



**DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE  
(AUTONOMOUS)**

[Affiliated to University of Madras – Linguistic Minority Institution]

#833, E.V.R Periyar High Road, Arumbakkam, Chennai – 600 106.

**PG & Research Department of Master of Computer Applications**

# W@B@tz

Published on June 2022

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Secretary

**Dr. S. SANTHOSH BABOO**  
Principal

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Associate Professor & Head

**Dr. T. VELMURUGAN**  
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**Dr. S. SANTHOSH BABOO**  
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### MESSAGE FROM THE SECRETARY'S DESK

I am gratified to know that the Department of MCA is bringing out the second issue of their Newsletter “W@B@tz” of this academic year 2021-2022. This is productive technical content and skill - developing tools for students. I wish the department a very big success in all their efforts to uplift the students’ intellectual skills. I congratulate the editorial team, staff and students of the MCA department for releasing this newsletter.



### MESSAGE FROM THE PRINCIPAL'S DESK

Good things remain good only because they are always scarce. I am glad to know that the Department of MCA is releasing its second issue of the annual newsletter “W@B@tz”. The efforts taken to bring about innovative content is appreciable. The release of this impressive second edition has added value to their constant efforts. I congratulate the editorial board on its tireless efforts in bringing out this newsletter.



### MESSAGE FROM THE HOD'S DESK

Our department is one of the pioneering departments and works with the motto “Nothing can be achieved without real effort”. The core values of the department, help the students to develop their overall personality and make them worthy to compete with industry requirements. Our faculty members are incessantly attending various training programs, publishing research articles and books. The department also conducts various programs to enrich the technical skills of the students. I congratulate the editorial board who has taken initiative to publish this newsletter.



## DEPARTMENT ACTIVITIES

The department has organised the following events during the academic year 2021-2022 to enrich the technical and soft skills of the students

### *Webinar on Cryptography and its Applications*



The resource person was Dr. S. Padmapriya. She has explained what is meant by cryptography, cryptography terminology, symmetric and asymmetric cryptography, private and public key cryptography, web encryption, etc. She clearly brought out the workings of every cryptographic algorithm (DES, RSA) with examples and practical applications. She exposed the online cryptographic courses provided under various portals and outlined the job opportunities in this field. Students actively participated in the webinar session and gained concepts related to cryptography.

The department has organised a national webinar on "**Cryptography and its Applications**" on November 24th, 2021 at 3.00 pm through on an online platform.

### *Webinar on Big Data Challenges*

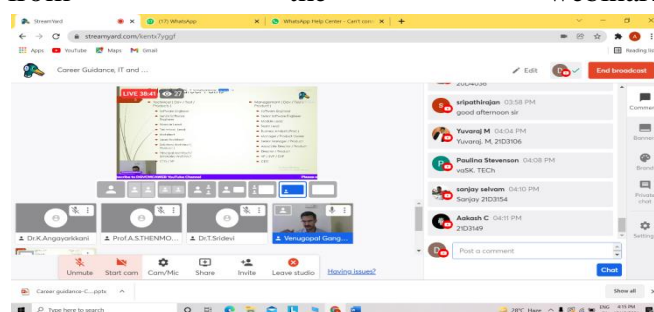
The webinar on "**Big Data Challenges and Solutions**" was organised by the department on 25th November 2021. The resource person, Dr. S. Sasikala, Professor of Computer Science, IDE, University of Madras, delivered a lecture on "Big Data Challenges and Solutions." She has delivered the concepts useful for the analysis of big data in the most recent scenario. She also gave

information about machine learning and how it is used effectively for research. A total of 89 students have attended the webinar from I, II, and III year MCA. The programme is telecasted live using the YouTube channel, and currently, the programme has been viewed by more than 250 viewers.

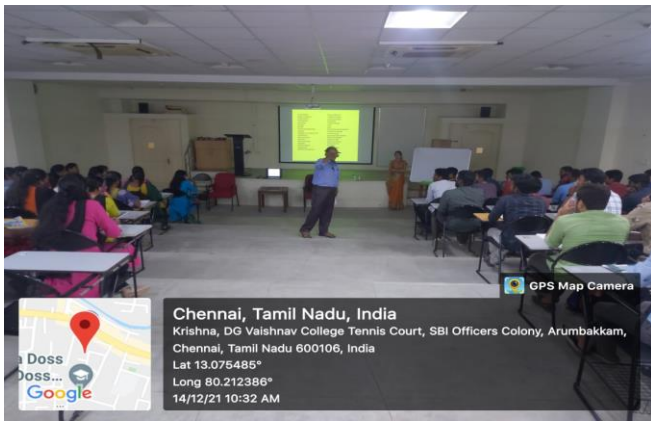
### *Webinar on Career Guidance*

A webinar on "**Career Guidance, IT and Computer Science**" was organised by the department on December 18th, 2021 online through live streaming on YouTube. The resource person was Mr. Venugopal Gangadharan, Lead Product Architect, Wolters Kluwer, Chennai. The resource person shared his knowledge of recent technologies, industry requirements, and roles based on the skill sets. The students benefited

from the webinar.



## *Aptitude Training Workshop*



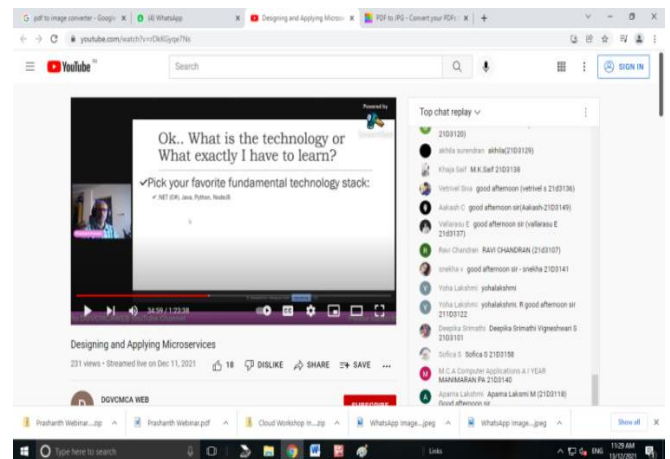
An **Aptitude Training** workshop has been arranged for II MCA and III MCA students in December

14<sup>th</sup> and 15<sup>th</sup> 2021. The resource person, Dr. N. Santhana Krishna, is working as an Assistant Programmer, PG & Research Department of Computer Science, Dr. Ambedkar Government Arts College, Chennai.

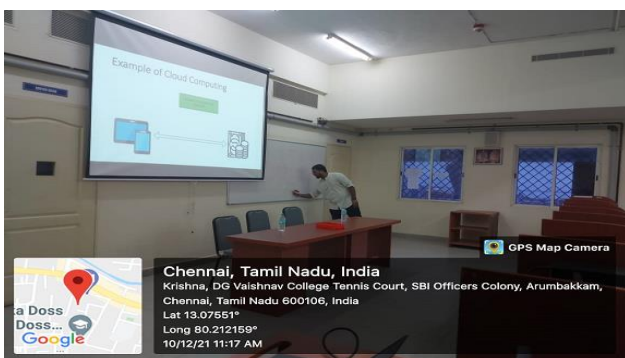
He is an expert in the field of aptitude and he has taught shortcut methods to solve different kinds of mathematical problems like percentages, dates, pattern recognition, sequences, speed problems etc. The students gained confidence to face aptitude tests and gave good feedback about this workshop. They requested more such workshops in the future.

## *Webinar on Designing and Applying Micro Services*

A webinar on "**Designing and Applying Micro Services**" was organised on December 11th, 2021 through the MCA department's YouTube live streaming. The resource person was Mr. Prashanth Parekh, Chief Architect2, CTS, Chennai. He started from the basics of microservices and extended it to its architecture style, importance and scope in IT, the technological skills students should develop with respect to microservices, and how to deploy them in the cloud environment. It was an interesting and informative session. Students raised many queries and they were answered by him.



## *Workshop on Cloud Computing using AWS*



The department has organised a workshop on "**Cloud Computing using AWS**" on December 10th, 2021. The resource person was Mr. J.

Saravanan, Senior Software Engineer, Cirrus Foundation, Chennai. It was a hands-on session for the students. He discussed the current IT requirements and how to improve the skills in cloud computing. He got our students to deploy a file in the AWS environment. Also, he made students work on SNS, EC2, S3, and RDS. Students gained knowledge of these services through the workshop. It was an interactive session. Students raised many queries and they were answered by the resource person. He gave

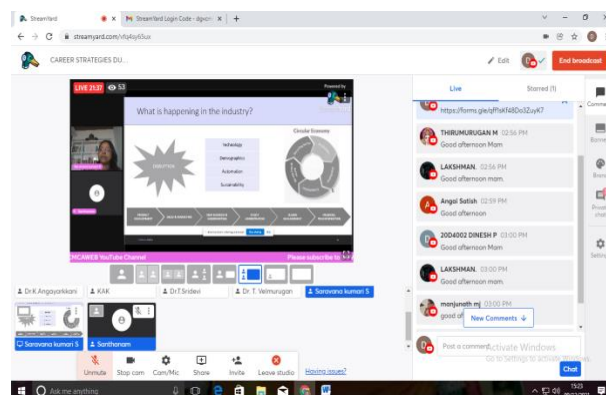
cash prizes to three students based on their

performance in the workshop.

## *Webinar on Career Guidance*

A webinar on the topic "**Career Strategies During Pandemic And Beyond**" was organised on December 9th, 2021 through live streaming on YouTube. The resource speaker was Ms. S. SaravanaKumari, IT Leader, Bangalore. She elaborated on the topics in the following order: The current scenario of the IT industry includes , She posted a Google survey form to learn about the students' mental states. Then, based on the result of the survey, she carried out her speech. Where are we? What is happening in the industry? What do we want? And how to get there? The

students will be able to deal with their careers during a pandemic and beyond.



## *Workshop on Exploring Pandas*



A one-day workshop on "**Exploring Pandas**" was organised on March 28th, 2022. The speaker of the event was our alumni, Ms. P. Priyadharshini, Senior Data Scientist, Indium Software, and

Chennai. Students were able to know about the latest macro trends in data, recent advancements in data science and its process, lifecycle, applications, Python tools used for data science, job roles available in this field, challenges faced by data science and data manipulation in Pandas. After the core session Q&A session started, the RP responded to the queries raised by the students. The overall organisation and delivery of the workshop was helpful and satisfied the participants. Students will be able to start doing analysis in their own journey towards data science.

## **Workshop on Data Visualization using Tableau**

The department has organised a workshop on "Data Visualization using Tableau" on 22.03.2022. Dr. R. Dinesh Babu, Director, BrainswigEdutech Private Limited, Chennai, has acted as the resource person. He explained how to interpret data into maps, charts, and infographs using Tableau software. He explained which graph is to be drawn according to the nature of data sets taken into consideration. The students have got a clear picture of the usage of Tableau

software and how to visualise the data into diagrams.

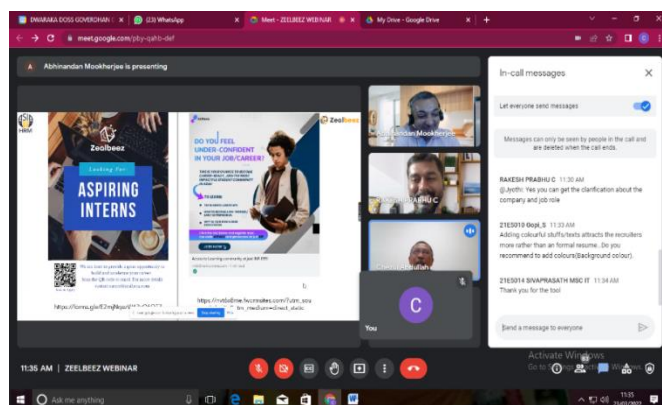


## Webinar on Resume Building & Interview Preparation

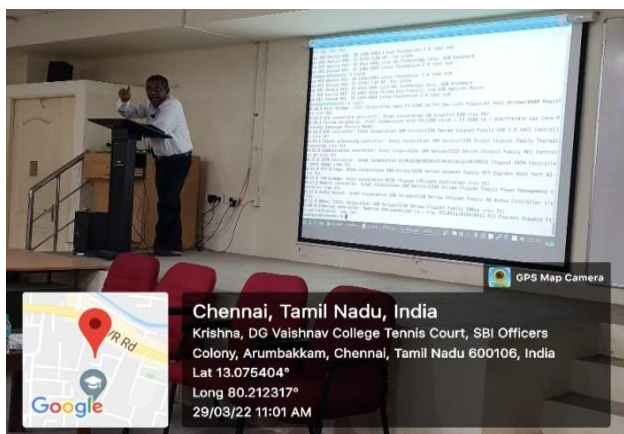
A webinar on the topic "**Resume Building and Interview Preparation**" was organised by the department on March 23rd, 2022 at 10.30 AM online via Google Meet. The resource persons is Mr.Wulan Ranny, Human Capital Strategy Director at MIFX, Core Committee Member & Indonesia Country Lead in the Asia HRM community. Singapore Core Committee Member and Singapore Country Lead in the Asia HRM community.

Mr.CheZulhaimee Abdullah, Vice President Human Resources at Honda Malaysia COO, Core Committee Member, and Malaysia Country Lead in the Asia HRM community. Ranny's speech was about resume building tips and techniques. Mr. Abhinandan elaborated about why and how to prepare your story after the resume is ready.

Dr. Zulhaimee enlightened the students on interview preparation, what to be ready for, and what to avoid. After the core, Q&A session, the RP responded to the queries posted by the students. At the end of the session, the students were able to write an excellent resume, *which* has the power to open doors and grab the attention of employers and recruiters.



## Seminar on Linux



The department has organised a seminar on March 29th, 2022. The resource person, Mr. S. Baskar, CEO, LinuXpert Systems, has 25 years of experience in handling Linux operating systems. He has implemented many government projects using Linux.

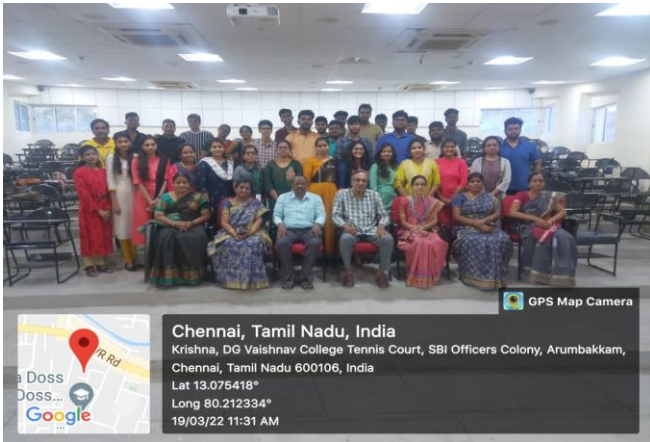
He shown a demo of Linux commands and discussed its features. He also highlighted the importance of Linux over Windows by executing it with certain commands. He interacted with students and gave an idea of choosing a career in Linux.

## MEMORANDUM OF UNDERSTANDING

The department has signed MoU with the following companies to train students on trending technologies

- ❖ **Acentya Research and Development Pvt Ltd, Chennai**
- ❖ **MAANTT Global Servics Pvt Ltd, Chennai**
- ❖ **MEBOT Pvt Ltd, Chennai**

## Alumni Meet



An alumni meeting was conducted on March 19th, 2022. The Head of the Department welcomed the gathering. He then thanked the alumni for their presence. They shared their knowledge and also expressed the desire to extend their support for the department students by providing internships, projects, and arranging industrial visits.

I MCA students have conducted events to engage and entertain the alumni. Winners of the events are given prizes. The alumni expressed their eagerness to attend the meeting and requested that such meeting be organized every year in the future.

## STUDENTS CORNER

### Capture The Flag (CTF)

Capture the flag is a competition organized by the many tech giants like Google, Facebook, and some of the cyber security companies, etc. It is a kind of information security-based competition that has various types of pieces of work that vary from a scavenger hunt to hacking your way into a server to steal data and Google to basic programming exercises. In those challenges, the main part is to find the flag which is hidden in the server or website, so that is called as capture the flag. It can be in the form of a flag {IcAnHack}. CTF can be played as a team or as an individual. It depends upon the individual's personality. CTF is more like a beginning for the cyber security industry to develop their skills in that particular field.



#### TYPES OF CTF:

##### ❖ ATTACK DEFENSE STYLE :

Attack defend is the team or a person has their network with some services. The team should defend their own network for points and hack the opponent for attacking points. This is considered as attacking and defending the network. This will be like a battlefield to attack and defend throughout the network to get points.

##### ❖ JEOPARDY-STYLE : Jeopardy-style is the most popular type of CTF competition. It has different types of categories. Every category has different types of challenges. A team can get some points by completing the challenges.

#### CHALLENGE TYPES:

❖ **WEB** – Exploring and exploiting the web pages to find the flags. It can search through websites, cookies, inspect elements, and also by modifying the websites through proxies. The team should inspect some source code of those websites.

❖ **BURP SUITE** – It is a proxy tool to do some modifications between the web server and web user

- ❖ **POSTMAN** – It is a chrome add-on for debugging networks.
- ❖ **OWASP ZAP** – It is dynamic application security testing to find vulnerabilities in web applications.
- ❖ **SQLMAP** – It is an open-source tool for detecting and exploiting SQL injection flaws.

- ❖ **FOREMOST**- It is a program in forensics for regaining lost files based on their header, footers, and internal data structure.
- ❖ **AUDACITY**- Analyzing the sound files for the hidden data (mp3,m4a).
- ❖ **NETWORKMINER**- It is a network-based forensic analyzing tool.

## CRYPTOGRAPHY :

- ❖ **RSACTFTOOL** – It is a recovering tool for a private key because of multiple attacks.
- ❖ **XORTOOL** – Tool for analyzing multi-byte XOR ciphers.
- ❖ **CYBERCHEF**-It is an online tool for encoding and decoding ciphertext.
- ❖ **FEATHER DUSTER**- It helps to find and exploit a weak cryptosystem as soon as possible.

**FORENSICS** : Forensics challenges are the flag that is hidden in the file format, sound format, and image format. It can be enclosed with steganography, network packet capture analysis, and memory dump analysis.

- ❖ **EXIFTOOL**- It is a command-line utility used for reading and modifying the metadata information in a variety of types of files.

## REQUIRED SKILLS TO BE A CTF PLAYER:

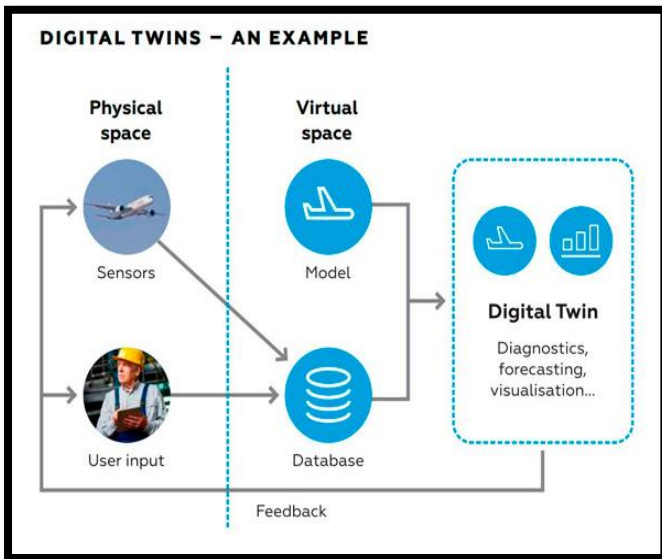
- ❖ **LINUX** – Most Linux users can play capture the flag.
- ❖ **NETWORKING** - CTF players should know some of the network packet capture analyzing to find the flags. So they should be familiar with it.
- ❖ **PROGRAMMING LANGUAGE** – Some of the challenges can be solved with help of programming language. It can be python, c, java, etc. But most players should go with python because it got a great value in it.
- ❖ **PATIENCE**- As CTF players, they should be very patient in solving mysterious problems. In the beginning, it can be hard to find, but once you have got the track, you won't lose.

**Kavitha Srinivasan (II MCA)**

## DIGITAL TWIN TECHNOLOGY

A digital twin technology is a digital representation of a physical object, process or service. A digital twin can be a digital replica or virtual model of a Physical world object such as a vehicle motor engine, wind mill or we can even say that it can create a digital replica of larger objects such as buildings or even whole cities. This technology uses real time data to create simulations that can predict how a product or

process will perform to enhance the output. With the technological advancement of machine learning and big data, these models have been used to drive innovation and they improves performance. With the help of IOT sensors, we are able to incorporate the digital twin technology to visualize the physical model and so that we are able to predict the outcome of the model using the simulation.



This concept of digital twins was first put forward by David Gelerntner's 1991 book 'Mirror Worlds', with Michael Grieves first applied the digital twin concept in manufacturing.

It was NASA who first embraced the concept of the digital twin and John Vickers of NASA gave

the concept its name in a 2010 Roadmap Report. The idea was to create digital simulations of space capsules and craft for testing.

Digital Twin Technology is divided into 3 broad types, which show when the process can be used at what time:

- ✓ **Digital Twin Prototype (DTP)** – This process is undertaken before a physical product is created.
- ✓ **Digital Twin Instance (DTI)** – This is done once the product is manufactured in order to run tests on different usage scenarios.
- ✓ **Digital Twin Aggregate (DTA)** – This gathers DTI information to determine the capabilities of a product, run prognostics and test operating parameters.

**Dinesh P (II MCA)**

## **GOOGLE'S SELF-DRIVING CAR (WAYMO)**

Google's self-driving car is a project involved in developing technology for mainly electric cars. The software utilized in Google's cars is known as Google Chauffeur. The project was formerly led by Sebastian Thrun, former director of the Stanford AI Laboratory and co-inventor of Google Street View. Google made Waymo available to the public in 2020. Waymo uses Computer Vision and Sensors like RADAR and LiDAR to detect the environment and create a detailed 3D map of its environment. Then it uses these generated maps and combines them with high-resolution maps of the globe. This system works with an immense outlining inch-precision map of the territory the vehicle is predicted to use.

Waymo is the first truly driverless electric prototype built by Google to check the subsequent stage of its five-year old self-driving car project. It is a sort of cross between a smart car and a Nissan Micra, with two seats and room for a tiny

number of bags. It is the primary real physical incarnation of Google's vision of what a self-driving car of the near future may be.

Powered by an electrical motor with around a 100-mile range, the car uses a combination of sensors and software to locate itself within the real world combined with highly accurate digital maps. A GPS is employed, rather like the satellite navigation systems in most cars, to induce a rough location of the car, at which point RADAR, lasers and cameras take over to observe the world round the car, 360 degrees. The software utilized in Waymo can recognize objects, people, cars, road markings, signs and traffic lights, obeying the principles of the road and allowing multiple unpredictable hazards, including cyclists. It also detects roadworks and navigates around them safely. The LiDAR sensor available in Waymo is meant for obstacle detection and navigation of autonomous ground vehicles. Various kinds of

cameras are installed at various locations of this car. RADAR sensor is installed at the front and rear sides of this car to guess the space between the vehicles from the front or rear to the car. Ultrasonic sensors measure the position of objects very near to the vehicles, like other vehicles, when parking. All the knowledge from the sensors is analyzed by a central computer. It manipulates the steering, accelerators and also the brakes.

A processor reads the info and regulates vehicle behavior, a wheel-hub sensor detects the number

of rotations to work out the car's location and an orientation sensor tracks the car's motion and balance. Waymo has some advantages like managing traffic flow, relieving vehicles, avoiding accidents, increase roadway capacity and determines current location. They even have some limitations like they'll be transitioned on the road (in rare cases), less security when using internet, Hackers can mislead the vehicle (in rare cases), failure of sensors can create some accidents and traffic signals can't be recognized in rainfall.

**Sampath Kumar P (I MCA)**

## *How technology can fight climate change*

Artificial intelligence of things (AIoT) solutions is integral to tackling some of the challenges associated with carbon management. There are three main areas of focus to make carbon management more efficient, transparent and effective.



### *1. AIoT - integration into measurement and reporting*

With a myriad of databases and systems worried with extraordinary carbon-producing property, the labour required to really categorise and organise the information from a couple of business gadgets and belongings is immense. AIoT integration permits seamless sourcing of real-time records and asset inventory facts from a ramification of structures. This affords an organization with the functionality to efficaciously shape, gather and transform data into reports for correct emissions-tracking and size, reducing normal efforts round

data series and improving facts exceptional and record resolution.

### *2. Abatement intelligence - predictive analytics to simulate emissions over time*

Making plans is a challenge, broadly speaking, due to the dearth of correct measures for determining the emissions derived from sure procedures. AIoT generation tackles this assignment by developing insights from actual-time data to better expecting procedure emissions by analysing and gaining knowledge of through statistics from a couple of approaches, AIoT can refine the performance assessment of abatement measures and optimise emissions predictions. beyond optimising abatement techniques, this technology additionally lowers the general marginal abatement charges.

### *3. Carbon offsetting and offset integration*

Even though a closing lodge, the carbon offset market performs an essential position in the direction of attaining global net-0 emissions dreams for countries and groups, with an estimated addressable marketplace size of \$2 hundred billion by 2050. However, verification of carbon offsetting and difficulty in trading plagues

the industry. Technology can support validation of recs in near real-time and offer a marketplace for affordable and fast carbon offsetting. Offset integration would offer an international pool of offsets to an enterprise, enhancing ease of exchange and emissions planning, lowering organizational trouble, and optimising the timings of rec purchases and retirement.

Carbon management solutions are essential to meeting the G7's mandatory climate risk

disclosures. More importantly, they provide the technology to actively manage and reduce carbon emission and achieve the net-zero pledges made by governments and corporations. Driven by strong political, societal and economic agendas, carbon management solutions will be an integral part of emission reductions. For that, real-time measurement, abatement, and offset integration will help ensure companies not only talk the talk but also walk the walk and transparently meet their net-zero targets.

*Manimaran (I MCA)*

## *RESEARCH ACTIVITIES*

The department's contribution towards research was elevated to the next heights. Our faculty members publish their research articles in reputed journals as a part of research contribution and to enrich their knowledge they also participate in FDPs, workshops and webinars. The details are delineated below:

<i>PUBLICATIONS</i>	<i>FDPs</i>	<i>WORKSHOPS</i>	<i>SEMINARS/ WEBINARS</i>
8	14	8	16



### *Our Prestigious Ph.D. Scholars*

The research scholars those who are awarded Ph.D. degree from MCA department by the University of Madras from 2021 -2022 are listed below:

<i>S.NO</i>	<i>RESEARCH SUPERVISOR</i>	<i>RESEARCH SCHOLAR</i>	<i>TITLE</i>	<i>DATE OF VIVA-VOCE</i>
<b>1.</b>	Dr. T. Velmurugan	B. Hemalatha	An Analysis of Recommendation Based Explicit - Implicit Association Rules for Online Customer Review Data using Sentiment Analysis	05-08-2021
		S. Karthiga	Performance Analysis of Secure Hashing Algorithms Compared with Substitution Techniques for the Enhancement of Security in Cloud Environment	24-09-2021
		T. Indhumathi	Performance Analysis of Utility Mining Based Machine and Deep Learning Models for the prediction of Price Levels in Stock Market.	28-02-2022

At present, the department has 7 research scholars pursuing their research.

## **BOOK PUBLICATION**

To share the knowledge, the department staff has authored books for the education society. The details of the books are listed below:

<i>S.No</i>	<i>AUTHOR</i>	<i>TITLE</i>	<i>PUBLISHER</i>	<i>ISBN</i>	<i>YEAR</i>
1.	Dr. R. Anandhi	Web Technology	VRI Publisher, Chennai	978-9502230-0-4	2021



## **HONOURS**

<i>S.No</i>	<i>FACULTY</i>	<i>TITLE</i>	<i>AWARDEE</i>
1	Dr.T. Velmurugan	Best Research Supervisor	Chennai Softech Solutions and Mana Muna Foundations
2	MS. A.S. Thenmozhi	Best Faculty	Chennai Softech Solutions and Mana Muna Foundations



## **PLACEMENT**

The department is proud about the placement of our students in various reputed companies shown below

<i>S.NO</i>	<i>COMPANY NAME</i>	<i>DESIGNATION</i>	<i>COUNT</i>
1.	SRM Technologies	Programme Trainee	17
2.	TCS	Asst. System Engineer	2
3.	Natwest	Customer Service & Operational Analyst	1
4.	Capegemnni	Analyst A4	1
5.	Avasoft	Engineer	2
6	Supertal Tech Pvt Lts	Software Engineer	1
7	Pearlcon Technologies	Software Engineer	3
8	Cognizant	Programmer	1
9.	Denodo Technologies	Asso. System Engineer	1

