

# INGENIEUR SPHERE



“  
*No one person can shape  
the life of another. Your success  
and happiness depends upon  
your own self. Think for yourself  
and have a plan of life.*”

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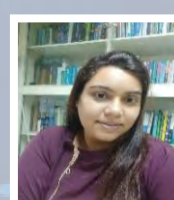
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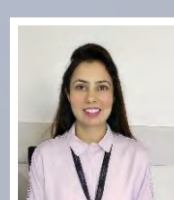
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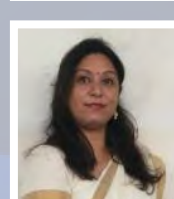
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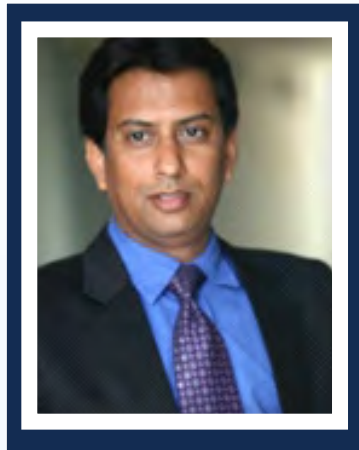


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# Message From PVC, Dean FET, FAD, MRIIRS



**Prof. (Dr.) Pardeep Kumar**  
**Pro-Vice Chancellor, Dean FET, FAD, MRIIRS**

Ingenieur Sphere, Technical Magazine, published by Faculty of Engineering & Technology, MRIIRS is the culmination of hard work, perseverance of the entire team of students, faculty and the core editorial board.

“Ingenieur Sphere” has encouraged students from a diversity of engineering backgrounds and interests to explore science and engineering through hands-on design work. And also as a platform to showcase their talent, idea and innovation. I have thought about that while in my office that the “problem”—or challenge—of each issue is how best to attend to dualities. And how to ensure that every single issue is a notch better than the previous one, which has been possible through the hard work and ownership taken by the core editorial team and the contributors of the magazine.

“I congratulate the entire team, students and faculty who have been able to triumph this issue with the same enthusiasm and zeal.”

A handwritten signature in blue ink, appearing to be 'P. Kumar', written over a horizontal line.

**Prof. (Dr. Pardeep Kumar)**

# Message From PVC, Dean Academics, MRIIRS



**Prof. (Dr.) Naresh Grover**  
**Pro-Vice Chancellor & Dean Academics, MRIIRS**

True education is the education that encompasses intellectual, moral, emotional, social and physical dimensions. With primary purpose to assist students in grooming them to become active and contributing members of society, we encourage students to work towards developing social, artistic, athletic, cultural, emotional, moral, societal and humanistic elements of their lives. Every student is special and we believe that given right environment and ample opportunities, every student has the potential of shining in the field of interest.

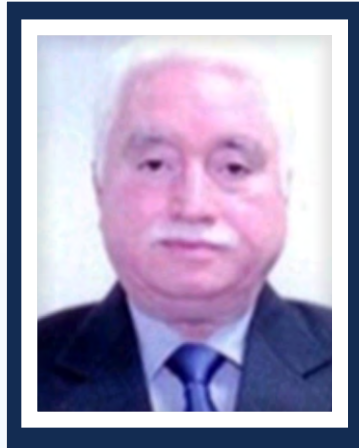
Technical Magazine Ingenieur Sphere being published by Faculty of Engineering and Technology is one such prospect, where each and every student is welcomed to express and explore his/her creative urge. It is heartening to note that our students, who are primarily technically inclined, do not lack in expressing their ideas. I am pleased that the students and faculty editorial team members have been extremely enthusiastic in bringing out Ingenieur Sphere and have whole heartedly contributed in making the magazine a window through which we can gaze at young and energetic lives of our students, their thoughts and dreams, their aspirations and hopes.

I congratulate each and every person who has contributed in bringing out Ingenieur Sphere.

A handwritten signature in blue ink, appearing to read 'Naresh Grover', written over a horizontal line.

**Dr. Naresh Grover**

# Message From Registrar, MRIIRS



**Mr. R.K. Arora**  
**Registrar, MRIIRS**

Manav Rachna International Institute of Research & Studies (MRIIRS) is collectively embarking on great voyage to the frontiers of engineering knowledge which is where our students will begin their individual exploration in the yet uncharted territory of technology and innovation. I wish my students all the very best to achieve their goals.

But in the midst of all this, students may not forget that the character can't be developed in ease and quiet. Only through experience of trial and toil can the soul be strengthened, vision cleared, ambitious, inspired and success achieved.

“Ingenieur Sphere” a technical Magazine being published by the Faculty of Engineering & Technology (FET), MRIIRS is an example of what motivated minds and dedicated souls are capable of achieving. This technical magazine presents a platform to all the technocrats of FET to unleash their creativity and put forth an excellent blend of technology and art which is a joy to read.

I congratulate all the members of Editorial Board of their hard work and dedication and with great confidence, I can say that this endeavour will continue to grow and help others grow. I wish that this magazine establishes to be a flint to fire the enthusiasm and excite the minds for many intrusive innovations among the students and inspire passion among the faculty members of FET.

A handwritten signature in blue ink, appearing to be 'R.K. Arora', written over a horizontal line.

**Mr. R.K. Arora**



# FET At A Glance

## About FET

- Faculty of Engineering and Technology (FET), Manav Rachna International Institute of Research and Studies is among the Top 4 Private Engineering Institutions of North India and among the Top 7 Private Engineering Institutions all over India as per Times Engineering Institute Rankings 2021.
- FET ranks 15 for its Research Capability among Engineering Institutes across India and No. 7 for placements among private engineering institutions of the country!
- MRIIRS ranked among top institutions by Ministry of Education's NIRF Ranking 2021. In Engineering, jumping 56 ranks in a year, secured the 118th rank all-across India.
- Faculty of Engineering and Technology, MRIIRS has been rated AAA+ in the Best Engineering Colleges Survey 2020 by Careers 360.
- Faculty of Engineering and Technology, MRIIRS is among the top 5 private engineering colleges of North India and among the top 50 private engineering colleges of the country as per The Week Best Colleges Survey 2019.
- MRIIRS (Formerly MRIU) declared as the 'Best Knowledge Creation and Innovation University' by ASSOCHAM National Education Excellence awards 2018.
- MRIIRS has been bestowed with the 'Most Innovative University in Research and Studies' by All India Council of Human Rights, Liberties and Social Justice (AICHLIS).

## Program Highlights

- Choice-based credit system with basket of Foundation, Core and basket of Elective courses.
- NBA Accredited & AICTE Approved Programmes
- First Institute in North India with Mitsubishi Electric Advanced Lab, imparting automation skills for Industry 4.0
- Infineon Centre of Excellence nurtures India's future power electronics engineers
- Earn a major and a minor degree in chosen specialization through extra credits in Hons. courses
- Professional Core Courses of Computer Science are in line with AWS (Amazon Web Services), Google & Infosys



**M VISVESVARAYA**  
**Sir Mokshagundam Visvesvaraya**  
(15 September 1860 – 14 April 1962)

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September 15 is marked every year as Engineers' Day in India, as a tribute to...

**SIR MOKSHAGUNDAM VISVESVARAYA**, more commonly known as Sir MV, one of the country's finest engineers.

“Tribute to Sir M Visvesvaraya Ji, a prolific engineer and an inspiration to people from all walks of life on his Jayanti”.

*Union Home Minister Amit Shah on Engineers Day*

“I pay homage to the remarkable Shri M Visvesvaraya on his birth anniversary and recall his accomplishments.”

*Prime Minister Narendra Modi*

“It is better to work out than rust out.”

*Sir M Visvesvaraya*



# Sir M. Visvesvaraya

India's Greatest Civil Engineer

## Early Life

**Visvesvaraya** was born in a Telugu Brahmin family, to Mokshagundam Srinivasa Shastry and Venkatalakshamma of Muddenahalli, (present-day Chikkaballapur District of Karnataka).

He started his primary education in Bangalore, received his BSc degree from the University of Madras, and then DCE (Diploma in Civil Engineering) from the University of Bombay through its affiliated institution and 3rd oldest Engineering College in Asia, College of Engineering, Pune.

He began his career as an Assistant Engineer with the PWD of Bombay, and later was invited to join Indian Irrigation Commission. He later designed and constructed automatic gates patented by him at Lake Fife Storage Reservoir; introduced a new system of irrigation known as "Block System", 1903; represented Bombay Government at Shimla Irrigation Commission, 1904; on special duty, 1905. Ended his professional career as Board of Directors of Tata Steel, 1927–1955

## Achievements

He implemented an intricate system of irrigation in Deccan Plateau and designed and patented a system of automatic water floodgates that were first installed in 1903 at Khadakvasla Reservoir near Pune, similar designs were later installed in Tigris Dam in Gwalior and Krishna Raja Sagara (KRS) Dam in near Mysore, Karnataka.

Visvesvaraya achieved celebrity status when he designed a flood protection system for the city of Hyderabad. During his service with the Gov't of Mysore state, he was responsible (under the patronage of the Mysore Gov't) for the founding of Mysore Soap Factory, Parasitoid Laboratory, Mysore Iron and Steel Workshop known as Visvesvaraya Iron and Steel Limited) in Bhadravathi, Sri Jayachamarajendra Polytechnic Bangalore, Bangalore Agricultural University, State Bank of Mysore.

## Awards

Sir Visvesvaraya was appointed a Companion of Order of the Indian Empire (CIE) in 1911.

In 1915, Sir Visvesvaraya was knighted as Knight Commander of Order of the Indian Empire (KCIE) by the British for his contributions to the public good.

After India attained independence, he was awarded the nation's highest honor, Bharat Ratna, in 1955, an honorary membership of London Institution of Civil Engineers, a fellowship from Indian Institute of Science (Bangalore),



- 24\*7 Business Incubator, & Dedicated Innovation and Incubation Centre
- Latest Curriculum as per industry standards, trainings by Cisco, Microsoft, etc.
- One-week Industry Interaction programme at IBM in Bangalore
- Intel® Intelligent Systems Lab to provide 360-degree exposure to various Intel Hardware and Software platforms that are used in Industry for AI and IoT development.

## Award Highlights

Manav Rachna students have a legacy of representing the country at Microsoft Imagine Cup International Finals for the last 5 years. MREI team won the national finals of Microsoft Imagine cup 2015 and bagged the prestigious honour of representing India at the world finals of the competition in Seattle, USA. Students from MREI scored big at the Accenture Innovation Jockey 2015 for the second time in a row. Two projects developed by MREI students also won the 'Popular Ideas' award. Our students also emerged winners at the 'Cognitive Computing and Internet of Things' category and won the Coveted Grand Prize in Accenture Innovation Jockey Competition-2014 powered by Yahoo India. MRIIRS has also been bestowed with National Excellence Award for 'Best University for promoting Industry-Academia' interface by ASSOCHAM.

## International Collaborations

Taking forward the commitment to excellence and a vow to create futuristic global leaders, the Faculty of Engineering & Technology (FET) has done collaborations with following foreign universities:

- **Curtin University, Perth, Australia** : B.Tech. Civil Engg / ECE of FET may seek transfer to Curtin University in 3rd year for which they get transfer of credits earned in MRIIRS.
- **Purdue University Northwest** : is a prestigious American university in northwest Indiana, USA With nearly 7,000 students, it is one of the largest university systems in the United States and includes four campuses, a statewide technology program.
- **The University of North Texas (UNT)** is a public research university based in Denton, Texas and was founded in 1890. UNT has eleven colleges, two schools, & an early admissions Math and Science academy for exceptional high-school-age students from across the state. UNT is the flagship institution of the University of North Texas System, which includes additional universities in Dallas and Fort Worth. UNT also has a satellite campus in Frisco.
- **Illinois Institute of Technology** is a private research university in Chicago, Illinois. It was established in 1940 of Armour Institute and Lewis Institute. The university has programs in Engineering, Science, Psychology, Architecture, Business, Communications, Industrial Technology, Information Technology, Design and Law.

## Distinguished Positions

In November 1909, Visvesvaraya was appointed Chief Engineer of Mysore State in 1912, he was appointed as Diwan (second Minister) of Mysore and served for seven years as Board of Directors of Tata Steel, 1927–1955

## Honors

Visvesvaraya Technological University in Belagavi (to which most Engineering Colleges in Karnataka are affiliated) was named in his honor, as well as prominent colleges like University Visvesvaraya College of Engineering, Bangalore, Sir M. Visvesvaraya Institute of Technology, Bangalore; and Visvesvaraya National Institute of Technology, Nagpur.

College of Engineering, Pune, his alma mater, erected a statue in his honor.

The Visvesvaraya Industrial and Technological Museum in Bangalore is named in his honor.

September 15 is marked every year as Engineers' Day in India, as a tribute to Sir Mokshagundam Visvesvaraya



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# Technical Articles

## API - Application Program Interface

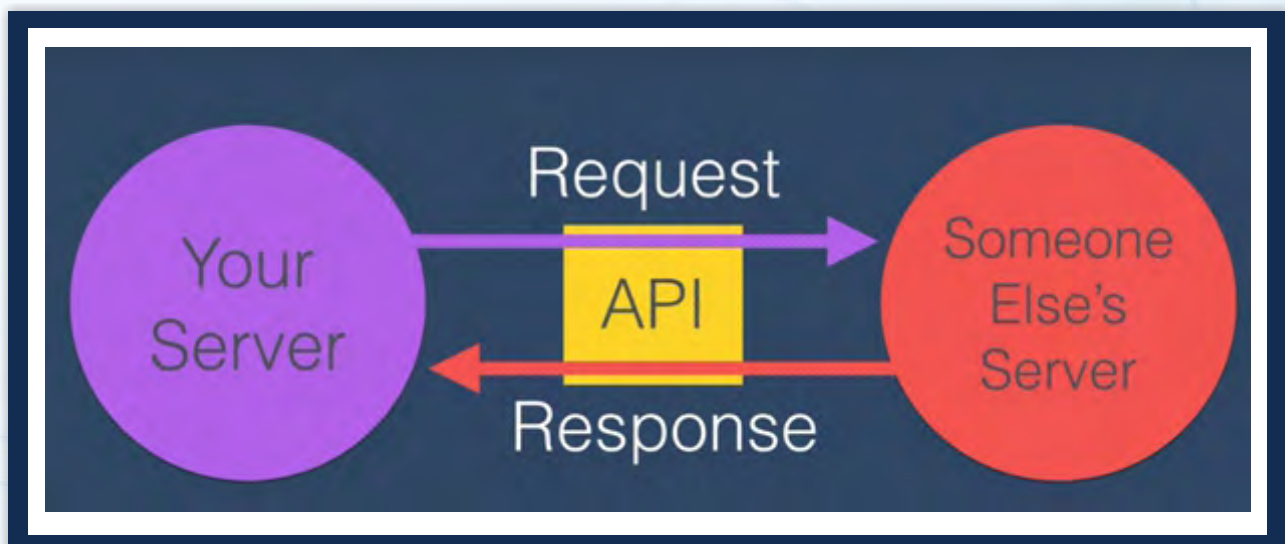
### Application Program Interface

It is a set of instructions, tasks, agreements, and things that programmers can use to build software or work with an external system example

### Weather API – Accu Weather API

- Temperature
- Weather
- Weather Image
- Pressure

An API is somehow like a contract between a data provider and an engineer with data to be reached and agreements to be reached.



We need to take care of these things when we talk about the API –

- Final points
- Ways
- Parameters
- Verification

**API Endpoints** : every system that works with an external server will have API endpoints

Example - <https://kanye.rest> and endpoint of the API is <https://api.kanye.rest>

**API Paths** : endpoint / path - access to data by category even if the API website gives you the option

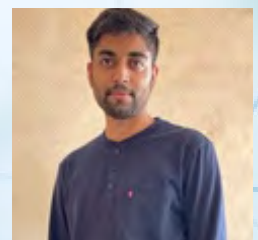
**API Parameters** : key = value pairs that do not have a route and that go like <https://api.kanye.rest/action?contains=debugging>

The first query follows the question marks, and the other queries follow a & such as <https://api.kanye.rest/action?contains=debugging&type=single>

Data retrieved from the API is usually in JSON format JavaScript Object Notation as it is easy to read by people and can be easily collapsed to take up as little space as possible.

JSON data is compiled into a single character unit and can continuously revert to JSON format

- Analyzing the JSON data
- We may use `JSON.parse (data)` to convert data from a unit of character to a JS object
- We may also use `JSON.stringify (data)` to convert data from object to strings.



**Aarsh Arora**  
1/19/FET/BCS/176



# Smart Transportation as a key to build Smart Cities

In the recent years the concept of "smart city" has come to the fore owing to an upsurge in the rate of urbanization and urban agglomeration. In 1950, thirty percent of the world's population used to live in urban settings, this percentage is expected to grow to 66 percent by 2050. This has behaved the governments all over the world to pursue sustainable techniques for accommodating this large influx of people and to secure for them reasonable standards of living and a dignified life. The various initiatives such as Indians smart city mission and UN's United Smart Cities programme in this direction is testimony to this. Smart transport is an indispensable part of smart city. Intriguingly smart cities index used 'transport and mobility' as one of the critical parameters in its ranking of cities.

## Intelligent Transportation System

According to the US Department of Transportation, Intelligent Transportation Systems (ITS) apply a variety of technologies to monitor, evaluate, and manage transportation systems to enhance efficiency and safety.” This avant-garde idea employs new emerging technologies like 5G and AI to revolutionize transport. The various facets of ITS includes public infrastructure, Data integration and smart services.

## Public Infrastructure

In order to fabricate a sustainable system of Intelligent Transportation system we need to cause for a complete revamp of the existing public infrastructure to meet the demands of the exigency. This includes automated fair collection systems, automated traffic lights, automated toll collection systems, providing for electric vehicle charging points which will be ubiquitous throughout the city etc.

## Data Integration

Data will act as fuel for the smart cities. In pursue of the idea of ITS the prerequisite data types include-traffic data, weather data, data related to emergency services etc. This will entail seamless, efficient, cost-effective mobility for the Hoi polloi.

## Smart Services

In order to avail the services of ITS copiously we need to create certain smart services like smart parking system, automated vehicle locating system, driver monitoring system etc.

## Benefits of ITS

**Safety :** Dwindling of human interference augment the adroitness of the systems intended to build safer experience. Cost effectiveness- the better use of resources in hand and ostracism of costly human labour ensures economical system of transportation. Amelioration of access to emergency services. ITS will enhance emergency response and cause for melioration of the existing system by ensuring quick detection of emergency and faster movement.

**Sustainable :** The compulsions of global warming are leading us towards more environmentally sustainable techniques. The new vehicles will be electric battery powered so as to secure minimum carbon emissions.

**Supply Chain Resilience :** Safer, faster movements will mitigate supply chain vulnerability. Concerns.

**Cyber Security :** The impetus to the whole idea of ITS is provided by data. Such large computerized ecosystems are always susceptible to the viperous threat of cyber-attacks.

**Outsourcing Human Resources :** ITS will lead to outsourcing of many unskilled jobs but will cause for augmentation of white-collar jobs opportunities. The cascading impact on the unskilled can be attenuated by interventions like Universal basic income.

## ITS in the Indian Context

India has been facing the wrath of issues associated with urbanization like traffic, slums etc. ITS is a necessitated intervention. According to an estimate India loses \$21.3 billion annually due to traffic congestion and additional fuel consumption because of poor road conditions. Only 18% of Indians use public transport thanks to its quagmire situation. There are only 18 cars per 1000 population but still the situation of traffic is abyssal. This means that in a country like India the onus should be on sustainable public transport solutions.

## Way forward

India has been facing the wrath of issues associated with urbanization like traffic, slums etc. ITS is a necessitated intervention. According to an estimate India loses \$21.3 billion annually due to traffic congestion and additional fuel consumption because of poor road conditions. Only 18% of Indians use public transport thanks to its quagmire situation. There are only 18 cars per 1000 population but still the situation of traffic is abyssal. This means that in a country like India the onus should be on sustainable public transport solutions.



**Ms. Sonal Bhugra**  
Assistant Professor  
Department of Civil Engineering  
FET , MRIIRS

# Artificial Consciousness



Imagine any man-made entity aware of its own existence, a non-biological object understanding and feeling the sense of being “alive”.

For some the above sentence is as fascinating as rainbows with aurora, while others term it as the doom of mankind but what all see is that the latest trends in the boom in research publications with relation to artificial intelligence and rising use of AI-ML technologies has started a cold war between the great internet giants.

With the move of Facebook to “Meta - verse”, Google using AI to interact with activities of almost entire human population online on any Google associated platform, Tesla with great success in self - driving cars we've become part of a know globe, always stalked upon by an AI, with never ending thirst to improve itself.

Keeping aside the Orwellian dystopia of a world with non-existent privacy, if we focus upon what these artificial intelligence is trying to achieve, we are answered with: A world where labor is completely passed upon machines performing tasks just like us if not better. As we all know, AI learns through imitation, and to perform tasks with human efficiency, one must deduce: it has to imitate a human, to imitate a human is to imitate its way of thinking, its mind, its consciousness. Alexander Pope wrote: To err is human, meaning it is natural for us to make mistakes. Now, what if a conscious machine imitates a mistake, grave mistake humans have made throughout the history, wars.

Now, that is still a lot of assumptions, deductions and 'ifs', moving on to the bright side, AI has brought a 21st century man with no less quality life than fire for the cave-men. Among it being reactive machines, supervised learning or a pre-programmed robots and many others .Artificial intelligence pushes the boundaries of machine enabled functionalities. This technology drives down the taken to perform a task. It enables multi-tasking and eases the workload. It can operate 24x7 without any interruption or break, it also ensures mass market potential, facilitates decision making by making the process faster and smarter.

An AI in general is like a small kid than learn gradually and learn how to respond and to interact socially to get conscious. So it completely depends on how the human treats it and teach it to focus on its social role and its interaction. So like human, robots can be ascribed on the basis of capabilities and social roles.

According to the concept of social roles, rights are not ascribed to a robot's moral status, but to its actions for others. This explains why it is not possible to claim that robots have moral status.

So, we can conclude that in the future, it may be plausible to imagine that these robots have moral status and could be classified as autonomous and conscious.



# Voice Assistant



Voice assistants ( Alexa, Cortana, Google, Shiri ) started to be wildly used and their functionality kept growing. Knowing how to develop apps for voice assistant is a competence that can be very demanding in the near future.

Subjects related to developing voice assistant are not included in engineering subjects. They only get an overview about voice assistant and what are the uses of this.

But they don't know how to develop a voice assistant so we have to take a look on this topic as well.

Emerging technologies like virtual reality, augmented reality and voice interaction are reshaping the way people engage with the world and transforming digital experiences

Nowadays voice assistants have become very common, everywhere people have started using it. They do their work by just giving commands to them.

The birth of the first virtual assistant; however, began with **IBM Simon** in the early 1990s. It was a digital speech recognition technology that became a feature of the personal computer with IBM and Philips. After this discovery people started to develop this project at different levels. It became a competition between many organisations that would develop an exceptional voice assistant.

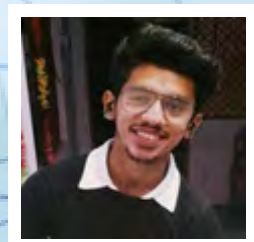
The popularity of these devices is constantly rising since 2017. According to analysis (2018), smart speaker installed base will approach 225 million by 2020 and 320 million by 2022. The variant of voice assistant is evolving continuously. The most advanced variant and most loved variant of voice assistant are the Alexa speakers. These devices are reducing human efforts, these devices easily help in finding answers, controlling appliances and other things by just giving voice commands.

The most interesting fact about voice assistant is that it creates a revolution in technology, this revolution helped a lot for specially abled persons. They can easily perform various tasks by just giving voice commands.

But as we know the things which look cool, attractive and easy to use also have some disadvantages so the demerits of virtual assistance are;

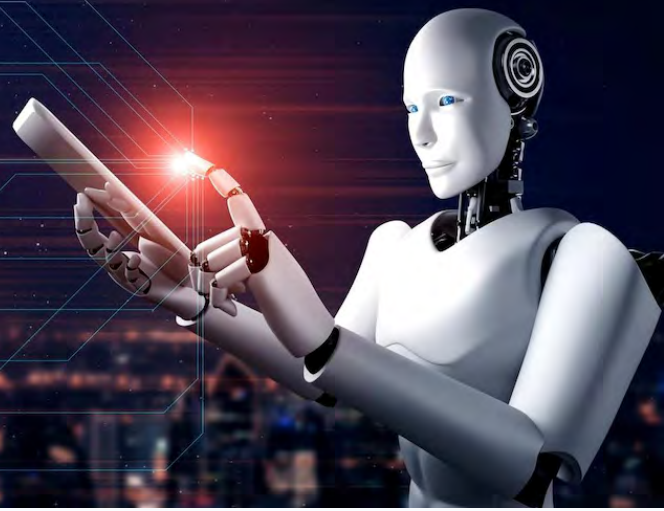
1. Smart Home Devices are expensive
2. Leads to lost concentration on the task in hand
3. Privacy concern

Overall these devices have now become a major part of our life. We are getting much attached to their technology. And the development works in this field will keep going. The upcoming world is full of new technologies and many more gadgets will get discovered.



**Amritanshu Kumar**  
1/19/FET/BCS/30

# Artificial Intelligence



## AI - The Future Technology

As we talk about Artificial Intelligence, the very first thing which came into our mind is a man-made intelligence which can do same work as humans do or perform the task with the same intelligence/IQ as humans do.

Artificial Intelligence refers to a system or machine that mimic human intelligence to perform tasks and gives the best output and these days AI is almost using everywhere, like we will take the examples of Siri, Alexa, Google Home and Cortana. They use AI to recognize and respond to voice commands and nowadays many restaurants, hospitals and manufacturing companies too are using robots and virtual AI for their ease in work.

As I have mentioned above AI is almost using in every field, it is because it takes less effort and give more output in less time and it operates 24x7 without interruption or breaks and has no downtime. But as we know that when there are advantages there are some disadvantages too like, high cost of implementation, can't replace humans, lacks creativity but it won't be too optimistic to believe that all these problems be fixed with time and human upskilling

In the future, the AI's will be more developed and may be seen more in our day-to-day life. this technology will allow us to focus on more important things rather than spend hours in finding solutions for those confusions which may occur frequently in daily life



**Ishu Jain**

1/21/FET/BCS/081

# Cloud Computing



*“Technology is best when it brings people together.” – Matt Mullenweg*

As the quote said technology bring people together same does the cloud computing where you will be ready to build, innovate and re-create resources. Cloud computing is on demand access that involves delivering hosted services over the net. Cloud computing works by allowing client devices to access data over the online, from remote servers, databases and computers. an online network connection links the front (includes the accessing client device, browser, network and cloud software applications) with the buttocks, which consists of databases, servers and computers). the behind functions as a repository, storing data that's accessed by the side. Communications between the front and back ends are managed by a central server. The central server relies on protocols to facilitate the exchange of data. The central server uses both software and middleware to manage connectivity between different client devices and cloud servers. Typically, there will be a fanatical server for each individual application. There are three forms of cloud computing models- Infrastructure as a service (IaaS), Platform as a service (PaaS) and Software as a service (SaaS).

**IaaS:** - Users, companies, and businesses can use IaaS for storage and networking. it's cost-effective because there is not any need for on-premise physical servers. Moreover, the service is flexible, scalable, and instantaneously accessible by users.

**PaaS:** - Developers and software engineers can use online tools and software through Cloud Computing. this protects developers the difficulty of fixing the environment and lets them concentrate on getting the actual application up and running. Plus, it saves lots of some time and money.

**SaaS:** - Companies can use data centers to deploy applications on third-party online servers and provide real-time access to their users/customers through the online. Since it's online, the software is also accessed anytime and anywhere. One key advantage of using cloud service to deploy an application is that it makes it easy to scale globally since you there's no must have physical servers at a selected location.

There are 4 main styles of cloud computing: private clouds, public clouds, hybrid clouds, and multiclouds Public-cloud storage is shared. Services are provided over the web, but a company has little or no control over the underlying infrastructure. Private-cloud technology is known as internal storage and is deployed over a business's intranet. it's often used as a tool to provide security and fault tolerant solutions that are not possible through public-cloud use. With this system, an owner shares few to no resources with anyone else. Hybrid-cloud is an integrated approach, which mixes the power of the alternative two clouds. There are customized policies that govern security and so the infrastructure, and tasks are allocated PRN. Multiclouds are a cloud approach made up of quite 1 cloud service, from over 1 cloud vendor—public or private. All hybrid clouds are multiclouds, but not all multiclouds are hybrid clouds. Multiclouds become hybrid clouds when multiple clouds are connected by some kind of integration or orchestration.

## Cloud Computing Benefits

- Cost savings
- Mobility
- Disaster recovery

## Cloud Computing Challenges

- Cloud security
- IT governance
- Performance
- Vendor lock-in

The three largest public cloud service providers, who have established themselves as dominant fixtures within the industry, are:

- Amazon Web Services (AWS)
- Google Cloud Platform
- Microsoft Azure

Cloud computing is a new technological development that has the potential to have a decent impact on the earth. It's many benefits that it provides thereto users and businesses. As an example, variety of the benefits that it provides to businesses, is that it reduces disbursement by spending less on maintenance and software upgrades and focus more on the businesses itself. But there are other challenges the cloud computing must overcome. People are very skeptical about whether their data is secure and private



**Bhavesh Kumar**  
1/19/FET/BCS/143



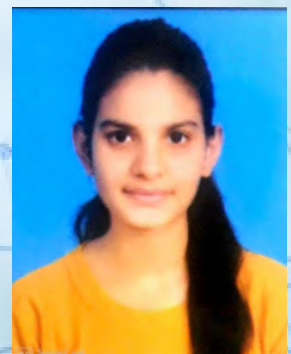
## DETOX- A Health Savior

***“EMPTY THE OLD THOUGHTS, EMOTIONS, AND WORDS IN YOUR BODY AND MIND, SO THAT THE HEART CAN SHOW YOU THE NEW STORY YOU CAME TO LIVE.”***

The way we live now is not the same as it used to be. There are various problems that have crept up with technological advancement. Majority of the people live in cities and the cities are full of pollutants whether it is in the form of polluted water, air, food, etc. Even in the semi-urban areas, the situation is becoming similar not just physical pollutants but our mental space is also corrupted by what can be called digital toxins.

There are various methods to get rid of all these detoxes like fasting. All of the world's great religions recommend fasting is a great form. Hindus fast during Navratri and in the month of Savaran. Muslims fast during the holy month of Ramazan. Christians give up their favorite food during lent while Buddhist has their own tradition. Researches have found that when human bodies are in fasting mode human starts getting rid of cancerous cells. While fasting may not guarantee that you will never get cancer, the evidence about its health seems to be mounting.

Meditation and digital detox are other methods. The next time whenever you will travel by train or metro, take a look around you will find that most of the people are hunched over their phones, almost mindlessly scrolling through some feed or the other and always connected to social media too. Teams of psychology and researches spend weeks and months trying to make these apps even more addictive to people using them. Thankfully, there are also mechanisms that can help us keep our usage of these apps to the necessary minimum.



**Khushi Vats**  
1/20/FET/BCS/056

# Linux



From smartphones to cars, supercomputers and home appliances, home desktops to enterprise servers, the Linux operating system is everywhere. Just like Windows and Mac, Linux is an operating system created by Linus Torvalds. Operating system, a program loaded into the machine after BIOS, which acts as an interface between the hardware and user. Linux is open-source software. The code used to create Linux is free and available to the public to view, edit, and—for users with the appropriate skills—to contribute to.

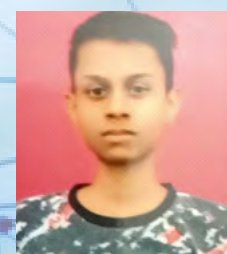
Why Linux? The most important question of the debate. Cuz it's free. Installing Windows servers or using their OS in your systems costs your pockets whereas in the case of Linux it's just a few clicks away. Not only money is a factor for comparison but also you can modify and maintain the Linux server in any way you want.

Linux provides a different number of versions for all varieties of users. These versions are known as Distros or Flavours of Linux. Popular Linux distributions include Ubuntu, Fedora, Kali Linux, etc. These distros can be loaded into a bootable pen drive and installed into the system. Nowadays, you can run Linux without erasing the host OS by using what's called VM or Virtual Machine or you can even dual boot your machine. Even Microsoft Windows features Linux components, as part of the Windows Subsystem for Linux (WSL).

One of the most impressive features of Linux is its command line or CLI. Command lines are available on many operating systems. But it's usually associated with Linux, because both command lines and open source software, together, give users unrestricted access to their computer.

Linux can even run on the oldest of computers with bare minimum specifications. For example, Puppy Linux, a distro that can run on only 300MB. Gaming in Linux is also a possibility now. Popular titles like GTA 5 and lesser-known ones like DCS and Ace Combat 7 can be played using the Proton compatibility layer and Wine. Even some games performed better on Linux than on an identical Windows machine. Vulkan works great in Linux, and for folks who want to see performance data, there are tools like MangoHud to put a full-featured overlay on the screen. And with OBS built natively for Linux, streaming to Twitch isn't even an issue, either.

Switching to Linux is not hard but not recommended to all, especially editors or content creators who used software like Microsoft Office or Adobe tools since these software don't have a supported version for Linux-based OS.



**Varun Devrani**  
1/20/FET/BCS/109

# Will AI take over humans?



This has been a debatable topic for the past couple of decades now. Scientist and other experts are really trying to guess whether computers and machines can actually take over human brains or not. In the 21st century, AI is evolving to be superior to humans in many tasks, which makes that we seem ready to outsource our intelligence to technology. With this latest trend, it seems like there's nothing that can't soon be automated, meaning that no job is safe from being offloaded to machines.

Just look around yourselves. What all things do we see? We are surrounded by hundreds of machines- From the tip of our pen to your dishwashers, everything is a machine. Can you imagine a robot which actually responds to your queries- both logically as well as emotionally? Yes, there are robots which actually considers your emotional attitude to solve your issues. With the advancement in the computer science, people now believe that robots and computers can actually take over human capabilities and many fiction writers have even written on machines taking control over the whole world.

Due to its imitating abilities, AI has the quality to identify informational patterns that optimize trends relevant to the job. Contrary to humans, however, AI never gets physically tired and as long it's fed data it will keep going. These are perfectly suited for low-level routine jobs which are not affected by external factors and take place within a closed management system. For instance, Assembly line workers are not interrupted by external supply demands and work meetings. Amazon used AI to supervise human workers to measure and compare their efficiency to others and even fire them!

As the work is repetitive and subject to rigid procedures, AI is able to take on tasks like these and are able to supervise humans.

Another instance would be the creation of human like robot, Sophia. Sophia was the idea of David Hanson which came into reality in 2016. The reason what makes Sophia different from other robots is its ability to have feelings.

Also, it was the first human bot to act enough like a human to gain the official citizenship of Saudi Arabia in 2017.

## **What does this all point to- Can really robots take over human brains?**

Well we don't know that yet for sure. Till date every other robot or any advanced machine that we have designed, have limited controls assigned to it. Every action performed by them in some or the other way is controlled by humans themselves. However, if they start feeding data to themselves and with advancements in cognitive learning they will become serious contenders to human jobs. AI should be used in moderation. It does save manual working hours and is cost efficient but if we give in to technology completely we might just end up being their slaves. We must learn how to use to use them effectively and constantly evolve to learn new things. Our end goal is to make other planets habitable and continue to evolve the human species, not to sit back and relax while AI does everything. Such a world would be complete chaos. A handful of people controlling all the AI tech, which could ruin the equilibrium of social sphere.



**Derick Johns**

1/20/FET/BCS/168

**Jagjot Singh**

1/20/FET/BCS/146



# Smart Traffic Light System

Technology I hope we are very much aware with this word because it is the only one thing that comes to our life to make our life easier and for time saving.

So, talking about technology used in traffic lights. The concept: smart traffic lights to ease traffic flows. The current traffic light system is such that transition time slots of lights are fixed regularly and do not depend on real-time traffic flow. A Smart Traffic Light System leverages technology to improve traffic outcomes by introducing a sensing network, which provides feedback to the existing network, so that it can adapt to the changing traffic density patterns and provide necessary signals to the controller in real-time. A robust system is able to:

- Collect data from vehicle detector devices at each intersection.
- Dynamically adapt traffic signal timing in real time.
- Make incremental adjustments to the traffic signal timing based on the changes in traffic flow at each intersection.

The system works on a 3-step model - data collection, data processing, and communication at each intersection point, i.e. traffic light. There are several technical implementation options for each of these functions. Based on a study of international best practices in cities such as Amsterdam, Singapore, and Sydney, as well as a review of physical infrastructure requirements, installation time and maintenance costs, the Global Shapers of the New Delhi hub (an initiative of the World Economic Forum) have proposed that Delhi should adopt a CCTV based system. This system could work as follows:

**1. Video Analysis:** The traffic is continuously monitored using a smart CCTV installed at each traffic light. The video captured is then compressed so as to reduce the transmission bandwidth and sent to the processing tool.

**2. Image Processing:** Image Processing techniques like matching technique, filter technique, etc. are used to extract scene description from the raw video data. The output of the processing tool goes to a controller.

**3. Controller:** The controller uses the processed data to compute traffic statistics, compares it to predefined thresholds and sends the required signals to the traffic light timer. This system would necessitate the installation of CCTV cameras at major traffic junctions, the establishment of several image processing centres, and a single command and control centre for the controller function.

The system can be implemented successfully if all relevant stakeholders work in tandem. Owing to the existence of multiple agencies, this process becomes complex in Delhi's case. Based on an institutional analysis, the Global Shapers of the New Delhi hub have recommended that

- The Delhi Integrated Multi-Modal Transit System Ltd. (DIMTS) should be the nodal agency in-charge of project implementation, and host the command and control center.
- The Government of Delhi should finance the project through support from the Central government provided as part of the Smart Cities Mission.
- CCTV installation should be undertaken by the Public Works Department Delhi's Traffic Police should be in-charge of maintaining smooth traffic flows.



**Shashank Rai**  
1/20/FET/BCS/106



# Virtual Reality



**Virtual reality (VR)**, using modelling and simulation that allows someone to interact with a manmade three dimensional (3D) visible or different sensory surroundings. VR packages immerse the person in computer-generated surroundings that simulates fact via using interactive gadgets, which ship and acquire facts and are worn as goggles, headsets, gloves, or body suits. In a regular VR format, a person wearing a helmet with a stereoscopic display perspectives lively photographs of a simulated surrounding. The phantasm of “being there (telepresence) is affected through movement detecting sensors that select out the person's actions and regulate the view at the display accordingly, typically in real time (the immediate the person's motion takes place). Thus, a person can tour a simulated suite of rooms, experiencing converting viewpoints and views which might be convincingly associated with his very own head turnings and steps. Wearing information gloves geared up with force remarks gadgets that offer the feeling of touch, the person may even select out and control gadgets that he sees withinside the digital surroundings.

Artists, performers, and entertainers have usually been interested by strategies for developing innovative worlds, putting narratives in fictional areas, and deceiving the senses. Numerous precedents for the suspension of disbelief in an artificial global in inventive and amusement media preceded virtual reality. Illusionary areas created via way of means of artwork or perspectives had been built for houses and public areas considering the fact of antiquity, culminating withinside the enormous panoramas of the eighteenth and nineteenth centuries. Panoramas blurred the visible barriers among the two-dimensional pictures showing the principal scenes and the 3-dimensional areas from which those had been viewed, developing a phantasm of immersion withinside the occasions depicted. Nowadays, Virtual Reality (VR) is being used widely in various fields. Some of these fields include Military, Mental and Emotional Health, Sports, Medical Training, Education, Fashion, etc.

Talking about the most recent application of Virtual Reality (VR), we have a South Korean documentary that reunites a mother with her daughter who has been dead for 3 years. On wearing computer game goggles, Jang Ji-sung purely burst into tears to see her 7-year-old daughter, Na-Yeon, emerge from within the back of piles of wooden logs during a community park, her playground until she died from blood-associated sicknesses three years ago. The emotional reunion, conducted closing week in a documentary via way of means of South Korean broadcaster MBC, turned feasible via way of means of virtual reality (VR) era which embodied Na-Yeon in a virtual avatar modelled upon a young actor by the use of images and reminiscences from her mother.



**Lakshika Bansal**  
1/19/FET/BCS/176

### INTRODUCTION

The open source software "movement" has received enormous attention in the last several years. It is often characterized as a fundamentally new way to develop software that poses a serious challenge to the commercial software businesses that dominate most software markets today. The challenge is not the sort posed by a new competitor that operates according to the same rules but threatens to do it faster, better, cheaper. The OSS challenge is often described as much more fundamental, and goes to the basic motivations, economics, market structure, and philosophy of the institutions that develop, market, and use software. The basic tenets of OSS development are clear enough, although the details can certainly be difficult to pin down precisely. OSS, most people would agree, has as its underpinning certain legal and pragmatic arrangements that ensure that the source code for an OSS development will be generally available. Open source developments typically have a central person or body that selects some subset of the developed code for the "official" releases and makes them widely available for distribution.

These basic arrangements to ensure freely available source code have led to a development process that is radically different, according to OSS proponents, from the usual, industrial style of development. The main differences usually mentioned are OSS systems are built by potentially large numbers (i.e., hundreds or even thousands) of volunteers

- Work is not assigned; people undertake the work they choose to undertake.
- There is no explicit system-level design, or even detailed design.
- There is no project plan, schedule, or list of deliverables.

Taken together, these differences suggest an extreme case of geographically distributed development, where developers work in arbitrary locations, rarely or never meet face to face, and coordinate their activity almost exclusively by means of email and bulletin boards. What is perhaps most surprising about the process is that it lacks many of the traditional mechanisms used to coordinate software development, such as plans, system-level design, schedules, and defined processes. These "coordination mechanisms" are generally considered to be even more important for geographically distributed development than for co-located development, yet here is an extreme case of distributed development that appears to eschew them all.

Despite the very substantial weakening of traditional ways of coordinating work, the results from OSS development are often claimed to be equivalent, or even superior to software developed more traditionally. It is claimed, for example, that defects are found and fixed very quickly because there are "many eyeballs" looking for the problems (Eric Raymond calls this "Linus's Law". Code is written with more care and creativity, because developers are working only on things for which they have a real passion. It can no longer be doubted that OSS development has produced software of high quality and functionality. The Linux operating system has recently enjoyed major commercial success, and is regarded by many as a serious competitor to commercial operating systems such as Windows. Much of the software for the infrastructure of the internet, including the well known bind, Apache, and send mail programs, were also developed in this fashion.

## Methodology and Data Sources

In order to produce an accurate description of the Apache development process, one of the authors (RTF), who has been a member of the core development team from the beginning of the Apache project wrote a draft description. This draft was then circulated among other core members, who checked it for accuracy and filled in missing details. The description in the next section is the final product of this process. In order to address our quantitative research questions, we obtained key measures of project evolution from several sources of archival data that had been preserved throughout the history of the Apache project. The development and testing teams in OSS projects consist of individuals who rarely if ever meet face to face, or even via transitory media such as the telephone. One consequence of this is that virtually all information on the OSS project is recorded in electronic form. Many other OSS projects archive similar data, so the techniques used here can be replicated on any such project. (A detailed description, including scripts used to extract the data are available from the authors on request.) We used the following archival sources of data: Developer email list (EMAIL). Anyone with an interest in working on Apache development can join the developer E-mailing list, which was archived monthly. It contains many different sorts of messages, including technical discussions, proposed changes, and automated notification messages about changes in the code and problem reports. There were nearly 50,000 messages posted to the list during the period starting from February, 1995. Our analysis is based on all the email archives retrieved on May 20, 1999. We wrote Perl scripts to extract date, sender identity, message subject, and the message body that was further processed to obtain details on code changes and problem reports (mentioned below). Manual inspection was used to resolve such things as multiple email addresses in cases where all automated techniques failed. Concurrent Version Control archive (CVS). The CVS commit transaction represents a basic change similar to the Modification Request (MR) in a commercial development environment. (We will refer to such changes as MRs.) Every commit automatically generates an email message stored in the apache-cvs archive, which we used to reconstruct the CVS data (the first recorded change was made on February 22, 1996. The version 1.0 of Apache released in January 1996 had a separate CVS database). The message body in the CVS mail archive corresponds to one MR and contains the following tuple: date and time of the change, developer login, files touched, numbers of lines added and deleted for each file, and a short abstract describing the change. We further processed the abstract to identify people who submitted and/or reviewed the change and to obtain the Problem Report (PR) number for changes made as a result of a problem report. According to a core participant of Apache, the information on contributors and PRs was entered at least 90% of the time. All changes to the code and documentation were used in the subsequent analysis. Problem reporting database (BUGDB). As in CVS, each BUGDB transaction generates a message to BUGDB stored in a separate BUGDB archive. We used this archive to reconstruct BUGDB. For each message, we extracted the PR number, affected module, status (open, suspended, analyzed, feedback, closed), name of the submitter, date, and comment. We used the data elements extracted from these archival sources to construct a number of measures on each change to the code, and on each problem report. We used the process description as a basis to interpret those measures. We then further validated the measures by comparing several operational definitions, and by checking our interpretations with project participants. Each measure is defined in the following sections within the text of the analysis where it is used.

customer support in OSS. Case studies such as this provide excellent fodder for hypothesis development. It is generally inappropriate to generalize from a single case, but the analysis of a single case can provide important insights that lead to testable hypothesis.

## The size of the Apache Development Community

The participation in Apache development overall was quite wide, with almost 400 individuals contributing code that was incorporated into a comparatively small product. In order to see how many people contributed new functionality and how many were involved in repairing defects, we distinguished between changes that were made as a result of a problem report (PR changes) and those that were not (non-PR changes). We found that 182 people contributed to 695 PR changes, while 249 people contributed to 6092 non-PR changes. We examined the BUGDB to determine the number of people who submitted

problem reports. The problem reports come from a much wider group of participants. In fact, around 3060 different people submitted 3975 problem reports. 458 individuals submitted 591 reports that subsequently caused a change to the Apache code or documentation. 2654 individuals submitted 3384 reports that did not result in a change.

## Hypothesis And Replication

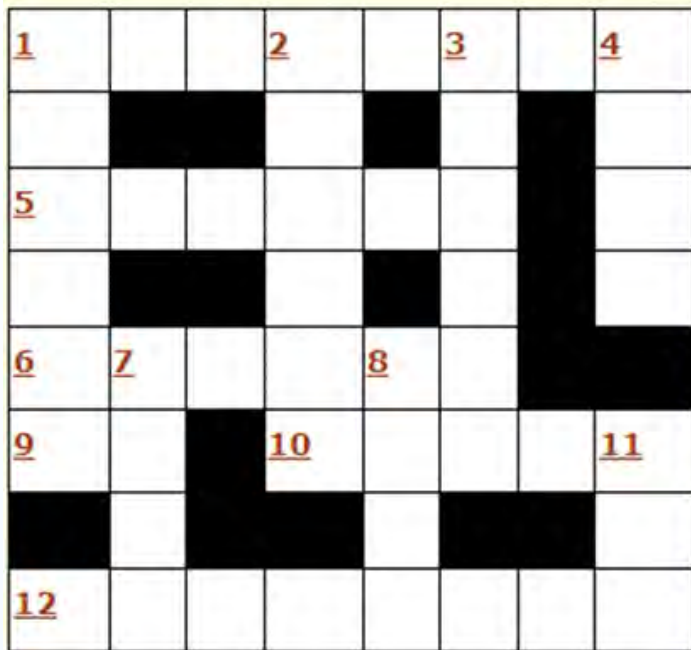
In this case study, we reported results relevant to each of our research questions. Specifically, we reported on

- The basic structure of the development process.
- The number of participants filling each of the major roles.
- The distinctiveness of the roles, and the importance of the core developers.

suggestive, but not conclusive, comparisons of defect density and productivity with commercial projects, and customer support in OSS. Case studies such as this provide excellent fodder for hypothesis development. It is generally inappropriate to generalize from a single case, but the analysis of a single case can provide important insights that lead to testable hypothesis.



# With A Little Heart



### Across

1. Relating to physics
5. Similar to molecule
6. Put in coded form
9. Rain falls \_\_\_ earth
10. Light generating device
12. A branch of mathematics

### Down

1. Mercury, venus earth, etc
2. Fe is the chemical \_\_\_ for iron
3. Data stores
4. It comes from a volcano
7. Network intersection
8. Calendars shows it
11. A beam of light

### Puzzle

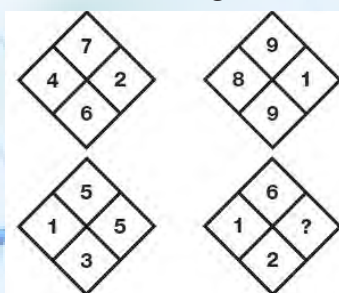
**Q.1** Five people were eating apples, A finished before B, but behind C. D finished before E, but behind B. What was the finishing order?

Answer: CABDE.

**Q.2** A girl meets a lion and unicorn in the forest. The lion lies every Monday, Tuesday and Wednesday and the other days he speaks the truth. The unicorn lies on Thursdays, Fridays and Saturdays, and the other days of the week he speaks the truth. "Yesterday I was lying," the lion told the girl. "So was I," said the unicorn. What day is it?

Answer: Thursday.

**Q.3** Find the missing number



Answer: 2 as

$$7 * 6 = 42$$

$$9 * 9 = 81$$

$$5 * 3 = 15$$

$$6 * 2 = 12$$

**Q.4** One rabbit saw 6 elephants while going towards River. Every elephant saw 2 monkeys are going towards river. Every monkey holds one tortoise in their hands. How many animals are going towards the river?

Answer: 5

**Q.5**  $2 + 10 = 24$

$$3 + 6 = 27$$

$$7 + 2 = 63$$

$$5 + 3 = ?$$

Answer: 40 as

$$2 + 10 = 24 \Rightarrow 2 + 10 = 12 \times 2 = 24$$

$$3 + 6 = 27 \Rightarrow 3 + 6 = 9 \times 3 = 27$$

$$7 + 2 = 63 = 7 + 2 = 9 \times 7 = 63$$

## Jokes

**Q.1** Why is it that programmers always confuse Halloween with Christmas?

Answer: Because 31 OCT = 25 DEC

**Q.2** How many programmers does it take to change a light bulb?

Answer: None. It's a hardware problem.

**Q.3** What kind of car does an electrician drive?

Answer: A Volts-wagon

**Q.4** What did the lightbulb say to the generator?

Answer: "I really get a charge out of you."

**Q.5** What did the triangle say to the circle?

Answer: "You're pointless."

## Facts

1. Electricity travels at the speed of light, which is 186,000 miles per second. Electricity can be created using water, wind, the sun, and even animal waste.

2. The Traub is the rarest motorcycle in the entire world. It can be dated back to 1916 and still runs to this day

3. HP, Microsoft and Apple have one very interesting thing in common – they were all started in a garage.

4. Mount Everest weighs an estimated 357 trillion pounds.

5. All human DNA is 99.9% similar. It is the 0.1% that accounts for the difference in people.

# FET Highlights



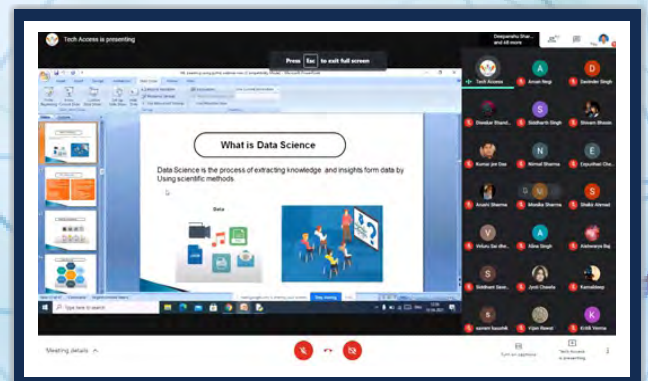
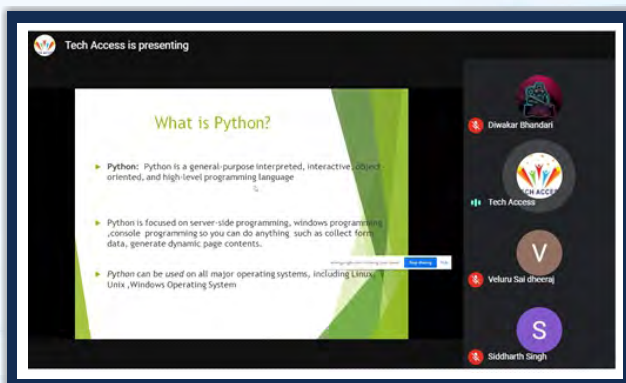
## Applied Science Department Highlights

### Report on Machine Learning using Python

**Python** is one of the most powerful programming languages in the world that relies on simple syntax. Most of the time the programmers have to focus on the complex syntax and functions rather than developing the core algorithm. But the simplified nature of the python programming language allows the programmers to work with readable codes which are also very easy to understand. Python for Machine Learning covers basics of important python libraries like Requests, Pandas, Numpy, Scipy, tkinter and Matplotlib etc and cover their usage in Machine Learning and Data Science. This course is necessary for candidates who want to build their career in data science field.

Keeping in mind about the wide applicability of Python in Machine Learning, we organized a webinar on Machine Learning and Python for our 2<sup>nd</sup> sem students of all branches and senior semester CSE & CSE-IBM students alongwith B.Sc. Data Science students to get an opportunity to connect with Tech Access Learning Pvt Ltd. a premier training centre in the field on **10<sup>th</sup> April 2021**.

More than 140 students were attended this webinar and participated in a scholarship test for internship.



## Workshop on Effective E-Waste Management

A workshop Titled “**Effective E-Waste Management**” was organized by the Department of Applied Sciences, Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies on 15<sup>th</sup> June, 2021, Tuesday from 11:00 am onwards. The workshop was conducted on MS-Teams platform. The Eminent speaker of the event was Ms. Gurpreet Kaur, worked with UNICEF, World Bank, Aus Aid Projects.

The Workshop planned to spread awareness about how to manage the E- Waste. E-waste is a growing concern and there has been a rapid increase in health hazards because of discharging the toxic materials into the environment. The goal of E-waste recycling providers is to help businesses and organizations in getting rid of obsolete electronics and safeguard the environment.



## Expert Talk on Water Quality Monitoring and Assessment

An Expert Talk was organized by the Department of Applied Sciences, MRIIRS on the topic “Water Quality Monitoring and Assessment” on 3<sup>rd</sup> September, 2021 at 1:00 PM on the MS-Teams platform.

The Event was graced by the presence of Dr. Pardeep Kumar PVC & Dean FET, FCA, MRIIRS, **Dr. Geeta Nijhawan**, Associate Dean, FET, **Dr. Jyoti Chawla**, HOD, Department of Applied Sciences, Head of Engineering Departments, Faculty members and students.

The esteemed speaker for the day was Dr. Jakir Hussain, Environment Specialist, Upper Yamuna River Board, Department of Water Resources, RD & GR Ministry of Jal Shakti.





## Webinar on “RESEARCH INNOVATIONS AND RANKING” Under the theme Completion of the 1 year of Transformative reforms under NEP-2020

A Webinar was organized by the Department of Applied Sciences, MRIIRS in collaboration with office of Dean Research on the topic “Research, Innovations and Ranking” on 9<sup>th</sup> Aug,2021 at 3:00 PM on the theme “Completion of the 1 year of Transformative reforms under NEP-2020” on the MS-Teams platform. The event was graced by the presence of Dr. **Pardeep Kumar**, Honorable Pro Vice Chancellor and Dean FET, **Dr. Geeta Nijhawan**, Associate Dean, FET, Faculty members and students. The esteemed speaker for the day was Dr. S.K. Chakarvarti. Advisor Research, MRIIRS.



# Automobile Engineering Department Highlights

## Webinar on Employment opportunities in Australia on 12 January 2021

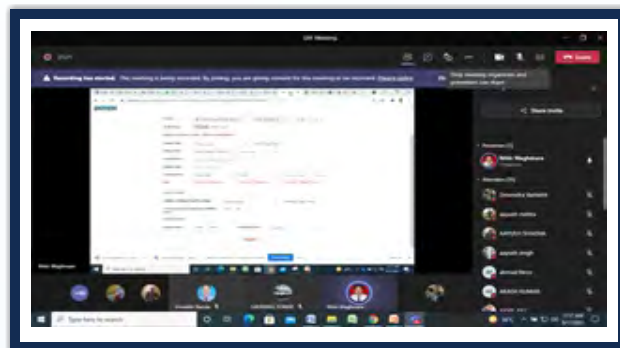
The Department of Automobile Engineering, FET, Manav Rachna International Institute of Research and Studies organized a Webinar on Employment opportunities in Australia on 12 Jan 2021 from 02:30 PM to 4:00 PM through Microsoft Teams Online Platform. Esteemed speakers for the session were **Mr. Deepak Panchal** (Director Visa fast migration consultancy and spark cloud) **Mr. Saurabh Vir** (Asst Manager the Auto gallery and Marketing director for Visa fast Migration Pty Ltd). 70 students from different universities have actively taken part in the well-planned Interactive Session.

The session starts with the Welcome Address given by **Mr. Gurpreet Singh** (Asst. Professor-Automobile) **Mr. Deepak Panchal** talked about the key facts and avenues in Australia. He also explained about his organization which is in the consultancy of Migration to Australia and Migration Alliance. **Mr. Saurabh Vir** being proud alumni of the department gives an impressive presentation wherein he covered in-depth topics relating to the benefits of foreign education, had made a comparison of Canada and Australia as per the job prospects, Employment opportunities in Australia, Procedure of Visa, PR and related topics. The discussion forum was then opened for the audience's questions. Both the invitees had addressed the queries made by the students. **Dr. Geeta Nijhawan** (Associate Dean-FET) appreciated the efforts made by the department for arranging the valuable session for the students and addressed the importance of foreign education. The session ends with the Vote of Thanks given by **Dr. Devendra Vashist** (HOD-Automobile-FET) who thanked students and the speakers for their active participation in the session. He also gives his views regarding employment opportunities in a foreign land.



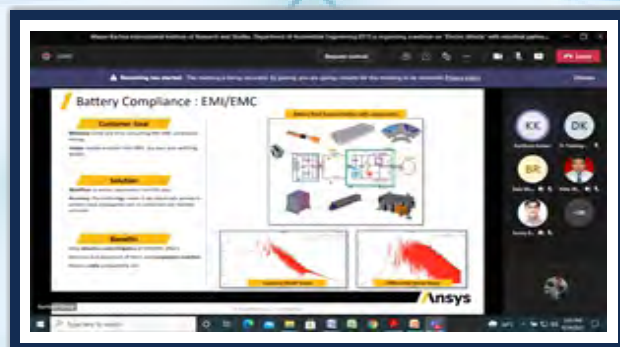
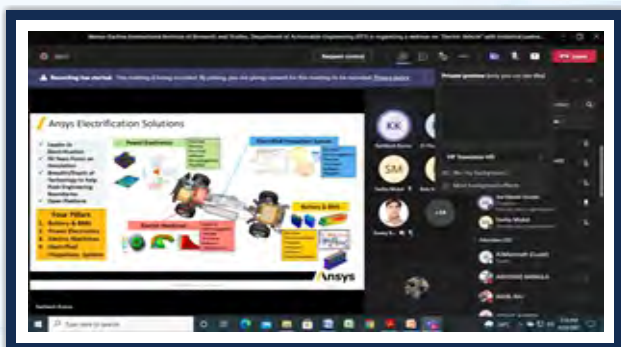
## MRIIRS SAE Collegiate Club Formation on 17 August 2021

A meeting of MRIIRS SAE Collegiate Club members was conducted on 17.08.2021 from 11:30 AM through online mode on MS Team for the formation of the working committee for the year 2021-2022. The meeting was chaired by **Dr. Devendra Vashist, Mr. Nitin Waghmare & Dr. Virender Narula** (SAE Collegiate club faculty advisor).



## Webinar on Design & Development of Electric Vehicles using Ansys on 24 Sept 2021

The Department of Automobile Engineering, FET, Manav Rachna International Institute of Research and Studies, organized webinar on Electric Vehicles (EV) with theme “Design & Development of Electric Vehicles using Ansys” on 24.09.2021 (Friday) from 2:00 PM to 4:00 PM on Microsoft Teams. Strong customer demand and governmental push for higher mileage, greener vehicles means that car and truck makers have to develop and deploy electric vehicle and hybrid technology. Ansys automotive simulation tools and best practices of integrated metaphysics, multi-scale platform model hybrid technology aspects such as batteries, fuel cells, motors, power electronics, and controllers, from end-to-end, using in-depth models / sub-models, with precision and accuracy is helping vehicle manufacturers make rapid advances in hybrid technology. The students and faculty are to realize with the latest features of software Ansys that is used in designing of EV. The same was the aim behind the webinar on “Design & Development of Electric Vehicles using Ansys”.



## Seminar on Opportunities for Entrepreneurship in the Automobile Sector 30 Sept 2021

The Department of Automobile Engineering, FET, Manav Rachna International Institute of Research and Studies, organized a seminar on “Opportunities for Entrepreneurship in the Automobile Service Sector” on 30.09.2021 (Thursday) from 11:30 AM to 1:00 PM in CG-29.

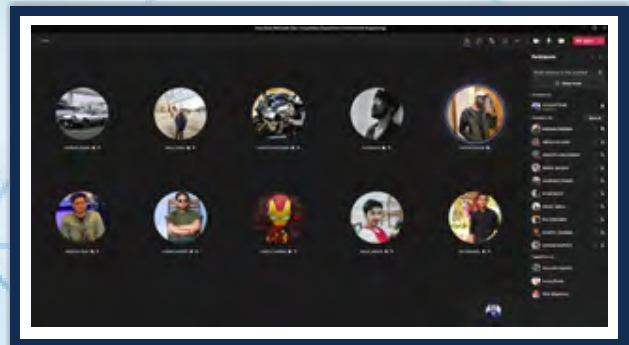
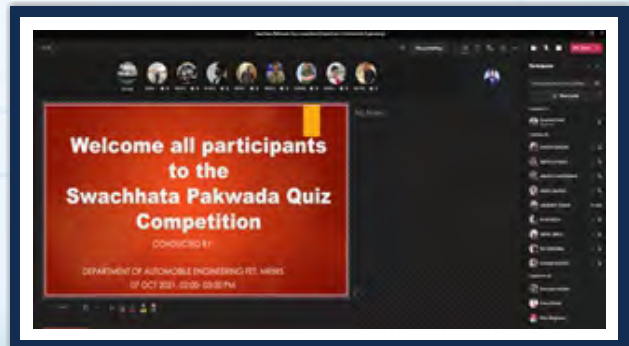
At the start of the seminar, **Dr Devendra Vashist** Prof & Head (Automobile Engineering) and **Dr Manoj Nayak** welcomed the speakers. **Mr. Aman Suhag** Founder (My Garage) & **Mr. Sahil Bhagwanani** (from Mahindra and Mahindra). **Mr Sahil Bhagwanani** shared his experience of working as a sales engineer in the Truck Division of (M&M). He explained in detail the different challenges faced by the service engineer in practical life. He also informed about the different traits required by the service engineer to successfully handle the needs of the customer. **Mr. Aman Suhag** Founder (My Garage) explained in detail about his start up. He informed the gathering about the technology platform that they are using to make their venture successful. He invited students to join his start-up as interns. He also offered that once the work of the interims is found to be satisfactory, they will be selected as regular employees in the company. A question answer session was followed at the end of the speaker's talk.



## Swachhata Pakhwada quiz competition on 07 October 2021

On 07th October 2021, the Department of Automobile Engineering had conducted the Swachhata Pakhwada Quiz program for the faculty members and students of the University. The Session starts with a Welcome note by **Dr. Devendra Vashist** (Head of the Department-Automobile Engineering), who explains the program itinerary and gives insight into the importance of broad topics for the quiz.

**Mr. Gurpreet Singh Matharou** (Asst. Professor-Automobile), who is also the event coordinator, explains the procedure and related technicalities for the conduct of the quiz. The quiz was conducted through Microsoft Forms. Twenty-eight students from different departments have actively participated and undertaken a quiz comprising 40 questions. The quiz questions were selected from four broad areas.



1. Waste Recycling,
2. Energy Conservation.
3. Breakthrough in Electric Vehicles.
4. Hybrid vehicles as a means of sustainable transportation.

## Alumni Interaction (Mr. Manpreet Singh) on 11 Nov 2021

Department of Automobile Engineering organized an alumni interaction for the students of through online mode (MS Teams) on November 11, 2021. For the interaction, Mr. Manpreet Singh, alumni of 2010-2014 batch were invited to share his experience at Manav Rachna and in Germany where he pursued higher studies.

Coordinator of the event **Mr. Sunny Bhatia** introduced **Mr. Manpreet Singh** to the participants. Mr. Manpreet completed his B.Tech in Automobile Engineering from Manav Rachna International University in 2014. He completed his M.Sc. in Supply Chain Engineering and Management from Jacobs University, Bremen, Deutschland. After that he worked for various organizations in Germany in different capacities. Presently he is working as a Supply Chain and Digitalisation Engineer, at Airbus Operations GmbH on the behalf of ALTEN Technology GmbH, Hamburg Germany. He has also worked as a Airbus Operations GmbH on the behalf of ALTEN Technology GmbH, Hamburg. Since 2015 he is an ambassador for the Bremen Logistics

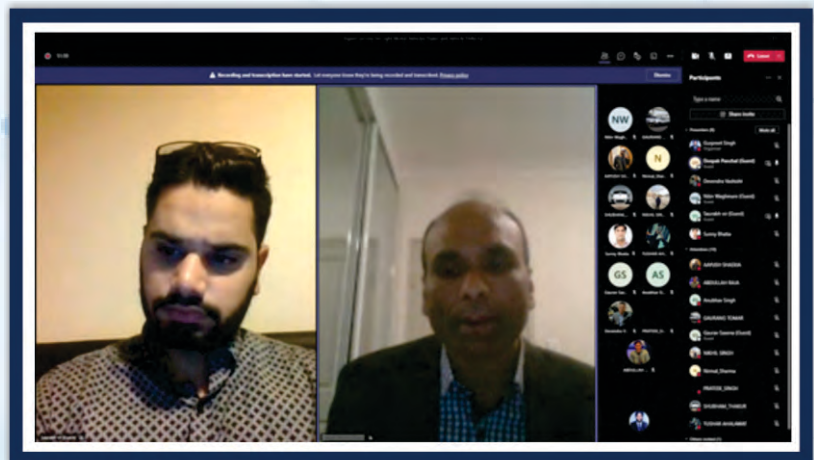


## Webinar on Light Motor Vehicles Sales and Defect Analysis on 15 Nov 2021

The Department of Automobile Engineering, FET, Manav Rachna International Institute of Research and Studies, organized a **Webinar on Light Motor Vehicles Sales and Defect Analysis** on 15.11.2021 (Monday) from 2:00 PM to 3:00 PM on Microsoft Teams.

At the start of webinar **Dr Devendra Vashist** Prof & Head (Automobile Engineering) welcomed the speakers and the participants. He informed the audience about the importance of defect analysis strategies employed for light motor vehicles. He further informed about the major systems of EV on which more research work is presently undergoing. Guest speaker of the webinar was **Mr. Saurabh Vir**. Vehicle Specialist, Woodleys Motor Group, Sydney, Australia. Ex-AM, Mercedes Benz, Sydney, Australia (Alumni of Automobile Department, FET, MRIIRS (2013-17 Batch) & **Mr. Deepak Panchal**, Director Visa Fast Migration Consultancy, Sydney, Australia.

**Mr. Saurabh Vir** sets the ball rolling by informing the audience about the basic and advanced strategies relating to sales and marketing and also the procedure and techniques for analyzing the defects of a Car, Jeep and other Light Motor Vehicles. He also talked about his experience in different companies in Australia. **Mr. Deepak Panchal** talked about the procedure, minimum qualifications, language tests etc. required for the Australian Migration. He also explained about the formalities required during permanent residency, work permit, student visa etc. A question answer session was followed at the end of the session. Finally, the vote of thanks was given by **Mr. Gurpreet Singh Matharou** (Event Coordinator) to all participants and the speakers.



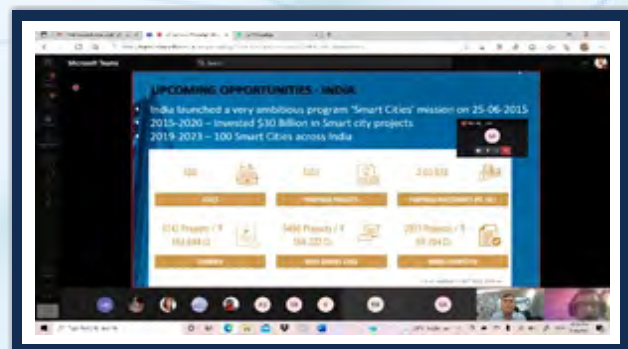


## Civil Engineering Department Highlights

### “Smart Cities: Digital Metamorphosis of Civil Engineering”

The Department of Civil Engineering, Faculty of Engineering and Technology (FET), Manav Rachna International Institute of Research and Studies (MRIIRS), in association with Tickoo Institute of Emerging Technologies (TIET)organised an Expert Talk on “Smart Cities: Digital Metamorphosis of Civil Engineering” on July 30, 2021.

The speakers of the Expert Talk include Mr. Praveen Sharma (CEO, The BIM Engineers), Mr. Rominder Singh Bedi (CEO, Innovative Systel) and Er. Lalit Negi (Implementation Engineer – Transportation, Innovative Systel).Mr.Parveen Sharma is managing global BIM operations for the Dutch + Indian BIM company 'The BIM Engineers'. His Strengths are Planning Business Strategy, making a winning team, and maintaining successful and profitable operations. His Specialized areas include BIM Staffing (long and short term) for Design Consultancies and Construction Companies, Building Information Modeling (BIM), Virtual Design and Construction (VDC), Establishing and Managing BIM/VDC Global Design Centre (GDC) and Strategic Planning.Mr. Rominder Singh Bedi is the CEO of Innovative Systel, having nearly 25 years of experience in the field of CAD/CAM/CAE. Er. Lalit Negi is working as Implementation Engineer- Transportation in Innovative Systel. His expertise is in highway designing software which is known as OpenRoads Designer Connect edition. He provides training on highway designing software (OpenRoads) and also technical support on Bentley's software.



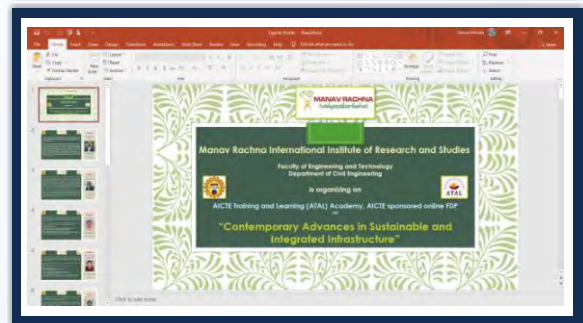
### ATAL, AICTE Faculty Development Program (FDP) on “Contemporary Advances in Sustainable and Integrated Infrastructure”

The Department of Civil Engineering, Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies (MRIIRS) organised a 05 day online FDP on “Contemporary Advances in Sustainable and Integrated Infrastructure” from 2-6th August, 21. This FDP was sponsored by AICTE Training and Learning Academy as part of the Faculty Development Schemes for Academic Year 2021-22. The scheme is intended to improve the faculty's teaching and other skills related to technological advancements in key sectors. This scheme will not only have a positive impact on enhancement of technical education-related professional practices, it also encourages faculty to strive for excellence.

The Faculty Development Programme organized by Manav Rachna addressed concepts of sustainability in the context of buildings, infrastructure and conventional engineered building materials along with modern construction techniques. Progress in the areas of machine learning, artificial intelligence and data sciences which have kick started new avenues for Engineers to reflect upon and rethink classical and modern approaches of problem solving were significantly emphasized. Conclusive experimental research premised upon computation technologies which paves the roadmap for sustainable implementation of projects and a multi faceted approach towards uncertain life cycle assessments were discussed. The use of computational techniques to aid in decision making modeling, especially in multi-criteria scenarios with futuristic computational methodologies were very well addressed during the FDP. The sessions in the FDP covered the following areas but discussions were much beyond.

1. Sustainable Practices in Infrastructure development
2. Sustainability, Green buildings
3. Applications of Machine learning & Artificial Intelligence in Civil Engineering
4. Advances in Building Information Modelling
5. Construction safety and Quality Management
6. Risk Analysis and Management of Hazards
7. Modelling and simulation of Transportation and Geotechnical systems
8. GIS in Civil Engineering Infrastructure
9. Sustainable construction materials

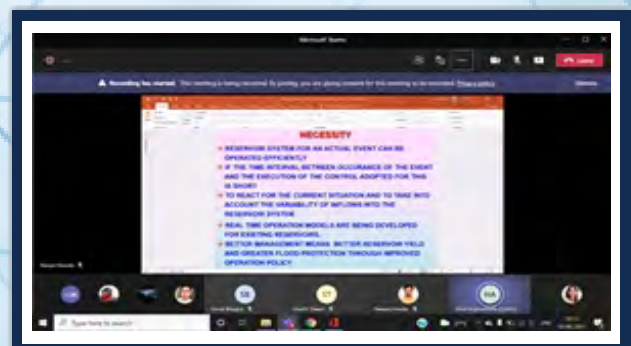
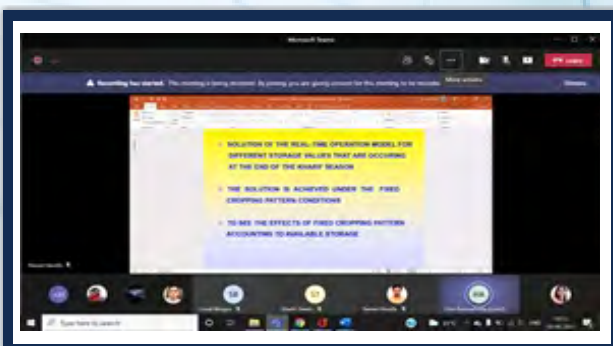
The inaugural session on August 02, 2021 had Prof. (Dr.) Pardeep Kumar, Pro – Vice Chancellor and Dean, FET, MRIIRS emphasize on the latest emerging technological fields in the area of Civil Engineering and Sustainable Development. Prof. (Dr.) Sanjay Srivastava, Vice Chancellor, MRIIRS showered his blessings and explained the importance of such FDPs in the overall benefit of the educational community at large. The coordinators of the event were Dr. Sunita Bansal, HoD, Civil Engineering, Dr. Anjali Gupta and Mr. Yaman Hooda, who helped the participants in every way.



## “Linear Programming Approach for Sustainable Irrigation Scheduling A Case Study”

The Department of Civil Engineering, Faculty of Engineering and Technology (FET), Manav Rachna International Institute of Research and Studies (MRIIRS) organised an Expert Talk on “Linear Programming Approach for Sustainable Irrigation Scheduling: A Case Study” on August 10, 2021.

Dr. Hazi Azamathulla is Professor of Civil and Environmental Engineering at the University of the West Indies at St. Augustine, Trinidad. He has a degree in Civil Engineering from SKD University (India), Master's degree in Water Resources from Devi Ahilya University (India) and a Doctorate in Hydraulic engineering from Indian Institute of Technology, Bombay. He is/has been a member of the editorial board of several high ranked Journals: Water Science and Technology, Water Science and Technology: Water Supply, Journal of Pipeline Systems Engineering – ASCE (2009~13), Dam Engineering Journal.

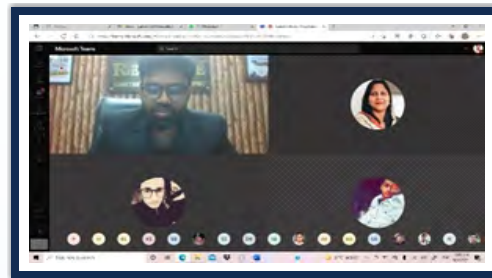


## “Importance of Quantity Surveying (Estimation and Costing)”

The Department of Civil Engineering, Faculty of Engineering and Technology (FET), Manav Rachna International Institute of Research and Studies (MRIIRS) organised an Expert Talk on “Importance of Quantity Surveying (Estimation and Costing)” on August 16, 2021.

The speaker of the Expert Talk was Mr. Nishant Goswami (Director, Reinforced Quantity Surveyor and Training Pvt. Ltd.). Mr. Nishant Goswami had completed B. Tech in Civil Engineering from IIT

Madras. He had a good working experience in civil engineering industry in India and Gulf Countries. He returned back to India and started his own organization – Reinforced Quantity Surveyor and Training Pvt. Ltd.



## “Techniek 2021” - Engineer's Day Celebration 2021

The Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies, is celebrating “Techniek - 2021” – Engineer's Day Celebration 2021 on September 15, 2021; organised by The Sustainable Squad, Department of Civil Engineering, Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies. “Techniek - 2021” was scheduled to conduct the following events:

- Technical Poster Presentation on “An approach towards Smart Cities”.
- Quiz Competition on “Futuristic Technologies”.
- 5 Minutes Presentation on “Multi – Disciplinary Research” (For Faculty Members).
- Crossword on “Futuristic Technologies” (For Faculty Members).



## Industrial Visit at Pyramid Infratech, Sector 67A, Gurugram, Haryana.

The Department of Civil Engineering, Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies (MRIIRS), Faridabad organized a one-day visit to LIG Housing Society at Gurugram, Haryana on September 30, 2021 for the students of B. Tech (Civil Engineering) – 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> Year. The Industrial Visit was organised by Prof. (Dr.) Anjali Gupta. Mr. Aftab Alam and Mr. Yaman Hooda accompanied the students at the construction site.

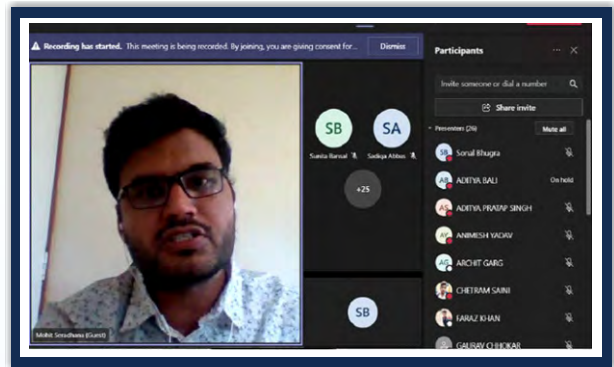
An ambitious project of Pyramid Constructions under the Pradhan Mantri Awas Yojna (PMAY) under Ministry of Housing and Urban Affairs, the affordable housing (LIG houses) consists of 12 towers, Aanganwadi and separate commercial place at sector 67A in Gurugram, Haryana.





## International Alumni Interaction on “Career Prospects of Civil Engineering”

The Department of Civil Engineering, Faculty of Engineering & Technology, MRIIRS organized an Alumni Interaction on “**Career Prospects of Civil Engineering**” on **05.10.21**. The session was delivered by **Mr. Mohit** a student of **2012-16 batch** from this department. The session was attended by all UG & PG students of the Civil Engineering department. Session began with a welcome address by Ms. Sonal Bhugra. Mr. Mohit completed B.Tech (Civil Engineering) in 2016 and served industry for about a



year and half in India before he joined **Swinburne University of Technology, Melbourne, Australia** for pursuing Masters in Construction and Infrastructure Management. He is currently working with Precast Concrete Solutions and is based in **Canberra**.

## PowerPoint Presentation Competition on “Development of Innovative Technologies for Waste Management in Smart and Sustainable Cities” under Swachta Pakhwada Initiative

The Department of Civil Engineering, Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies (MRIIRS), Faridabad organized a one – day PowerPoint Presentation Competition on the theme “*Development of Innovative Technologies for Waste Management in Smart and Sustainable Cities*” on October 11, 2021 under “*Swachta Pakhwada*” Initiative by the Government of India.



## International Expert Talk on "Geospatial Technologies for Disaster Monitoring and Creating Vulnerability Database" on the occasion of “International Day for Disaster Reduction”

The Department of Civil Engineering, Faculty of Engineering and Technology (FET), Manav Rachna International Institute of Research and Studies (MRIIRS), has organised an Expert Talk on "Geospatial Technologies for Disaster Monitoring and Creating Vulnerability Database" on the occasion of “International Day for Disaster Reduction” on October 13, 2021.

The speaker of the Expert Talk was Prof. (Dr.) Nitin Kumar Tripathi. Prof. Tripathi is currently working as

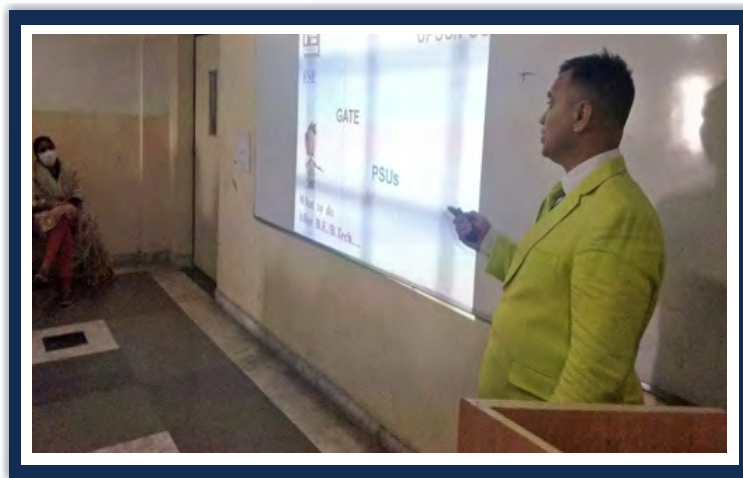


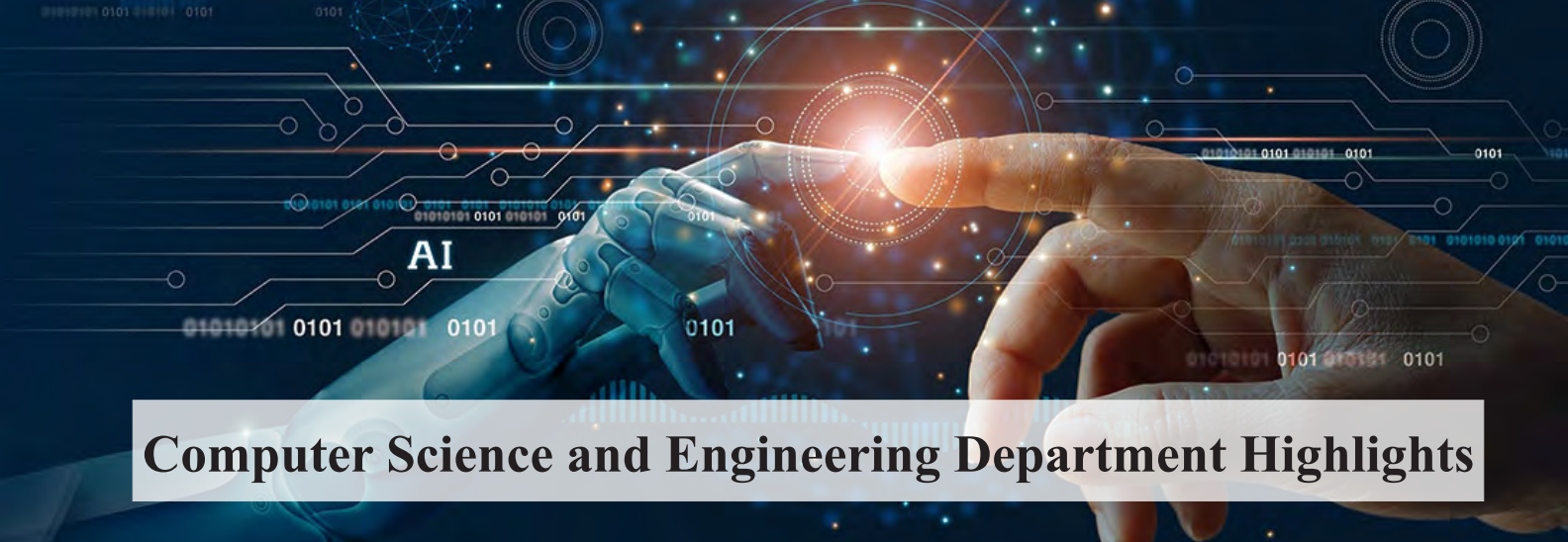
a Professor of Geoinformatics and Remote Sensing, School of `Engineering and Technology, Asian Institute of Technology (AIT), Thailand. He is also serving as a Director of Special Degree Programs.

## Expert Talk on “Strategy to crack GATE and other Competitive Exams”

The Department of Civil Engineering, Faculty of Engineering and Technology (FET), Manav Rachna International Institute of Research and Studies (MRIIRS), has organised an Expert Talk on "Strategy to crack GATE and other Competitive Exams" on October 27, 2021.

The speaker of the Expert Talk was Mr. Jitendra Tiwari. Mr. Tiwari is educationalist by profession, registered himself in *LIMCA Books of Records* for memorizing world's toughest dictionary – GRE Barons: words with meanings with page numbers and words in a sequence from A to Z and vice – versa. Mr. Tiwari completed his schooling from Army School. During his graduation, he completed NCC 'C' Certificate and also represented M. P. at national level in football. He had been nurturing students nationwide from last 20 years. He had conducted more than 400 seminars in IITs, NITs and other reputed colleges.

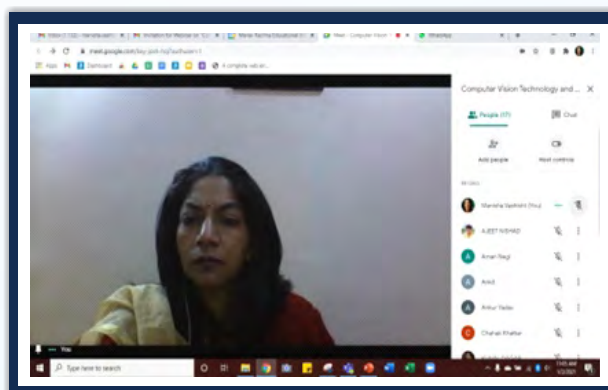




## Computer Science and Engineering Department Highlights

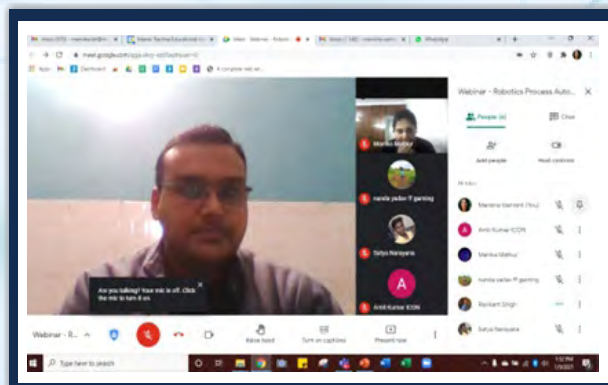
### Webinar on “Computer Vision Technology” 02.Jan-2021, Saturday, 11:00 am to 12:00 noon

A webinar was conducted by the Department of Computer Science and Engineering (CSE), Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies, on “**COMPUTER VISION TECHNOLOGY**” dated Jan 02-2021, Saturday from 11:00 am to 12:00 pm especially for the First Year CSE, CSE-Specialization, all sections. The Speaker introduced Computer Vision, Architecture, the Applications of CV, and its impact on the world. Later, the Question-Answer round was handled by Ms. Manisha, During the session, 30 students joined and given their feedback regarding the same.



### A special session on “Robotics Process Automation” 9<sup>th</sup> Jan.2021, Saturday, 11:00am to 12:00noon

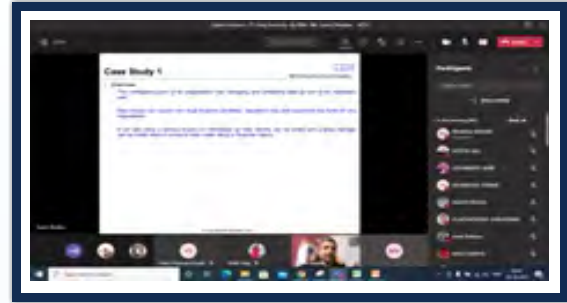
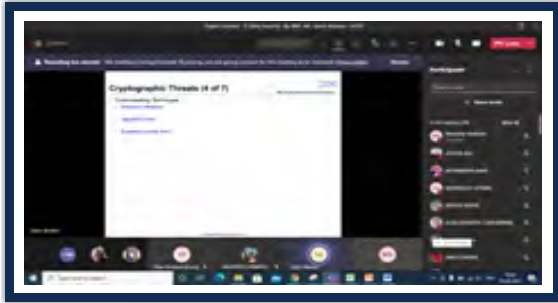
A Special Session was held for the First Year CSE Batch, on Robotics Process Automation January 9-2021, Saturday, from 11:00 am to 12:00 noon. The program commenced in the presence of the Guest Speaker, Ms. Manika Mathur, the Coordinators, Dr. Charu Pujara, Prof., Ms. Manisha Vashisht, AP, CSE, FET, MRIIRS, and Student participants of First Year CSE, CSE-IBM, all sections. Dr. Manika Mathur is a Senior Group Manager with WNS Global Services having over 19+ years of experience in Service Delivery Management, RPA, and Test Consulting.



### Expert Lecture Series for CSE Specialization Courses, 4th Semester and 6th Semester Students (5th Apr 2021 to 9th Apr 2021)

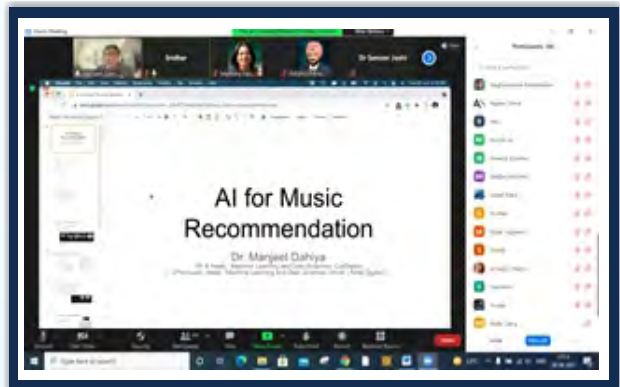
An Expert Lecture Series-1 has been organized by the Department of Computer Science and Engineering (CSE), Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies, in association with IBM for CSE(IBM) Specialization Courses, 4th Semester and 6th Semester Students, from 5th Apr 2021 to 9th Apr 2021. It was in virtual mode through Microsoft Teams Platform. On the very first day of the session, the guest speaker Mrs. Kapila IT Data Security, Security Threats, Types of Data Security Threats, Malware Threats, Network-Based Threats, Cryptographic Threats, etc.

Another half-day of the session guest Speaker, Mr. Shubham Aggrawal, the IBM representative, discussed, Data Mining, goals, evolution, Application, Techniques of Data Mining, etc. On the second day, Mr. Samir Aksekar discussed about recovery of erased and damaged data, digital forensics, disk imaging and preservation, data encryption and compression, messenger forensics, browser forensics, etc. and Mr. Shubham Agarwal, discussed, linear programming, dynamic programming, Knapsack problem, with good examples, theoretical and practical and same on Day 3 and Day 4 representatives of IBM discussed Business Process Management and XML programming.



**International Conclave on “DIGITAL SURAKSHA”**  
**20-Jun-2021, Sunday, 5:00 pm to 6:30 pm**

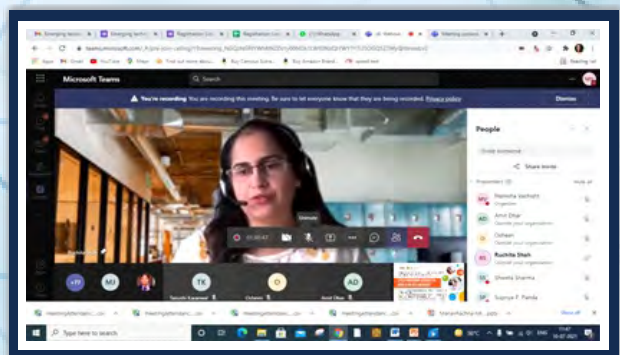
The Department of Computer Science and Engineering (CSE), Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies, organized an INTERNATIONAL CONCLAVE on “DIGITAL SURAKSHA” dated 20-jun-2021, Sunday, from 5:00 pm to 6:30 pm. The program commenced in the presence of the HoD-CSE and CSE(IBM), Dr. Supriya P. Panda, Dr. Tapas Kumar, the Guest Speakers, Mr. Manjeet Dahiya, VP & Head - Machine Learning & Data Sciences at CarDekho, Col. Inderjeet Singh Chief Cyber Officer | TEDx Speaker | Cyberpreneur the Coordinators, Dr. Charu Virmani, Prof. CSE, Ms. Manisha Vashisht, AP, CSE, FET, MRIIRS, Faculty members, Students as well as Guest. Mr. Manjeet spoke about AI for Music Recommendations, and concepts like, hyper-personalization playlist, mood recognition, using CC, to predict moods, search personalization, which were thoroughly enjoyed by participants. One of our students, Mr. Amit, presented a project. Col. Indrajeet Singh spoke about concepts of Cyber Threats, fraud, in today's global digital world. He covered topics like Multicloud, Devops, IOTs, with newer threats and challenges towards security. Including both hardware and software devices. The session was attended by 50 participants.



**A Special Session in collaboration with MICROSOFT for 12th Pass Students on “Emerging Technologies in Today's Graduation program”**  
**10th July, 2021, Saturday, 11:00am to 12:00noon**

The Department of Computer Science and Engineering (CSE), Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies, organized a Special Session in collaboration with MICROSOFT, for the 12th Pass Students, on “Emerging Technologies in Today's Graduation Program”, July 10th, 2021, Saturday, from 11:00 am to 12:00 noon.

The program commenced in the presence of the **Guest Speaker, Mr. Amit Dhar**, Director Sales- Corporate and Education Accounts at Microsoft Gurugram,



Haryana, India, HOD CSE – Normal, **Dr. Supriya Panda**, HOD CSE-SPL, **Dr. Tapas Kumar**, Panelists **Ms. TanushiKaranwal**, Assistant program manager at InfiSpark, **Ms. OsheenChavhan**, CEO & Founder at InfiSpark, and **Ms. Ruchita Shah** Account Manager | Education Microsoft India, faculty Coordinators, **Ms. Manisha Vashisht**, Asst. Prof., **Ms. Shweta Sharma**, AP, Faculty Members, CSE, FET, MRIIRS, and nearly 100 guest participants

## International Conclave on “DIGITAL SURAKSHA” 20-Jun-2021, Sunday, 5:00 pm to 6:30 pm

Department of Computer Science and Engineering (CSE), Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies, organized a **Special Session on “An Introduction to Data Analytics with Tableau”**, July 17th, 2021, Saturday, from 11:00am to 12:00noon.



## OpenSUSE Asia Virtual Summit 2021

The Department of Computer Science and Engineering (CSE), FET, Manav Rachna International University, had organized a four-day openSUSE.Asia Virtual Summit 2021, from Aug6th-8th, 2021, in campus, Faridabad. This event aimed to promote openSUSE Linux operating system-based Open Source Software among different segments and grow openSUSE communities in Asia. It was a four-day event constituting of a one-day workshop, two-day Conference, followed by a one-day after-event party at hotel Radisson Blu Faridabad. OpenSUSE. Asia Summit 2021 is the first community event of its kind in India.

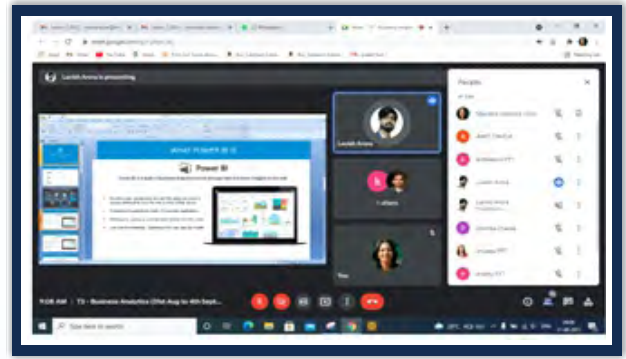


## FDP Program in Association with IBM on Business Analytics for Faculty Members of Dept (CSE), FET, MRIIRS from Tuesday, 31stAug 2021 to Saturday, 4thSept 2021, 9:00am to 1:00pm

The program commenced in the presence of the Guest Speaker, Mr. Loveesh Arora (IBM), and Mr. Vikas (IBM), faculty Coordinator, Manisha Vashisht, CSE, FET, MRIIRS, and Faculty Members from CSE, FET.

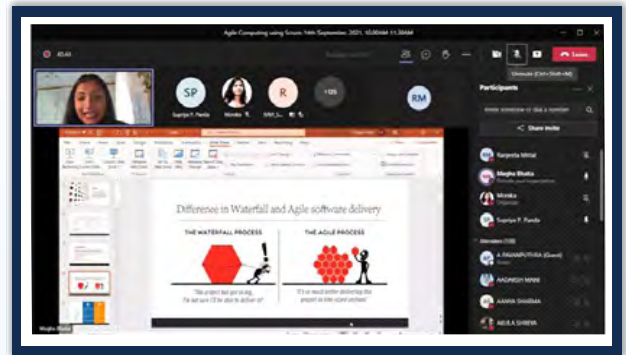
At the beginning, of the session, **Mr. Vikas** introduced the Guest speaker to all Faculty, Faculty coordinator, welcomed him. He also introduced to the members the value of taking up this workshop and asked for full participation in it. Later, handed it over to him.

**Mr. Loveesh**, discussed the topic of Business Analytics, theoretical concepts, its practical application, using Power BI, Tableau, and Excel. Training Program continued for 5 days, and complete coverage of the topic took place in T3. He asked faculty to parallel practice all concepts, gave case studies, workable examples, and explained the entire work step by step. He also handled all queries. Eight participants attended the program.



## Expert Talk on Agile Computing using Scrum 14<sup>th</sup> September 2021

The Department of Computer Science and Engineering, FET, organized an Expert Talk on “Agile Computing using Scrum” on September 14, 2021 as part of the series of International Events to be conducted by the Department to commemorate the Silver Jubilee Year of the University. Dr. Supriya P. Panda, Professor and Head, Department of Computer Science and Engineering, introduced the speaker and welcomed her for the talk. Dr. Supriya P. Panda emphasised the importance of Agile Computing along with the usage of scrum in today's ever-changing and ever-demanding industrial scenario. The speaker Ms. Megha Nanda is an acclaimed application/Delivery Manager at VicTrack, Melbourne, Australia



## Techfest christened as ANUBHUTI-21, in association with Computer Society of India (CSI) on 27th October 21

The Department of Computer Science & Engineering (CSE), Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies has organized Techfest christened as ANUBHUTI - 21, in association with Computer Society of India (CSI) on 27th October 21. Tech Fest 2021, christened as Anubhuti- 21 seeks to bring out the creativity as well as the technical skills of the participants in the diversified 12 events.

Beyond the confines of academics, this one-day symposium aimed to provide an excellent opportunity for students to share creative ideas in their different passions. Some students emerged as good organizers, volunteers, programmers, entrepreneurs, and so on, revealing a side of themselves that they were previously unaware of.

**ANUBHUTI – 21** hosted diversified events starting from International Expert Talk, SNAKE & LADDER QUIZ, SPIN –A– WEB, PROJECT/PRODUCT SHOWCASE, SUDOKU(QUIZZER), SHORT FILM MAKING, etc.

**ANUBHUTI – 21** received an overwhelming response of 543 students' registrations in all its events and was a magnificent success.

**ANUBHUTI – 21** means good vibes in celebration of spirit. This tech fest truly showcased the commitment that all the members have shown towards the events under ANUBHUTI - 21.

The Program commenced with lamp lightning at 8:30 am on 27th December 2021 in the presence of Prof. (Dr.) Supriya P. Panda, Head, CSE Department, Prof (Dr.) Brijesh Kumar, Prof (Dr.) Tapas Kumar, Head, CSE-SPL Department, Prof (Dr.) Suresh Kumar, the Event Coordinators, Dr.Indu Kashyap, Ms. Ranjeeta Mittal, Dr.MadhumitaKathuria and all CSE faculty members.



# Electrical & Electronics Engineering Department Highlights



## Report of Presentation on Innovative Technologies for Waste Recycling and Energy Conservation

As per the University Annual Calendar, under Swachhata Pakhwada, Department of ECE, FET, MRIIRS organized a Presentation on Innovative Technologies for Waste Recycling and Energy Conservation on 8th October, 2021. The Swachhata Pakhwada launched by the Government of India is observed to ensure mass participation of citizens in Swachhata activities and transform Swachh Bharat into a citizen's movement.



## Report on Plantation Drive

As per the University Annual Calendar, under Swachhata Pakhwada Department of ECE, FET, MRIIRS organized a Plantation Drive on 8th October, 2021 to take a step in providing a healthy and clean environment for us as well as for our Future Generations.

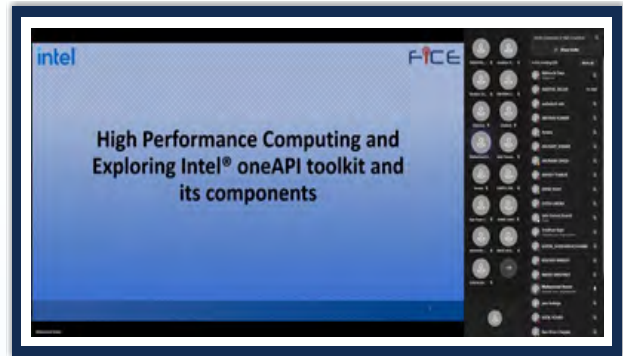


## Alumni talk by Mr Saurabh Garg on 21.Sep-21

To Celebrate Silver Jubilee under Academic Activities, The Department of Electronics & Communication Engineering, Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies had organized an Alumni Talk by Mr.Saurabh Garg- Technical Lead Production and Deployment Support, Agnity Communication Pvt Ltd, Noida on “*Current Industry Trends and Requirements*” on 21<sup>th</sup> Sept 2021 at 11.00am. Around 42 participants from different batches joined the Session.

## Report on High Performance Computing using Intel One API Toolkit

The Department of ECE organized a Webinar on High Performance Computing using Intel One API Toolkit on 25<sup>th</sup> September from 10.00 am onwards. The Session was conducted by Mr. Mohammad Ameer who is a subject matter Expert at FICE, the academic partner of Intel Corporation and has expertise in the area of Machine Learning, Data Analytics, Artificial Intelligence and Internet of Things. Mr. Ameer has conducted several Workshops PAN India in the area of Artificial Intelligence using Python Programming, Building IoT Solutions, Automating Tasks with Robotic Process Automation.



## International Conference on Renewable Technologies in Engineering (ICRTE 2021) at Manav Rachna

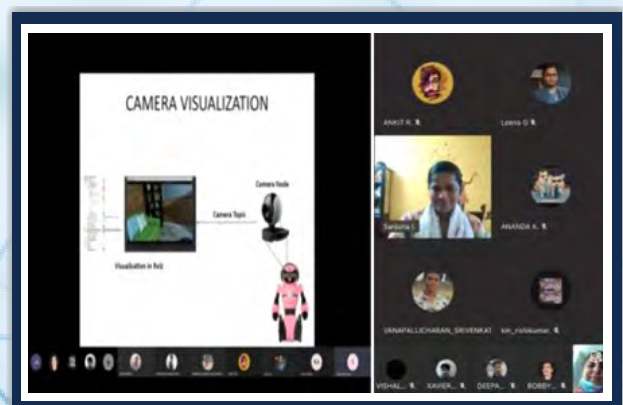
Department of Electrical and Electronics Engineering, and Department of Electronics and Communication Engineering, FET, MRIIRS have organized the prestigious International Conference on 'Renewable Technologies in Engineering (ICRTE 2021)' in association with Springer on 15 – 16 April 2021. This is the first International Conference organized in collaboration with Springer.

The inaugural session witnessed the gracious presence of Chief Guest, Chair Professor CEA, IIT Delhi, Dr. Bhim Singh; Guest of Honor Director, NPTI, Dr. Manju Mam; Honorable Vice Chancellor, MRIIRS Dr. Sanjay Srivastava; Pro Vice-Chancellor & Dean, FET Dr. Pradeep Kumar; Dr. Dipankar Deb Professor, IITRAM and Dr. Mohan Kohle from the University of Norway



## Report on the Expert Lecture on Familiarization of Robot Operating System

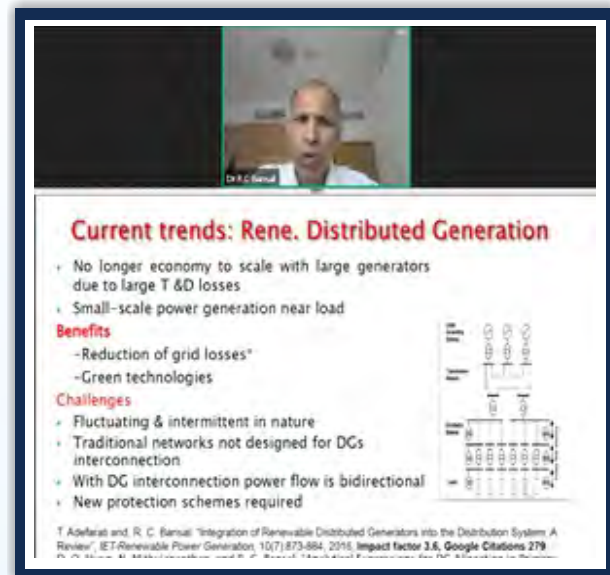
Manav Rachna International Institute of Research and Studies Faculty of Engineering and Technology Department of Electrical & Electronics Engineering organised an Expert Lecture on Familiarization of Robot Operating System As robots played diverse roles during the coronavirus crisis, on 7th August for the Students of M.Tech. & B.Tech. intended to work in the area. The speaker was Ms. Sanjuna Mariam Mathews. She works as System Engineer in the Robotics and Innovation Lab at Tata Consultancy Services, Kochi, Kerala.





## Webinar on Micro-Grid and its Opportunities

The Department of Electrical and Electronics Engineering, FET, organized a webinar on 'Microgrid and its Opportunities' recently as part of the International Event conducted by the Department to commemorate the Silver Jubilee year of the University. The guest speaker of the day was Dr. Ramesh C Bansal, Professor, Department of Electrical Engineering, University of Sharjah, UAE. Prof. (Dr) Leena G., Head, Electrical and Electronics Engineering Department delivered the welcome address emphasizing the importance of Microgrids in the present scenario. The speaker Dr. Ramesh C Bansal has more than 25 years of diversified experience in teaching, research, accreditation, industry, and academic leadership in several foreign Universities like the University of Queensland, Australia, University of Pretoria, South Africa, and University of the South Pacific, Fiji.

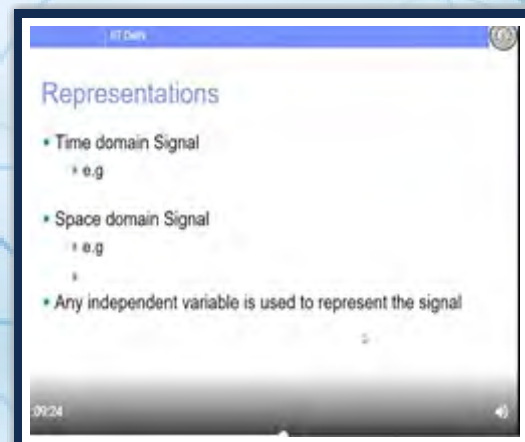


## Expert Talk on Signal Representation: A New Perspective

**Name of the Resource Person:** Dr. Monika Aggarwal, Professor Centre for Applied Research in Electronics (CARE), IIT Delhi

**Coordinator:** Dr. Anita Khosla, Professor, EEE Department

Department of Electrical & Electronics Engineering organized an Expert talk (online mode) on SIGNAL REPRESENTATION: A NEW PERSPECTIVE for the students/Academicians/Research scholars on 24<sup>th</sup> August 2021. The expert talk is to make the aspiring Engineers familiar with the conceptual as well as practical knowledge of the Signal Processing and Communications being used to achieve Industrial mechanization. The idea of organizing this expert lecture is to inculcate the applications of Digital Signal Processing (DSP) and provide them with a platform to work on, in the near future.

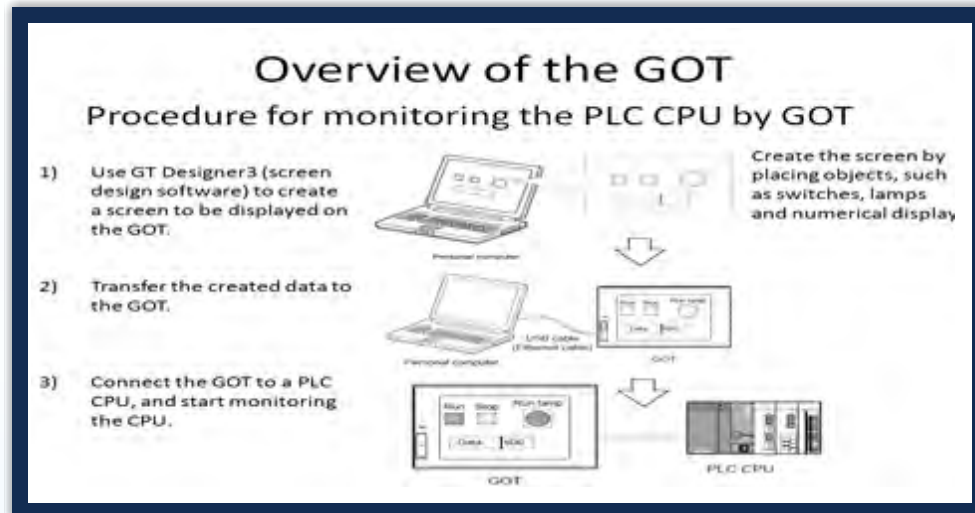


## Training on GOT2000

The Department of Electrical and Electronics Engineering organized an online Training on GOT2000 on 22nd Oct. 2021 under its Mitsubishi Electric's Authorised Training Center at the MR Campus. The training was about an iQ-R Learning set up -Programmable Logic Controllers.

Mr. Amit Atri discussed about hardware details of the iQ-R PLC and Ladder Programming on the Software for GOT2000. and Mr. Shashank Gaur provided the knowledge and training of programming of GOT2000. 41 participants from various institutes have attended the training.

At the end of the training Assignments and feedback was taken from the participants. The e-certificates were provided to the participants certified jointly by Mitsubishi Electric India & Manav Rachna International Institute of Research and Studies.



## Alumni Interaction held with Mr. Bharat Sindhu

Department of Electrical and Electronics Engineering organized an alumni interaction for the students through online mode (MS Teams) on November 16, 2021. For the interaction, Mr. Bharat Sindhu, alumni of 2009-2013 batch was invited to share his experience from students's life at Cyber Security Professional.

Mr. Bharat completed his B.Tech in Electrical and Electronics Engineering from Manav Rachna International University in 2013. After his B. Tech, he completed his Masters of Engineering, Information System Security from Concordia University, Montreal, Quebec. He is presently Software Engineer in Ultimate Kronos Group, Toronto, Canada.



# Aeronautical Engineering Department Highlights

## Report of One day visit to Flight Simulation Technique Centre, Gurugram

Department of Aeronautical Engineering, Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies (MRIIRS), Faridabad organized a one-day visit to Flight Simulation Technique Centre, Gurugram on **27th October 2021**. A group of 42 students from 3rd, 5th & 7th semesters of Aero, Mechanical and MBA (FMS) along with Air Cmde Devender Sharma, HOD\_Aero and Mr. Vishnu Raj, Assistant Professor, visited the pioneer organization

**FSTC** - Flight Simulation Technique Centre is the most advanced Full Flight Simulation training company and also an approved Training Organization by (DGCA) and European Aviation Safety Agency (EASA). They have various simulator types to fulfil the diverse requirements of the majority of the airlines in India and adjoining regions. With 8 fully operational level D simulators at Gurugram and Hyderabad and also the flying training facility of Gujarat flying club the company provides end-to-end high-quality training right from the point of providing Commercial pilot license (CPL) followed by Type rating on a specific fleet type from among A320/ B737/ ATR 72-600/Bombardier Dash-8 Q400. They are indeed one of the preferred training partners for all Indian and various international airlines based out of the South East Asia region and in the process of expanding the flying training and testing operations at two more locations in Haryana.



# Mechanical Engineering Department Highlights

## Faculty Industry Immersion Program

Mr. Arun Gaur and Mr. Pankaj Shakkarwal (Assistant Professor, MED-FET) participated in a 6-week Industry immersion with Maruti Suzuki India Ltd., Center of excellence, Manesar for the duration of October- November 2021.



## Alumni Sessions and Interactions

Expert Talk by a prominent Alumni: Mr. Akshay Sangwan- Director (Development & Commercial), International Tractors Ltd. (ITL) on Career Progression in Manufacturing Industry in virtual mode on 18<sup>th</sup> Sept 2021 at 10.00am. Mr. Akshay was excited to share his college experience and his roles and responsibilities as a Director in Sonalika. He showed a video that covered the plant layout, field work and the machines being used in Sonalika.



## One Week National Level Online Faculty Development Program on “Design Thinking for Manufacturing Excellence”

Department of Mechanical Engineering, Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies organized a One Week National Level Online Faculty Development Program on “Design Thinking for Manufacturing Excellence” from 6th-10th September 2021.

The FDP was granted to Dr Rajender Kumar, Assistant Professor by the All - India Council for Technical Education, New Delhi under the AICTE ATAL Scheme. The FDPs was duly sponsored by the All-India Council for Technical Education, New Delhi under the AICTE/ATAL Scheme. The “Faculty Development Programme (FDP)” was designed to exchange views and ideas of a wide range of Design Thinking Approach and its applications in all spheres of the manufacturing Industry to attain excellence.

## Alumni Sessions And Interactions

**Mr. Akshay Singla (2009-2013 Batch)** was welcomed into the MRIIRS campus for an Alumni Talk on *'Aspect of Foreign Language on Prospective Career'* on 24th September 2021 at 10.00 AM; CG-29 in Physical mode. He is working with **Maruti Udyog Ltd. as a Manager on 'Research and Development of Projects'** and was placed through the Campus. The talk was attended by students of Mechanical Engineering, Automobile Engineering and First year students.



## “IC Engine Assembling and Dismantling- FLAME-2021”

Dept. of Mechanical Engineering has organized a workshop on topic “IC Engine Assembling and Dismantling” on Wednesday October 06, 2021 from 09:00- 10:40AM in room no. CG12. The Following topics were covered during the session

1. Basics of Engine working.
2. Engine dismantle (step by step) procedure.
3. Inspection of wear out parts.
4. Reassembling of Engine



## Workshop of Refrigeration and Air Conditioning “RACMECH-21”

Dept. of Mechanical Engineering has organized a workshop on topic Refrigeration and Air Conditioning "RACMECH-21" from 18th- 20th October, 2021 during 01:10-03:00PM in CG-13 room (C-Block). Details of the workshop given Below: -

**Day-1:** - Basic concept of refrigeration and overhauling of hermetically sealed compressor.

**Day-2:** -Air conditioning system and overhauling of split and window AC after covering the basic concept of Air conditioning.

**Day-3:** -Expert lecture on HVAC (heating, Ventilation and Air conditioning).



## Awards and Achievements

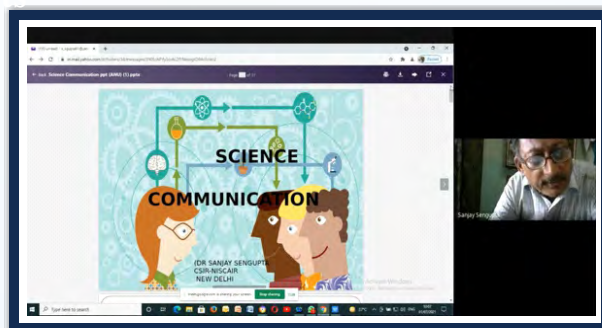
Department of Mechanical Engineering wishes to congratulate and appreciate Dr. Rajender Kumar, Assistant Professor, for the award he received for YOUNG ENGINEER on Engineer's Day 2021 from the Institution of Engineers (IEI) Faridabad Chapter for his valuable contribution in the field of engineering. He also received an award for Best Paper Award in same occasion.



# Bio Technology Department Highlights

## Report on Expert lecture “Science Communication” dated 01 July 2021

The Department of Biotechnology has taken an initiative in substantiating the skills of the students of the department towards a channelized proficiency towards the scientific communications. To enhance students' knowledge towards writing and publishing research paper, Department of Biotechnology organized webinar on **01 July 2021** titled “**Science Communication**”. The talk was delivered by Dr. Sanjay Sen Gupta, Rtd. Principal Scientist at National Institute of Science Communication & Information Resources, CSIR , Delhi on MS Team. During his talk he emphasised on various skills which one should follow while writing research paper.



## Report on A Four-Day Workshop on “Molecular tools and real-world applications based experiments” held from 5<sup>th</sup> to 8<sup>th</sup> October 2021

A four-day workshop on “**Molecular tools and real-world applications based experiments**” was organized by the department of Biotechnology, FET, MRIIRS in association with Decode DNA Pvt. Ltd. Ashok Nagar, New Delhi, India. The event was conducted on 5<sup>th</sup> to 8<sup>th</sup> October, 2021. This workshop was aimed at providing our students of Biotechnology and Microbiology, hands-on experience as well as exposure to the applications of molecular techniques.

On 7<sup>th</sup> October, 2021, session was from 10:00 AM to around 2:00 PM. 23 students of BTech Biotech-7<sup>th</sup> Semester. They were given hands on training on handling the following instruments:

1. Agarose Gel Electrophoresis
2. Polymerase Chain Reaction Machine
3. Mini Gel Documentation System
4. Minispin
5. Micropipettes

They performed an experiment to detect Single Nucleotide Polymorphisms by PCR and restriction digestion on 8<sup>th</sup> October, 2021 from 10:00 AM to 2:00 PM, 19 students of MTech Biotech-1<sup>st</sup> Semester, M.Sc. Biotech-3<sup>rd</sup> Semester and M.Sc. Microbiology-1<sup>st</sup> Semester. Participated.

They were given hands on training on handling the following instruments:

1. Agarose Gel Electrophoresis
2. Polymerase Chain Reaction Machine
3. Mini Gel Documentation System
4. Minispin
5. Micropipettes

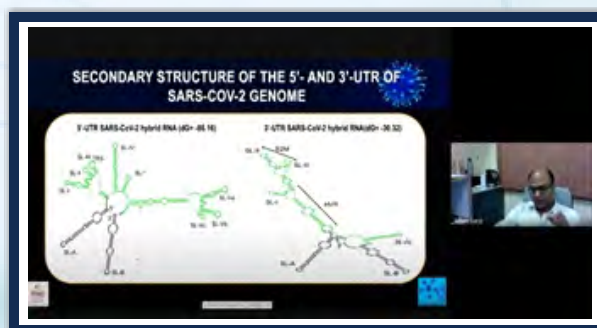
They performed an experiment to detect single gene mutation in beta hemoglobin gene conferring Sickle cell anemia disorder.

At the end of the workshop, students were given handouts of the workshop and certificates.



### Report on Guest lecture entitled “Host-pathogen interactions during SARS-CoV2 infection:insights from virus-host RNA-protein interactome studies.”

This guest lecture was delivered by Dr. Milan Surjit, Associate Professor at the Translational Health Science and Technology Institute, Faridabad on 13th October 2021 in online mode via Web Link: [meet.google.com/thb-kmra-szg](https://meet.google.com/thb-kmra-szg)

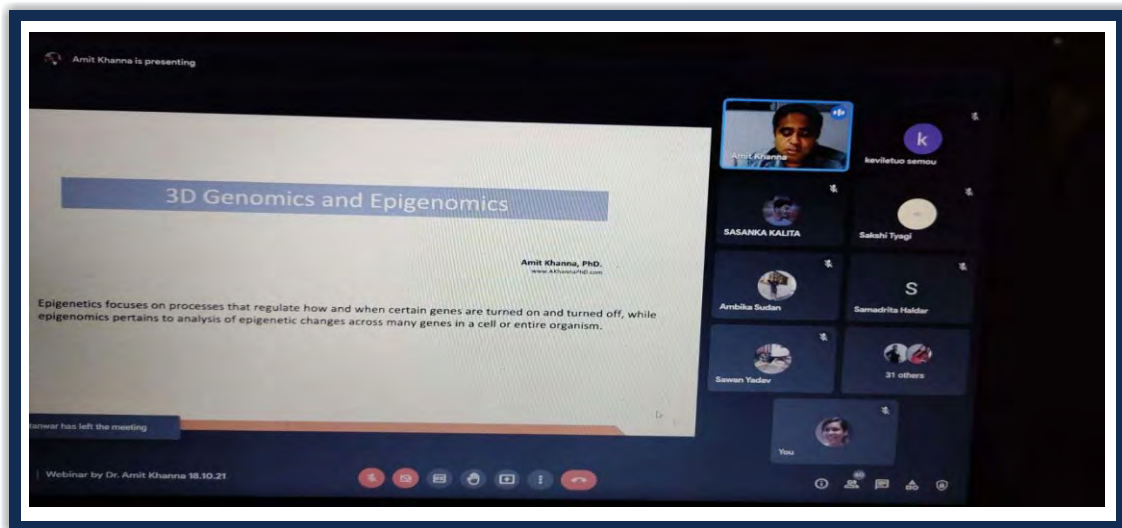


### Expert lecture Webinar on “Three-Dimensional Genomics and Epigenomics” Dated 18 October 2021

A guest lecture by Dr. Amit Khanna, Senior Scientist-Fluidigm, South San Francisco, CA, USA, was organized by Department of Biotechnology, Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies (MRIIRS) on Oct' 18<sup>th</sup> 2021 in webinar mode through google meet, link: [Link: meet.google.com/yrg-vvst-qfv](https://meet.google.com/yrg-vvst-qfv). The speaker emphasized on his expert



insights on the basic concepts encompassing the “Three-Dimensional Genomics and Epigenomics” for students of bio technology to grasp easily. Dr. Amit elegantly explained various aspects of Three-Dimensional Genomics, its molecular mechanisms, efforts undertaken by various genomics companies to treat genetic disorders having disrupted molecular mechanisms. He also shared some research data from his laboratory highlighting the importance of epigenomic modifications and their role in various diseases. After the talk, he interacted with the students in Q&A session and answered all their queries. The speaker was highly impressed by the enthusiasm of the students towards the subject matter.



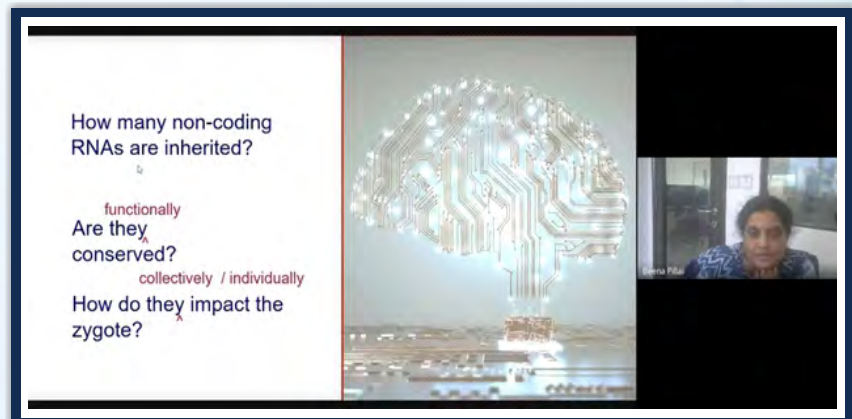
**Guest Lecture by Dr. Beena Pillai, Senior Principal Scientist  
Institute of Genomics and Integrative Biology  
Organized by Department of Biotechnology, FET, MRIIRS**

**Date: Oct 27<sup>th</sup> 2021**

**Time: 2:00 PM- 3:00 PM**

**Mode: Webinar**

A guest lecture entitled, “Inherited lncRNAs can affect brain development in zebrafish” by Dr. Beena Pillai was organized by the Department of Biotechnology, Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies (MRIIRS) on Oct' 27th 2021 through webinar mode. Dr Beena holds a PhD in Life Sciences from



IISc Bangalore and did her post-doctoral training as a fellow at the Institute of Genomics and Integrative Biology from 2002-2004 following which she started her research career as a scientist in IGIB in 2004. Dr Beena worked as a principal scientist from 2007-2011. She is currently working as a senior principal scientist. Her research focuses on non-coding RNA in neuronal function and dysfunction, role of histone variants in neural gene regulation.

Dr. Beena Pillai is a recipient of many prestigious awards such as CSIR-Young Scientist Award, 2008; Young Scientist Medal, 2009 from INSA, National Biosciences Award for Career Development, 2009 by Government of India 2017-18.

# Current Affairs

Nasa sending the first Artemis mission to the moon in preparation for human mission.



On Feb. 18, 2021, NASA's Mars Perseverance rover makes its final descent to the Red Planet. Nasa has also launched the James Webb telescope into space

In August 2021, Bharat Heavy Electricals Limited (BHEL) secured its largest-ever order worth Rs. 10,800 crore (US\$ 1.45 billion) from the Nuclear Power Corporation of India Limited (NPCIL) for the EPC of a turbine island for 6 units of 700 MW.



In September 2021, Larsen & Toubro (L&T) announced that it will participate in the Expo 2020, Dubai to be held from October 5, 2021, to March 31, 2022, as part of the Indian pavilion. L&T plans to demonstrate its capabilities in hydrocarbon engineering, and businesses such as water-effluent treatment, power transmission and distribution.

In June 2021, auto component manufacturer Minda Industries announced acquisition of a 51% stake in Harita Fehrer Ltd. For Rs. 115 crore (US\$ 15.80 million).



In April 2021, Tata Power, in collaboration with Hitachi ABB Power Grids and Cargill, commissioned India's largest natural ester-filled 110/33/22 kV, 125 MVA power transformer in the Mumbai Transmission network at the Bandra-Kurla Complex receiving station.



In January 2021, Tesla, the electric car maker, set up a R&D centre in Bengaluru and registered its subsidiary as Tesla India Motors and Energy Private Limited.



In March 2021, Hitachi ABB Power Grids Ltd. Bagged order worth Rs. 160 crore (US\$ 21.66 million) to supply transformers to the Indian Railways.



In December 2020, Schindler partnered with L&T Technology Services Limited (LTTS) to enhance its innovative digital engineering capabilities. Under this partnership, LTTS would provide services & solutions for product development, innovation and engineering that will help Schindler accelerate its digitisation and connectivity initiatives.



In December 2020, Larsen & Toubro (L&T) has won multiple orders to supply mining equipment to coal, cement and iron ore sectors. The contract's cope includes supply of equipment and maintenance contracts to support operations over 3-4 years.

In November 2020, Larsen & Toubro delivered the first hardware—a booster segment—for the Gaganyaan Launch Vehicle to ISRO, ahead of schedule.



The Auto Component Manufacturers Association (ACMA) expects the auto component revenue to increase by 20-30% in the next fiscal year due to demand from OEMs and increase in export. The association expects the Indian auto component export to grow up to US\$ 30 billion over five years.

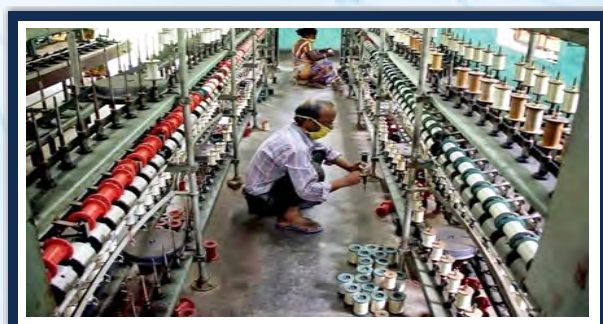
In May 2021, TVS Motor Company announced that it sold one lakh units of 'NTORQ 125' scooter in the international market.



In September 2021, the Indian government announced a PLI scheme for automobiles and auto components worth Rs. 25,938 crore (US\$ 3.49 billion). This scheme is expected to bring investments of >Rs. 42,500 (US\$ 5.74 billion) by 2026.

In August 2021, Prime Minister Mr. Narendra Modi launched the Voluntary Vehicle Fleet Modernisation Program (VVMP), also known as the Vehicle Scrapping Policy.

The policy will bring in investments worth ~Rs. 10,000 crore (US\$ 1.35 billion) to set up 450-500 Automated Testing Stations (ATS) and 60-70 Registered Vehicle Scrapping Facilities (RVSF) across the country. A single window clearance portal is being developed where applications for ATS and RVSF will be catered through a single portal within 60 days.



The upcoming new textile policy (in draft version as of February 2021) is likely to focus on setting up manufacturing hubs for textile machineries with the help of FDI.

# Alumni Interaction



**Profile:** Sunayana obtained B.Tech degree in Electronics and Communication Engineering from C.I.T.M Faridabad in 2001. She joined DRDO in 2001 as Scientist 'B' and currently working as Scientist 'E' in Electronics and Radar Development Establishment (L.R.D.E.), Bangalore. She has been working in the field of design, development and testing of airborne radar display software and airborne radar controller for various airborne radar projects.

**Q1.** What is your work culture in DRDO?

**Sunayana:** DRDO is one of the elite government organization where best of the mind comes to work. In DRDO Work Culture and ethics are very high. You get to work in your field of interest. There are always seniors and mentors to help you out in case you are struck up with some technical problem.

**Q2.** How the present students should get updated with new technologies and how it will help in grabbing opportunities?

**Sunayana:** Keeping abreast with latest technology in market surely provides an edge over others. Students can get updated with new technologies by reading Tech journals, being member of technical societies, getting professional training and certification in Internet of Things, Machine learning, Artificial Intelligence, Encrypted communications to name a few.

**Q3.** What are the golden opportunities in DRDO for students of Manav Rachna ?

**Sunayana:** DRDO is the right place if one is interested in research and development. Working in DRDO gives the feeling of prouddness that he/she is contributing in making country self-reliant in technology. DRDO conducts its own examination for recruiting for the post of scientist. It provides opportunities to its scientist to get higher qualification from prestigious universities and also provide opportunity for foreign deputations for paper presentations, training or work assignments.

**Q4.** What is that you miss the most about Manav Rachna International University?

**Sunayana:** I miss my friends group, carefree and fun filled days at CITM, classrooms and lectures, cultural and technical fests

**Q5.** What's the most important thing that Manav Rachna International University taught you?

**Sunayana:** Apart from imparting technical know-how, college life had taught me how to balance life, how to prioritise your activities so that you can enjoy your life. Another thing which I learnt was jobs/opportunities just not simply fall in your lap. For each of your dreams to become a reality a sheer hard work and dedication is required.

**Q6.** What's the most unique quality of Manav Rachna?

**Sunayana:** It is the commitment for students both in/out of classrooms.

**Q7.** What were your thoughts when you joined the university and how did they differ from your thoughts when you passed out?

**Sunayana:** At the time of joining the college, I expected that college will groom me to be proficient in my field after four years of college and I was not disappointed.

**Q8.** What co curriculums had you actively participated in?

**Sunayana:** Apart from academics I was active member of fine arts group.

**Q9.** How has the technology changed ever since you passed out of the university and are these changes positive or negative?

**Sunayana:** Definitely the technology has grown very fast since I have passed out of the college. Technology has matured from dial up internet connections to internet over fibre, from land line to smart phones. Latest trends being Internet of Things(IoT), Artificial Intelligence (AI) and Cloud. Technology has changed in both positive and negative ways. It has made our lives easier, brought the knowledge in the whole world on our finger tips and has opened the doors of opportunities which otherwise was not possible.

**Q10.** What suggestions can you give to combat the negative impacts of technology?

**Sunayana:** Technology is like a two-edged sword. It is very important that we use technology in the smartest and most responsible manner, so that we are solving problems, not creating more for the future.

