

DEPARTMENT OF ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

2021 – 2022  
(EVEN)

Cyberlines

Volume:15

**EDITOR'S DESK**

**From the Chief Editor Desk...**



It gives me immense pleasure to bring out the issue of our magazine "Cyber Lines" as the name itself symbolize it marks the whole-time line of our department of Artificial Intelligence and Machine Learning. The main motto of bringing out this magazine is to show the surrounding, our achievement, work and contribution to the society for every academic year. The magazine reveals all the hard work of our students, their extracurricular activities, and we complement their hard work under the winners and toppers in this magazine, and I am quite happy in sharing these details with the Heads of the Departments, our well-wishers and all others who are bonded to CSE, through this magazine.

This magazine is also for us to look back to the past, the path we traveled together as a unit. The supports we got from our colleagues and subordinates. It reflects our complete journey of the past year. It gives us time to think about our beloved passed out students, and wish them all success in the corporate life they are undergoing now. The current volume has come out well, and the work from our students has made it more colorful. We hope our forthcoming volume will be enriched more delightful incidents, ideas and thoughts to share.

With Regards  
**Dr. S. Shankar**  
Head of the Department

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**CYBERLINES**  
**CYBERLINES**

Computer has become the part of our life. The work of a computer engineering is not only restricted to the field of IT, their job continues even outside that, like Automobiles and many other fields. The department of Computer Science and Engineering is linked and synchronized with all other department of Engineering. Hence the world moves ahead along with us!

## OUR MISSION

To prepare the students to become computer science professionals at par with the current trends technology and to mould them to attain excellent leadership qualities thereby making them component in the hardware, software and research arena.

## OUR VISION

To provide an excellence for individuals to develop technologically superior, socially conscious and nationally responsible citizens.

## PEOs

### *PROGRAM EDUCATIONAL OBJECTIVES*

**PEO1:** To acquire knowledge in the latest technologies and innovations and an ability to identify, analyze and solve problems in computer engineering.

**PEO2:** To be capable of modelling, designing, implementing and verifying a computing system to meet specified requirements for the benefit of society.

**PEO3:** To possess critical thinking, communication skills, teamwork, leadership skills and ethical behaviour necessary to function productively and professionally.

# PSOs

## PROGRAM SPECIFIC OUTCOME

**PSO1:** An ability to understand, apply, design and develop principles in the areas related to algorithms, Software engineering, Networking and database concepts for computer-based systems in solving engineering problems.

**PSO2:** An ability to employ modern computer languages environments and platforms to excel in their careers.

### Articles by Students

#### ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

**DHIRAAJ KV**

**IIIAIML**

**Department of AIML**

**HICET**

Artificial Intelligence and Machine Learning have emerged as powerful tools in the field of technology. These technologies have revolutionized the way businesses operate, and have made a significant impact on the global economy. AI and ML have become popular buzzwords in recent years, and their applications are widespread across various industries. One of the key applications of AI and ML is in the field of AIML.

AIML, or Artificial Intelligence Mark-up Language, is a programming language that is used to create chatbots and virtual assistants. AIML is a subset of XML, which is a mark-up language used to store and transport data. AIML is used to create conversational agents that can interact with humans in a natural language. These conversational agents are also known as chat bots or virtual assistants.

The use of AIML in Chabot's has become increasingly popular over the years. Chabot's are now used in a wide range of applications, including customer service, online shopping, and social media. Chabot's are also being used in healthcare to provide patients with personalized health advice and support.

One of the key benefits of using AIML in Chabot's is that it enables Chabot's to learn from their interactions with users. This means that Chabot's can improve their responses over time, and can provide users with more accurate and relevant information. AIML also enables Chabot's to understand and respond to natural language queries, making them more user-friendly and accessible.

AIML is also used in the development of virtual assistants, such as Amazon's Alexa and Google Assistant. Virtual assistants are designed to help users with a wide range of tasks, from scheduling appointments to ordering food. These virtual assistants use natural language processing (NLP) and machine learning algorithms to understand user queries and provide relevant responses.

In conclusion, AIML is a powerful tool that is transforming the way we interact with technology. AIML-based Chabot's and virtual assistants are becoming increasingly popular, and their applications are widespread across various industries. As the technology continues to evolve, we can expect to see even more innovative and impactful applications of AIML in the years to come.

# DATA SCIENCE

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Data science is a field that involves the use of statistical and computational methods to extract insights and knowledge from data. With the ever-increasing amount of data being generated in today's world, data science has become a critical tool for businesses and organizations to gain a competitive edge.

At the core of data science are three key elements: data processing, statistical analysis, and machine learning. Data processing involves collecting, cleaning, and organizing large volumes of data from various sources. Statistical analysis involves identifying patterns and relationships within the data, while machine learning algorithms are used to build predictive models based on the data.

Data science has a wide range of applications across various industries, including healthcare, finance, marketing, and transportation. In healthcare, data science is being used to improve patient outcomes by analysing medical data to identify risk factors and develop personalized treatment plans. In finance, data science is being used to predict market trends and identify investment opportunities. In marketing, data science is being used to analyse customer behaviour and preferences to develop targeted advertising campaigns.

One of the key benefits of data science is its ability to provide actionable insights that can drive business decisions. By analysing data, businesses can gain a better understanding of their customers, optimize their operations, and identify new opportunities for growth.

However, data science also presents several challenges. One of the biggest challenges is the need for skilled professionals who can analyse and interpret data. Another challenge is the ethical considerations involved in handling sensitive data, such as personal information.

Data science is an interdisciplinary field that involves the use of statistical and computational methods to extract insights and knowledge from data. The field combines techniques from mathematics, statistics, computer science, and domain-specific knowledge to analyse data and make predictions.

The first step in data science is data processing, which involves collecting, cleaning, and organizing large volumes of data from various sources. This can involve working with structured data, such as databases, as well as unstructured data, such as text or images. Data cleaning is an important step in the data processing phase, as it involves identifying and correcting errors and inconsistencies in the data.

Machine learning algorithms are then used to build predictive models based on the data. Machine learning involves training algorithms on historical data and using these models to make predictions about future events. This can include classification tasks, such as predicting whether a customer will make a purchase, as well as regression tasks, such as predicting the value of a stock.

One of the key benefits of data science is its ability to provide actionable insights that can drive business decisions. By analysing data, businesses can gain a better understanding of their customers, optimize their operations, and identify new opportunities for growth. However, data science also presents several challenges. One of the biggest challenges is the need for skilled professionals who can analyse and interpret data. Another challenge is the ethical considerations involved in handling sensitive data, such as personal information.

In conclusion, data science is a critical tool for businesses and organizations to gain insights from data and make informed decisions. With the ever-increasing volume of data being generated, the demand for skilled

data scientists is likely to increase, making data science a promising field for those looking to pursue a Career in technology.

## DATA ANALYTICS

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Data analytics refers to the process of using statistical and computational techniques to analyse and interpret large volumes of data in order to extract valuable insights and make data-driven decisions. It involves the collection, processing, analysis, and interpretation of data in various formats, including structured and unstructured data, to identify patterns, relationships, and trends.

One of the primary goals of data analytics is to help organizations optimize their operations and improve their performance. This can involve using data analytics to identify areas of the business that are underperforming, as well as opportunities for growth and optimization. For example, a retailer might use data analytics to identify which products are selling well and which are not, and use this information to optimize their inventory management and improve their sales performance.

There are several different types of data analytics techniques that can be used, depending on the nature of the data and the goals of the analysis. These include descriptive analytics, which involves summarizing and visualizing data to gain a better understanding of it, predictive analytics, which involves using statistical models to make predictions about future events, and prescriptive analytics, which involves using optimization techniques to identify the best course of action.

One of the key challenges of data analytics is the sheer volume and complexity of data that organizations need to process and analyse. This can include data from a wide variety of sources, including social media, customer feedback, transaction data, and more. To address this challenge, many organizations are turning to big data technologies and platforms, which can help them manage and process large volumes of data more efficiently.

Another challenge of data analytics is ensuring the quality and accuracy of the data being analysed. This requires organizations to have robust data management processes in place, including data governance, data cleansing, and data validation. Without these processes in place, organizations run the risk of making decisions based on inaccurate or incomplete data, which can have serious consequences.

Despite these challenges, data analytics is a critical tool for organizations looking to gain insights from their data and make data-driven decisions. By using data analytics to identify trends and patterns in their data, organizations can optimize their operations, improve their performance, and gain a competitive edge.

In addition to its business applications, data analytics is also being used in a wide range of other fields, including healthcare, finance, and public policy. In healthcare, data analytics is being used to improve patient outcomes by identifying risk factors and developing personalized treatment plans. In finance, data analytics is being used to identify investment opportunities and predict market trends. In public policy, data analytics is being used to inform policy decisions and measure the impact of government programs.

Overall, data analytics is a critical tool for organizations and individuals looking to gain insights from their data and make data-driven decisions. With the volume of data being generated continuing to grow, the demand for skilled data analysts and data scientists is likely to increase, making data analytics a promising field for those looking to pursue a career in technology.



## Articles by Faculty Members

### BIG DATA

Dr.Kousalya Devi

Assistant Professor

Department of AIML

HICET

Big data refers to large volumes of structured and unstructured data that organizations generate and collect from a wide range of sources, including social media, customer interactions, website clicks, and more. The sheer volume and variety of data being generated have led to a need for new technologies and techniques to manage and analyse this data.

One of the primary challenges of big data is its sheer volume. Traditional data management technologies and techniques are not well-suited to handling large volumes of data, and can become slow and inefficient when dealing with data at scale. To address this challenge, new technologies such as Hadoop and Spark have been developed that are designed to handle large volumes of data in a distributed computing environment.

Another challenge of big data is the variety of data being generated. This includes structured data, such as databases, as well as unstructured data, such as text and images. To process and analyse this data, organizations need to use techniques such as natural language processing and machine learning.

One of the key benefits of big data is its ability to provide valuable insights that can drive business decisions. By analysing large volumes of data, organizations can gain a better understanding of their customers, optimize their operations, and identify new opportunities for growth. For example, a retailer might use big data analytics to identify which products are selling well and which are not, and use this information to optimize their inventory management and improve their sales performance.

Big data is also being used in a wide range of other fields, including healthcare, finance, and public policy. In healthcare, big data analytics is being used to improve patient outcomes by identifying risk factors and developing personalized treatment plans. In finance, big data analytics is being used to identify investment opportunities and predict market trends. In public policy, big data analytics is being used to inform policy decisions and measure the impact of government programs.

However, big data also presents several challenges. One of the biggest challenges is the need for skilled professionals who can manage and analyse large volumes of data. This includes data engineers, who are responsible for managing and processing the data, as well as data scientists, who are responsible for analysing and interpreting the data.

Another challenge of big data is the ethical considerations involved in handling sensitive data, such as personal information. Organizations need to ensure that they have robust data governance and security processes in place to protect sensitive data from unauthorized access or misuse.

In conclusion, big data is a critical tool for organizations and individuals looking to gain insights from their data and make data-driven decisions. With the volume of data being generated continuing to grow, the demand for skilled data professionals is likely to increase, making big data a promising field for those looking to pursue a career in technology. However, organizations need to be aware of the challenges involved in managing and analysing large volumes of data, and ensure that they have the necessary skills and processes in place to handle this data effectively and responsibly.

## DEEPLARNING

ARUN SELVAM

Assistant Professor

Department of AIML

HICET

Deep learning is a subset of machine learning that uses artificial neural networks to process and analyse data. It is a highly advanced form of machine learning that has enabled remarkable advances in a variety of fields, from computer vision and natural language processing to speech recognition and self-driving cars.

At its core, deep learning is based on the structure and function of the human brain. Artificial neural networks are designed to mimic the way the brain processes and analyses information, using layers of interconnected nodes to identify patterns and relationships in large datasets.

One of the key advantages of deep learning is its ability to handle complex and unstructured data. Traditional machine learning algorithms typically require structured data, meaning that the data must be organized in a particular format or schema. Deep learning, on the other hand, can work with unstructured data, such as images, video, and text, allowing for much greater flexibility and versatility in data analysis.

Deep learning has enabled remarkable advances in computer vision, allowing machines to identify and recognize objects and patterns in images and videos with remarkable accuracy. This has led to a wide range of applications, from facial recognition and object detection to self-driving cars and medical imaging.

In natural language processing, deep learning has enabled machines to understand and interpret human language with increasing accuracy. This has led to the development of Chatbot's and virtual assistants that can interact with users in natural language, as well as the ability to automatically summarize and categorize large volumes of text.

Speech recognition is another area where deep learning has made significant advances. Voice assistants such as Amazon's Alexa and Apple's Siri use deep learning algorithms to interpret and respond to human speech, allowing for a more natural and intuitive user experience.

Finally, there are concerns about the potential impact of deep learning on jobs and employment. As machines become more capable of performing complex tasks, there is a risk that many jobs could be automated, leading to unemployment and social disruption.

Despite these challenges, deep learning is likely to continue to play an increasingly important role in a variety of fields, from healthcare and finance to transportation and manufacturing. As the technology continues to evolve and mature, it will be exciting to see the new applications and innovations that emerge.



In conclusion, deep learning is a highly advanced form of machine learning that has enabled remarkable advances in a variety of fields. Its ability to handle complex and unstructured data, combined with its resemblance to the structure and function of the human brain, makes it a powerful tool for analysing and interpreting large datasets. While there are challenges and limitations to the technology, deep learning is likely to continue to play an increasingly important role in the future of technology and society.

## DATA MINING

DEEPAN RAJ

Assistant Professor

Department of AIML

HICET

Data mining is the process of discovering hidden patterns and trends in large datasets. It involves using statistical and computational techniques to extract valuable insights from data, which can be used to make informed decisions and gain a competitive edge in business.

Data mining has become increasingly important in recent years due to the explosion of digital data and the availability of powerful computing resources. The amount of data generated by businesses, individuals, and organizations is growing exponentially, and data mining provides a way to extract useful information from this data.

Another example of data mining in action is fraud detection. Financial institutions can use data mining techniques to identify patterns of fraudulent behaviour, such as unusual spending patterns or transactions that fall outside of a customer's normal behaviour. This can help prevent fraudulent activity before it occurs, saving businesses and customers from potential losses.

In healthcare, data mining can be used to identify risk factors for certain diseases and conditions, allowing for earlier diagnosis and more effective treatment. Researchers can also use data mining to identify new correlations and patterns in large medical datasets, leading to new insights into disease prevention and treatment.

Despite its many benefits, data mining is not without its challenges and limitations. One of the biggest challenges is the quality and completeness of the data. If the data is inaccurate or incomplete, the results of data mining can be unreliable or misleading.

Another challenge is the potential for bias in the data or the algorithms used for data mining. Bias can occur when the data is collected from a limited sample or when the algorithms are designed with certain assumptions or biases. This can lead to inaccurate or unfair results, which can have serious consequences in fields such as hiring and lending.

Privacy concerns are also a major issue in data mining. As more and more data is collected from individuals and organizations, there is a risk that sensitive information could be exposed or used inappropriately. It is important for data miners to be transparent about their data collection practices and to take steps to protect the privacy and security of the data.

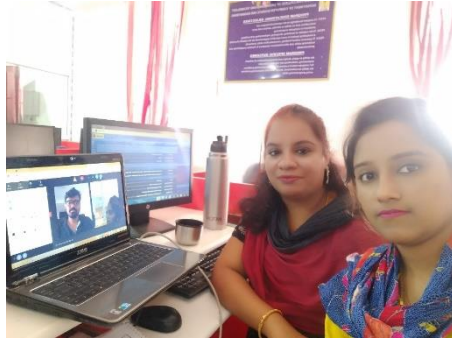
Despite these challenges, data mining is likely to continue to play an important role in business, healthcare, and other fields in the future. As the amount of digital data continues to grow, the ability to extract useful insights from that data will become increasingly important. With the right tools and techniques, data mining can provide valuable insights and help organizations make better decisions based on data-driven insights.

In conclusion, data mining is a powerful tool for extracting valuable insights from large datasets. It has a wide range of applications in business, healthcare, and other fields, and can provide valuable insights into patterns and trends that might not be apparent from a simple examination of the data. While there are challenges and limitations to data mining, its benefits make it a valuable tool for decision-making in the digital age. As data continues to grow in importance, the ability to extract useful insights from that data will become increasingly important, and data mining will continue to play a crucial role in unlocking those insights.

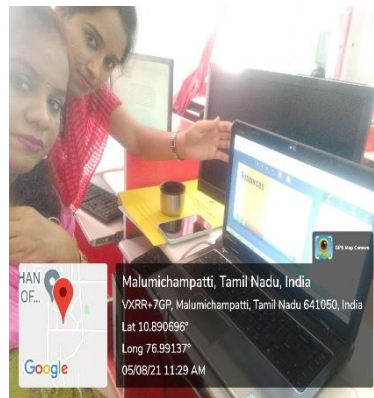
## Department Related Information

### 1–Android Development & Tips for Interview”

A Webinar on Introduction to Android Development & Tips for Interview was conducted on 31<sup>st</sup> of July 2021. It was inaugurated by Dr.S. Shankar, Head of the Department.



Students learnt the steps for android development. A party of around 100 students from CSE department have benefited through this program. The event was organized by Dr.R.Vidhya, Ms.K.V.Sreelekha.



### 2. Webinar on How to Ace Virtual Interview

A Webinar on How to Ace Virtual Interview was conducted on 5<sup>th</sup> of August 2021. It was inaugurated by Dr.S. Shankar, Head of the Department.



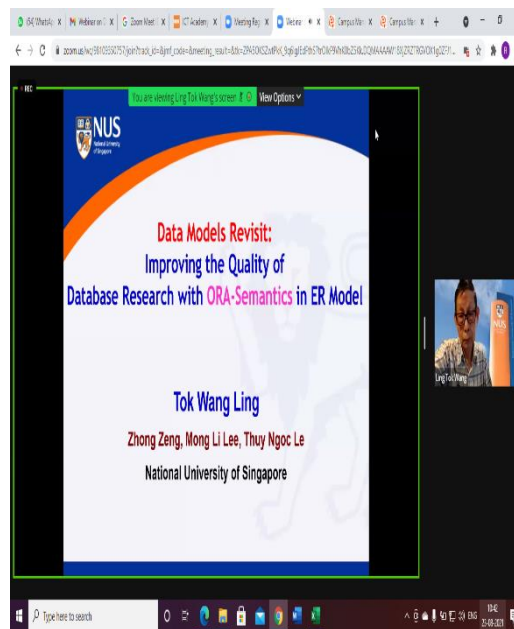
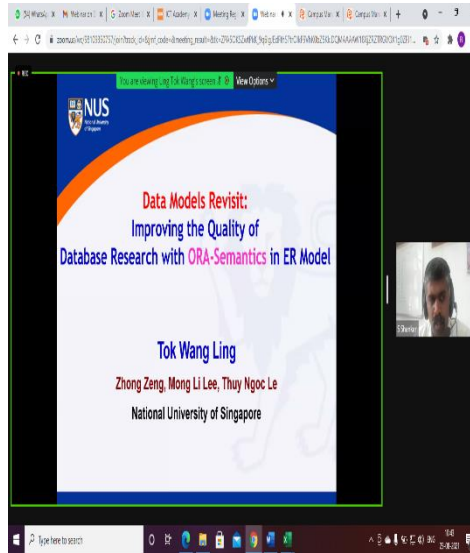
Various dos and don'ts of virtual interviews were discussed and clear procedure was presented to the students to ace virtual interviews.



### 3. CSI sponsored webinar on “Data Models Revisit: Improving the Quality of Database Research with ORA-Semantics in ER Model.”

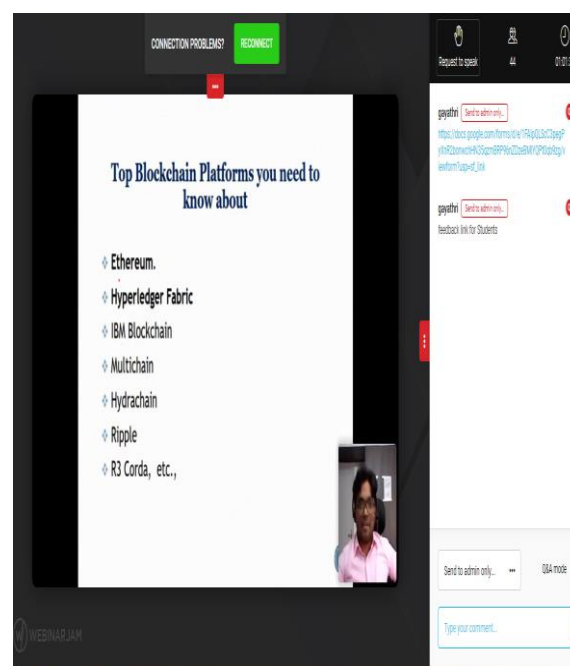
A webinar on Data Models Revisit: Improving the Quality of Database Research with ORA-Semantics in ER Model was conducted on 23<sup>rd</sup> August 2021. It was inaugurated by Dr.S. Shankar, Head of the Department.

A party of around 100 students from AIML department have benefited through this program. The event was organized by Mr. DeepanRaj , Assistant Professor, AIML.



### 4. Webinar on Block chain Beyond the Hype :Use Case

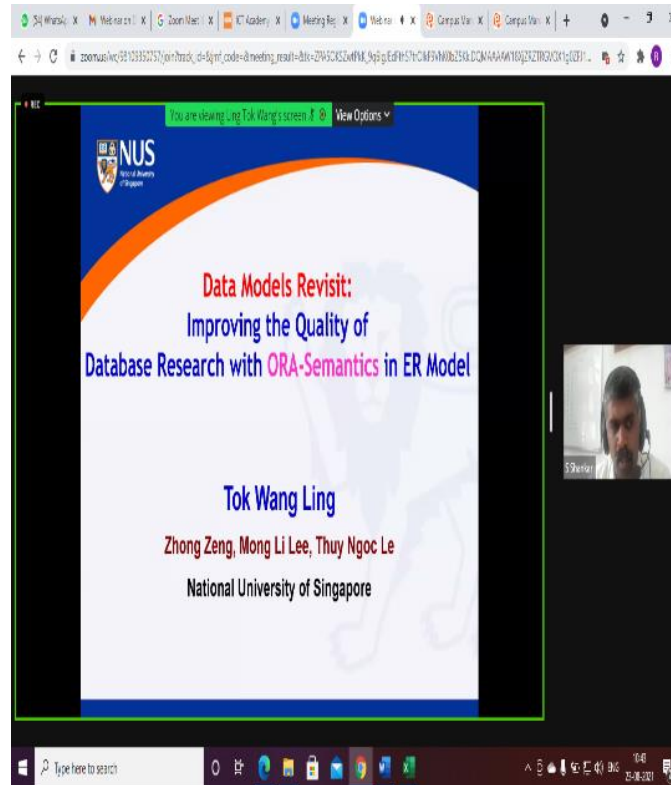
A Webinar on Block chain Beyond the Hype: Use Case was conducted on 24<sup>th</sup> August 2021. It was inaugurated by Dr.S. Shankar, Head of the Department. Students learnt concepts of Block chain Beyond the Hype: Use Case and to use in real time based on BIT COIN.



A party of around 100 students from AIML department have benefited through this program. The event was organized by MS. R. Gayathri, Ms. S. Gokila, Ms. M. Ramyadevi.

## 5. Webinar on Machine Learning in Computer Vision

Webinar on Machine Learning in Computer Vision was conducted on 8<sup>th</sup> September 2021. It was inaugurated by Dr.S. Shankar, Head of the Department. Students learnt concepts of Machine Learning in Computer Vision. A party of around 100 students from AIML department have benefited through this program.



## IBM in HiCET - INAUGURATION – 24.09.2022

The department has established **IBM center of Excellence in AI** to facilitate and enhance the research culture among the aspiring students and faculty. The department is providing **integrated courses offered by IBM Professionals**.





*Inauguration of Coimbatore's First IBM Software Lab on Sep 24, 2022*

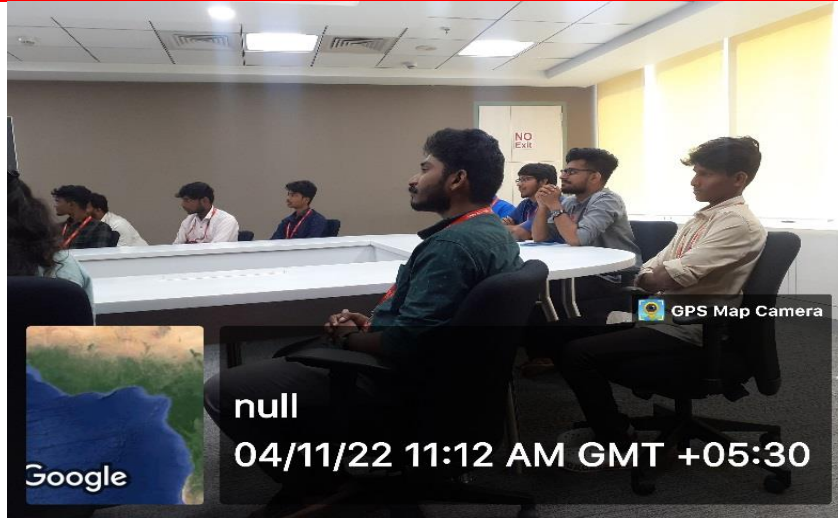
**Students Presentation and Discussion with Hrishikesh Pathak, Technical Consultant DS & AI ,  
IBM , Mumbai**



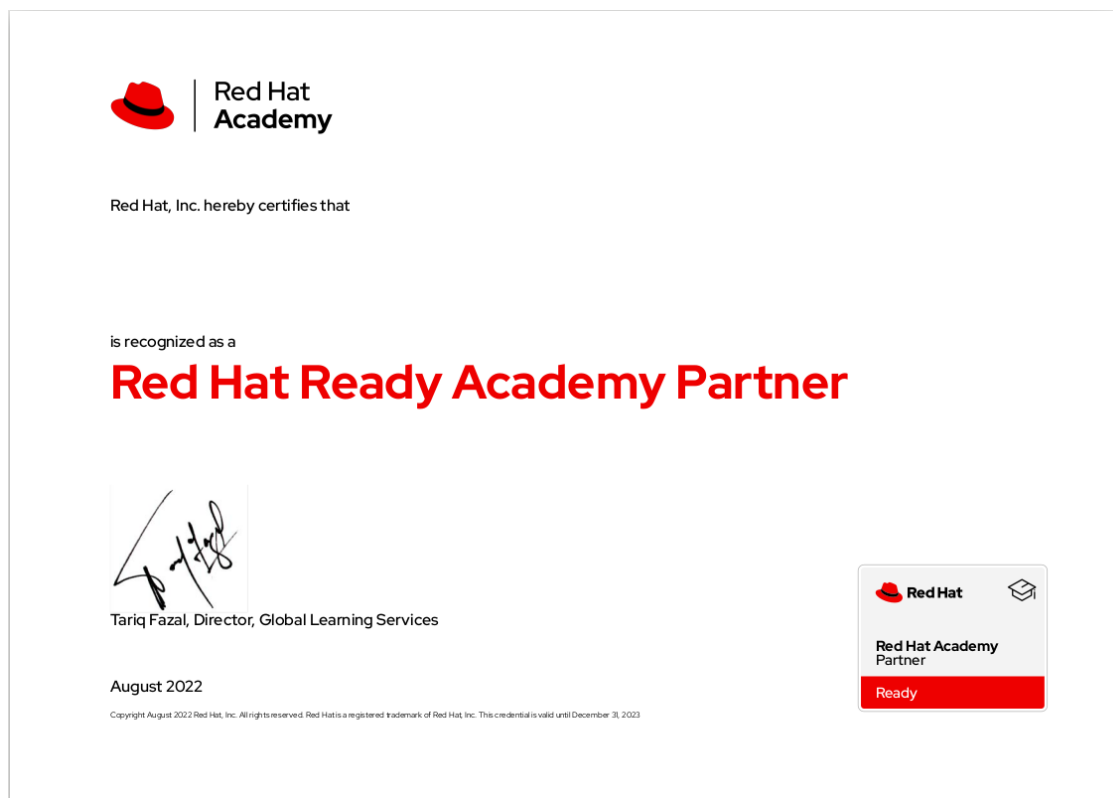


**III AIML IBM - BANGALORE VISIT - 04.11.2022**





✚ The department has established **center of Excellence with Red Hat Academy** to facilitate and enhance the research culture among the aspiring students and faculty. The department is providing integrated courses in the field of Linux and Open Source in association with Red Hat Academy.



*Red Hat Certified System Administrator Certificate*

✚ DC Cell has organized Eureka Idea Pitching competition on 29-09-2022 in which the Head of department acted as jury member for the event and the event was coordinated by our department student Mr SaiRaam VARAVIND G.



**Special Address**



**Dr. J. Jaya**  
Principal  
HICET



**Dr. K. Siva**  
Professor & Head  
Dept. of MECH



**Dr. S. Shankar**  
Professor & Head  
Dept. of CSE



**Dr. V. Kanimozhi**  
Assistant Professor - MBA  
EDC coordinator

**Jury Members**