES, AVADI



#### COMPANY: SAASAM BIOLOGICAL SCIENCES, CHENNAI



#### COMPANY: SHIVPREMA INDUSTRIES PRIVATE LIMITED



#### **MCT**

Dr. P. Chandra Mohan, Professor

Mr. Balakarthikeyan, Assistant Professor

Mr. G. Nareshbabu, Assistant Professor

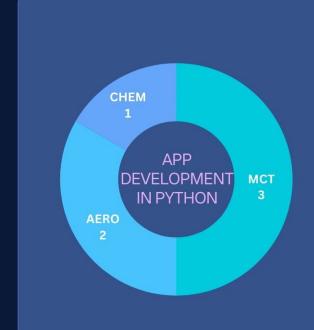
Mr. S. Senthil Murugan, Assistant Professor (SG)

#### **AUTO**

Dr. P. N. Selvaraju, Associate Professor

Mr. R. Karthikeyan, Assistant Professor

#### COMPANY: ANUGRAHA SYS, CHENNAI



#### MCT

Mrs. S. B. Nivethitha, Assistant Professor

Mr. V. Kanagaraj, Assistant Professor (SG)

Mr. A. Vimalesh, Assistant Professor

#### **AERO**

Mr. S. Pradesh, Assistant Professor

Dr. K. K. Nithiyanantham, Assistant Professor (SG)

#### CHEM

Dr. Vasumathi, Professor

#### **COMPANY: VOICE SNAP SOLUTIONS, TNAGAR**



#### **CSBS**

Mrs. S. Bakiyalakshmi, Associate Professor

Mrs. P. Menage, Assistant Professor

Mrs. M. Maharasi, Assistant Professor (SG)

Mrs. C. Abinaya, Assistant Professor

#### AIML

Mrs. S. Mahalakshmi, Assistant Professor

Ms. S. Saranya, Assistant Professor

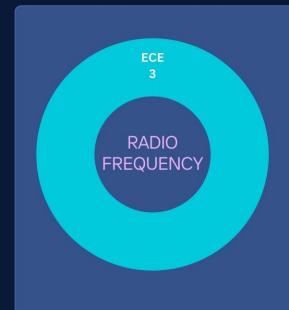
Mrs. V. Akshaya, Assistant Professor

#### **CSE**

Dr. P. Shanmugam, Assistant Professor (SG)

Mr. K. Deepak Kumar, Assistant Professor

#### **COMPANY: QMAX SYSTEMS, POONAMALLEE**



#### FCF

Ms. M. Tamilarasi, Assistant Professor (SS)

Dr. D. Indumathy, Associate Professor

Dr. B. Priya, Professor SLOT 6 - FROM: 10.06.2023 - TO: 13.06.2023

COMPANY: WALLFLOWER DESIGNS & ENGINEERING, CHENNAI



SLOT 7 - FROM: 20.06.2023 - TO: 28.06.2023

COMPANY: IVORY GULL CANDY, SALEM



# Gallery (a) Sabbatical Training





















66

வினைத்திட்பம் என்பது ஒருவன் மனத்திட்பம் மற்றைய எல்லாம் பிற

- திருவள்ளுவர்

Efficiency in completing the task, essentially consists of a resolute mind other things come thereafter.

As we arrive at the final pages of this year's edition, we extend our sincere gratitude to everyone who made these achievements possible.

The collaborative effort and dedication of everyone have brought forth this edition and we are proud to share with you.

"Thank you for being part of our story. We eagerly awaiting the experiences that the next edition will bring.

Till then,

stay inspired, be connected, and keep flipping the pages!"

Design and Editorial Assistance - Editor

Mr. K.Ş.Sasi Kumar (2<sup>nd</sup> year-IT)

Ms. Aruna Ashok (3<sup>rd</sup> year-FT)

Ms. Kalaivarthini (DC-IIIC)