Summary Report
2022- 2023

Design Thinking Process			
Name of the capability enhancement program	**Date of implementation (DD-MM-YYYY)**	**Number of students enrolled**	**Name of the agencies/consultants involved with contact details (if any)**
DTP - Design Thinking Process	07-08-2022 to 20-10-2022	1447	CMRU Department of Common Core Curriculum Design Thinking team
DT I - Design Thinking I	28-11-2022 to 01-03-2023	748	
DT II - Design Thinking II	15-05-2023 to 14-08-2023	748	
DTPA I - Design Thinking Architecture	07-10-2022 to 11-10-2022	20	
DTPA II- Design Thinking Architecture	19-04-2023 to 21-04-2023	20	

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Report
Design Thinking Process
2022 - 2023

Name of the Programs: **Design Thinking Process**
Date: **07 August 2022 to 14 August 2023**
Organised By: **Department of Common Core Curriculum**
Address: **CMR University City Campus/ Lakeside Campus/ OMBR Campus**
Resource Person: Internal CMRU Trainer

Introduction:
In the academic year 2022-2023, CMR University successfully delivered Design Thinking courses to 2,983 students across all programs, as part of its commitment to nurture creative thinkers who will drive global positive change. These courses were meticulously designed and facilitated by the Department of Common Core Curriculum - Design Thinking Facilitators. The curriculum aimed to equip students with the tools and mindsets necessary to tackle real-world challenges through the Design Thinking process, encouraging them to explore, ideate, prototype, and test solutions to complex problems.

Design Thinking (DTP)

DTP course was offered as a 1-credit course, introduced students to the foundational principles of Design Thinking. The course was structured to foster innovative thinking and brainstorming among students while equipping them with essential skills such as teamwork, basic design research, and storytelling in the context of Design Thinking. The course was delivered over three days, beginning with an introduction to Design Thinking and a design challenge focusing on Bangalore's water crisis. The initial sessions included warm-up activities, problem definition exercises, and team formation, which set the stage for a collaborative learning environment. The second day emphasized the importance of empathy in problem-solving, where students organized data through empathy maps and began developing concept solutions. The course concluded on the third day with a focus on prototyping and testing, where students created prototypes, gathered feedback, and honed their storytelling skills to present their solutions. Continuous Internal Assessment (CIE) was the primary mode of evaluation, with students being assessed on quizzes, project documentation, and final presentations. The assessment criteria focused on the students' ability to progress through the design process, document their work effectively, and integrate feedback into their solutions

Design Thinking – I

A 2-credit offering, expanded on the basic principles of Design Thinking, delving deeper into Design Research, Concept Development, and brainstorming techniques. The course was structured across five days, with the first day dedicated to introducing students to Design Thinking through icebreakers, stakeholder analysis, and initial research steps centered on Bangalore's Water Crisis. The second day progressed into the "Feel" and "Imagine" phases, where students engaged in empathy mapping, developed "How might we" questions, and brainstormed solutions. Creative expression was encouraged through various media and methods, helping students articulate problem statements and potential solutions. The third day introduced students to the "Do" phase, focusing on prototyping and testing ideas. Students were encouraged to adopt a "fail early, fail fast" approach, iterating on their prototypes based on feedback. The fourth and fifth days were dedicated to preparing and delivering final presentations, where students showcased their work to an external and internal jury. The

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assessment in this course was Continuous Internal Assessment (CIE) evaluating students on their ability to document and present the Design Thinking process, with particular emphasis on creativity, clarity, and progression through the course

Design Thinking - II (DTPE-II) course, also a 2-credit course, was designed to build on the foundation laid in Design Thinking - I. This course aimed to deepen students' understanding by applying Design Thinking principles to real-world problems, with a strong focus on nurturing changemakers. The course began with an introduction to advanced Design Thinking concepts, emphasizing the importance of a changemaker mindset. The first module, "Empathize," set the tone for the course by introducing students to the design research process and forming teams to tackle specific challenges. In the "Define" module, students presented their research findings, created personas, and synthesized design opportunities, using systems thinking and feedback loops to refine their approach. The "Ideate" module encouraged creative thinking, with students using various brainstorming techniques to develop and evaluate ideas. The course then moved into the "Prototype" module, where students transformed their ideas into tangible solutions, considering human desirability, technical feasibility, and business viability. Finally, in the "Test" module, students tested their prototypes, received feedback, and iterated on their solutions. The course emphasized the importance of effective communication and presentation, culminating in a final project presentation to an invited jury. Evaluation was based on Continuous Internal Assessment (CIE), with students being assessed on their ability to complete tasks, articulate their thought processes, and incorporate feedback into their final solutions

Conclusion: Throughout the academic year, students from diverse programs engaged deeply with the Design Thinking methodology, applying it to real-world issues. Their efforts were directed toward understanding problems, brainstorming innovative ideas, and developing tangible solutions that could make a positive impact. The courses not only enhanced their problem-solving abilities but also instilled in them the importance of empathy, collaboration, and iterative thinking. The successful completion of these courses by 2,983 students reflects the effectiveness of the Design Thinking curriculum at CMR University in preparing future innovators and changemakers.

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Photos: Design Thinking Sessions

CMR UNIVERSITY BANGALORE

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Private University Established in Karnataka State by Act No. 45 of 2013

School of Engineering and Technology

Department of Mechanical Engineering

Webinar Report

On

"Composites: Materials for Future"

Organized by

Department of Mechanical Engineering

3rd, September, 2021

Resource Person:
Mr. Naresh Sharma

Main Campus, Off Hennur - Bagalur Main Road,
Chagalahatti, Bengaluru – 562149, Karnataka, India

2021-22

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Invitation

CMR UNIVERSITY

Private University Established in Karnataka State by Act No. 46 of 2013

A

NATIONAL WEBINAR

ON

"Composites: Materials for Future"

Mr.Naresh Chandra Sharma

03 September 2021, Friday
10:45 AM to 12:45 PM

Registration link- https://forms.gle/YrXU2MTEeHiLVoC26

Organised By:

Department of Mechanical Engineering
School of Engineering and Technology,
CMR University (Main Campus)
Bengaluru 562149

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About the CMR University

CMR University (CMRU) is a private university in the state of Karnataka, established and governed by the CMR University Act-2013. CMR University aims to promote and undertake the advancement of university education in technical, health, management, life sciences and other allied sectors of higher and professional education.

We believe that creativity is the key competence required to excel in our complex world where independent thinkers, product leaders, artists, designers and innovators are the need of the hour. Our students learn creative concepts and design thinking regardless of their area of study. Students are evaluated on the basis of real life skills such as teamwork, presentation, research and initiative. CMR University fosters creative communities where new ideas can be nurtured, new discoveries made and new creations shared.

Overview of the webinar

Materials play a significant role in the blooming of human civilization and country's infrastructure. Composite materials have boundless engineering application where strength to weight ratio, low cost and ease of fabrication are required. For certain applications, the use of composite materials as compare to metals has in fact resulted in savings of both weight and cost. Some examples are cascades for engines, leaf spring, curved fairing and fillets, replacements for welded metallic parts, tubes, cylinders, ducts, blade containment bands, medical devices, electronic devices, sports goods etc. In aerospace approximately 50% of the airframe is made from composites due to their high specific strength, light weight and stiffness.

The current scenario of application composites in industries and go towards the approach of composite material in future direction with its advantages, disadvantages and applications in industrial machinery. The overview of composite material is to increase in mechanical Properties, Characteristics, Challenges faced, Opportunities and Future demand of Composite material towards industrial environment.

Convenor

Dr. Mateen MA

Head, Department of Mechanical Engineering,

SoET, CMR University,

hod.me@cmr.edu.in

Co-ordinators

Dr Anup A, Assoc. Professor, Mech DEPT

Prof Arun Kumar, Assistant Professor

Prof Vara Prasad K, Assistant Professor

Prof Bharath G, Assistant Professor

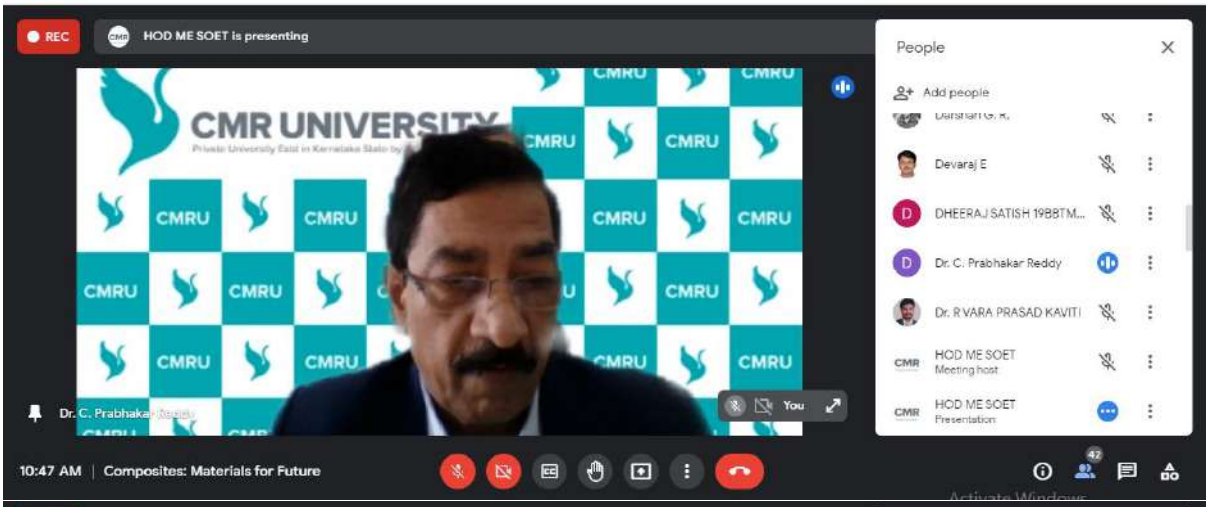
Prof Devaraj E, Assistant Professor

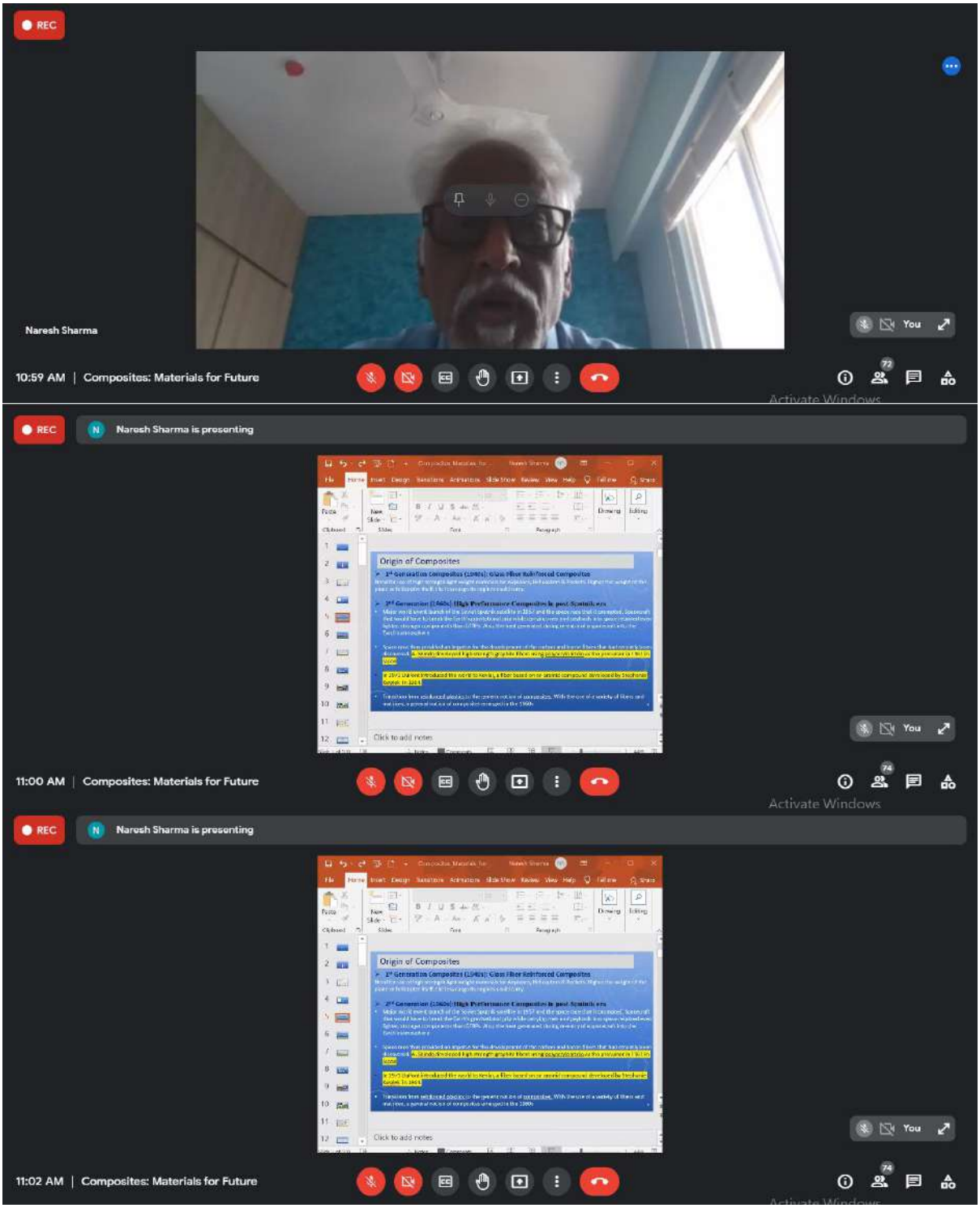
Prof Darshan G R, Assistant Professor

Prof Mandeep Gowda, Assistant Professor

Registration link- https://forms.gle/YrXU2MTEeHiLVoC26

Session Slides

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10:59 AM | Composites: Materials for Future
REC
Naresh Sharma is presenting
Origin of Composites
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11:00 AM | Composites: Materials for Future
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Origin of Composites
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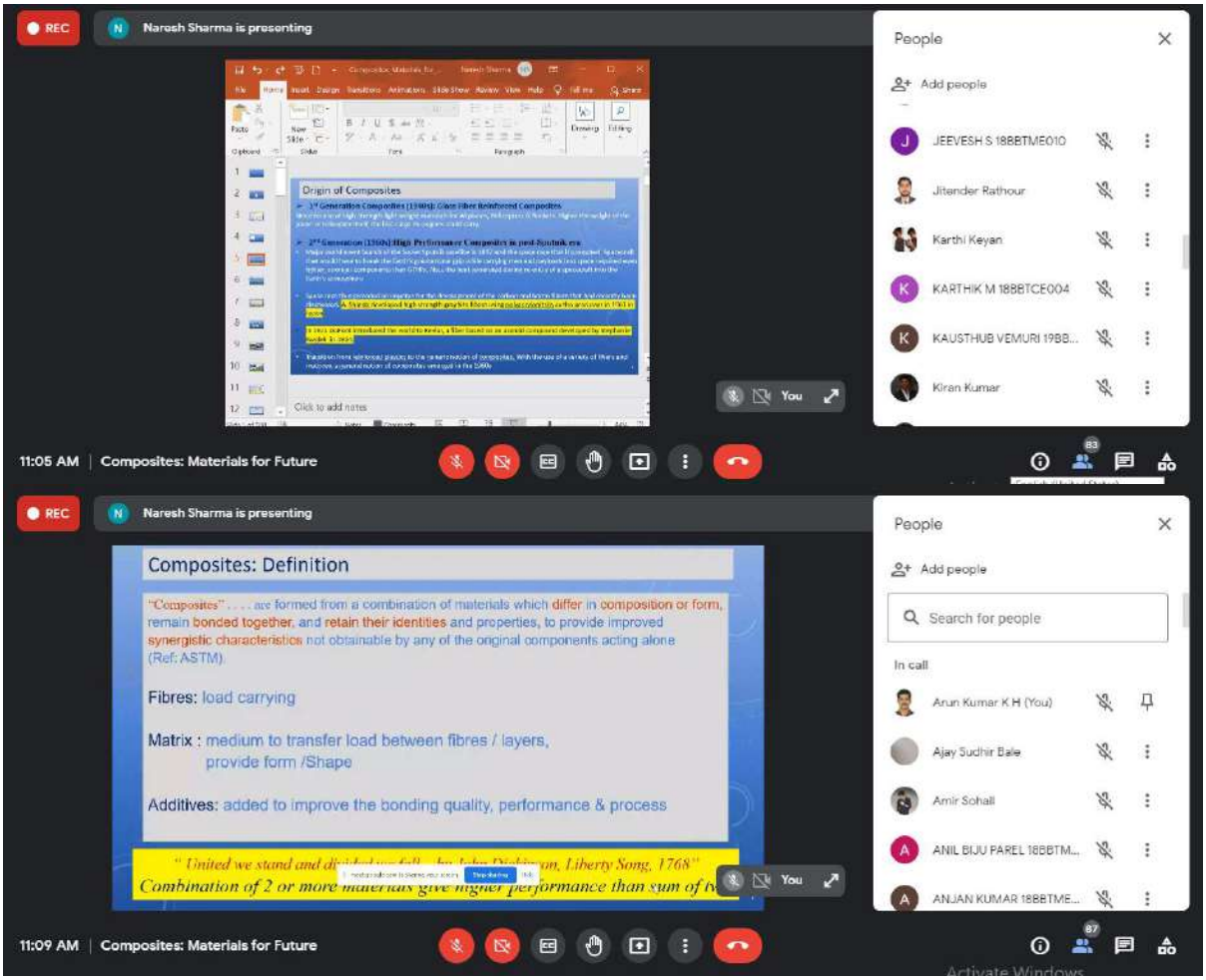
11:02 AM | Composites: Materials for Future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Kiran Kumar
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11:05 AM | Composites: Materials for Future
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Composites: Definition
"Composites" . . . are formed from a combination of materials which differ in composition or form, remain bonded together, and retain their identities and properties, to provide improved synergistic characteristics not obtainable by any of the original components acting alone (Ref: ASTM).
Fibres: load carrying
Matrix : medium to transfer load between fibres / layers, provide form /Shape
Additives: added to improve the bonding quality, performance & process
Combination of 2 or more materials give higher performance than sum of
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Composites in nature (Plants & Trees)
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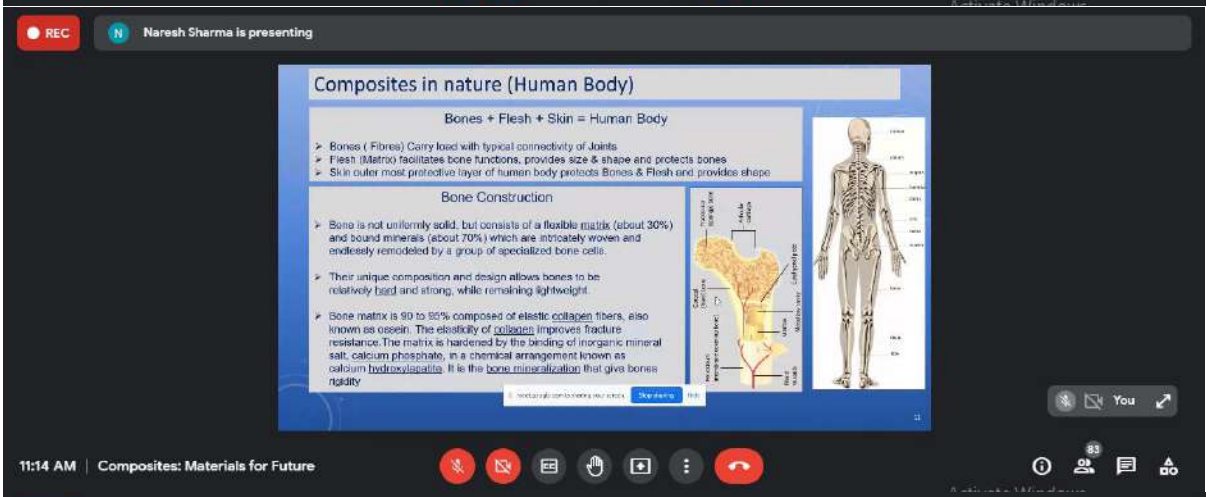
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Composites in nature (Human Body)
Bones + Flesh + Skin = Human Body
Bones (Fibres) Carry load with typical connectivity of Joints
Flesh (Matrix) facilitates bone functions, provides size & shape and protects bones
Skin outer most protective layer of human body protects Bones & Flesh and provides shape
Bone Construction
Bone is not uniformly solid, but consists of a flexible matrix (about 30%) and bound minerals (about 70%) which are intricately woven and endlessly remodeled by a group of specialized bone cells.
Their unique composition and design allows bones to be relatively hard and strong, while remaining lightweight.
Bone matrix is 90 to 95% composed of elastic collagen fibers, also known as ossein. The elasticity of collagen improves fracture resistance. The matrix is hardened by the binding of inorganic mineral salt, calcium phosphate, in a chemical arrangement known as calcium hydroxylapatite. It is the bone mineralization that giva bones rigidity
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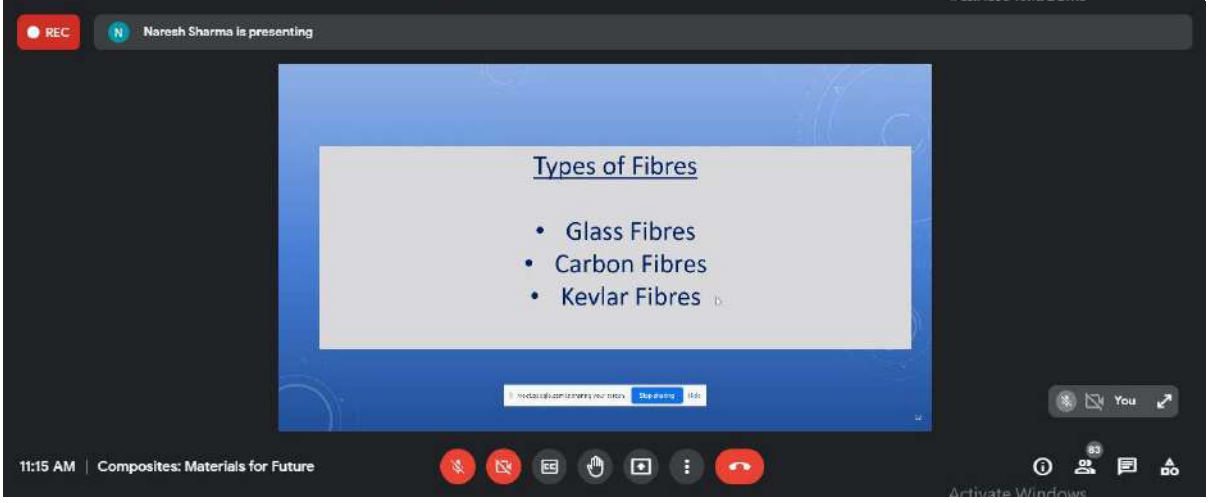
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Types of Fibres
Glass Fibres
Carbon Fibres
Kevlar Fibres
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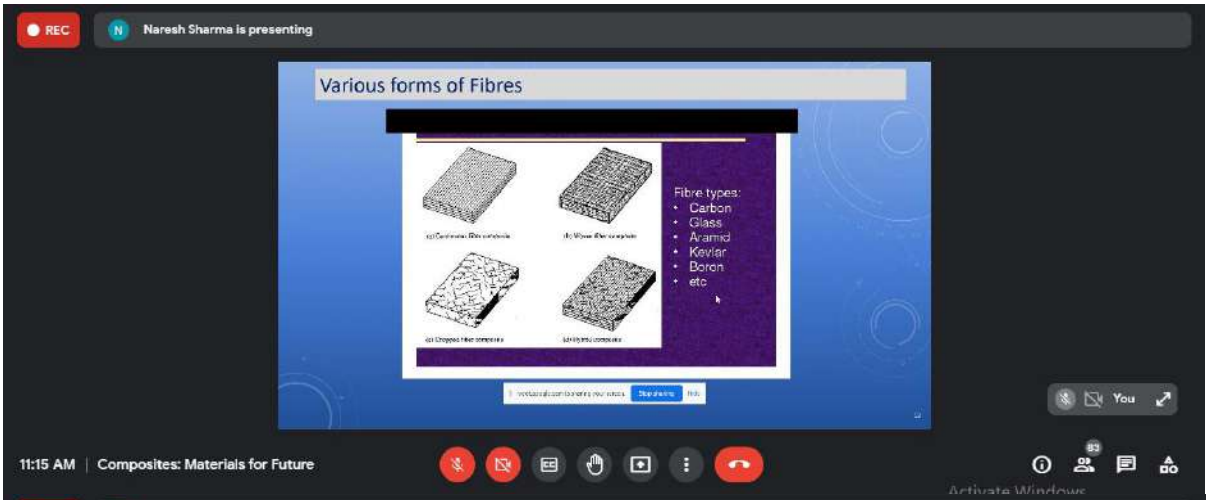
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Various forms of Fibres
Fibre types:
Carbon
Glass
Aramid
Kevlar
Boron
etc
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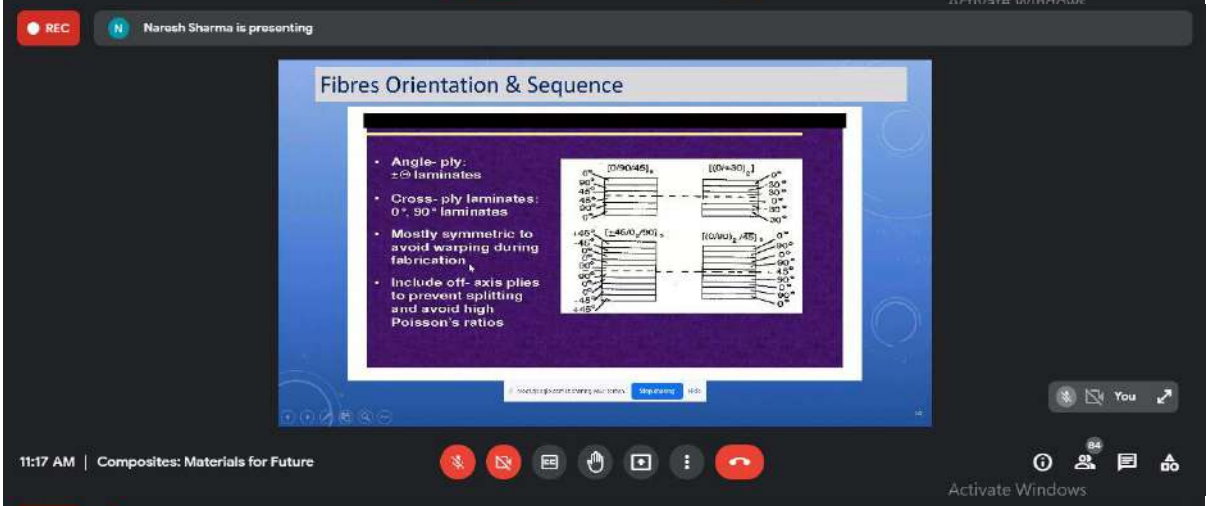
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Fibres Orientation & Sequence
Angle- ply: ±Θ laminates
Cross- ply laminates: 0°, 90° laminates
Mostly symmetric to avoid warping during fabrication
Include off- axis plies to prevent splitting and avoid high Poisson's ratios
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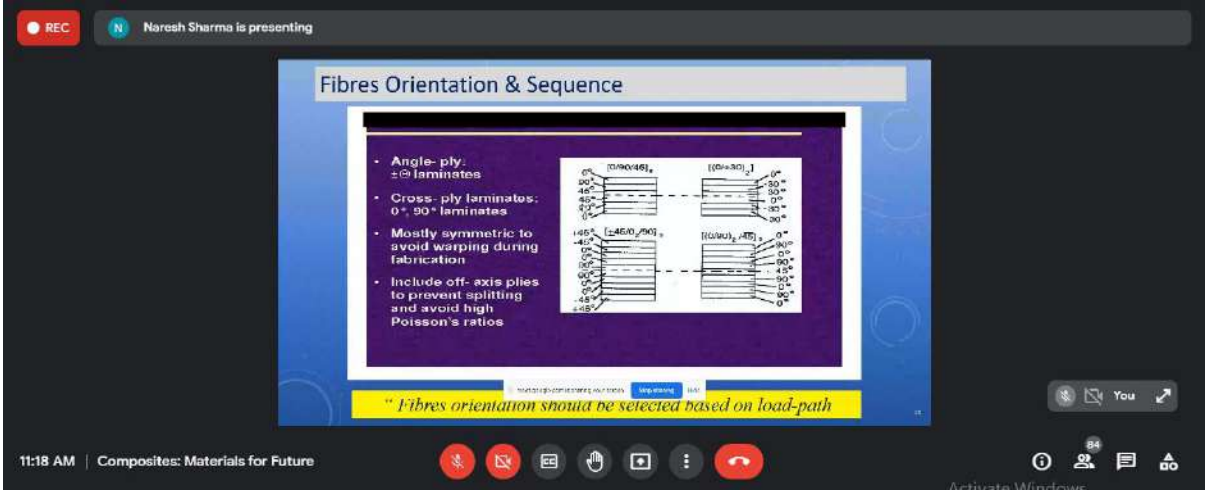
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Fibres Orientation & Sequence
Angle- ply: ±Θ laminates
Cross- ply laminates: 0°, 90° laminates
Mostly symmetric to avoid warping during fabrication
Include off- axis plies to prevent splitting and avoid high Poisson's ratios
" Fibres orientation should be selected based on load-path
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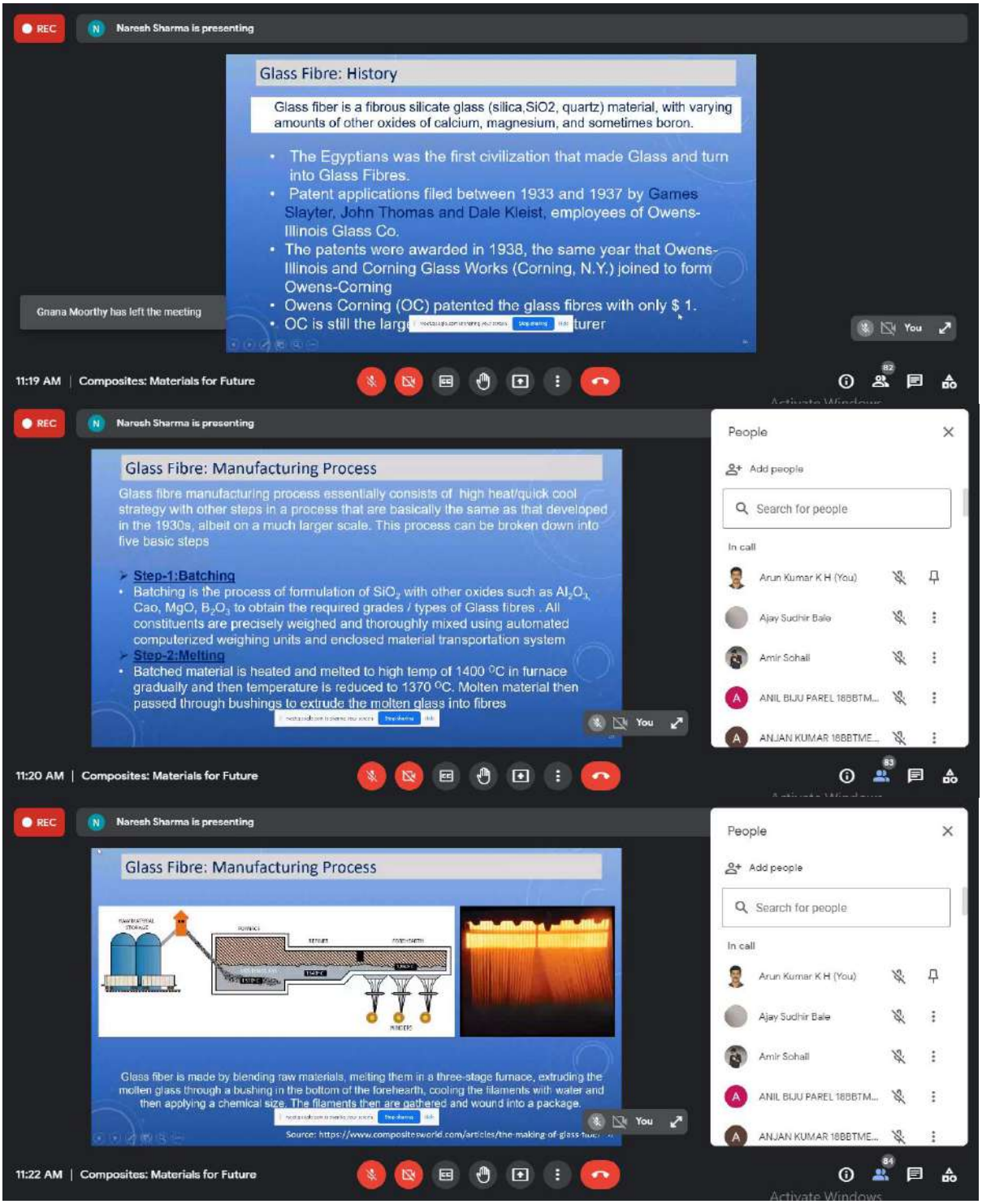
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Glass Fibre: History
Glass fiber is a fibrous silicate glass (silica,SiO2, quartz) material, with varying amounts of other oxides of calcium, magnesium, and sometimes boron.
The Egyptians was the first civilization that made Glass and turn into Glass Fibres.
Patent applications filed between 1933 and 1937 by Games Slayter, John Thomas and Dale Kleist, employees of Owens-Illinois Glass Co.
The patents were awarded in 1938, the same year that Owens-Illinois and Corning Glass Works (Corning, N.Y.) joined to form Owens-Corning
Owens Corning (OC) patented the glass fibres with only $ 1.
Gnana Moorthy has left the meeting
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Glass Fibre: Manufacturing Process
Glass fibre manufacturing process essentially consists of high heat/quick cool strategy with other steps in a process that are basically the same as that developed in the 1930s, albeit on a much larger scale. This process can be broken down into five basic steps
Step-1:Batching
Batching is the process of formulation of SiO2 with other oxides such as Al2O3, Cao, MgO, B2O3 to obtain the required grades / types of Glass fibres . All constituents are precisely weighed and thoroughly mixed using automated computerized weighing units and enclosed material transportation system
Step-2:Melting
Batched material is heated and melted to high temp of 1400 °C in furnace gradually and then temperature is reduced to 1370 °C. Molten material then passed through bushings to extrude the molten glass into fibres
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Glass Fibre: Manufacturing Process
Glass fiber is made by blending raw materials, melting them in a three-stage furnace, extruding the molten glass through a bushing in the bottom of the forehearth, cooling the filaments with water and then applying a chemical size. The filaments then are gathered and wound into a package.
Source: https://www.compositesworld.com/articles/the-making-of-glass-fiber
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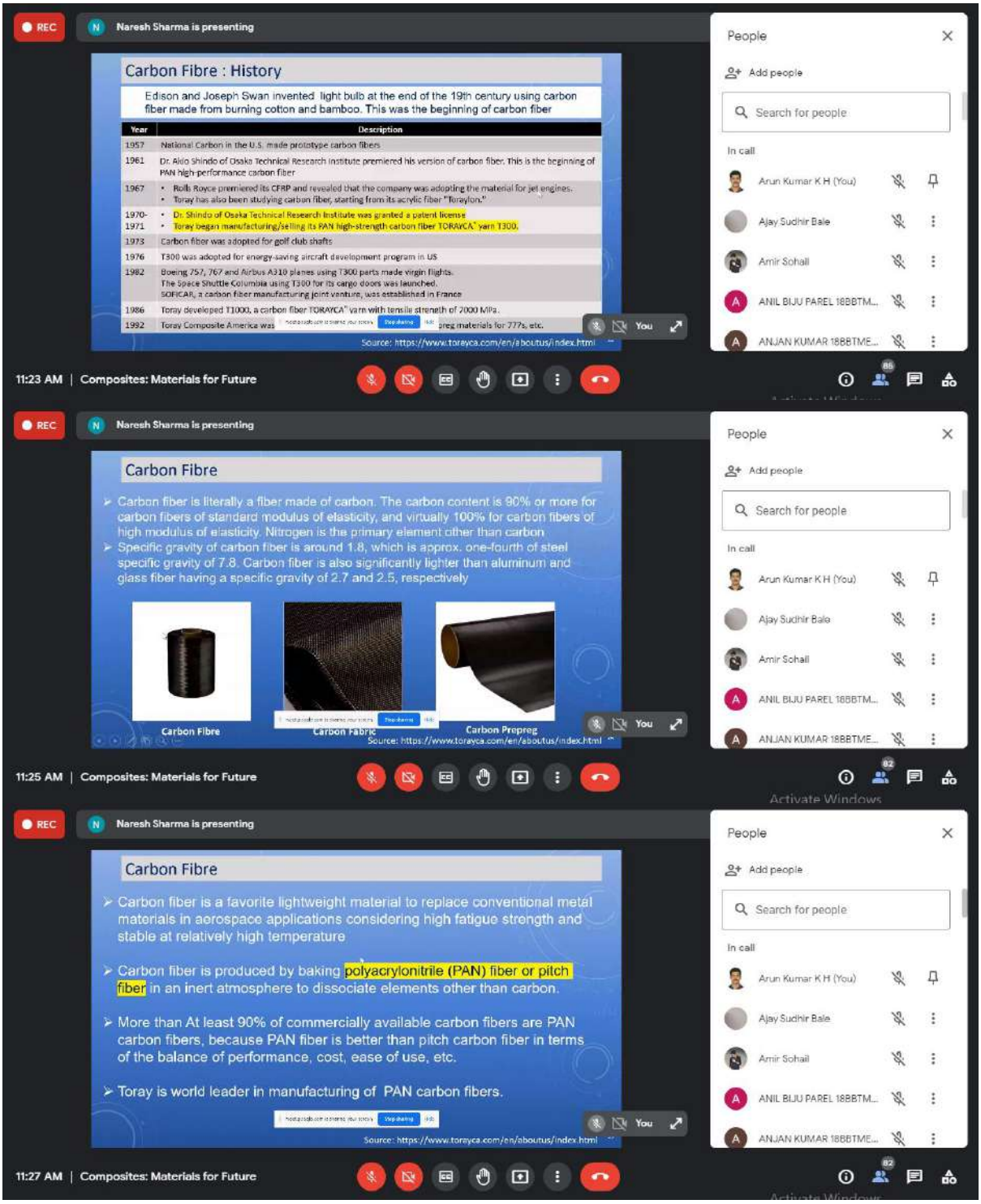
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Carbon Fibre : History
Edison and Joseph Swan invented light bulb at the end of the 19th century using carbon fiber made from burning cotton and bamboo. This was the beginning of carbon fiber
Year
Description
1957
National Carbon in the U.S. made prototype carbon fibers
1961
Dr. Akio Shindo of Osaka Technical Research Institute premiered his version of carbon fiber. This is the beginning of PAN high-performance carbon fiber
1967
Rolls Royce premiered its CFRP and revealed that the company was adopting the material for jet engines.
Toray has also been studying carbon fiber, starting from its acrylic fiber "Toraylon."
1970-1971
Dr. Shindo of Osaka Technical Research Institute was granted a patent license
Toray began manufacturing/selling its PAN high-strength carbon fiber TORAYCA" yarn T300.
1973
Carbon fiber was adopted for golf club shafts
1976
T300 was adopted for energy-saving aircraft development program in US
1982
Boeing 757, 767 and Airbus A310 planes using T300 parts made virgin flights.
The Space Shuttle Columbia using T300 for its cargo doors was launched.
SOFICAR, a carbon fiber manufacturing joint venture, was established in France
1986
Toray developed T1000, a carbon fiber TORAYCA" yarn with tensile strength of 2000 MPa.
1992
Toray Composite America was
preg materials for 777s, etc.
Source: https://www.torayca.com/en/aboutus/index.html
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Carbon Fibre
Carbon fiber is literally a fiber made of carbon. The carbon content is 90% or more for carbon fibers of standard modulus of elasticity, and virtually 100% for carbon fibers of high modulus of elasticity. Nitrogen is the primary element other than carbon
Specific gravity of carbon fiber is around 1.8, which is approx. one-fourth of steel specific gravity of 7.8. Carbon fiber is also significantly lighter than aluminum and glass fiber having a specific gravity of 2.7 and 2.5, respectively
Carbon Fibre
Carbon Fabric
Carbon Prepreg
Source: https://www.torayca.com/en/aboutus/index.html
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Carbon Fibre
Carbon fiber is a favorite lightweight material to replace conventional metal materials in aerospace applications considering high fatigue strength and stable at relatively high temperature
Carbon fiber is produced by baking polyacrylonitrile (PAN) fiber or pitch fiber in an inert atmosphere to dissociate elements other than carbon.
More than At least 90% of commercially available carbon fibers are PAN carbon fibers, because PAN fiber is better than pitch carbon fiber in terms of the balance of performance, cost, ease of use, etc.
Toray is world leader in manufacturing of PAN carbon fibers.
Source: https://www.torayca.com/en/aboutus/index.html
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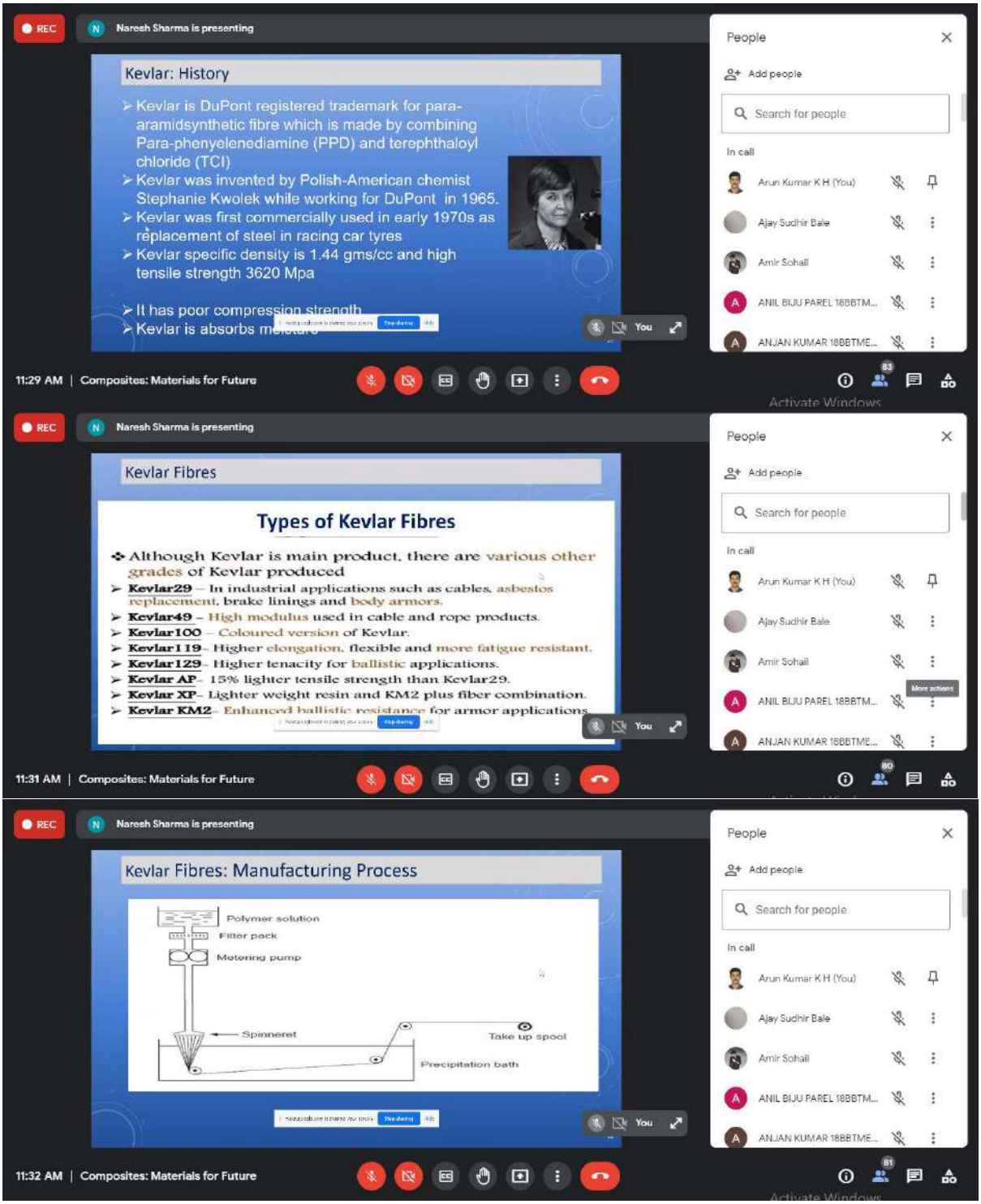
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Kevlar: History
Kevlar is DuPont registered trademark for para-aramidsynthetic fibre which is made by combining Para-phenyelenediamine (PPD) and terephthaloyl chloride (TCI)
Kevlar was invented by Polish-American chemist Stephanie Kwolek while working for DuPont in 1965.
Kevlar was first commercially used in early 1970s as replacement of steel in racing car tyres
Kevlar specific density is 1.44 gms/cc and high tensile strength 3620 Mpa
It has poor compression strength
Kevlar is absorbs moisture
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Kevlar Fibres
Types of Kevlar Fibres
Although Kevlar is main product, there are various other grades of Kevlar produced
Kevlar29 – In industrial applications such as cables, asbestos replacement, brake linings and body armors.
Kevlar49 – High modulus used in cable and rope products.
Kevlar100 – Coloured version of Kevlar.
Kevlar119 – Higher elongation, flexible and more fatigue resistant.
Kevlar129 – Higher tenacity for ballistic applications.
Kevlar AP – 15% lighter tensile strength than Kevlar29.
Kevlar XP – Lighter weight resin and KM2 plus fiber combination.
Kevlar KM2 – Enhanced ballistic resistance for armor applications
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Kevlar Fibres: Manufacturing Process
Polymer solution
Filter pack
Metering pump
Spinneret
Take up spool
Precipitation bath
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Types of Matrix Materials
• Thermosets
• Thermoplastics
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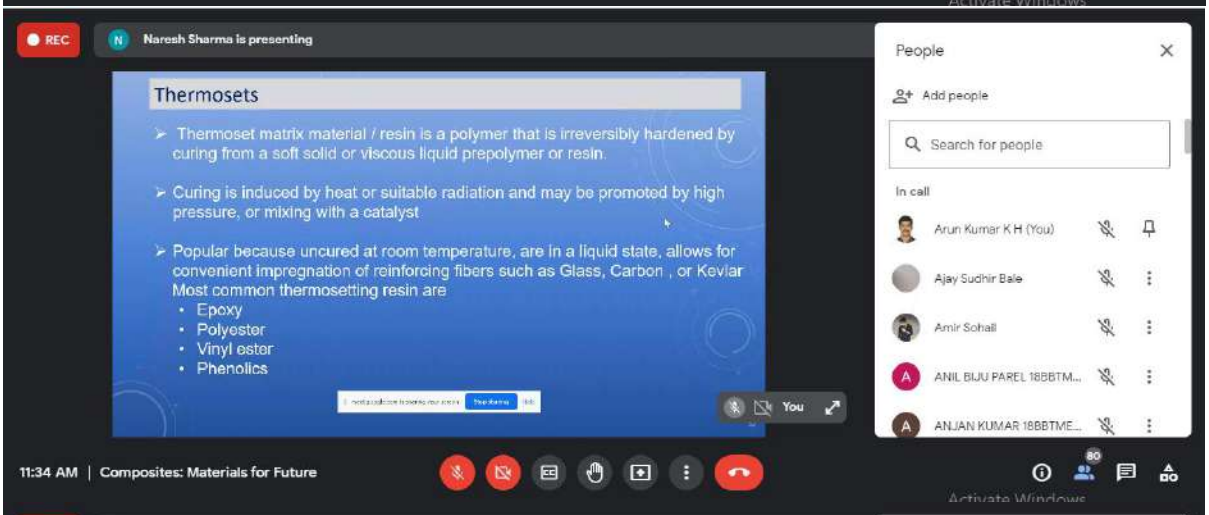
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Thermosets
Thermoset matrix material / resin is a polymer that is irreversibly hardened by curing from a soft solid or viscous liquid prepolymer or resin.
Curing is induced by heat or suitable radiation and may be promoted by high pressure, or mixing with a catalyst
Popular because uncured at room temperature, are in a liquid state, allows for convenient impregnation of reinforcing fibers such as Glass, Carbon , or Kevlar
Most common thermosetting resin are
• Epoxy
• Polyester
• Vinyl ester
• Phenolics
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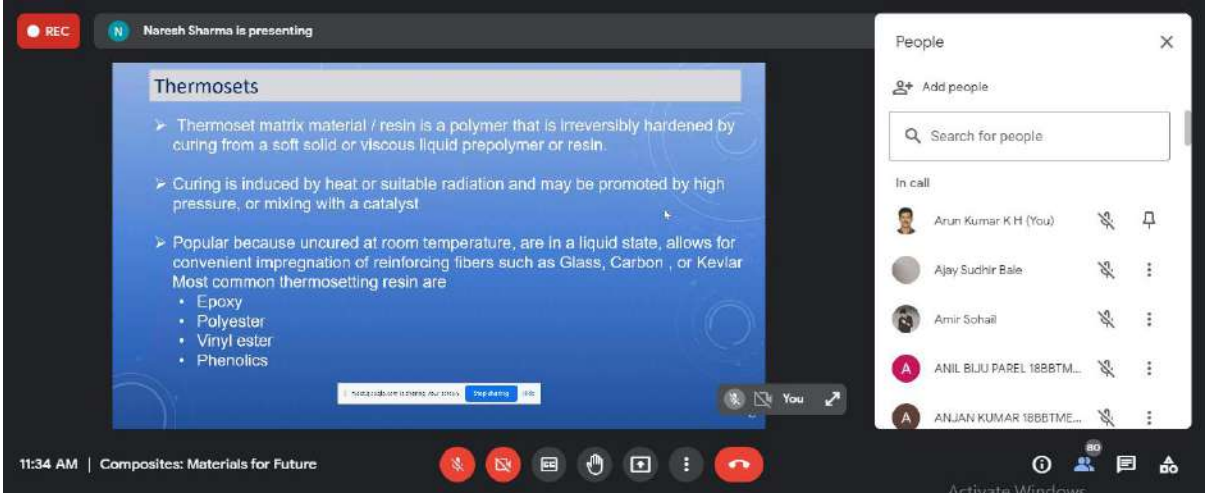
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Thermosets
Thermoset matrix material / resin is a polymer that is irreversibly hardened by curing from a soft solid or viscous liquid prepolymer or resin.
Curing is induced by heat or suitable radiation and may be promoted by high pressure, or mixing with a catalyst
Popular because uncured at room temperature, are in a liquid state, allows for convenient impregnation of reinforcing fibers such as Glass, Carbon , or Kevlar
Most common thermosetting resin are
• Epoxy
• Polyester
• Vinyl ester
• Phenolics
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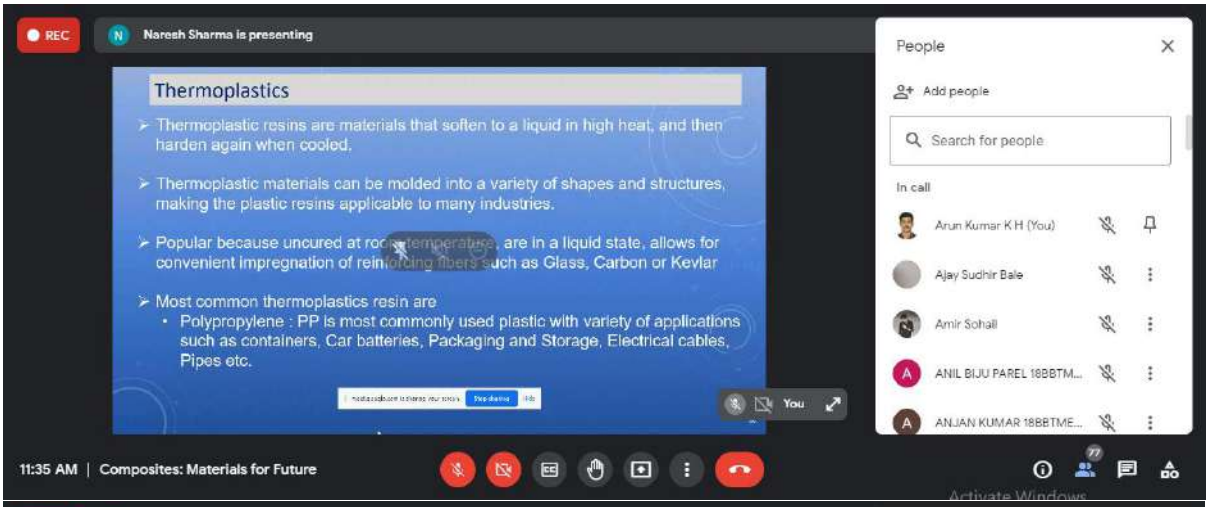
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Thermoplastics
Thermoplastic resins are materials that soften to a liquid in high heat, and then harden again when cooled.
Thermoplastic materials can be molded into a variety of shapes and structures, making the plastic resins applicable to many industries.
Popular because uncured at room temperature, are in a liquid state, allows for convenient impregnation of reinforcing fibers such as Glass, Carbon or Kevlar
Most common thermoplastics resin are
Polypropylene : PP is most commonly used plastic with variety of applications such as containers, Car batteries, Packaging and Storage, Electrical cables, Pipes etc.
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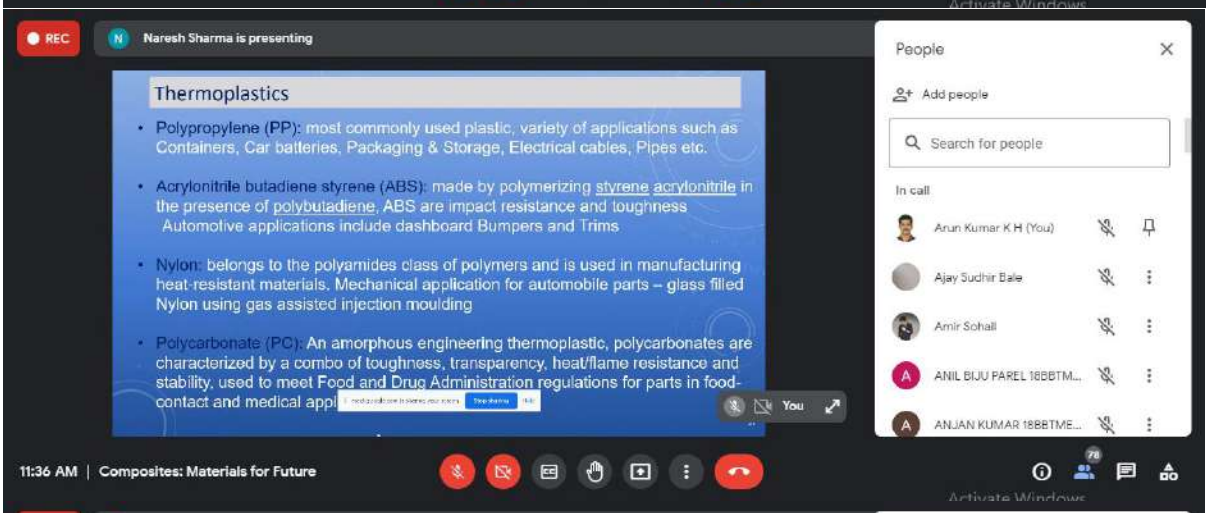
Ajay Sudhir Bale
Amir Sohail
ANIL BIJU PAREL 18BBTM...
ANJAN KUMAR 18BBTME...
You
11:35 AM | Composites: Materials for Future


REC
Naresh Sharma is presenting
Thermoplastics
Polypropylene (PP): most commonly used plastic, variety of applications such as Containers, Car batteries, Packaging & Storage, Electrical cables, Pipes etc.
Acrylonitrile butadiene styrene (ABS): made by polymerizing styrene acrylonitrile in the presence of polybutadiene, ABS are impact resistance and toughness Automotive applications include dashboard Bumpers and Trims
Nylon: belongs to the polyamides class of polymers and is used in manufacturing heat-resistant materials. Mechanical application for automobile parts – glass filled Nylon using gas assisted injection moulding
Polycarbonate (PC): An amorphous engineering thermoplastic, polycarbonates are characterized by a combo of toughness, transparency, heat/flame resistance and stability, used to meet Food and Drug Administration regulations for parts in food-contact and medical appl
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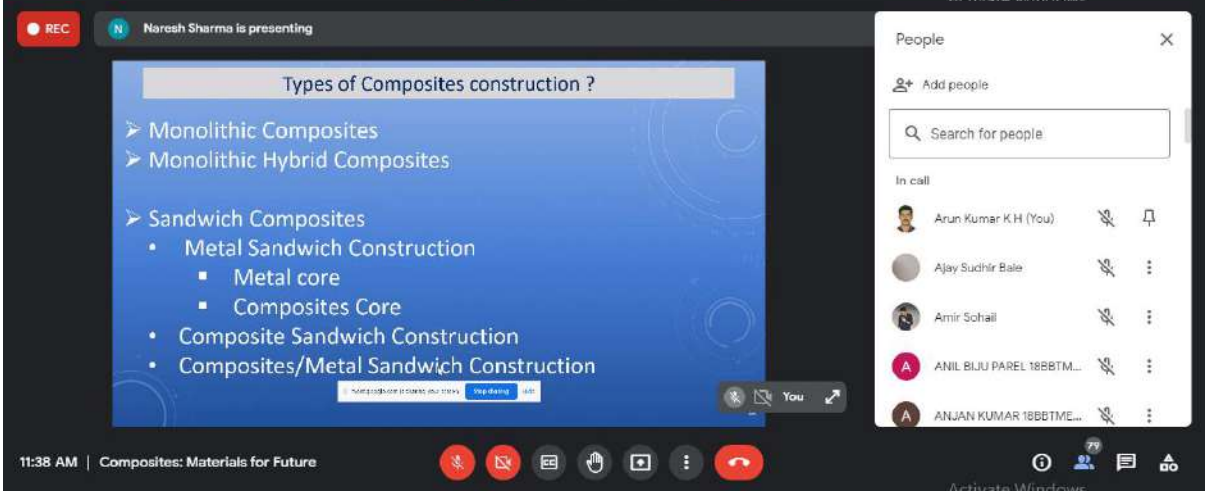
REC
Naresh Sharma is presenting
Types of Composites construction ?
Monolithic Composites
Monolithic Hybrid Composites
Sandwich Composites
Metal Sandwich Construction
Metal core
Composites Core
Composite Sandwich Construction
Composites/Metal Sandwich Construction
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Types of Composites construction ?
Monolithic Composites
Monolithic Hybrid Composites
Sandwich Composites
Metal Sandwich Construction
Metal core
Composites Core
Composite Sandwich Construction
Composites/Metal Sandwich Construction
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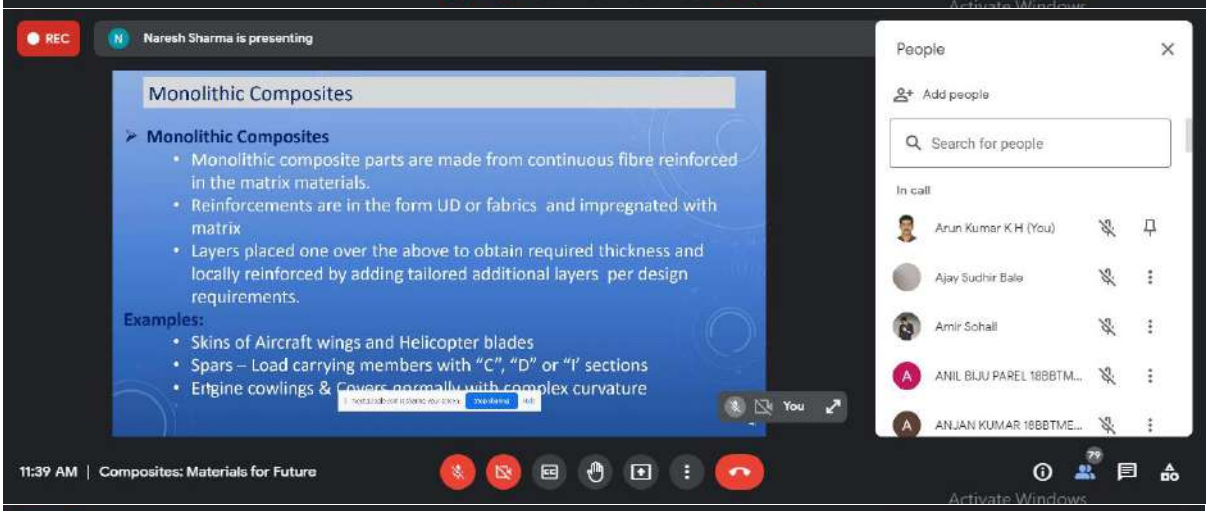
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Monolithic Composites
Monolithic Composites
Monolithic composite parts are made from continuous fibre reinforced in the matrix materials.
Reinforcements are in the form UD or fabrics and impregnated with matrix
Layers placed one over the above to obtain required thickness and locally reinforced by adding tailored additional layers per design requirements.
Examples:
Skins of Aircraft wings and Helicopter blades
Spars – Load carrying members with "C", "D" or "I' sections
Engine cowlings & Covers normally with complex curvature
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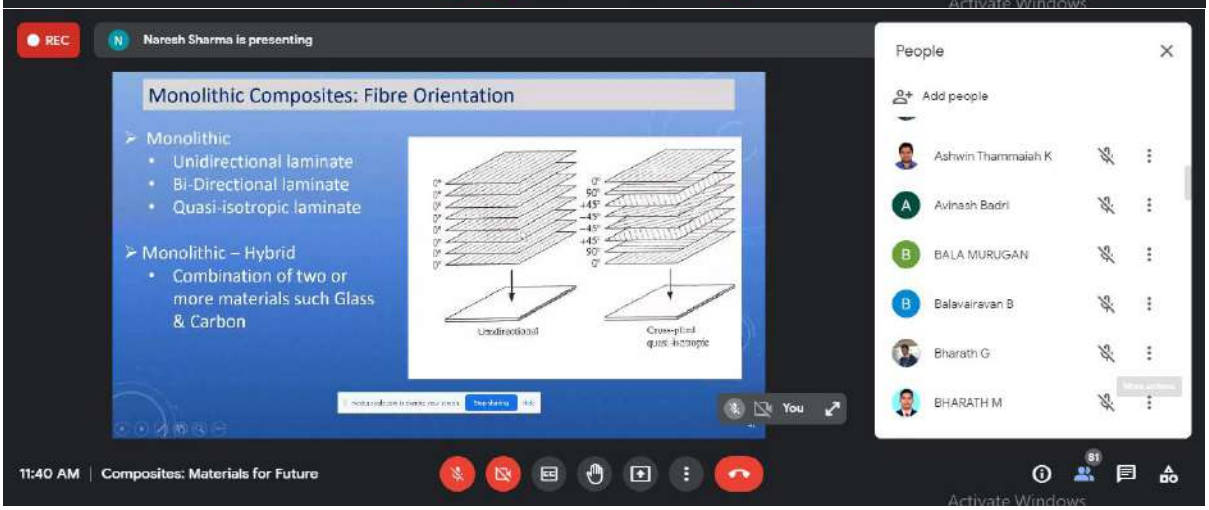
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Monolithic Composites: Fibre Orientation
Monolithic
Unidirectional laminate
Bi-Directional laminate
Quasi-isotropic laminate
Monolithic – Hybrid
Combination of two or more materials such Glass & Carbon
Unidirectional
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Avinash Badri
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Balavairavan B
Bharath G
BHARATH M
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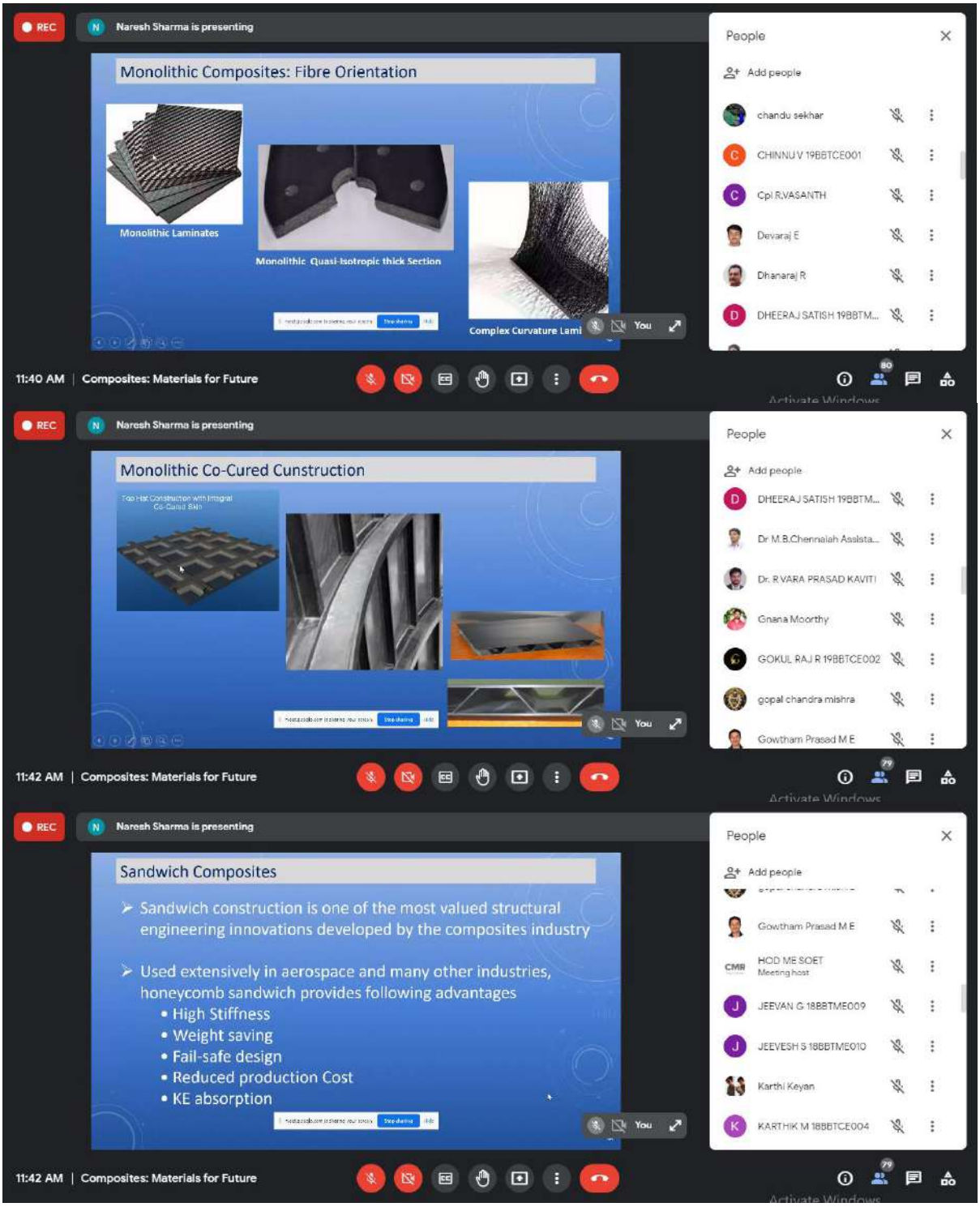
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Monolithic Composites: Fibre Orientation
Monolithic Laminates
Monolithic Quasi-Isotropic thick Section
Complex Curvature Lami
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Cpl R.VASANTH
Devaraj E
Dhanaraj R
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Monolithic Co-Cured Cunstruction
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Dr M.B.Chennaiah Assista...
Dr. R VARA PRASAD KAVITI
Gnana Moorthy
GOKUL RAJ R 19BBTCE002
gopal chandra mishra
Gowtham Prasad M E
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Sandwich Composites
Sandwich construction is one of the most valued structural engineering innovations developed by the composites industry
Used extensively in aerospace and many other industries, honeycomb sandwich provides following advantages
High Stiffness
Weight saving
Fail-safe design
Reduced production Cost
KE absorption
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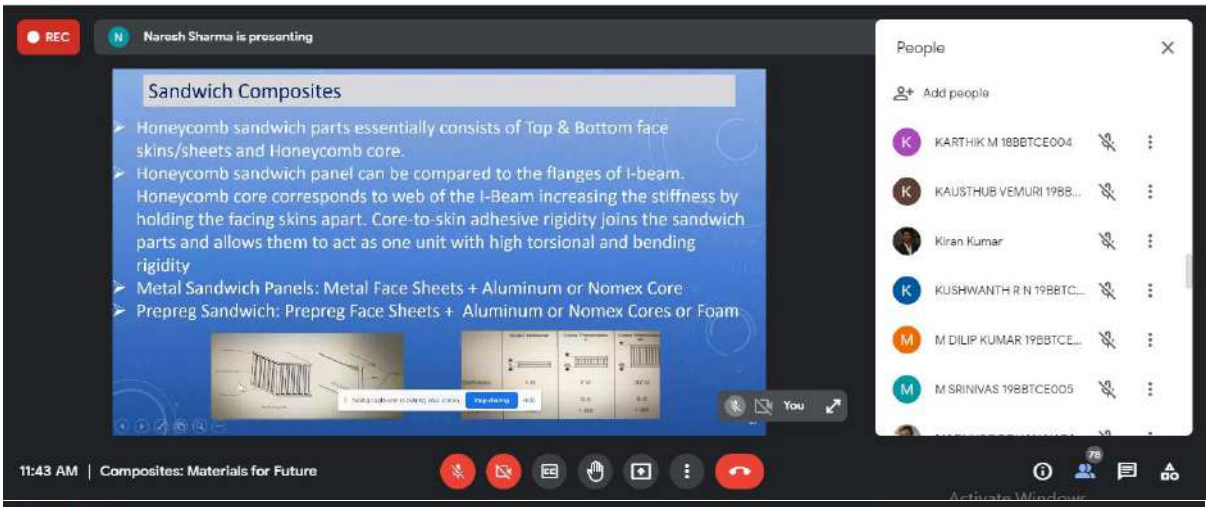
JEEVESH S 18BBTME010
Karthi Keyan
KARTHIK M 18BBTCE004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Sandwich Composites
Honeycomb sandwich parts essentially consists of Top & Bottom face skins/sheets and Honeycomb core.
Honeycomb sandwich panel can be compared to the flanges of I-beam. Honeycomb core corresponds to web of the I-Beam increasing the stiffness by holding the facing skins apart. Core-to-skin adhesive rigidity joins the sandwich parts and allows them to act as one unit with high torsional and bending rigidity
Metal Sandwich Panels: Metal Face Sheets + Aluminum or Nomex Core
Prepreg Sandwich: Prepreg Face Sheets + Aluminum or Nomex Cores or Foam
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KAUSTHUB VEMURI 19BB...
Kiran Kumar
KUSHWANTH R N 19BBTC...
M DILIP KUMAR 19BBTCE...
M SRINIVAS 19BBTCE005
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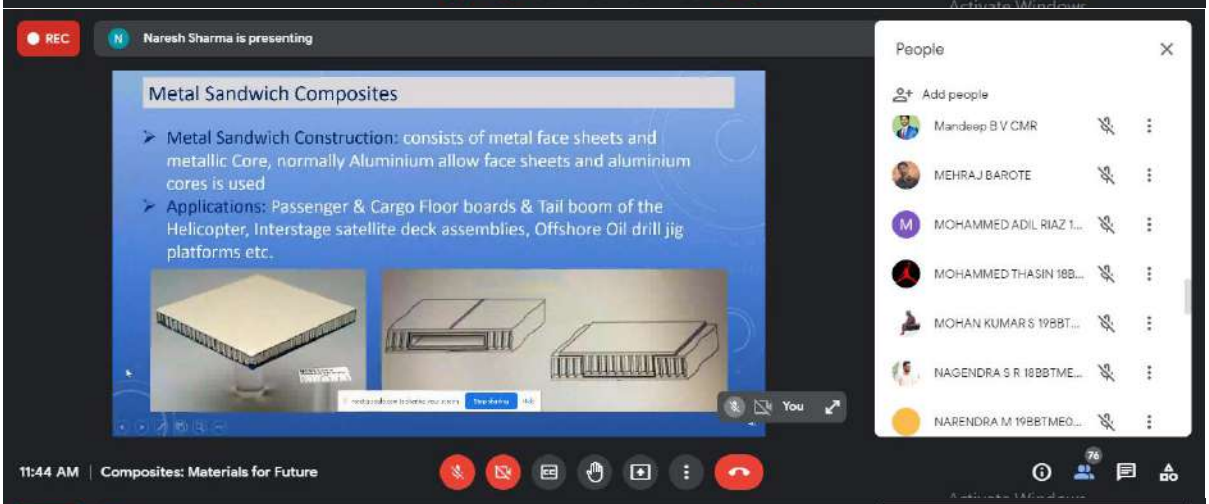
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Metal Sandwich Composites
Metal Sandwich Construction: consists of metal face sheets and metallic Core, normally Aluminium allow face sheets and aluminium cores is used
Applications: Passenger & Cargo Floor boards & Tail boom of the Helicopter, Interstage satellite deck assemblies, Offshore Oil drill jig platforms etc.
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Mandeep B V CMR
MEHRAJ BAROTE
MOHAMMED ADIL RIAZ 1...
MOHAMMED THASIN 18B...
MOHAN KUMAR S 19BBT...
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NARENDRA M 19BBTME0...
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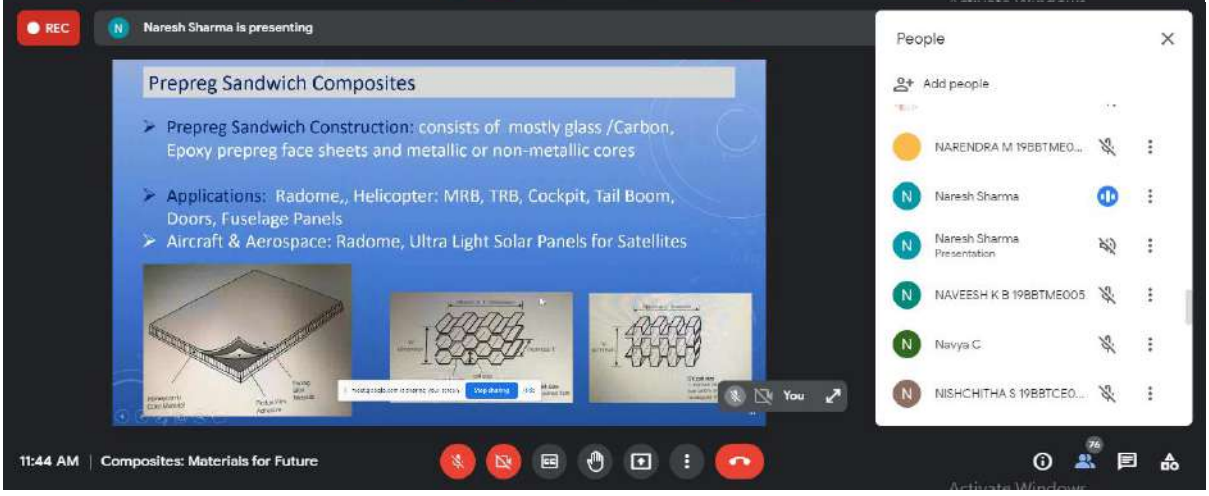
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Prepreg Sandwich Composites
Prepreg Sandwich Construction: consists of mostly glass /Carbon, Epoxy prepreg face sheets and metallic or non-metallic cores
Applications: Radome,, Helicopter: MRB, TRB, Cockpit, Tail Boom, Doors, Fuselage Panels
Aircraft & Aerospace: Radome, Ultra Light Solar Panels for Satellites
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Navya C
NISHCHITHA S 19BBTCE0...
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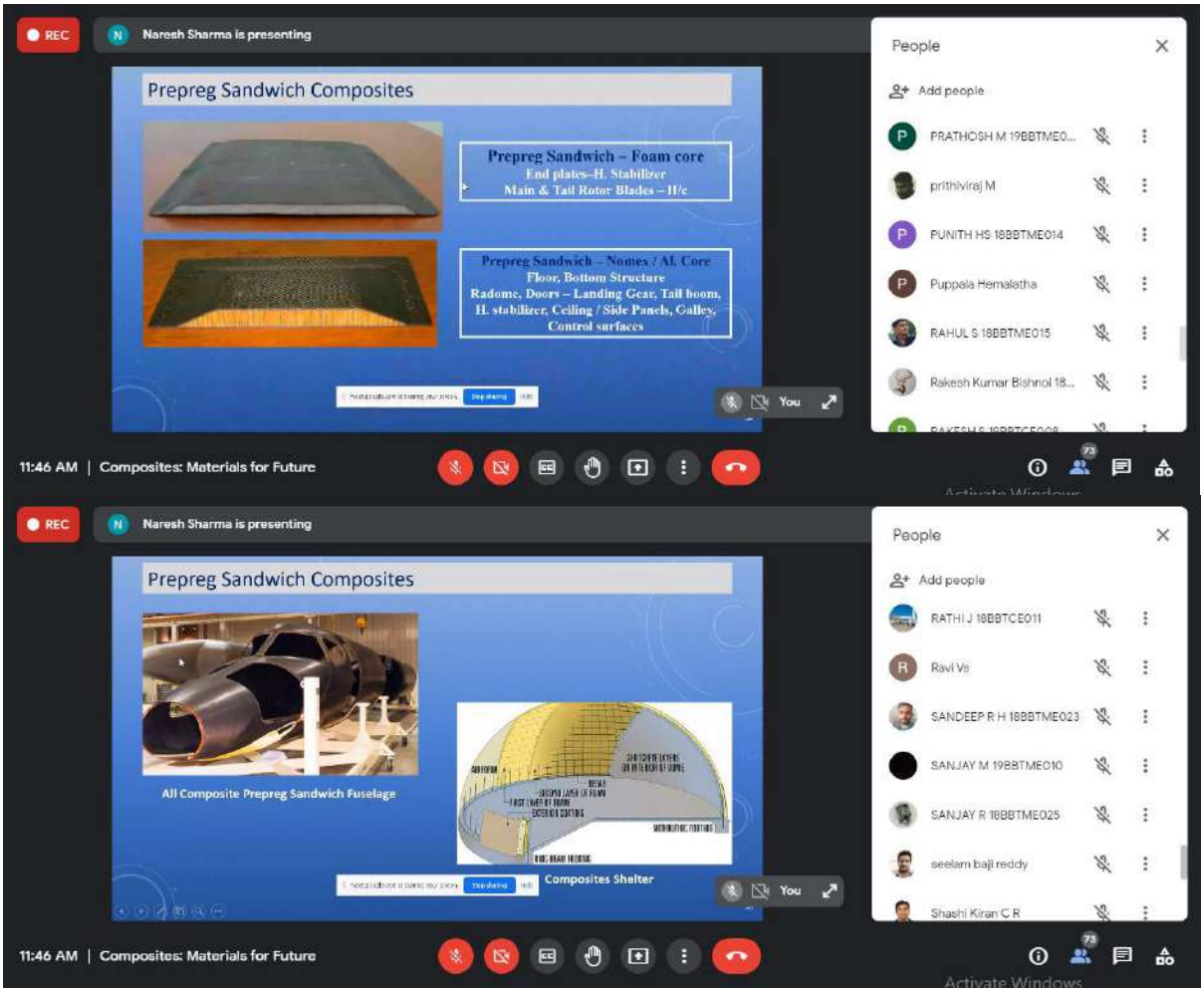
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Prepreg Sandwich Composites
Prepreg Sandwich – Foam core
End plates–H. Stabilizer
Main & Tail Rotor Blades – H/c
Prepreg Sandwich – Nomex / Al. Core
Floor, Bottom Structure
Radome, Doors – Landing Gear, Tail boom,
H. stabilizer, Ceiling / Side Panels, Galley,
Control surfaces
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prithiviraj M
PUNITH HS 18BBTME014
Puppala Hemalatha
RAHUL S 18BBTME015
Rakesh Kumar Bishnoi 18...
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Prepreg Sandwich Composites
All Composite Prepreg Sandwich Fuselage
Composites Shelter
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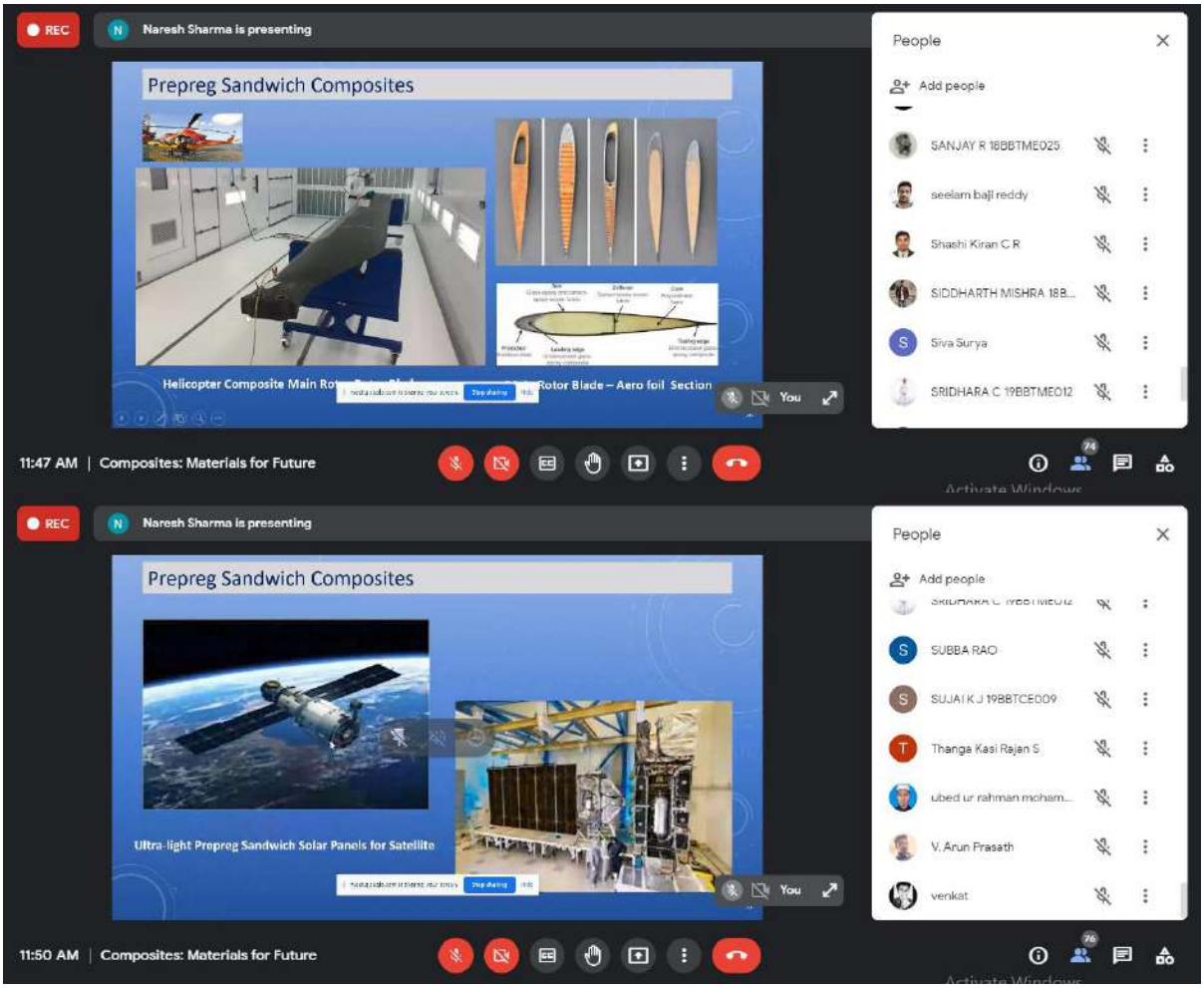
Ravi Vs
SANDEEP R H 18BBTME023
SANJAY M 19BBTME010
SANJAY R 18BBTME025
seelam baji reddy
Shashi Kiran C R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Prepreg Sandwich Composites
Helicopter Composite Main Rotor Blade – Aero foil Section
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Shashi Kiran C R
SIDDHARTH MISHRA 18B...
Siva Surya
SRIDHARA C 19BBTME012
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Prepreg Sandwich Composites
Ultra-light Prepreg Sandwich Solar Panels for Satellite
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V. Arun Prasath
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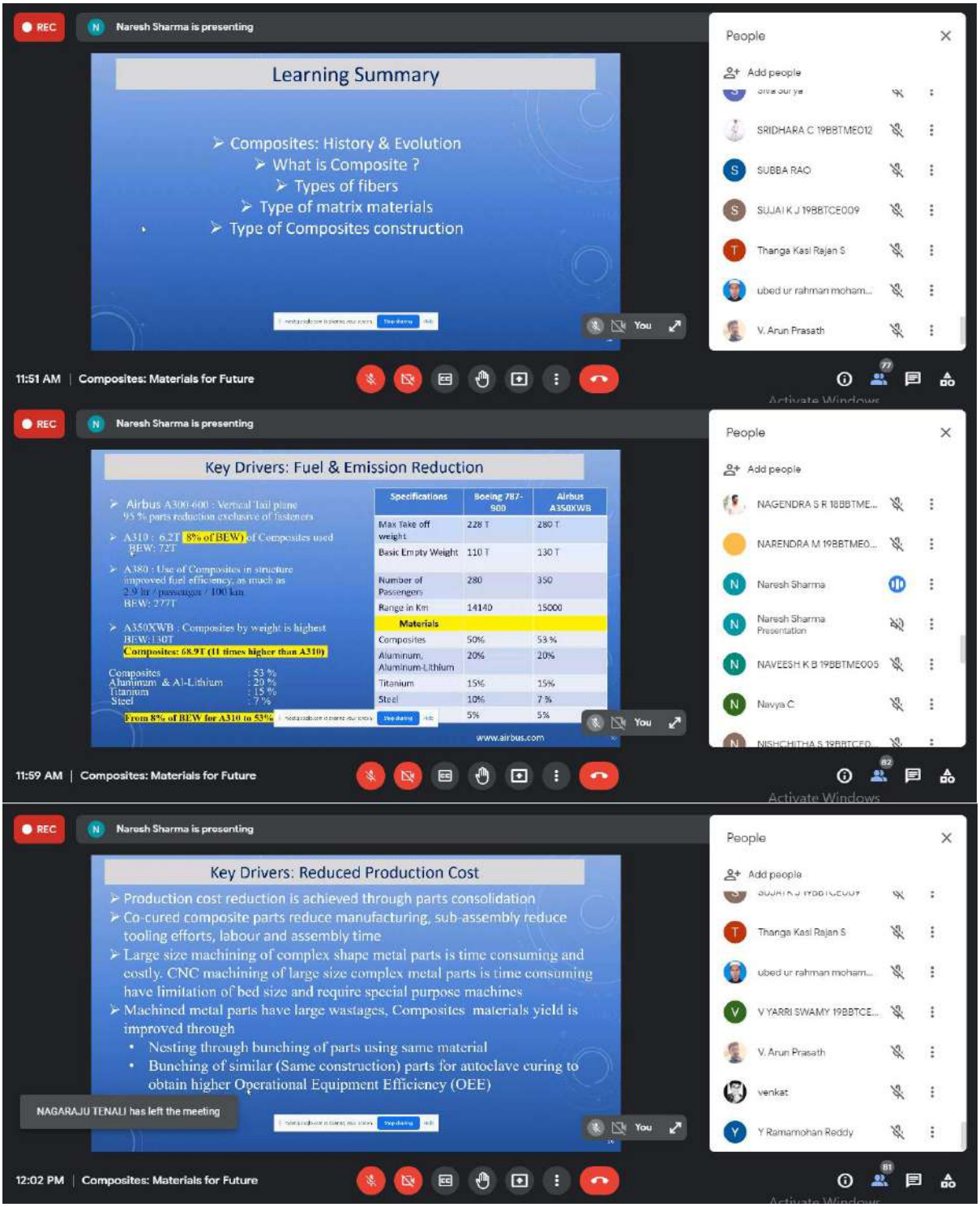
REC
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Learning Summary
Composites: History & Evolution
What is Composite ?
Types of fibers
Type of matrix materials
Type of Composites construction
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SUJAI K J 19BBTCE009
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REC
Naresh Sharma is presenting
Key Drivers: Fuel & Emission Reduction
Airbus A300-600 : Vertical Tail plane 95 % parts reduction exclusive of fasteners
A310 : 6.2T (8% of BEW) of Composites used BEW: 72T
A380 : Use of Composites in structure improved fuel efficiency, as much as 2.9 ltr / passenger / 100 km BEW: 277T
A350XWB : Composites by weight is highest BEW:130T
Composites: 68.9T (11 times higher than A310)
Composites : 53 %
Aluminum & Al-Lithium : 20 %
Titanium : 15 %
Steel : 7 %
From 8% of BEW for A310 to 53%
Specifications | Boeing 787-900 | Airbus A350XWB
Max Take off weight | 228 T | 280 T
Basic Empty Weight | 110 T | 130 T
Number of Passengers | 280 | 350
Range in Km | 14140 | 15000
Materials
Composites | 50% | 53 %
Aluminum, Aluminum-Lithium | 20% | 20%
Titanium | 15% | 15%
Steel | 10% | 7 %
5% | 5%
www.airbus.com
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Naresh Sharma Presentation
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REC
Naresh Sharma is presenting
Key Drivers: Reduced Production Cost
Production cost reduction is achieved through parts consolidation
Co-cured composite parts reduce manufacturing, sub-assembly reduce tooling efforts, labour and assembly time
Large size machining of complex shape metal parts is time consuming and costly. CNC machining of large size complex metal parts is time consuming have limitation of bed size and require special purpose machines
Machined metal parts have large wastages, Composites materials yield is improved through
Nesting through bunching of parts using same material
Bunching of similar (Same construction) parts for autoclave curing to obtain higher Operational Equipment Efficiency (OEE)
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venkat
Y Ramamohan Reddy
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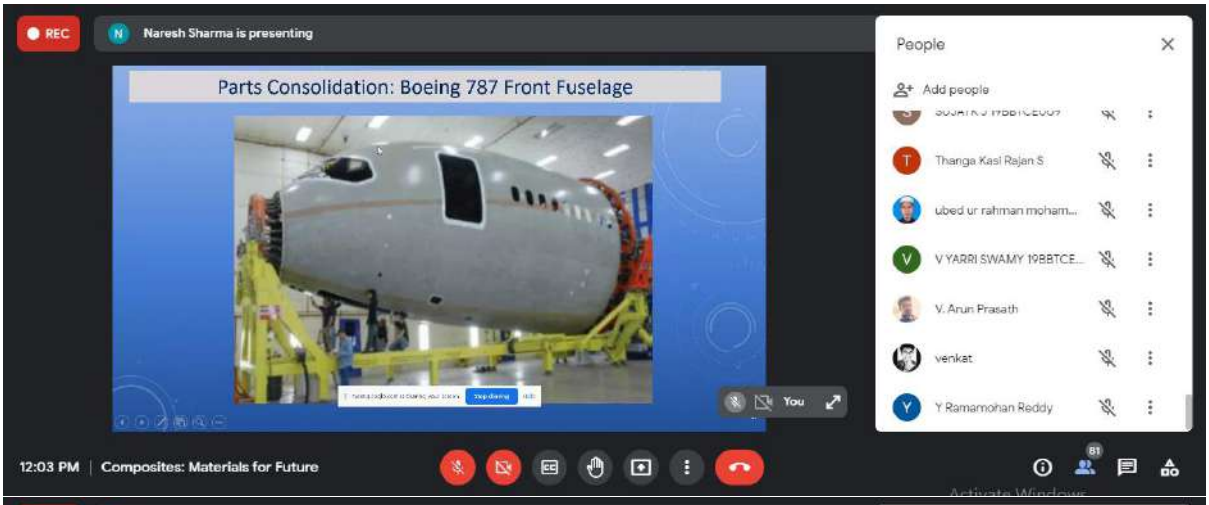
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Parts Consolidation: Boeing 787 Front Fuselage
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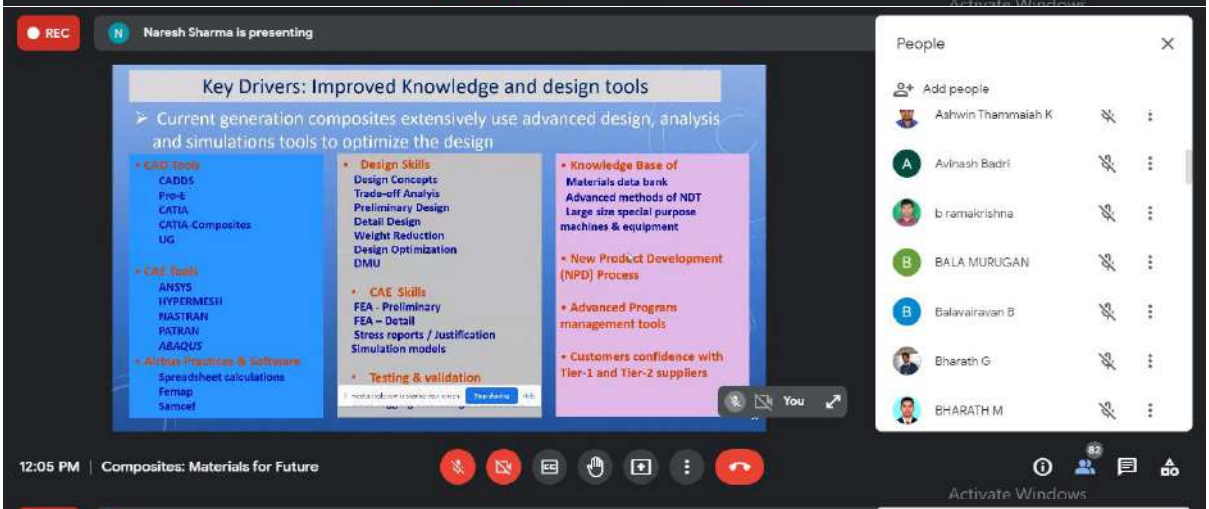
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Key Drivers: Improved Knowledge and design tools
Current generation composites extensively use advanced design, analysis and simulations tools to optimize the design
CAD Tools
CADDS
Pro-E
CATIA
CATIA-Composites
UG
CAE Tools
ANSYS
HYPERMESH
NASTRAN
PATRAN
ABAQUS
Airbus Practices & Software
Spreadsheet calculations
Femap
Samcef
Design Skills
Design Concepts
Trade-off Analysis
Preliminary Design
Detail Design
Weight Reduction
Design Optimization
DMU
CAE Skills
FEA - Preliminary
FEA – Detail
Stress reports / Justification
Simulation models
Testing & validation
Knowledge Base of
Materials data bank
Advanced methods of NDT
Large size special purpose machines & equipment
New Product Development (NPD) Process
Advanced Program management tools
Customers confidence with Tier-1 and Tier-2 suppliers
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Bharath G
BHARATH M
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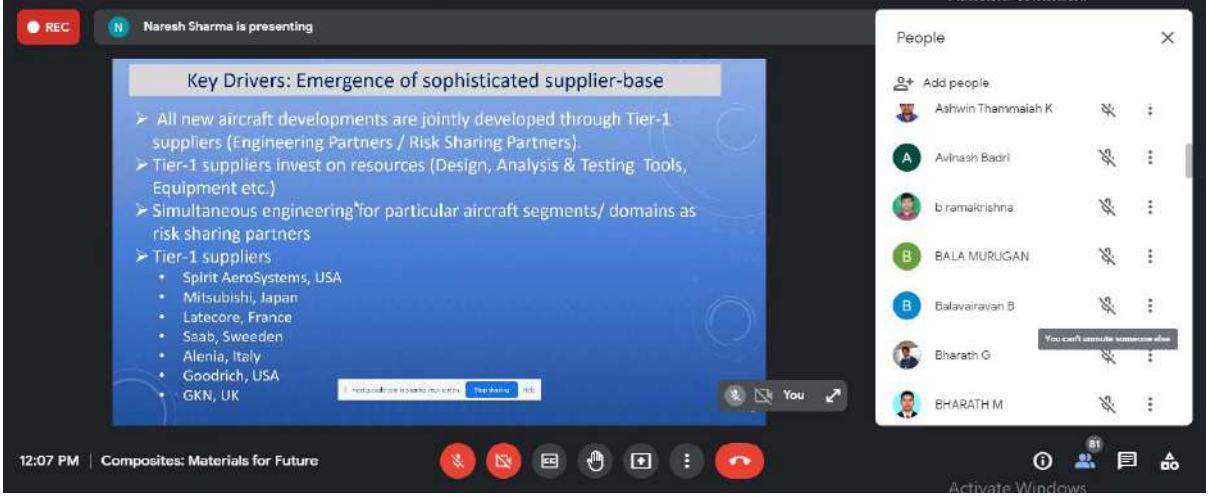
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Key Drivers: Emergence of sophisticated supplier-base
All new aircraft developments are jointly developed through Tier-1 suppliers (Engineering Partners / Risk Sharing Partners).
Tier-1 suppliers invest on resources (Design, Analysis & Testing Tools, Equipment etc.)
Simultaneous engineering for particular aircraft segments/ domains as risk sharing partners
Tier-1 suppliers
Spirit AeroSystems, USA
Mitsubishi, Japan
Latecore, France
Saab, Sweeden
Alenia, Italy
Goodrich, USA
GKN, UK
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Bharath G
BHARATH M
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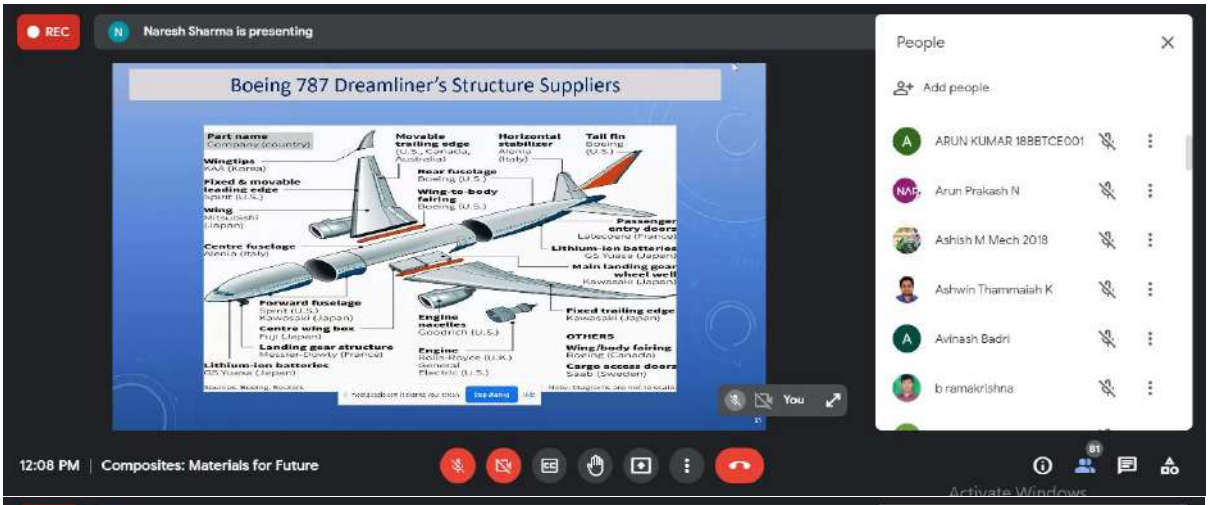
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Boeing 787 Dreamliner's Structure Suppliers
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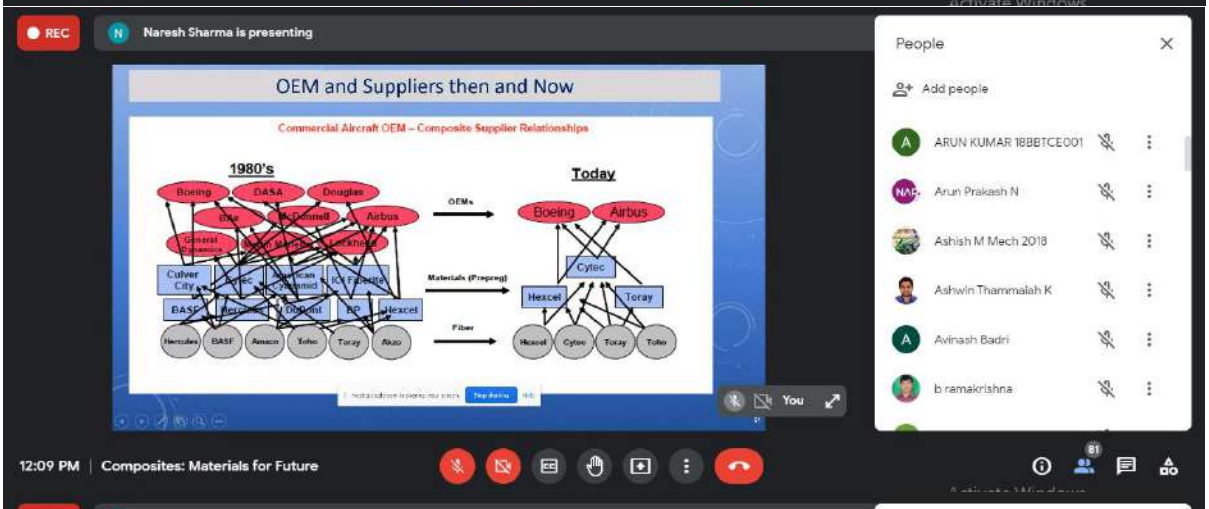
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OEM and Suppliers then and Now
Commercial Aircraft OEM – Composite Supplier Relationships
1980's
Today
Boeing
DASA
Douglas
Airbus
Cytec
Hexcel
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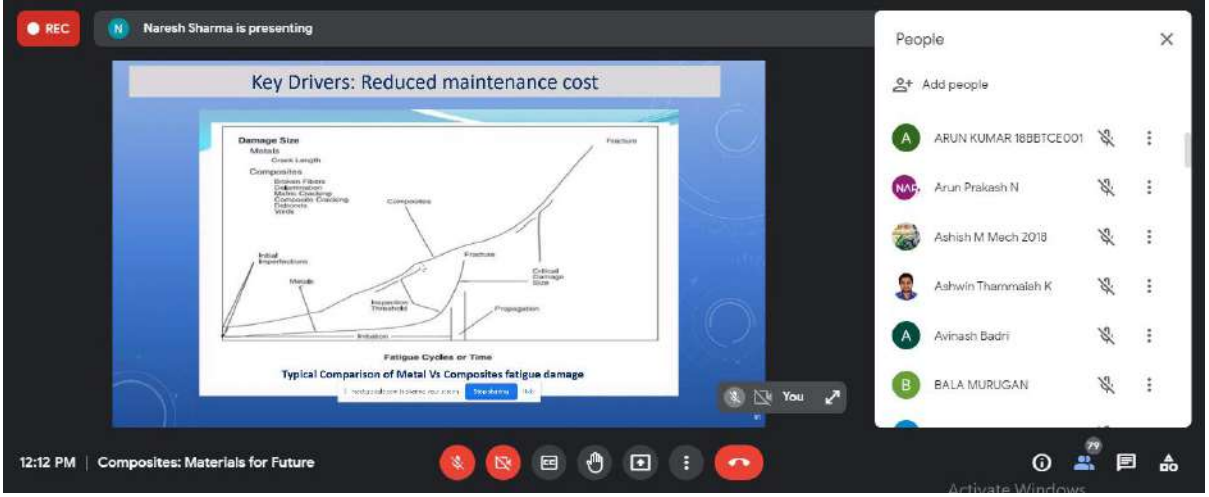
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Key Drivers: Reduced maintenance cost
Fatigue Cycles or Time
Typical Comparison of Metal Vs Composites fatigue damage
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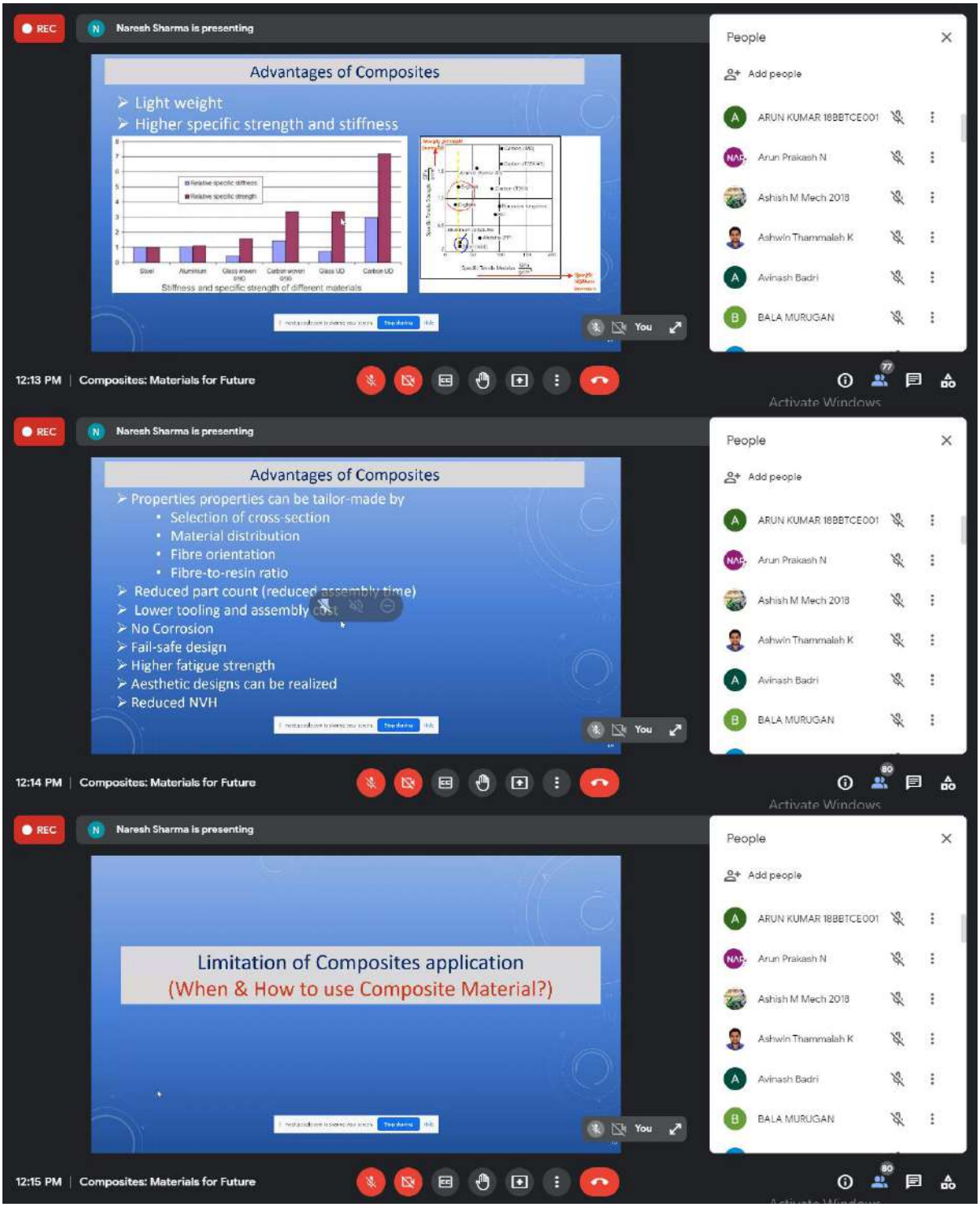
REC
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Advantages of Composites
Light weight
Higher specific strength and stiffness
Stiffness and specific strength of different materials
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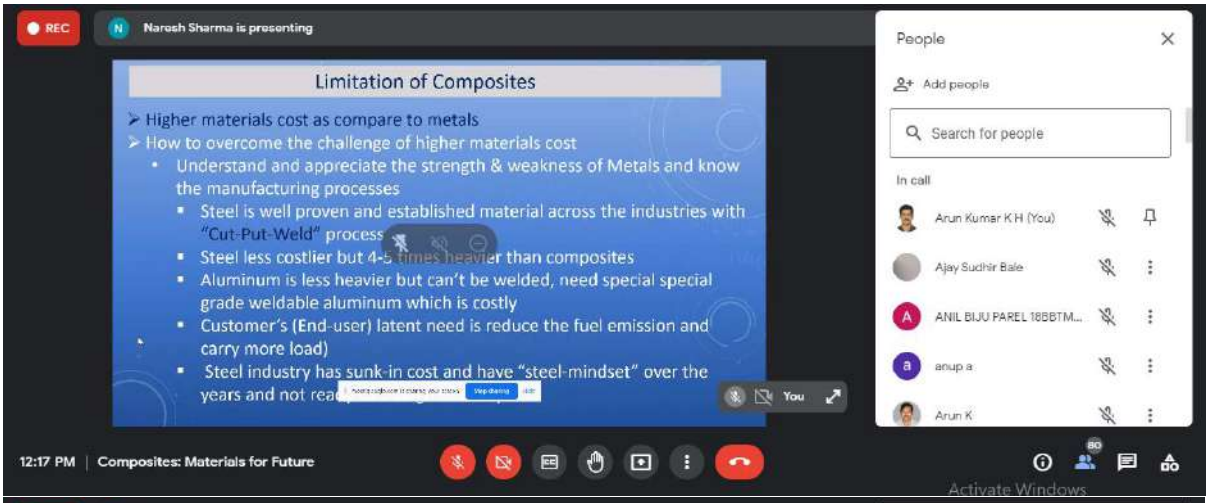
Advantages of Composites
Properties properties can be tailor-made by
Selection of cross-section
Material distribution
Fibre orientation
Fibre-to-resin ratio
Reduced part count (reduced assembly time)
Lower tooling and assembly cost
No Corrosion
Fail-safe design
Higher fatigue strength
Aesthetic designs can be realized
Reduced NVH
12:14 PM | Composites: Materials for Future
Limitation of Composites application
(When & How to use Composite Material?)
12:15 PM | Composites: Materials for Future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Limitation of Composites
Higher materials cost as compare to metals
How to overcome the challenge of higher materials cost
Understand and appreciate the strength & weakness of Metals and know the manufacturing processes
Steel is well proven and established material across the industries with "Cut-Put-Weld" process
Steel less costlier but 4-5 times heavier than composites
Aluminum is less heavier but can't be welded, need special special grade weldable aluminum which is costly
Customer's (End-user) latent need is reduce the fuel emission and carry more load)
Steel industry has sunk-in cost and have "steel-mindset" over the years and not read
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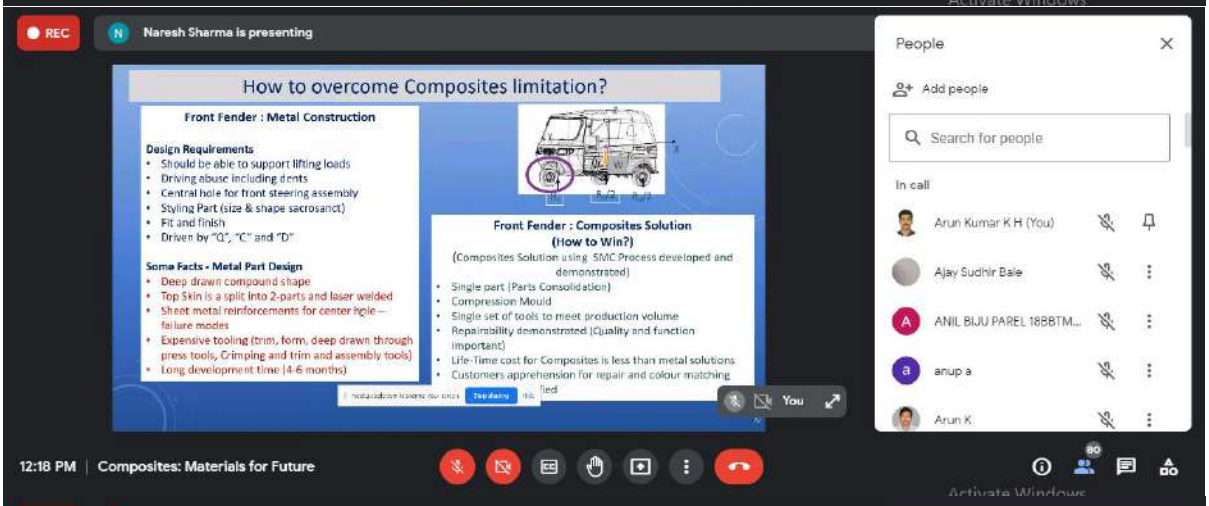
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Naresh Sharma is presenting
How to overcome Composites limitation?
Front Fender : Metal Construction
Design Requirements
Should be able to support lifting loads
Driving abuse including dents
Central hole for front steering assembly
Styling Part (size & shape secrosanct)
Fit and finish
Driven by "Q", "C" and "D"
Some Facts - Metal Part Design
Deep drawn compound shape
Top Skin is a split into 2-parts and laser welded
Sheet metal reinforcements for center hole – failure modes
Expensive tooling (trim, form, deep drawn through press tools, Crimping and trim and assembly tools)
Long development time (4-6 months)
Front Fender : Composites Solution (How to Win?)
(Composites Solution using SMC Process developed and demonstrated)
Single part (Parts Consolidation)
Compression Mould
Single set of tools to meet production volume
Repairability demonstrated (Quality and function important)
Life-Time cost for Composites is less than metal solutions
Customers apprehension for repair and colour matching
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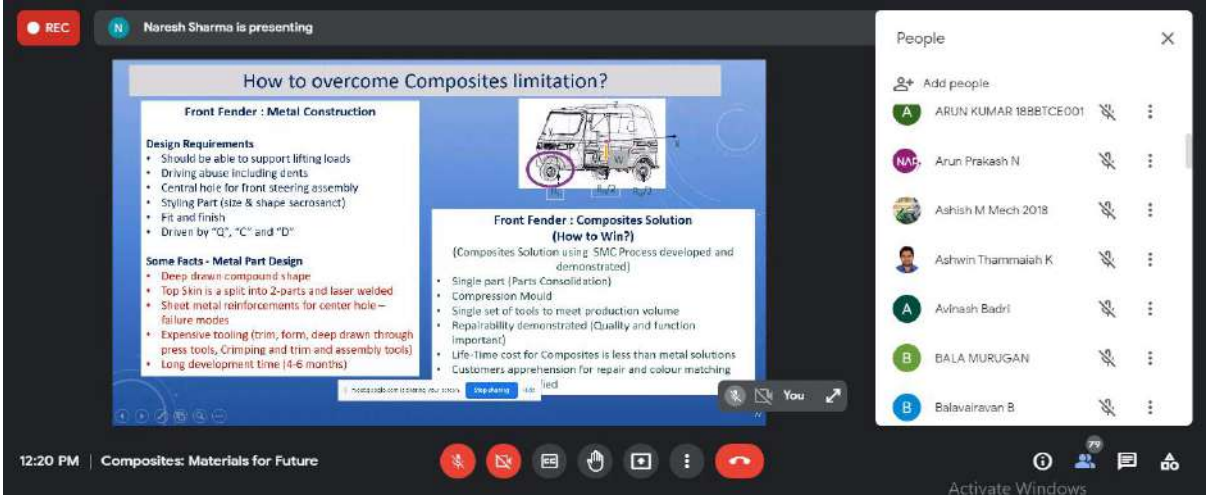
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How to overcome Composites limitation?
Front Fender : Metal Construction
Design Requirements
Should be able to support lifting loads
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Expensive tooling (trim, form, deep drawn through press tools, Crimping and trim and assembly tools)
Long development time (4-6 months)
Front Fender : Composites Solution (How to Win?)
(Composites Solution using SMC Process developed and demonstrated)
Single part (Parts Consolidation)
Compression Mould
Single set of tools to meet production volume
Repairability demonstrated (Quality and function important)
Life-Time cost for Composites is less than metal solutions
Customers apprehension for repair and colour matching
You
People
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ARUN KUMAR 18BBTCE001
Arun Prakash N
Ashish M Mech 2018
Ashwin Thammaiah K
Avinash Badri
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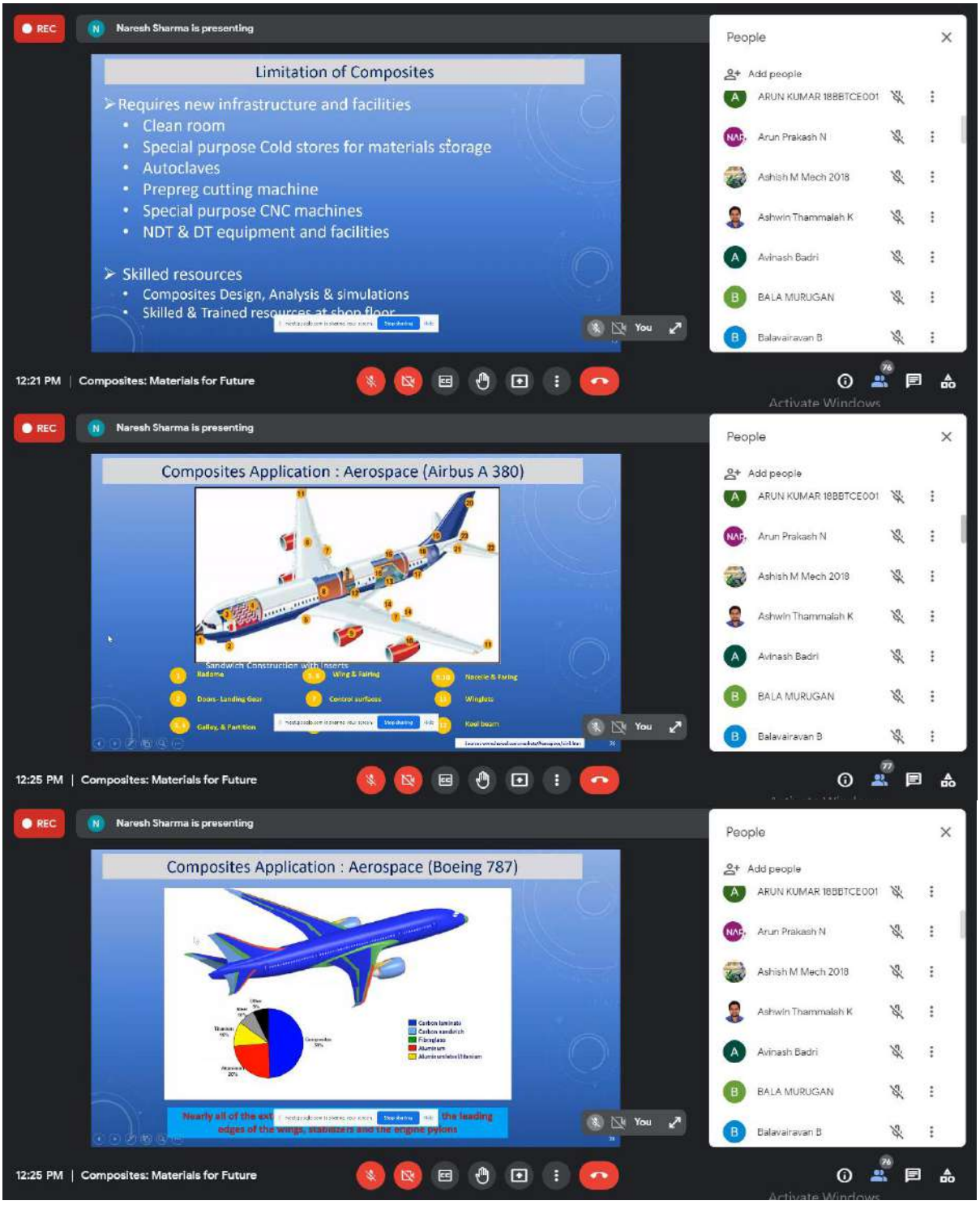
REC
Naresh Sharma is presenting
Limitation of Composites
Requires new infrastructure and facilities
Clean room
Special purpose Cold stores for materials storage
Autoclaves
Prepreg cutting machine
Special purpose CNC machines
NDT & DT equipment and facilities
Skilled resources
Composites Design, Analysis & simulations
Skilled & Trained resources at shop floor
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Avinash Badri
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REC
Naresh Sharma is presenting
Composites Application : Aerospace (Airbus A 380)
Sandwich Construction with Inserts
Radome
Wing & Fairing
Nacelle & Fairing
Doors- Landing Gear
Control surfaces
Winglets
Galley, & Partition
Keel beam
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Ashish M Mech 2018
Ashwin Thammalah K
Avinash Badri
BALA MURUGAN
Balavairavan B
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12:25 PM | Composites: Materials for Future
REC
Naresh Sharma is presenting
Composites Application : Aerospace (Boeing 787)
Carbon laminate
Carbon sandwich
Fiberglass
Aluminum
Aluminum-lithium alloy
Titanium
Composites
Aluminum
Other
Nearly all of the ext
the leading
edges of the wings, stabilizers and the engine pylons
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Ashwin Thammalah K
Avinash Badri
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Naresh Sharma is presenting
Composites Application : Space
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Ashish M Mech 2018
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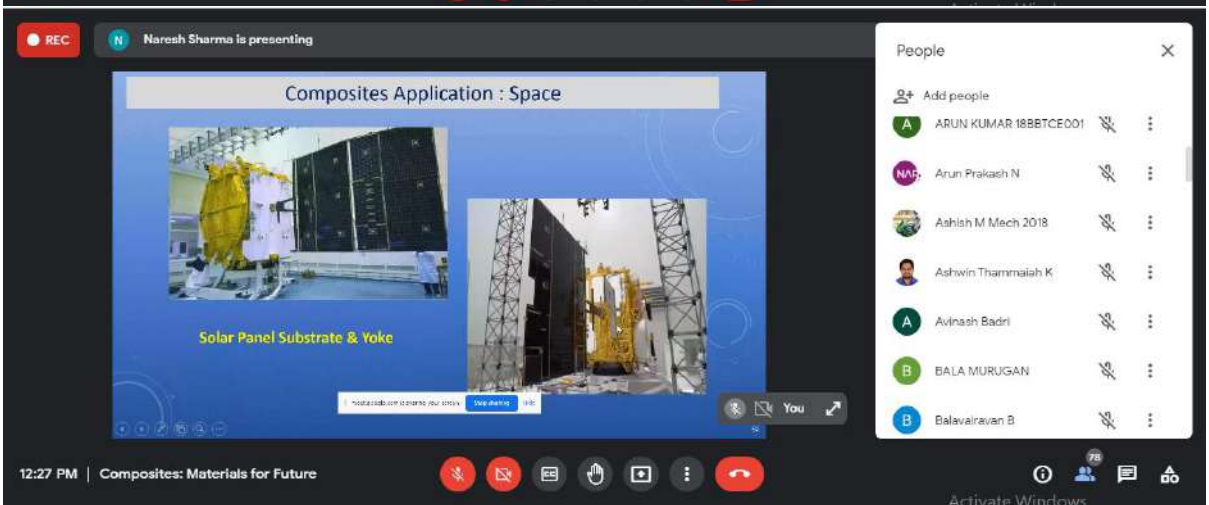
REC
Naresh Sharma is presenting
Composites Application : Space
Solar Panel Substrate & Yoke
People
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Ashish M Mech 2018
Ashwin Thammaiah K
Avinash Badri
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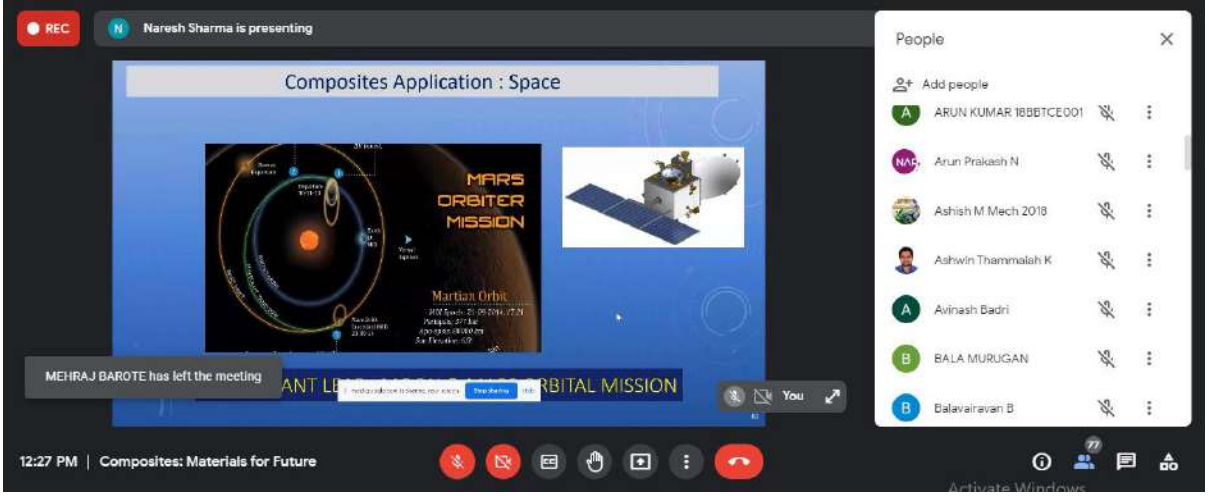
REC
Naresh Sharma is presenting
Composites Application : Space
MARS ORBITER MISSION
Martian Orbit
MEHRAJ BAROTE has left the meeting
People
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Arun Prakash N
Ashish M Mech 2018
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Avinash Badri
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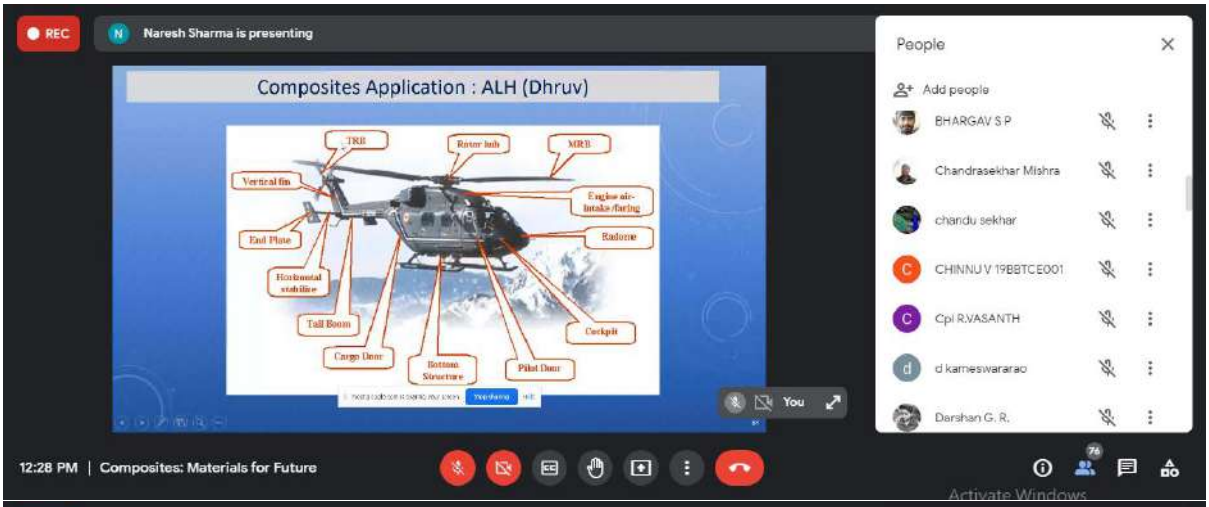
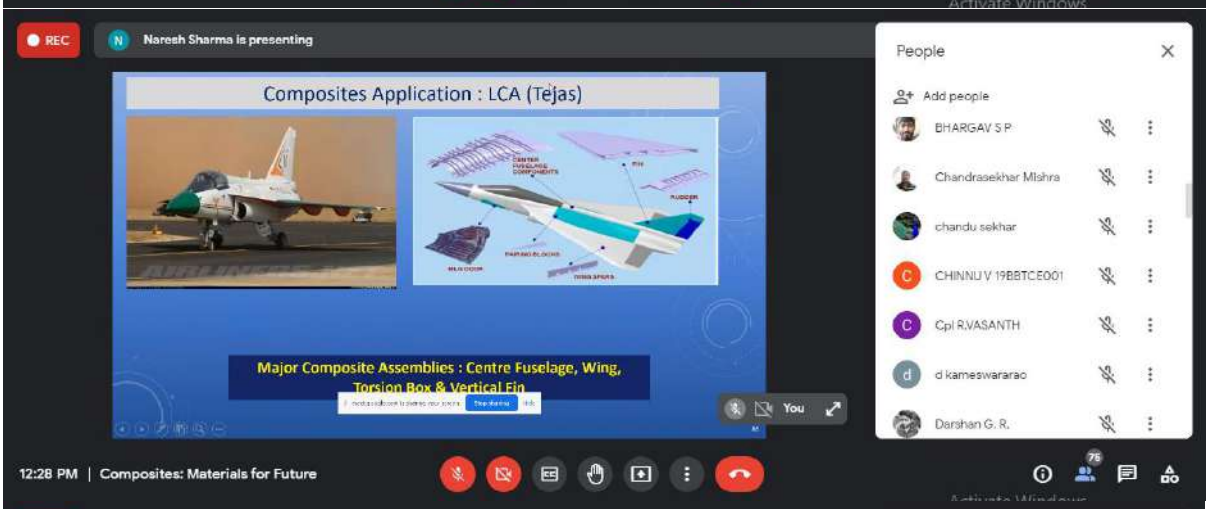

REC
Naresh Sharma is presenting
Composites Application : ALH (Dhruv)
TRB
Rotor hub
MRB
Vertical fin
Engine air-Intake/faring
End Plate
Radome
Horizontal stabilizer
Tail Boom
Cockpit
Cargo Door
Bottom Structure
Pilot Door
People
Add people
BHARGAV S P
Chandrasekhar Mishra
chandu sekhar
CHINNU V 19BBTCE001
Cpl R.VASANTH
d kameswararao
Darshan G. R.
You
12:28 PM | Composites: Materials for Future


REC
Naresh Sharma is presenting
Composites Application : LCA (Tejas)
Major Composite Assemblies : Centre Fuselage, Wing, Torsion Box & Vertical Fin
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BHARGAV S P
Chandrasekhar Mishra
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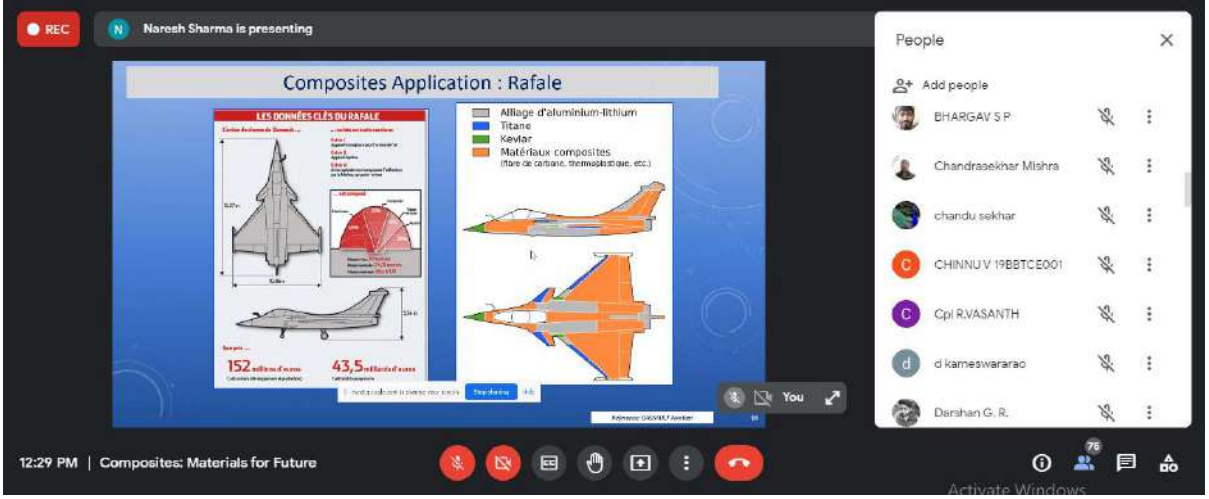
REC
Naresh Sharma is presenting
Composites Application : Rafale
LES DONNÉES CLÉS DU RAFALE
Alliage d'aluminium-lithium
Titane
Kevlar
Matériaux composites
152
43,5
People
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BHARGAV S P
Chandrasekhar Mishra
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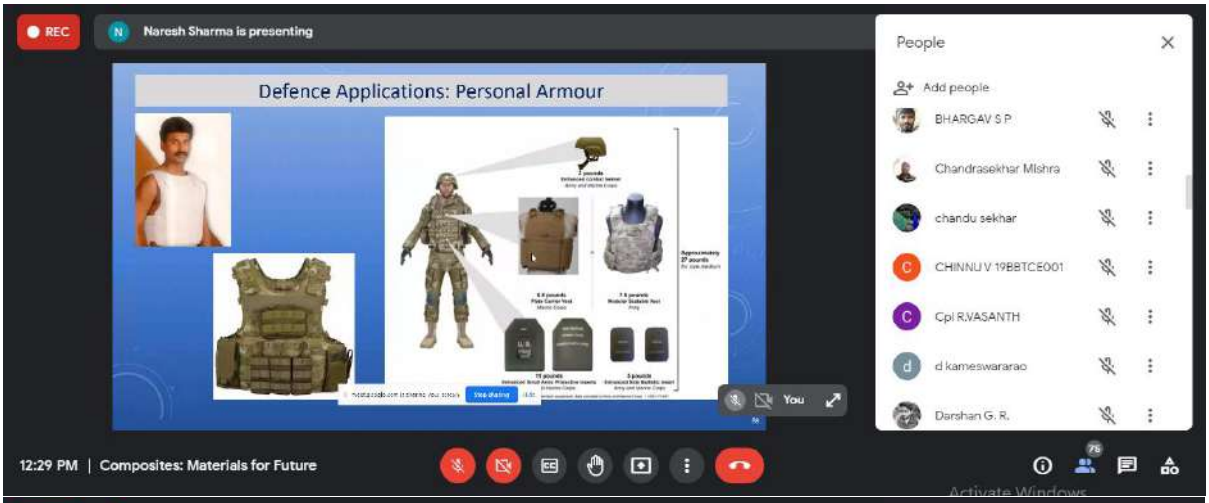
REC
Naresh Sharma is presenting
Defence Applications: Personal Armour
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Chandrasekhar Mishra
chandu sekhar
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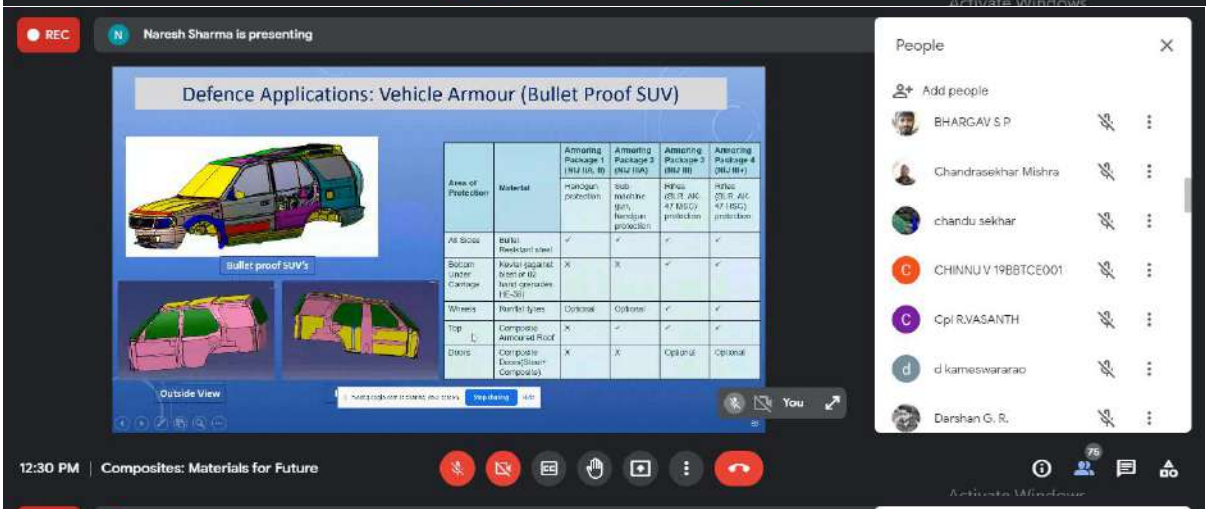
REC
Naresh Sharma is presenting
Defence Applications: Vehicle Armour (Bullet Proof SUV)
Bullet proof SUV's
Outside View
People
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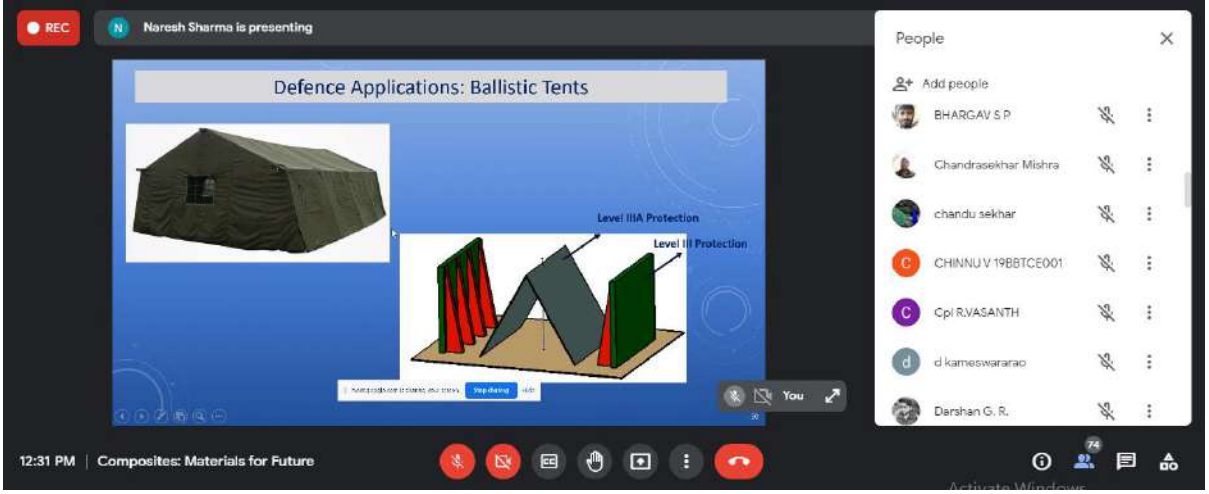
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Naresh Sharma is presenting
Defence Applications: Ballistic Tents
Level IIIA Protection
Level III Protection
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Chandrasekhar Mishra
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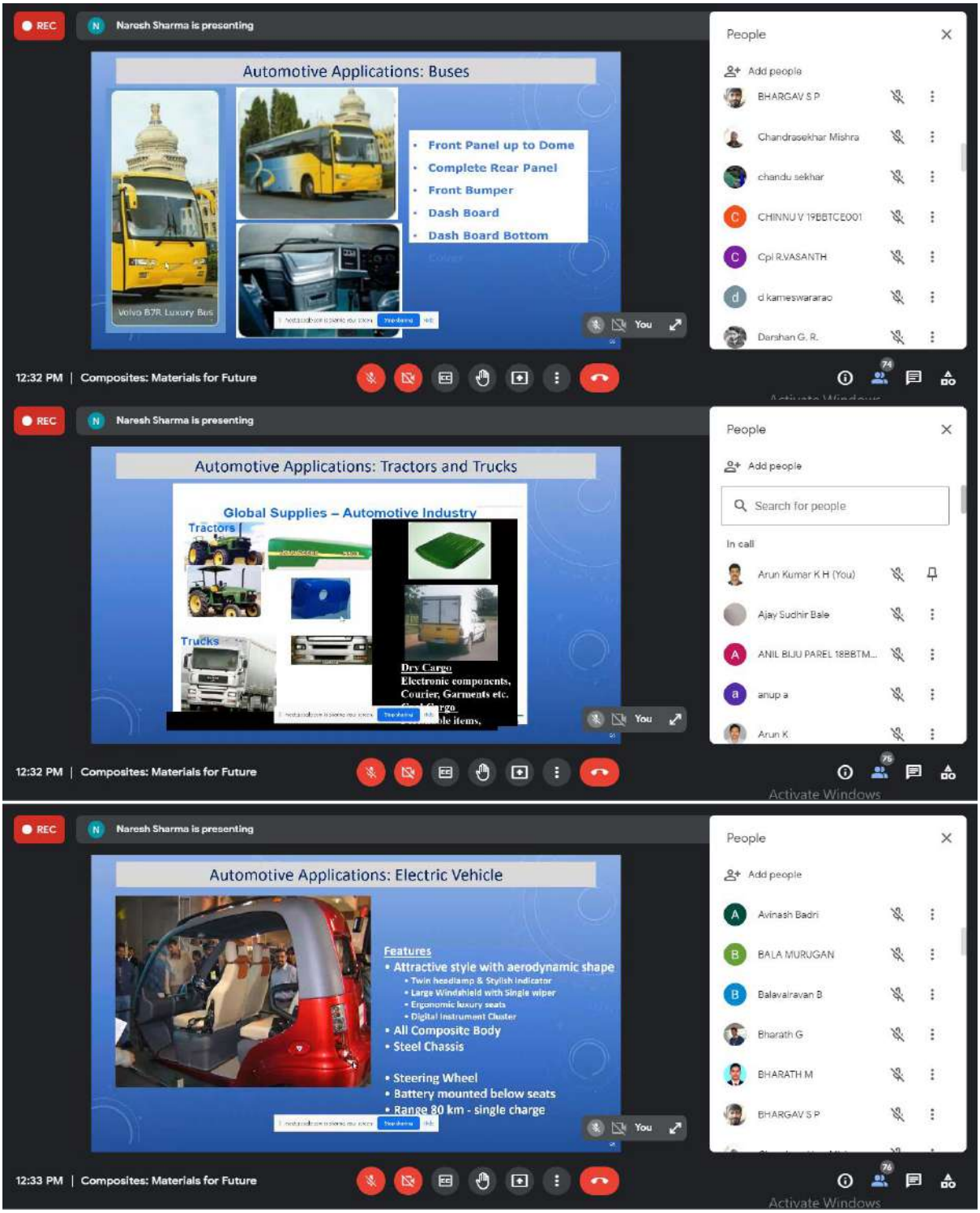
REC
Naresh Sharma is presenting
Automotive Applications: Buses
Front Panel up to Dome
Complete Rear Panel
Front Bumper
Dash Board
Dash Board Bottom
Volvo B7R Luxury Bus
People
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BHARGAV S P
Chandrasekhar Mishra
chandu sekhar
CHINNU V 19BBTCE001
Cpl R.VASANTH
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Darshan G. R.
You
12:32 PM | Composites: Materials for Future
Automotive Applications: Tractors and Trucks
Global Supplies – Automotive Industry
Tractors
Trucks
Dry Cargo
Electronic components, Courier, Garments etc.
Search for people
In call
Arun Kumar K H (You)
Ajay Sudhir Bale
ANIL BIJU PAREL 18BBTM...
anup a
Arun K
12:32 PM | Composites: Materials for Future
Activate Windows
REC
Naresh Sharma is presenting
Automotive Applications: Electric Vehicle
Features
Attractive style with aerodynamic shape
Twin headlamp & Stylish indicator
Large Windshield with Single wiper
Ergonomic luxury seats
Digital Instrument Cluster
All Composite Body
Steel Chassis
Steering Wheel
Battery mounted below seats
Range 80 km - single charge
People
Add people
Avinash Badri
BALA MURUGAN
Balavairavan B
Bharath G
BHARATH M
BHARGAV S P
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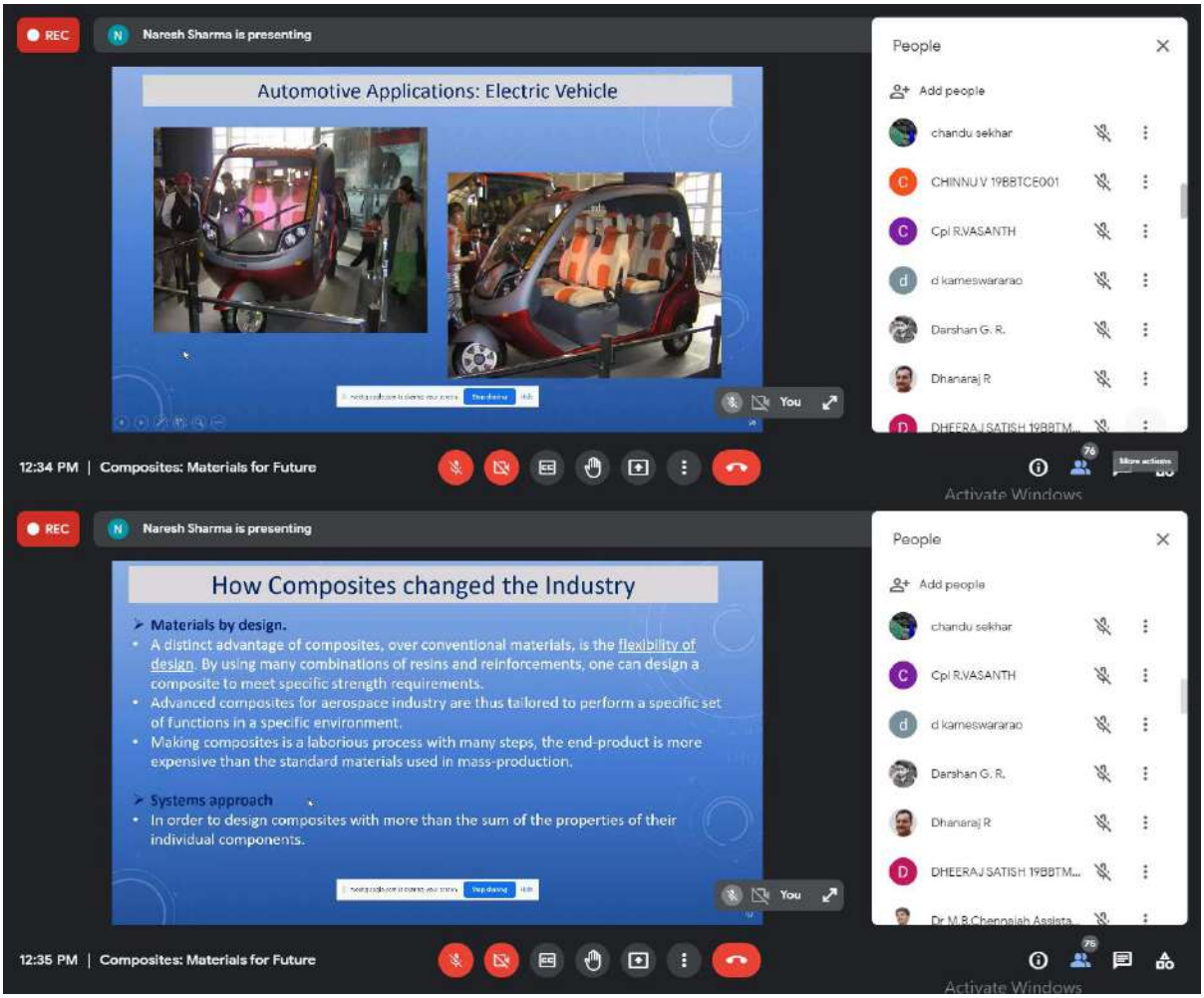
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Naresh Sharma is presenting
Automotive Applications: Electric Vehicle
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CHINNU V 19BBTCE001
Cpl R.VASANTH
d kameswararao
Darshan G. R.
Dhanaraj R
DHEERAJ SATISH 19BBTM...
You
12:34 PM | Composites: Materials for Future
REC
Naresh Sharma is presenting
How Composites changed the Industry
Materials by design.
A distinct advantage of composites, over conventional materials, is the flexibility of design. By using many combinations of resins and reinforcements, one can design a composite to meet specific strength requirements.
Advanced composites for aerospace industry are thus tailored to perform a specific set of functions in a specific environment.
Making composites is a laborious process with many steps, the end-product is more expensive than the standard materials used in mass-production.
Systems approach
In order to design composites with more than the sum of the properties of their individual components.
People
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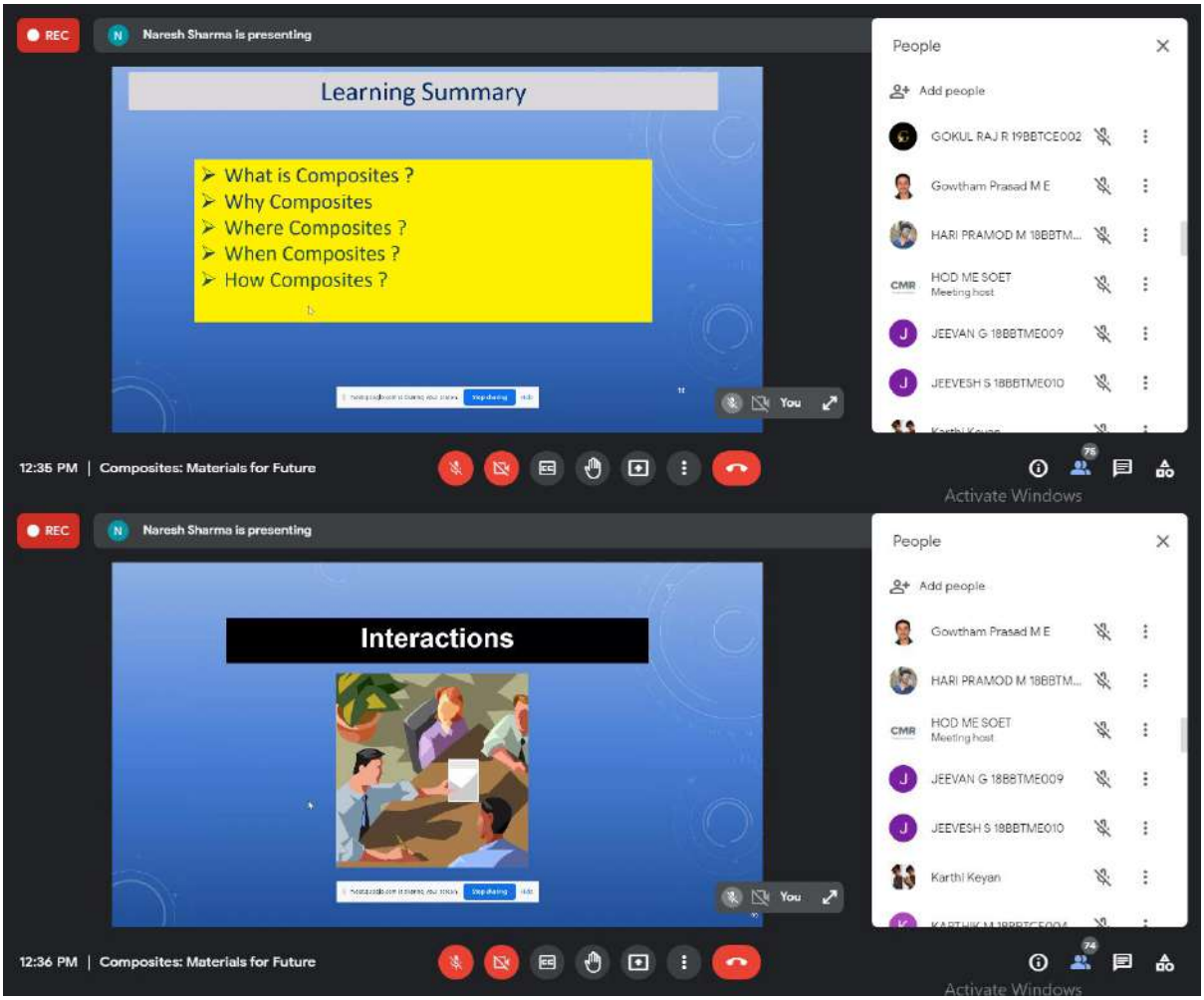
chandu sekhar
Cpl R.VASANTH
d kameswararao
Darshan G. R.
Dhanaraj R
DHEERAJ SATISH 19BBTM...
You
12:35 PM | Composites: Materials for Future


REC
Naresh Sharma is presenting
Learning Summary
What is Composites ?
Why Composites
Where Composites ?
When Composites ?
How Composites ?
People
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GOKUL RAJ R 19BBTCE002
Gowtham Prasad M E
HARI PRAMOD M 18BBTM...
HOD ME SOET
Meeting host
JEEVAN G 18BBTME009
JEEVESH S 18BBTME010
You
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REC
Naresh Sharma is presenting
Interactions
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Gowtham Prasad M E
HARI PRAMOD M 18BBTM...
HOD ME SOET
Meeting host
JEEVAN G 18BBTME009
JEEVESH S 18BBTME010
Karthi Keyan
You
12:36 PM | Composites: Materials for Future
Activate Windows

List of Participants

Professors from SOET:

Sl No	Department	Numbers
1	Mechanical Engineering	6
2	Civil Engineering	02

Students:

Sl No	Department	Numbers
1	Mechanical Engineering	25
2	Civil Engineering	10

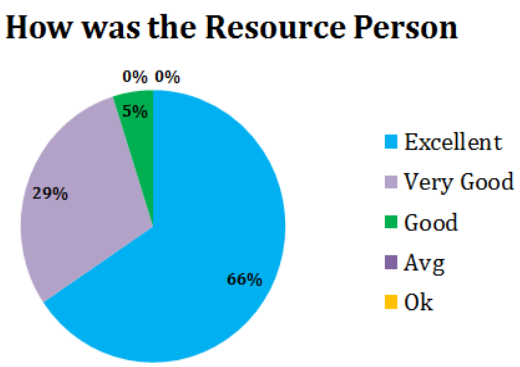
Others:

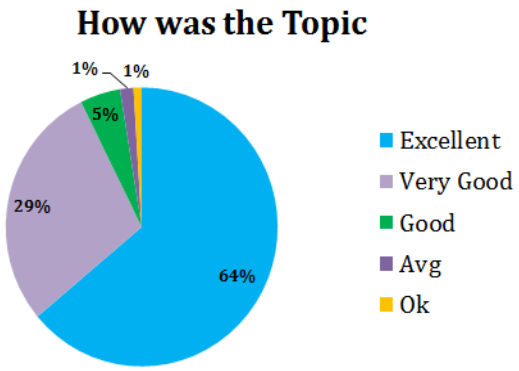
Sl No	Participants outside CMRU	Numbers
1	Mechanical Engineering	55

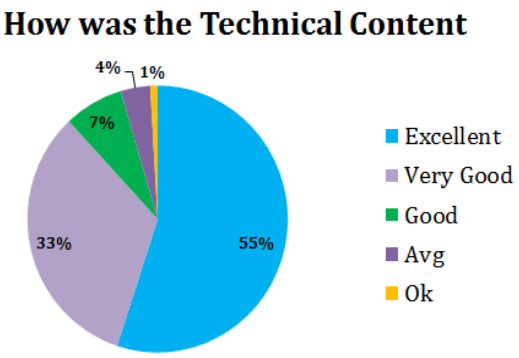
E- Certificate Template

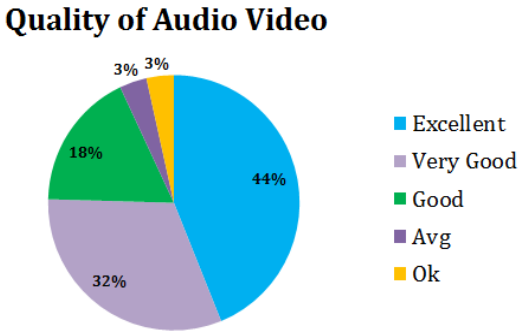
Feedback and Analysis

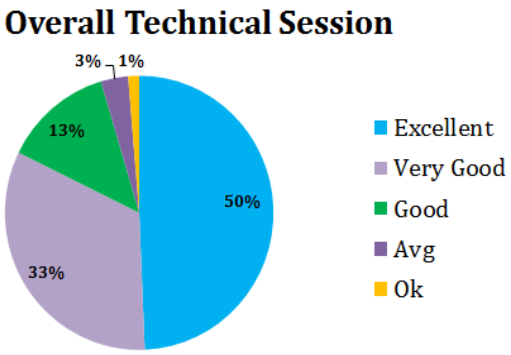
The feedback was collected from all participants using google forms.











Overall feedback was excellent, and participants informed the coordinator and Head of the Department to conduct few more technical seminars to update the knowledge in current technology used in industries.

CMR UNIVERSITY

Private University Established in Karnataka State by Act No. 45 of 2013

School of Engineering and Technology

Department of Civil & Mechanical Engineering

Webinar Report

On

"Smart Cities"

Organized by

Department of Civil Engineering

15th , September, 2021

Resource Person:

Mr. MOHAN RAO K L
Governing Council Member,
Karnataka Center, Indian Building Congress

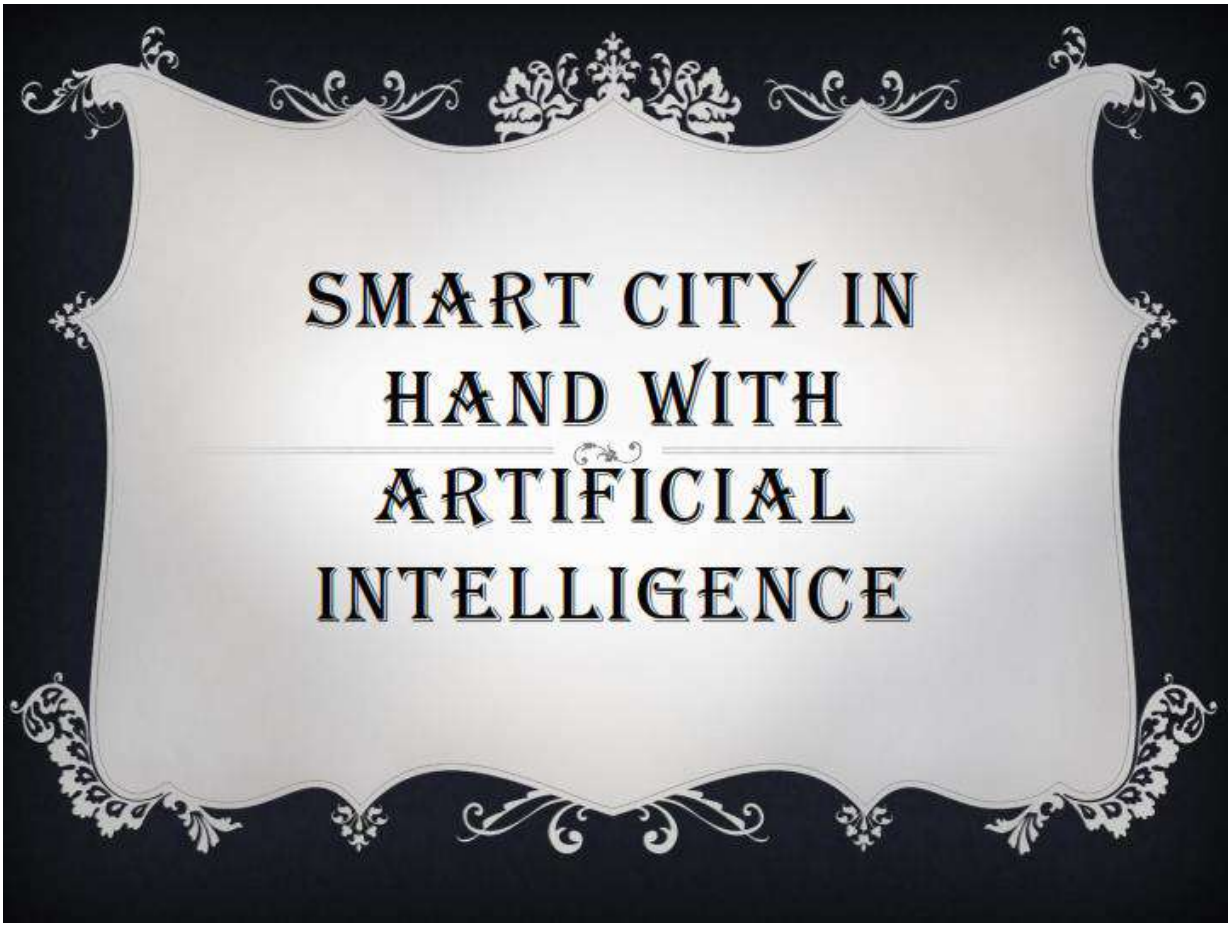
Main Campus, Off Hennur - Bagalur Main Road,
Chagalahatti, Bengaluru – 562149, Karnataka, India

2021-22

PRAVEEN R

Invitation

Session Slides



Smart city

- Smart city mission (SCM), one of the initiatives aimed for upgrading hundred cities in India. The union government to agree to give each of the city's rupees hundred cr every year for next five years, with the condition for the same amount of investment from the state government and the other local bodies combined. SCM is carried out through a special purpose vehicle (SPV) registered under the companies act, 2013, instead of through in municipal corporation and also encourages private investments.

- Among the projects of SCM are off affordable housing, integrated multimodal transport, creation and preservation of open space, raised and traffic management. The project focuses either on a particular area of the city or the entire city.

What makes a city smart?

- **Livability:** Cities that provide clean, healthy living conditions without pollution and congestion. With a digital infrastructure that makes city services instantly and conveniently available anytime, anywhere.
- **Workability:** Cities that provide the enabling infrastructure — energy, connectivity, computing, essential services — to compete globally for high-quality jobs.
- **Sustainability:** Cities that provide services without stealing from future generations.

What is a 'smart city'

- There is no universally accepted definition of a Smart City. The conceptualisation of Smart City, therefore, varies from city to city and country to country, depending on the level of development, willingness to change and reform, resources and aspirations of the city residents.

- The core infrastructure elements in a Smart City would include:
  - i. adequate water supply,
  - ii. assured electricity supply,
  - iii. sanitation, including solid waste management,
  - iv. efficient urban mobility and public transport,
  - v. affordable housing, especially for the poor,
  - vi. robust IT connectivity and digitalization,
  - vii. good governance, especially e-Governance and citizen participation,
  - viii. sustainable environment,
  - ix. safety and security of citizens, particularly women, children and the elderly, and
  - x. health and education

Strategy

The strategic components of Area-based development in the Smart Cities Mission are city improvement (retrofitting), city renewal (redevelopment) and city extension (greenfield development) plus a Pan-city initiative in which Smart Solutions are applied covering larger parts of the city.

- **Retrofitting** will introduce planning in an existing built-up area to achieve Smart City objectives, along with other objectives, to make the existing area more efficient and liveable.
- **Redevelopment** will effect a replacement of the existing built-up environment and enable co-creation of a new layout with enhanced infrastructure using mixed land use and increased density.
- **Greenfield** development will introduce most of the Smart Solutions in a previously vacant area (more than 250 acres) using innovative planning, plan financing and plan implementation tools (e.g. land pooling/ land reconstitution) with provision for affordable housing, especially for the poor.
- **Pan-city** development envisages application of selected Smart Solutions to the existing city-wide infrastructure. Application of Smart Solutions will involve the use of technology, information and data to make infrastructure and services better.

Artificial intelligence

- Artificial intelligence, or AI, a term that a few decades ago circled around in the realms of sci-fi and fantasy, is a reality today. The most evolved AI of our fantasy tales is often sentient machines scheming to take over the world. We are not there yet, and perhaps reality is far more benign than our imagination.
- AI, as we know today, has the potential to provide solutions to many of our real-life problems. In India, which is the world's fastest growing major economy and has the second largest population in the world, AI can be transformational.
- Cities have wealth of possible data sources, such as ticket sales on mass transit, local tax information, police reports, sensors on roads and local weather stations. One huge source of raw data that AI pattern recognition technology is making significantly more manageable is video and photos.

Current Smart City Strategies

- Wi-Fi access on mass transit
- Connected parking
- Intelligent traffic management
- Connected streetlights
- First responders
- Environmental, energy & utility improvements
- Digital signage, way finding & kiosks

Current Smart City Challenges

- Limited IT resources and capabilities
- Unified WAN to connect people, places and things
- Explosion of endpoint to manage
- City-wide wireless infrastructure
- More agility to embrace new tech
- Location context
- Direct cloud access
- Shifting security paradigm

Public Transit

- Metro bus & train fleet managers remotely monitor POS & update firmware & use off-board mobile equipment to collect fares. (Onvia.com)
- GPS applications update central scheduling with alerts when a bus is late or delayed.
- Digital signs in vehicles or in central hubs give passengers up-to-date arrival & departure schedules

Parking

- Residents check the availability of parking spaces & even book spots ahead of time, reducing CO2 emissions by dropping the average time spent searching for a space.
- Cities use 4G LTE wireless solutions to ensure always-on connectivity for parking payment machines.

Traffic Management

- Data from sensors in streets & traffic signals guide traffic patterns.
- Connected cameras at traffic lights improve traffic safety, catch traffic offenders & aid law enforcement investigations.
- Cities, counties & states minimize traffic & accidents by updating commuters through mobile devices & digital signs.

Lighting and Surveillance

- Flexible street lighting with switches & dimming devices for efficient & timely management.
- Video cameras & sensors allow cities to track, in real time, which streets have been plowed during inclement winter weather.
- Advanced remote surveillance captures & analyzes video footage to prevent theft, illegal dumping & suspicious activity.

Public Safety

- Public safety vehicles used as mobile hot-spots.
- Mobile fingerprint scanners expedite investigations.
- License plate recognition at freeway intersections identifies stolen vehicles & enables AMBER alerts.
- Real-time video monitoring with mobile devices improves crowd control at special events

Emergency Services

- Search & rescue crews use 4G for critical administration during time sensitive rescue operations.
- Information is relayed from sensors & instruments to the outside world during disasters.
- During emergencies, cellular broadband expands agencies' operating frequencies & consolidates multiple frequencies on one device.

Health & Safety

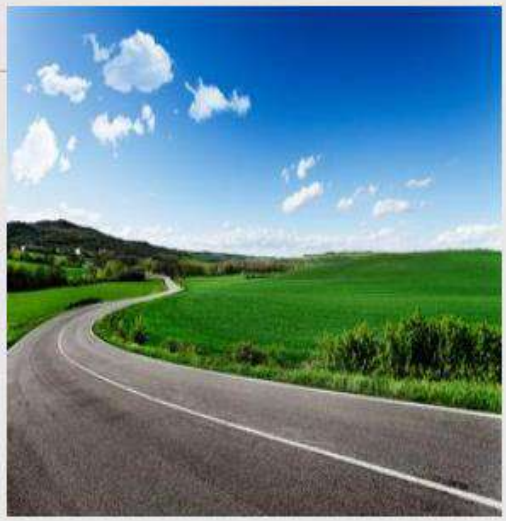
- Connect EMS with healthcare facilities and doctors in real-time at scene or in transit
- Mobile healthcare, small footprint clinics and kiosks expand access options for citizens

Fire Services

- Wireless access to building schematics, HazMat data & traffic information while traveling to the scene of a blaze.
- Smart apparel details firefighters' location, heart & respiratory rates & body temperature.
- Drones helping firefighters gather critical information before entering a building.

Environment Management

- Sensors facilitate accurate, real-time readings of pollution levels, wildlife counts & water levels.
- Costly problems such as insect & fungi infestations that threaten vegetation are tracked remotely via online map systems, which quicken & streamline government response.



Trash & Recycling

- Wireless-enabled, solar-paneled trash bins notify waste management teams when they need to be emptied, streamlining man-hours & reducing money spent on fuel & vehicle repairs.
- Garbage & recyclables are identified then sorted via mobile devices — without individuals ever touching the items.

Water Applications

- SCADA systems help predict patterns & challenges.
- Instant alerts to field workers with mobile devices regarding salinity, pH & chlorine levels.
- Remotely controlling water valves to manage pressure & prevent leaks.

Energy & Utilities

- Smart energy grids ensure users receive amount of energy or water they truly need.
- Interactive meters monitor variable rates & reward energy efficient customers based on usage.
- Sensors identify breakdowns right away, instead of days or weeks later.

Parks, Recreation & Tourism

- Parks, recreation & tourism agencies use 4G LTE to monitor & manage public-facing kiosks & digital touch screens.
- Digital signs in welcome centres & parks alerts travellers about traffic delays, construction & special events.
- Visitor WiFi is being extended to public campgrounds & other recreation areas.

Funds from Government of India and Government of Karnataka for Smart Cities--Tumakuru and Davanagere.

Projects Initiated in Tumakuru and Davanagere	
Name of Project	Approximate Cost
Smart Lounge	Rs 4 crore
Rooftop Rainwater Harvesting	Rs 5 crore
PU College Precint Revitalisation	Rs 15 crore
Afforestation Plan	Rs 18 crore
Lake Revival – Plan City (Smart Water Management)	Rs 35 crore
Solar rooftop for public building	Rs 77 crore
Super Special Hospital	Rs 300 crore

Which are the projects initiated for the Smart City

- Tumakuru Smart City Ltd has received Rs 100 crore from Government of India and is going to get equal amount from Government of Karnataka
- Working on many projects like solar rooftop panels on Government buildings, smart park, smart lounge, redevelopment of multi-speciality hospital with medical college, smart bus shelters, PU college precinct revitalisation, Aamanikere lake revival and rejuvenation, lake revival pan-city, afforestation plan, rooftop rain water harvesting, etc.

Solar roof top

- As part of solar rooftop for public building, they have identified and surveyed 45 properties. Of which 33 come under Government-owned and remaining 12 are private properties. They plan to generate 1.5 to 2 MW capacity of solar rooftop considering all the government and private buildings. The estimated cost of the initiative is Rs 77 crore.
- People-friendly initiatives such as citizens' outreach programme is being planned for rooftop solar power panels.

Smart lounge

- As part of the smart parks, facilities such as open gym, vending kiosks, interactive wall, compost bins, street furniture, sculptures, benches, pavers, shelters, etc are planned.
- Under smart lounge, their objective is to provide services such as e-library, Tumakuru-One, ATM, café, toilet, pantry (takeaway), urban health centres, Sakala Mission: guarantee of services to citizens, etc. plan is to set up 15 smart lounges in Tumakuru at a cost of Rs 4 crore.

Super Special Hospital

- A super special hospital under private public partnership is being planned at a cost of Rs 300 crore. As part of the project, they have made a market study and visited institutions such as district hospital, Aruna hospital, Bharathi hospital, Hemavathi Orthopaedic and Trauma Centre, Vasan Eye Care, New Goutham Hospital, Jayashree Hospital, Charaka Hospital, Shridevi Hospital, Shree Siddhartha Hospital, Tumkur Kidney Care Centre Kasturba Hospital, B Siddaramana Hospital, Fortis Adarsha Hospital, etc. The proposed super specialty hospital is expected to have departments such as cardiology, CTVS, nephrology, urology, neurosurgery, neurology, oncology.

PU college precint revitalisation

- For PU college precint revitalisation, they are planning facilities like pedestrianisation ,to restrict vehicle access to a street or area for exclusive use of pedestrians" and public place making, integrating city level green, recreational space, sustainable educational, infrastructure development, learning aids and skill development, restoration and enhancement of cultural history, improving edge conditions and image ability. The estimated cost of the project is Rs 15 crore.
- Other important projects include Amanikere lake revival and rejuvenation, lake revival – plan city (smart water management) (Rs 35 crore), afforestation plan (Rs 18 crore), rooftop rainwater harvesting (Rs 5 crore), etc.

For furhter reference, log on to:

- tscl.indiancst.com
- Epashuhaat.gov.in
- Umang.gov.in

THANK YOU

CONSTRUCTION INDUSTRY DEVELOPMENT ACADEMY

K.L. MOHAN RAO, *BE., MIE., PGDHRM*
President

22, 1st 'A' Cross, Mount Joy Extension
Hanumanth Nagar, Bengaluru - 560 019.
Tel. : (080) 2660 3554,
Mobile : 93435 09933, 7892942279

www.cida.co.in Email : klmrao.cida@gmail.com

CMRUXCourse
Introduction to Data Science and Data Visualization with PowerBI

21-22

Schedule

	Title of the course: **Introduction to Data Science and Data Visualization with PowerBI**
	Overview: At the end of this course participants will be able to create various types of charts, graphs and Dashboards using PowerBI
	Mode of the course: Online,Join Zoom Meeting https://zoom.us/j/91385943452?pwd=Tmh2OW9VeXplcWp2YTJKanRVUmFXdz09
	Duration (hours): 2 Hrs
	Times / Dates of the course: 1:00PM to :3:00PM on 30-October-2021

	Facilitator(s) Profile
	Name: Dr.Chitra K & Aurangjeb Khan
	Designation: Associate Professor
	School / Department: SOSS
	Email: chitra@cmr.edu.in ,aurangazeb.k@cmr.edu.in

	Participants Profile
	Role: Learners
	Maximum number of participants: 200
	School / Department: Any School

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	Learning Area: Data Visualization using Power BI

Stage 1: What is Learning?

	Learning Outcomes (LO) By the end of the course the participants will be able to: • LO1: Understand the various types of Charts and graphs • LO 2: Create dashboards using PowerBI

	Prerequisites Knowledge of Data Visualization

	Pre-work : NIL

	Resources: PPT and PowerBI tool for live demo

Stage 2: Measurement of Learning

Assessments

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Stage 3: Course Planning (Day 1)

Instructional Strategies:

- Introduction to DataScience
- Introduction to Data Visualization
- Hands-on training in PowerBI

Time	Task	Summary	Material needed	Instructional Tools
Time schedule e.g. (1:00 pm-3:00 pm)	Introduction to Data science and Data visualization with Power Bi.			PPT, Power BI software, Mentimeter
1:00PM - 1:10PM	**Opening** (Mandatory)	Importance of Data Science,entry ticket	--	--
1:10PM - 1:15PM	**Introduction of facilitator(s)** (Mandatory)	About facilitators	--	--
1:15PM - 1:20PM	**Agenda** (Mandatory)	About the Course	-	-
1:20PM - 1:40PM	**House Rules** (Mandatory)	Introduction to Data Science	PPT	
1:40PM - 2:00PM	**Other Tasks** (Add as many rows you may need for each task)	Introduction to Data Visualization	PPT	

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2:00PM- 2:55PM	**Post-Course Assessment** (Mandatory)	Hands-on training using PowerBI	--	PowerBI software
2:55PM- 3PM	**Closing** (Mandatory)	References for further study	URLs	

Checklist for facilitators:

Please check for the following before rolling out your course to the audience

- ✓ PPT
- ✓ Resources. i.e. working links
- ✓ PDI Review and/or reporting manager review
- ✓ Uploading of all documents on the PDI repository
- ✓ Outlining roles/ responsibilities with Co-Facilitator of course with audience/ participants

Please ensure that you enable time for the following

- ✓ Provide adequate breaCommunication ks with clear instructions and expectations
- ✓ Be respectful and sensitive to gender, age, language of each participant
- ✓ Acknowledge, address participants questions or misconceptions
- ✓ Acknowledge participants' suggestions and affirmations
- ✓ Summarize the day's proceedings before the course ends
- ✓ Administer and collect participants' feedback and attendance
- ✓ Sharing resources used during the course with the participants

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RESOURCE PERSON

PROGRAM COORDINATOR

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CMRU Round Table Session on Data Visualization using Power Bi, Feedback Response

School of Science Studies

Resource Person: Dr. Chitra K and Prof. Aurangjeb Khan from SOSS, Date: 30-Oct-2021, Time : 1 to 3:30PM

Timestamp	Name	Official Email ID	Programme & Section	What did you like about the course/workshop?	What do you think could be improved?	Outline 3 things that you will take with you/have learnt in this session
10-30-2021 14:47:46	Jahnavi T	jahnavi.18bcs@cmr.edu.in	BTECH CSE	Quality content	-	Power BI Data Visualization Introduction to Data Science
10-30-2021 14:48:01	Manoj Aditya M	manoj.20dbca@cmr.edu.in	bca a section	usage of power bi	nill	usage of power bi , importance of data science
10-30-2021 14:49:23	Deepak Kumar s	Deepak.20dbca@cmr.edu.in	BCA-A	.	.	.
10-30-2021 14:49:33	Madhavan	madhavan.20dbca@cmr.edu	BCA A	its was very easy and more advanced	yes	power bi
10-30-2021 14:49:54	Smrithi.S	smrithi.20dbca@cmr.edu.in	BCA B	Explaination was good	Nothing	Work with power Bi
10-30-2021 14:50:24	Saniya Farheen Rizwan	saniya.20dbca@cmr.edu.in	BCA - 3rd sem - B section	It was clear and easy to understand	Nil	Knowledgeable, informational, fun.
10-30-2021 14:51:19	Preetha P	preetha.20dbca@cmr.edu.in	BCA 2nd year B section	Overall	nothing	.
10-30-2021 14:52:33	Meghana S	meghana.20dbca@cmr.edu.i	BCA A	It was very helpful as I got there are many ways to choose after my degree	It was actually good	Put efforts to learn something new which will help me n d very near future
10-30-2021 14:52:53	Massamba Nzinga David	massamba.20dbca@cmr.edu	BCA section A	the content of course it's so rich	i would like to have so a lot of time for this kind of program	usage of power bi, executive dashboard and the data science progress
10-30-2021 14:53:07	Dilip V	dilip.20dbca@cmr.edu.in	Bca A	Very useful and related with what we have studied in 1st year	None	Introduction of data science, to install and create reports and handle data by creating effective and variety of graphs
10-30-2021 14:54:16	Ajay Kumar	ajay.20dbca@cmr.edu.in	BCA / A	The way they teach	Nothing everything is perfect	Data science

Session Feedback Response sheet

Contd..

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CMR University, Bengaluru

Timestamp	Name	Official Email ID	Programme & Section	What did you like about the course/workshop?	What do you think could be improved?	Outline 3 things that you will take with you/have learnt in this session
10-30-2021 14:54:22	Pratyush Kumar Singh	pratyush.20dbca@cmr.edu.in	BCA (General)	The session was vey interactive & useful	If possible try to conduct these types of sessions regularly	Get an overview of Data Science, Data Visualization & Power Bi tool
10-30-2021 14:56:10	Sachin Kumar.D	sachin.kumar@cmr.edu.in	Bca cc	It was very informative	More practical classes	Learnt data visualization , how to use it ,how to present it
10-30-2021 14:56:32	R Arjun	arjun.r@cmr.edu.in	BCA CC	It was very useful	Could hav been offline	About what is data visualization and how to use various softwares and how to present it
10-30-2021 14:56:35	Midhun M	midhun.20dbca@cmr.edu.in	BCA General, Sec- A	gained knowledge	better interaction and maybe few fun activities	scope of programming in different fields, more knowledge about charts
10-30-2021 15:12:22	Adarsh Kumar	adarsh.20dbca@cmr.edu.in	General BCA (A)	Everything	Nothing	Yee

Timestamp	Name	Rate your training session [Quality of Handouts]	Rate your training session [Session Length]	Rate your training session [Trainer(s)]	Rate your training session [I learnt something useful]	Rate your training session [I'm glad I came]
10-30-2021 14:47:46	Jahnavi T	Good	Good	Good	Good	Good
10-30-2021 14:48:01	Manoj Aditya M	Good, Excellent/Useful	Good	Excellent/Useful	Excellent/Useful	Excellent/Useful
10-30-2021 14:49:23	Deepak Kumar s	Excellent/Useful	Excellent/Useful	Excellent/Useful	Excellent/Useful	Excellent/Useful
10-30-2021 14:49:33	Madhavan	Excellent/Useful	Excellent/Useful	Excellent/Useful	Excellent/Useful	Excellent/Useful
10-30-2021 14:49:54	Smrithi.S	Good	Good	Good	Good	Good
10-30-2021 14:50:24	Saniya Farheen Rizwan	Good	Good	Good	Good	Good
10-30-2021 14:51:19	Preetha P	Excellent/Useful	Good	Excellent/Useful	Excellent/Useful	Excellent/Useful
10-30-2021 14:52:33	Meghana S	Excellent/Useful	Excellent/Useful	Excellent/Useful	Excellent/Useful	Excellent/Useful
10-30-2021 14:52:53	Massamba Nzinga David	Excellent/Useful	Excellent/Useful	Excellent/Useful	Excellent/Useful	Excellent/Useful
10-30-2021 14:53:07	Dilip V	Excellent/Useful	Excellent/Useful	Excellent/Useful	Excellent/Useful	Excellent/Useful
10-30-2021 14:54:16	Ajay Kumar	Excellent/Useful	Excellent/Useful	Excellent/Useful	Excellent/Useful	Excellent/Useful
10-30-2021 14:54:22	Pratyush Kumar Singh	Excellent/Useful	Good	Excellent/Useful	Excellent/Useful	Excellent/Useful
10-30-2021 14:56:10	Sachin Kumar.D	Excellent/Useful	Good	Excellent/Useful	Excellent/Useful	Excellent/Useful
10-30-2021 14:56:32	R Arjun	Excellent/Useful	Good	Excellent/Useful	Excellent/Useful	Excellent/Useful
10-30-2021 14:56:35	Midhun M	Average	Good	Good	Good	Good
10-30-2021 15:12:22	Adarsh Kumar	Excellent/Useful	Excellent/Useful	Excellent/Useful	Excellent/Useful	Excellent/Useful

Summary Report
2021- 2022

Soft Skills			
Name of the capability enhancement program	**Date of implementation (DD-MM-YYYY)**	**Number of students enrolled**	**Name of the agencies/consultants involved with contact details (if any)**
DTP - Design Thinking Process	29.08.21- 1.12.2021 20.03.2022 - 1.05.2022	1769	CMRU Design Thinking Facilitator
DT I - Design Thinking I	21/2/2022 - 1/5/2022		
DT II - Design Thinking II	6/5/2022 - 8/8/2022		

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Report
Design Thinking Process - Report
2021- 2022

Name of the Programs: Design Thinking Process, Design Thinking I, Design Thinking II

Date: 29.08.2021-8.08.2022

Organised By: CMRU- DCCC - Dept of Common Core Curriculum
Address: City Campus, HRBR Layout, Bangalore/ Satellite Campus, OMBR, Bangalore/ Lakeside Campus,Bagalur
Resource Person: Internal CMRU DCCC - Design Thinking Facilitator

Report on the Design Thinking Program at CMR University

Introduction

CMR University, guided by its vision "To nurture creative thinkers who will drive positive global change," offers an extensive Design Thinking program as part of the Common Core Curriculum (CCC) across all academic disciplines. This program is strategically designed to equip students with the creative problem-solving skills necessary for addressing the complex challenges of the 21st century. The program, conducted as an intensive workshop over 3-5 days, involves students from various streams, including BCom, BA, BBA, BCA, BSc, BTech, Law, Psychology, MBA, and MCA. It focuses on tackling critical issues such as Bangalore's water crisis, waste management, and mental health through the structured Design Thinking process.

Course Learning Objectives (CLOs)

The Design Thinking program aims to achieve the following learning objectives:

- **CLO1:** Introduce students to the basics of design thinking.
- **CLO2:** Familiarize students with the principles and processes of design research.
- **CLO3:** Teach the basics of concept development.
- **CLO4:** Equip students with techniques for innovative thinking and brainstorming.

Course Outcomes (COs)

Upon successful completion of the program, students are expected to:

- **CO1:** Apply teamwork skills to build a solution (Level 3).
- **CO2:** Apply basic design research techniques (Level 3).
- **CO3:** Utilize brainstorming as a method of innovative thinking (Level 3).
- **CO4:** Understand the importance of storytelling in design thinking (Level 2).

Syllabus Overview

The Design Thinking program at CMR University begins with a comprehensive introduction on the first day, where students engage in warm-up exercises to foster collaboration and explore

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how design thinking navigates multiple truths. They then tackle a design challenge focused on Bangalore's water crisis, participate in problem definition exercises, and form teams to creatively express the problem through various media. The day concludes with an introduction to design research, where students develop research questions, create plans, make observations, and conduct stakeholder analysis using role-playing and the "Thinking Hats" exercise. On the second day, students delve into the power of empathy in problem-solving by organizing and analyzing data through empathy and ecosystem maps, understanding user personas through the "Extremes and Mainstreams" exercise, and brainstorming concept solutions using the "Ways to Grow" framework. The day ends with students iterating on their initial concepts. The final day is dedicated to prototyping and testing, where students gather feedback from stakeholders, present their solutions, and engage in storytelling to articulate their design journey.

As part of their initial research phase, 1st-semester students from the School of Engineering and Technology visited the Leachate Treatment Plant and Landfill in Bellahalli. This visit was an integral part of their week-long intensive learning experience, where they applied Design Thinking methodologies to creatively approach and solve wicked problems, such as Bangalore's solid waste management.

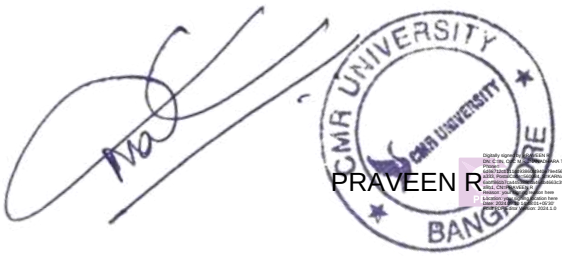
Beyond the Classroom Walls

In line with CMR University's vision of nurturing creative thinkers, the Design Thinking 2 course for Semester II SOET students focused on four UN Sustainable Development Goals (Goals 6, 7, 10, and 12) as their main design challenge. Under the guidance of Ms. Shirley Elizabeth Mathew, Design Thinking Facilitator, students immersed themselves in various social contexts during the Empathize phase of the Design Thinking process. They conducted field research in diverse environments, visiting villages to understand access to power, slums and refugee settlements to study living conditions related to water and sanitation, government schools to explore access to quality education, and the BWSSB offices to investigate lake pollution.

Students visited a government school in Bagalur to examine the quality of education and facilities available to students. They interacted with women in slums to understand the challenges of accessing clean water and sanitation. By stepping out of their comfort zones and empathizing with different stakeholders, students dropped their biases and assumptions, gaining a deeper understanding of the systemic nature of these real-world problems. Through this experience, students are embodying the Design Thinking mindsets of collaboration, grit, and creative thinking as they attempt to solve these wicked problems. Their efforts include brainstorming alternatives for sustainable cooking, developing water quality monitoring systems, initiating clubs and apps to support slum schools, and creating awareness on water and sanitation. These students will continue to test and refine their solutions, eventually pitching them during the Design Thinking Day in March, where industry experts, faculty, and students can collaborate to take these solutions to the next level.

Highlights of the Program

CMR University is the first in India to incorporate the Design Thinking process into its Common Core Curriculum, making it accessible to all students regardless of their academic discipline. This program is part of the university's broader mission to bridge the gap between traditional education and the demands of the future by instilling a Design Thinking mindset in its students.



Key Event: Design Thinking Day (12th April 2022) On this day, students from all streams came together to showcase their Design Thinking process in tackling complex problems like Bangalore's Solid Waste Management and Water Crisis. The event included a panel discussion with industry leaders on "Solving Wicked Problems in the 21st Century" and the unveiling of "The Hamsa," a collaborative sculpture created by students of Architecture and Filmmaking.

Industry Collaboration and Recognition Students were awarded for their spirit of innovation, excellent presentation, exceptional research, and collaborative efforts, highlighting the program's success in fostering a culture of creativity and problem-solving at CMR University.

Conclusion

The Design Thinking program at CMR University is a transformative experience that empowers students across all domains to tackle real-world problems with creativity and innovation. By integrating this program into the Common Core Curriculum, CMR University is preparing its students not just for today's challenges but for the unpredictable future, ensuring they emerge as creative thinkers and leaders capable of driving positive global change

Students conducting field research by interviewing stakeholders on ‘Bangalores water crisis’

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Web of Life Simulation by students to help them understand the interconnectedness of problems.

Students were awarded for the best projects

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Design Thinking Day 2022

Students presenting their design thinking projects to external industry experts

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BANGALORE

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20-21

CMR UNIVERSITY

SCHOOL OF SCIENCE STUDIES

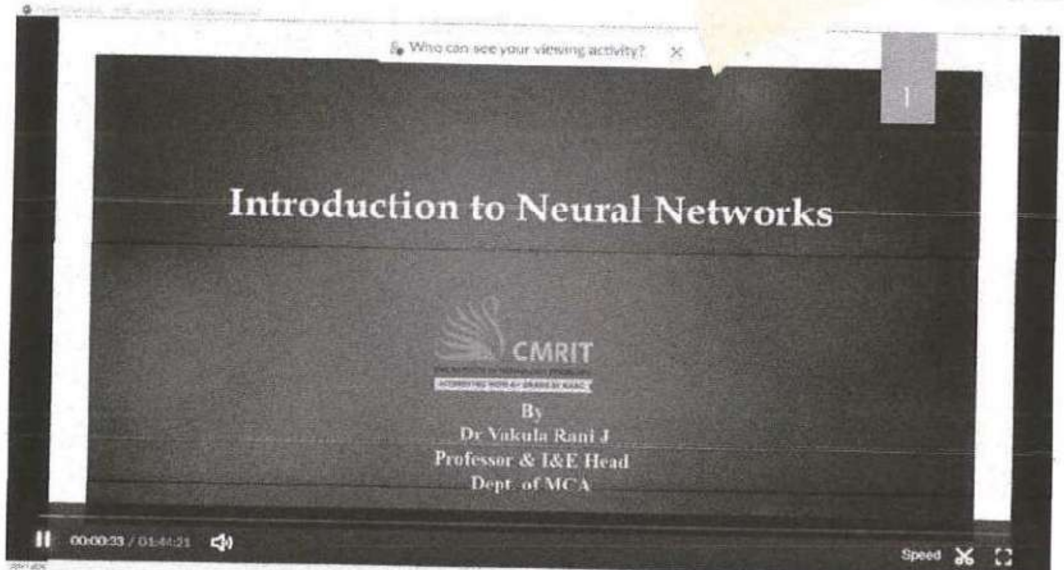
REPORT ON WEBINAR "Introduction to Neural networks"

2020 - 2021

Date: -20/05/2021

Time: 1.30 P.M – 2.30 P.M

Resource person: Dr Vakula Rani J
Professor & I&E Head
Dept of MCA, CMRIT
Bangalore



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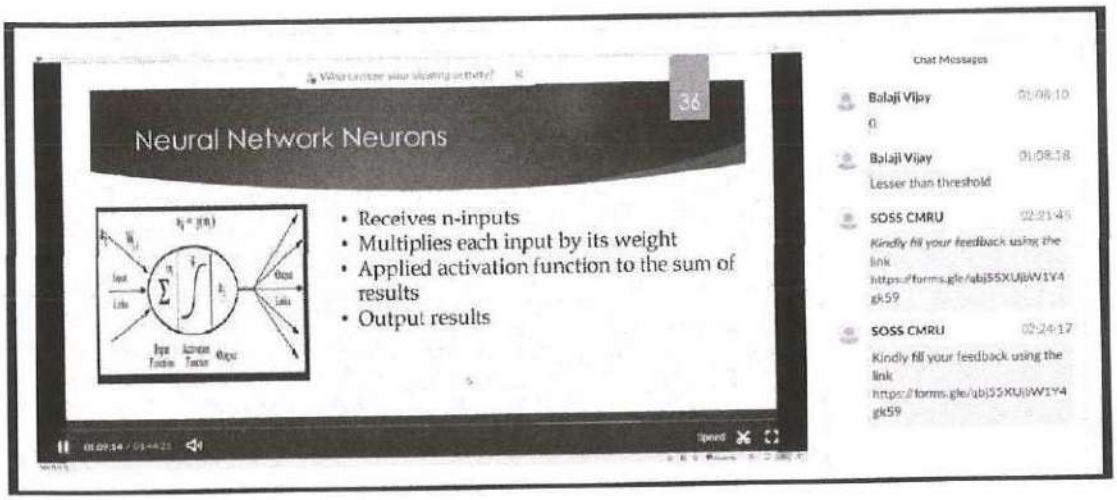

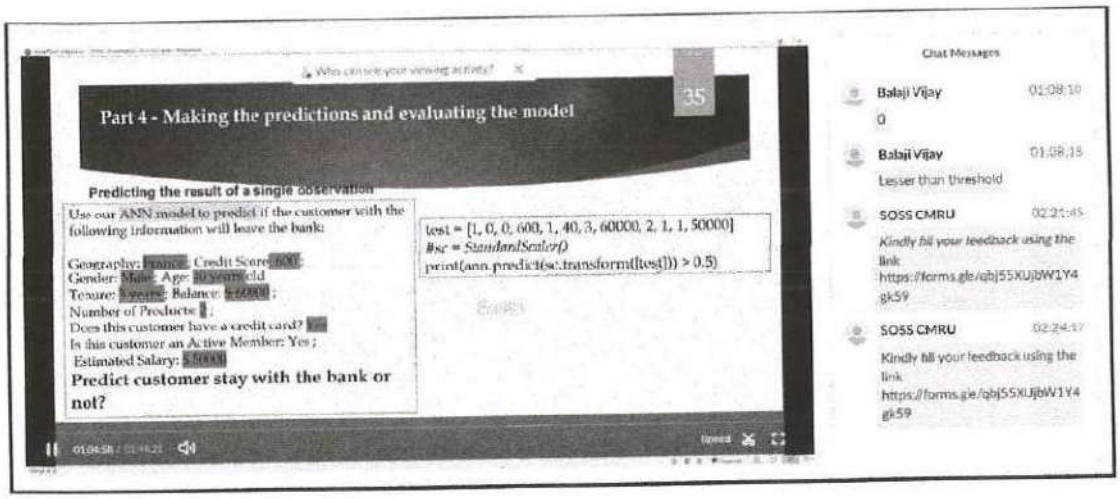

Coordinator

Director

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21 - 22

CMRUxCourse: Improving System Performance

Schedule

	Title of the course: Improving System Performance
	Overview: Understand the concepts to improve the system performance. How to overcome the problems in the system while using for daily activities
	Mode of the course: Online https://meet.google.com/hbv-srnp-zwy
	Duration (hours): 01 hour 30 minutes
	Times / Dates of the course: 27.11.2021 – Saturday - 01:30 PM to 03:00 PM.

	Facilitator(s) Profile
	Name: Prof. Akilan S
	Designation: Assistant Professor
	School / Department: SOSS
	Email: akilan.s@cmr.edu.in

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SCHOOL OF SCIENCE STUDIES

Problem Soving (company Specific) Test Report, Weekly Test, 19/3/2022

Test Results

SINo	Member Id	Name	Email	Groups	Start Time	Status	Total (60M)	Passed
1	20DBCAG002	Adarsh Kumar	adarsh.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 17:02:49	Completed	42	True
2	20DBCAG004	Ajay Kumar	ajay.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 18:14:53	Completed	42	True
3	20DBCAG007	Allan Abel Peter Peter	allan.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 20:15:10	Completed	52	True
4	20DBCAG011	Bache Harika	harika.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 19:10:23	Completed	10	False
5	20DBCAG013	Bhamini K B	bhamini.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 19:09:11	Completed	10	False
6	20DBCAG015	C Swetha	swetha.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 18:12:42	Completed	12	False
7	20DBCAG016	Chamundeshwari D	chamundeshwari.20dbca@cmr.(	2020-2023-SOSS-B	19 Mar 20:47:15	Completed	40	True
8	20DBCAG019	Dayananda Sagar M	dayanandasagar.20dbca@cmr.e(	2020-2023-SOSS-B	19 Mar 17:57:44	Completed	50	True
9	20DBCAG021	Deepraj Sainee	deepraj.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 19:37:35	Completed	26	False
10	20DBCAG022	Devarannagari Praneeth Kum	praneethkumar.20dbca@cmr.ed	2020-2023-SOSS-A	19 Mar 18:16:12	Completed	46	True
11	20DBCAG024	Dhyan Krishna	dhyankrishna.20dbca@cmr.edu.	2020-2023-SOSS-A	19 Mar 19:52:52	Completed	38	True
12	20DBCAG026	Dilip V	dilip.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 17:53:33	Completed	54	True
13	20DBCAG027	Divyashri	divyashri.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 19:48:40	Completed	50	True
14	20DBCAG028	Dixith Bv	dixith.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 20:17:00	Completed	30	True
15	20DBCAG029	Durga Shree A V	durgashree.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 18:46:13	Completed	50	True
16	20DBCAG030	Fedrick Martin J	fedrick.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 17:53:30	Completed	52	True
17	20DBCAG031	G M Sai Kishor Naidu	saikishor.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 20:35:44	Completed	38	True
18	20DBCAG034	Girish M N	girish.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 19:05:36	Completed	50	True
19	20DBCAG036	Gowtham S	gowtham.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 20:24:43	Completed	40	True
20	20DBCAG037	Gude Amrutha	amrutha.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 18:03:43	Completed	18	False
21	20DBCAG038	Guthireddy Vivek Vardhan Re	vivekvardhan.20dbca@cmr.edu.	2020-2023-SOSS-A	19 Mar 18:14:42	Completed	30	True
22	20DBCAG039	Harish Venkat V	harish.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 20:26:21	Completed	44	True
23	20DBCAG040	Harshitha Reddy K S	harshitha.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 20:29:10	Completed	16	False
24	20DBCAG042	Ishtiaq Mustufa M	ishtiaq.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 19:34:25	Completed	38	True
25	20DBCAG043	Jayanth Aradhya N	jayanth.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 19:40:35	Completed	40	True
26	20DBCAG045	Karthik R	karthik.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 18:17:33	Completed	4	False
27	20DBCAG048	Krishna P	krishna.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 18:44:08	Completed	50	True
28	20DBCAG050	Kusum Singh K	kusum.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 18:40:18	Completed	16	False
29	20DBCAG054	M Uthej	uthej.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 19:39:08	Completed	48	True

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30	20DBCAG055	Madhavan H	madhavan.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 17:48:02	Completed	52	True
31	20DBCAG058	Manoj Aditya M	manoj.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 17:03:07	Completed	38	True
32	20DBCAG059	Massamba Nzinga David	massamba.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 18:17:02	Completed	32	True
33	20DBCAG062	Midhun M	midhun.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 19:34:38	Completed	38	True
34	20DBCAG063	Mohammed Arshath Thanvee	arshath.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 19:58:56	Completed	48	True
35	20DBCAG069	Monukumar S	monukumar.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 17:06:01	Completed	32	True
36	20DBCAG070	Mukwamu Damali Renedy	mukwamu.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 18:30:23	Completed	40	True
37	20DBCAG071	N Gildest	gildest.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 20:31:05	Completed	38	True
38	20DBCAG074	Naveen G Shekar	naveeng.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 19:19:51	Completed	54	True
39	20DBCAG087	Polasu Hemanth	hemanth.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 20:34:14	Completed	48	True
40	20DBCAG088	Pooja Janet J	pooja.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 20:27:34	Completed	18	False
41	20DBCAG089	Pragun Kumar N	pragun.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 19:21:35	Completed	40	True
42	20DBCAG090	Pratyush Kumar Singh	pratyush.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 18:23:40	Completed	18	False
43	20DBCAG092	Preetha P	preetha.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 20:20:15	Completed	38	True
44	20DBCAG094	Preethi Sharma M	preethi.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 19:50:48	Completed	22	False
45	20DBCAG095	Prithvi S K	prithvi.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 19:24:05	Completed	48	True
46	20DBCAG098	R S Phaneendra	phaneendra.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 19:30:04	Completed	0	False
47	20DBCAG099	Rachana L	rachana.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 20:36:04	Completed	40	True
48	20DBCAG100	Raghavendra L	raghavendra.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 20:14:07	Completed	2	False
49	20DBCAG102	Ram Kumari R	ram.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 18:46:59	Completed	16	False
50	20DBCAG103	Raul Rohan B	raul.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 19:48:24	Completed	50	True
51	20DBCAG104	Revathi R	revathi.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 17:33:33	Completed	38	True
52	20DBCAG105	Rishi S	rishi.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 17:04:11	Completed	38	True
53	20DBCAG108	S Kavya	kavya.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 19:55:46	Completed	46	True
54	20DBCAG111	Sagili Chandana	chandana.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 20:06:46	Completed	38	True
55	20DBCAG112	Sahana K V	sahana.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 17:11:25	Completed	54	True
56	20DBCAG114	Sandhya D	sandhya.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 19:27:59	Completed	38	True
57	20DBCAG115	Saniya Farheen Rizwan	saniya.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 19:31:58	Completed	52	True
58	20DBCAG117	Santhosh M	santhoshm.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 20:41:37	Completed	40	True
59	20DBCAG121	Shanu Vardhan K	shanu.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 18:28:46	Completed	38	True
60	20DBCAG122	Sheyam Sundar K J	sheyamsundar.20dbca@cmr.edu	2020-2023-SOSS-A	19 Mar 19:38:25	Completed	46	True
61	20DBCAG124	Shweta Dwivedi	shweta.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 18:51:28	Completed	27	False
62	20DBCAG125	Smrithi S	smrithi.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 18:56:54	Completed	50	True
63	20DBCAG128	Sudha K S	sudha.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 20:35:44	Completed	28	False
64	20DBCAG131	Suraj Kumar M	suraj.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 19:43:36	Completed	42	True
65	20DBCAG132	T Yeshwanth	yeshwanth.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 19:31:56	Completed	12	False
66	20DBCAG133	Tarun M	tarun.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 19:57:30	Completed	40	True

67	20DBCAG134	Tharun H S	tharun.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 19:51:39	Completed	50	True
68	20DBCAG136	Vikas Khadka	vikas.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 20:41:22	Completed	22	False
69	20DBCAG137	Vivek V	vivek.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 19:58:11	Completed	14	False
70	20DBCAG139	Yashika S	yashika.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 17:42:55	Completed	4	False
71	20DBCAG141	Zia Ur Rehman	zia.20dbca@cmr.edu.in	2020-2023-SOSS-B	19 Mar 19:44:52	Completed	48	True
72	20DBCAG142	Zubeda	zubeda.20dbca@cmr.edu.in	2020-2023-SOSS-A	19 Mar 19:47:41	Completed	34	True
73	19DBCAG005	Adithya Shankar A P	adithya.19dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
74	19DBCAG023	Badri Bishal Nanda	badri.19dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
75	19DBCAG133	Sharath R	sharath.19dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
76	20DBCAG001	Abhishek Chandra V	abhishek.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
77	20DBCAG003	Aditya M	aditya.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
78	20DBCAG006	Akshaya V	akshaya.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
79	20DBCAG008	Amit Kumar Sharma	amit.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
80	20DBCAG009	Anand Kumar S	anand.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
81	20DBCAG010	Ayushi Uma Shanker Arya	ayushi.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
82	20DBCAG012	Bevan Aldrin Lopez	bevan.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
83	20DBCAG017	Chethan Garg	chethan.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
84	20DBCAG018	Chintan R Patel	chintan.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
85	20DBCAG020	Deepak Kumar S	deepak.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
86	20DBCAG023	Dhanush A Sewanth	dhanush.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
87	20DBCAG025	Dhyan R	dhyan.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
88	20DBCAG032	G Shreeniketh	shreeniketh.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
89	20DBCAG033	Gv Sharath	sharath.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
90	20DBCAG035	Gopal R	gopal.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
91	20DBCAG041	Inam Ul Hassan	inamul.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
92	20DBCAG044	Jinitha S	jinitha.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
93	20DBCAG046	Kevin Ronald Francis	kevin.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
94	20DBCAG047	Kirthan.s	kirthan.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
95	20DBCAG049	Kritika Datta	krithika.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
96	20DBCAG051	Lakshitha B	lakshitha.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
97	20DBCAG052	Lalit Kumar	lalit.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
98	20DBCAG053	M U Mithran	mithran.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
99	20DBCAG056	Makam Rakshitha	rakshitha.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
100	20DBCAG057	Manav Tyagi	manav.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
101	20DBCAG060	Mathew M	mathew.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
102	20DBCAG061	Meghana S	meghana.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
103	20DBCAG064	Mohammed Neyaz Ahmed	neyaz.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		

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104	20DBCAG065	Mohammed Rayanulla Khan	rayanulla.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
105	20DBCAG066	Mohammed Ryaan Shariff	ryaan.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
106	20DBCAG067	Mohammed Saud Uz Zama F	saud.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
107	20DBCAG068	Mohan Prasad S	mohan.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
108	20DBCAG072	Nagarjuna M	nagarjuna.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
109	20DBCAG073	Nangyalai	nangyalai.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
110	20DBCAG075	Naveen R	naveen.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
111	20DBCAG077	Nikitha M	nikitha.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
112	20DBCAG079	Nithya S	nithya.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
113	20DBCAG080	P V Sriram	sriram.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
114	20DBCAG081	Pachipala Vinay	vinay.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
115	20DBCAG082	Parth Pandey	parth.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
116	20DBCAG084	Pavan S	pavan.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
117	20DBCAG085	Pavithra K	pavithra.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
118	20DBCAG086	Pitta Sai Srinivas	saisrinivas.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
119	20DBCAG091	Praveen Karthik S U	praveen.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
120	20DBCAG093	Preetham S	preetham.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
121	20DBCAG097	R Pavan Krishna	pavankrishna.20dbca@cmr.edu.	2020-2023-SOSS-A	Virtual	Test Expired		
122	20DBCAG101	Rahul L	rahul.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
123	20DBCAG106	Rithikasri M	rithikasri.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
124	20DBCAG109	S Muralidharan	muralidharan.20dbca@cmr.edu	2020-2023-SOSS-B	Virtual	Test Expired		
125	20DBCAG110	Sachin Prabhakar	sachin.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
126	20DBCAG113	Sandeep R	sandeep.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
127	20DBCAG116	Santhosh Kumar M	santhosh.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
128	20DBCAG118	Santhosh V	santhoshv.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
129	20DBCAG119	Shaik Abdul Khadar	shaik.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
130	20DBCAG120	Shalini M	shalini.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
131	20DBCAG126	Srinivas A	srinivas.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
132	20DBCAG129	Suhas Gowda U	suhas.20dbca@cmr.edu.in	2020-2023-SOSS-A	Virtual	Test Expired		
133	20DBCAG130	Supriya M	supriya.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
134	20DBCAG135	Vennila Nallappa	vennila.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
135	20DBCAG138	Wai Toemtikul	wai.20dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		
136	20DBCAG140	Yoganandachari D V	yoganandachari.20dbca@cmr.ed	2020-2023-SOSS-B	Virtual	Test Expired		
137	19DBCAG032	Darshini Vishwanathan	darshini.19dbca@cmr.edu.in	2020-2023-SOSS-B	Virtual	Test Expired		

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Director
School of Science Studies
CMR University, Bengaluru

CMR UNIVERSITY
School of Science Studies
Department of Computer Science
Report on Seminar - Introduction to AWS

A seminar on "Introduction of AWS" was conducted by the School of Science Studies, Department of Computer Science through online mode on 8th October 2021 from 2.00-3.30 p.m. The chief guest for the occasion was Mr. Vineeth Kumar, Technical Instructor, IBM Pvt. Limited, Bangalore.

The objective of the seminar was to provide a comprehensive understanding of the functions and operations of Amazon Web Services.60 students from III Sem BCA participated in the seminar.

Cloud computing is the on-demand delivery of IT resources over the Internet with pay-as-you-go pricing. Instead of buying, owning, and maintaining physical data centers and servers, we can access technology services, such as computing power, storage, and databases, on an as-needed basis from a cloud provider like Amazon Web Services(AWS).

The speaker of the session Mr. Vineeth kumar , Technical Instructor,IBM India Pvt Limited, explained the concepts of Cloud Computing , Introduction to AWS and Hands-on training in AWS for second year BCA students. He is highly experienced with more than 9 years of experience in the IT field and a strong knowledge in Cloud computing.

Outcome:

The session enabled the students to gain insight on Functions and Operations of AWS (Amazon Web Services) in Cloud Computing. It was a very interactive session.

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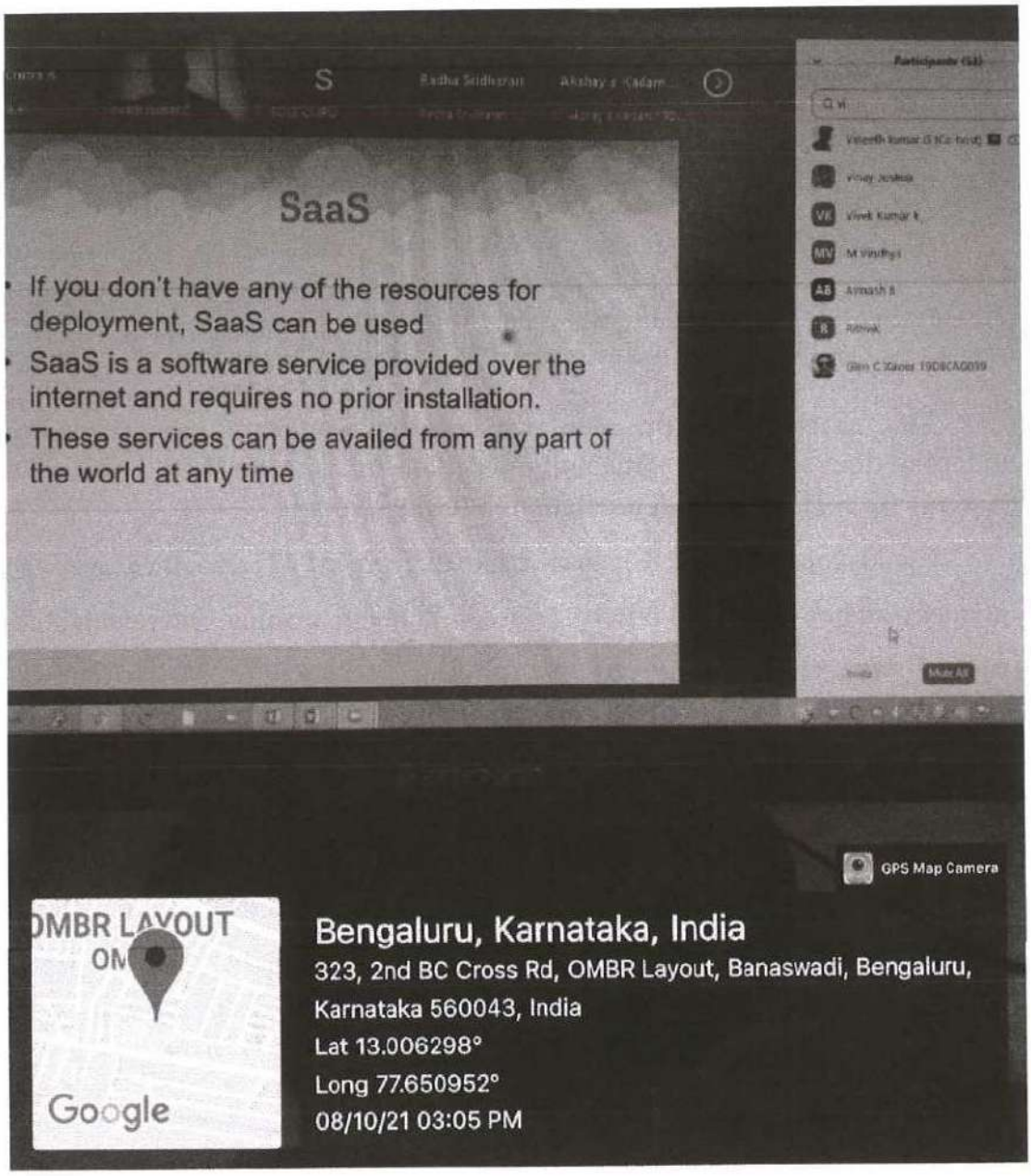
PHOTOS



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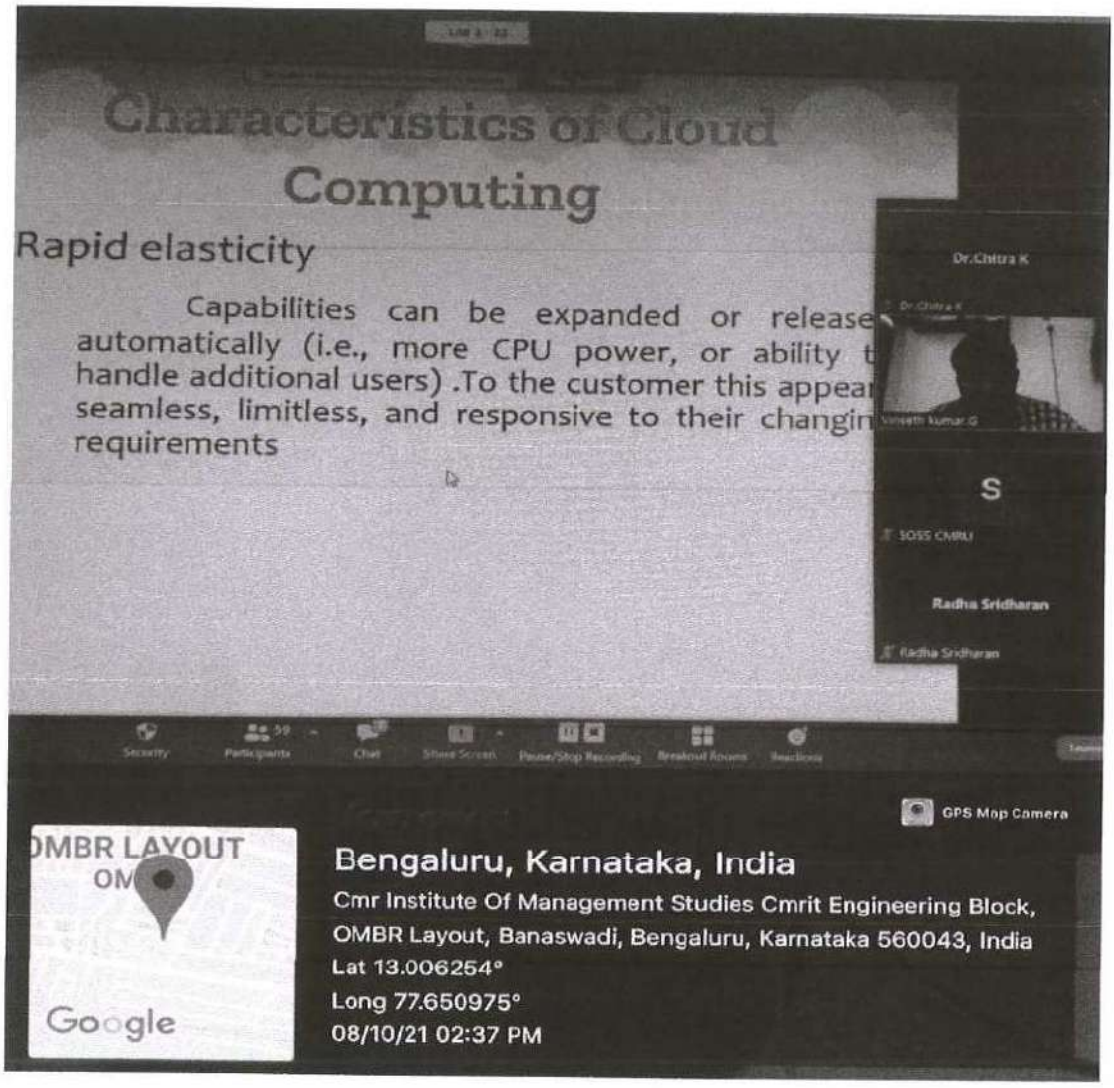

Seminar In-charge

Director
School of Science Studies
CMR University, Bengaluru

Program Co-ordinator

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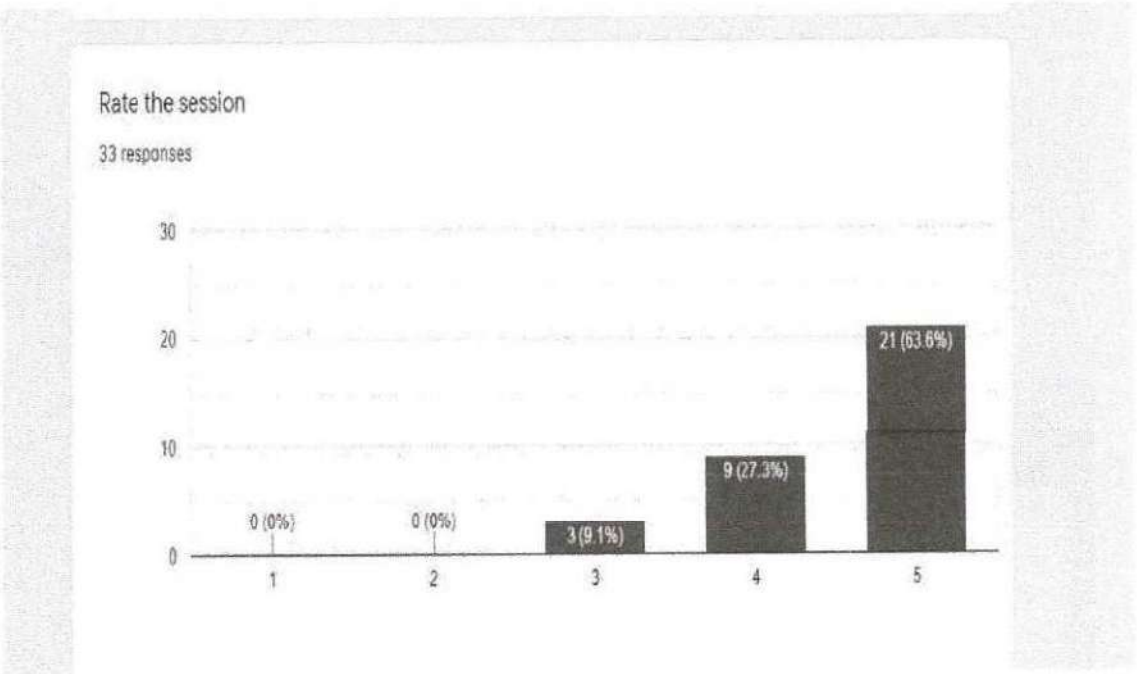
Feedback on Seminar - Introduction to AWS



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Post Webinar Report

Webinar started with the host Mr.Srikantrao welcomed by Dr Sathyaraj with warm welcome speech .In the absentia he welcomed our chief patrons, Chancellor - Dr. Sabitha Ramamurthy, Chairman - Shri. K. C. Ramamurthy, IPS(Retd), Pro Chancellor - Shri K. R. Jayadeep, Provost - Dr. Trishtha Ramamurthy, Director of Finance- Mrs. Shreya Reddy. Welcomed Pro VC - Dr. Bhasker Reddy, Dean - Dr. C. Prabhakar Reddy. M. Welcomed the speaker Mr.Kumar Shivam. Dr.K Babu Rao gave introduction to the speakers profile.

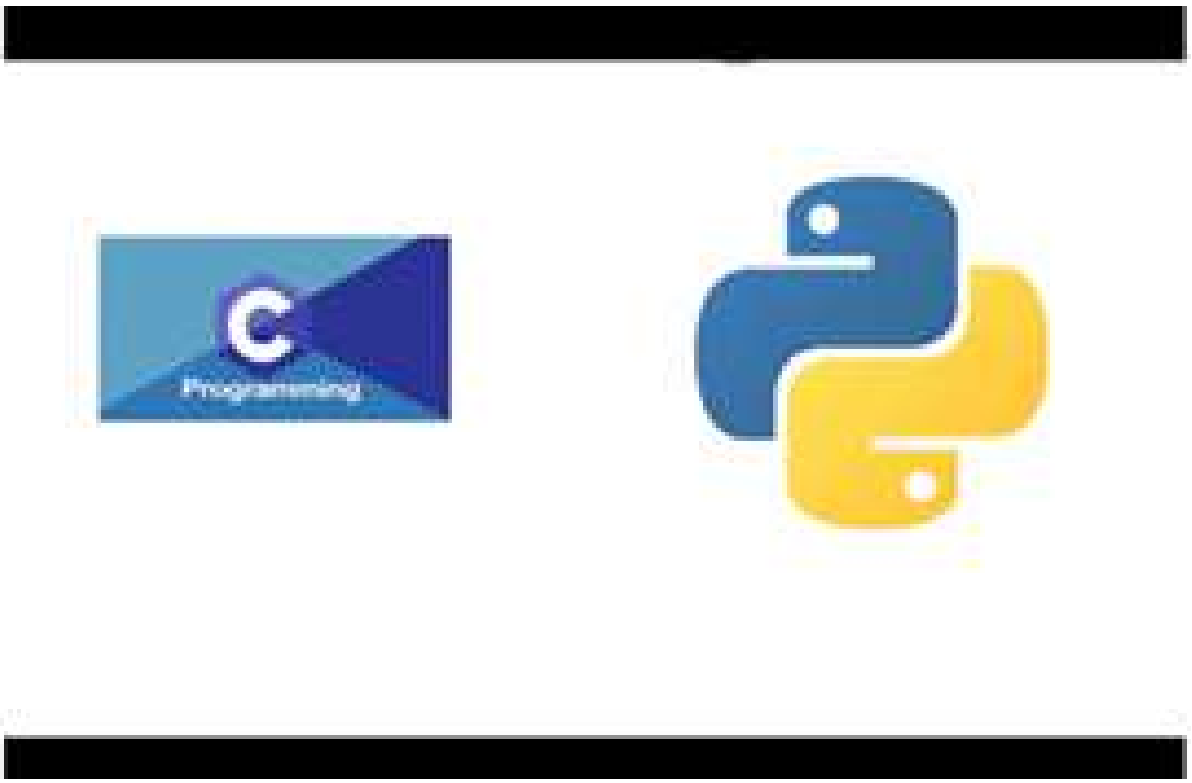
Speaker Mr.Kumar Shivam took over the webinar and explained in detail about the topic of the event along with hands on exposure. Dr. Parameshwaran took feedback of the participants. Dr.Rubini gave vote of thanks. Prof. Manjunath H concluded the event.

Organising Committee members:

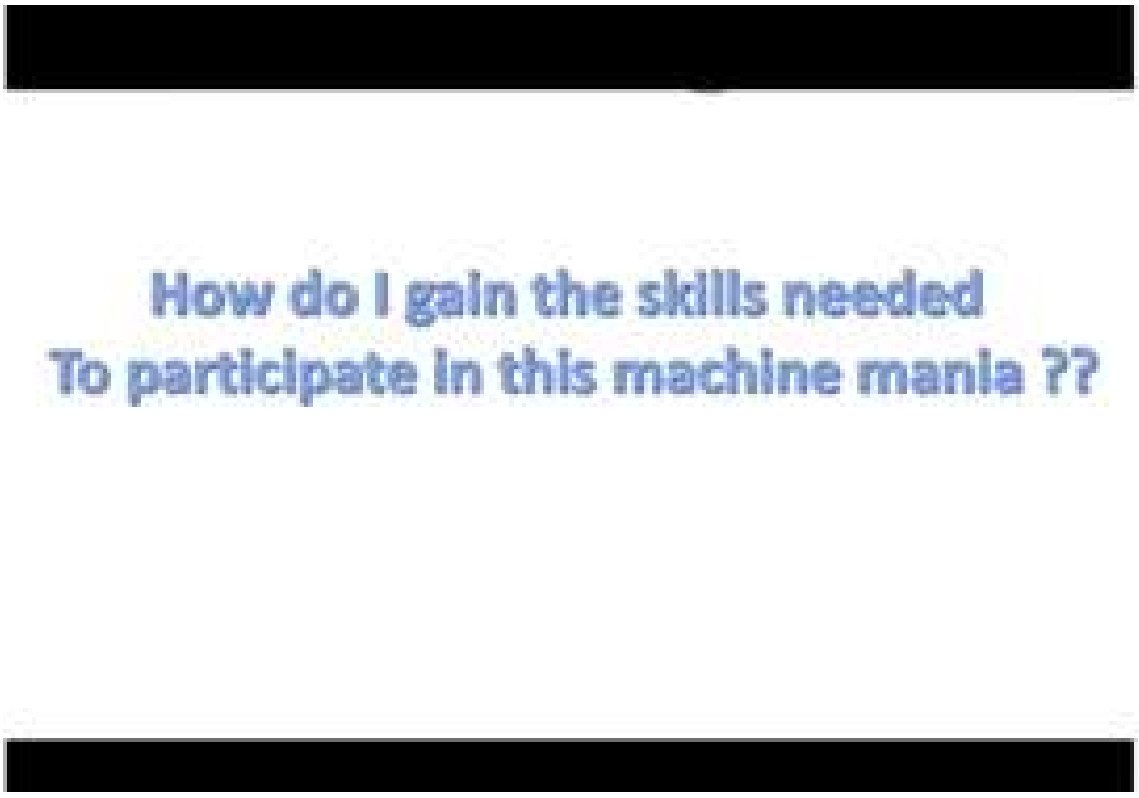
Dr Saravana.K	Dr Babu Rao	Dr Rubini	Dr Parameswaran
Dr Sathiyaraj	Prof. Vanitha S	Prof. Shilpa M	Prof. Ramachandra H
Prof SrikantRao	Prof. Mouna		

1. Presentation Slides:

Screenshot 1



Screenshot 2



Screenshot 3

Screenshot

2. List of Participants

Sl No.	Name	USN	Semester
1	Name	USN	semester
2	Varsha N	18BBTCS142	7
3	Mohammed Saqlain	20BBTIT009	2

4	GANASHREE G S	20BBTEC008	3
5	TAKKOLI NAGEESWAR REY	20BBTCS155	2
6	Gokul raj.s	19BBTEC014	5th semester
7	Rajan Kumar N	19BBTEC037	5
8	Tarun Kumar	19BBTCS159	5th
9	Akshat Tripathi	20BBTCS013	2
10	Madhusoodhan Narayana Gouda	18BBTME021	7
11	Konanki laluprasad	20BBTCS072	2nd semester
12	Sadhana Mishra	19BBTCS132	5th sem
13	Prathithi shetty	20BBTCS117	2nd semister
14	Ambika Ananda Poojary	20BBTCS016	2
15	Akshatha.S	20BBTCS014	2nd
16	Thirumal	20BBTCS157	3rd
17	Punith HS	18BBTME014	7th
18	Tarun Purohit	19BBTIT034	5
19	Kavana M Narayan	20bbtcs069	3
20	Manoj S	20BBTCS081	3rd
21	Sanjana Bala J	19BBTCS139	5th sem
22	ayush sharma	20BBTCS170	2nd
23	Akanksha Priya	20BBTCS008	Second
24	Shashank.C	20BBTIT032	2nd sem
25	Shashank.C	20BBTIT032	2 nd
26	Shravana naik	20BBTCS140	3rd semester
27	KRITIK AGARWAL	19BBTCS067	5
28	Nisarga D.N.	20BBTIT029	2nd sem
29	Vishal Swami	20BBTCS164	3
30	SRUJAN	20BBTCS167	2nd (completed)
31	Anjanikumar	20BBTCS044	3
32	Pamisetty Thanusree	20BBTCS106	2nd
33	Syed. Riyaz	20BBTCS153	2
34	Edula Varshitha	20BBTCS041	2nd
35	Ramanaidu kola	20BBTIT021	2nd (completed)
36	Manish	20BBTCS109	3
37	Arjuna Kote	19BBTCS019	5th
38	Manish.C.U	20BBTIT025	3rd

39	priyadarshini santhosh	20bbtcc008	2
40	Supriya B	18BBTEC044	7
41	Kiran Panda	19BBTIT047	5th
42	Sudhir s	20BBTCS145	3rd
43	TAKKOLI NAGEESWAR REDDY	20BBTCS155	2
44	Umme Sarah	20BBTEC023	2nd
45	MAHALAKSHMI.GJ	18BBTCS061	SEVENTH
46	Harshal Sharma	20BBTCS051	3
47	Md Israfil Iftekhar	20BBTCS084	2nd
48	Shankara s	20BBTCS137	3
49	Kiran Panda	19BBTIT047	5th
50	Abishek R	18BBTCS004	7
51	Tagore Nandan k	19BBTIT067	5
52	Vankadari Sanjeeva venkata Tarun	19BBTIT071	V
53	SATYA SARAN KANIKANTI	19BBTIT064	5
54	Manoj Bahadur	18BBTCS063	7
55	Sabnaveesu Phani srinivas	19BBTIT061	5th
56	Keerthana P	18BBTCS049	7
57	Rohith Reddy G	19BBTIT059	5th
58	Surya	19bbtit066	5
59	SUDIPTA PRADHAN	19BBTIT065	V
60	Kruthika N	18bbtcs052	7th sem
61	R Archana	19BBTCS115	5th
62	Vamshidhar Reddy	19BBTIT070	5
63	Sonali Ranjan	18BBTCS125	7
64	Deepthi A P	18BBTCS030	7th
65	Nandish M	19BBTCS096	V
66	Mohammed Farhan	19BBTIT051	V
67	Varun R	18BBTCS143	7th
68	Sachin Sisodiya	20BMTAI007	M.tech Ai 2nd Sem
69	Vyshnavi M	19BBTCS073	5TH SEM
70	Shabuddin Ahmed	19BBTIT028	5
71	Brinda Ramesh	18BBTCS020	7
72	Brinda Ramesh	18BBTCS020	7
73	Vishnu Deepak	18BBTCS149	7
74	Trishita Gharai	18BBTCS136	7

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75	Aman.G.Nair	18BBTCS008	7
76	U. V jaswanth	19BBTIT068	5th sem
77	Harshita R Kumbar	18bbtcs038	7
78	SAGAR ROY	19BBTIT062	V
79	BRIJESH.A	19BBTCS029	5TH
80	Chaitra Lingaraju	19BBTCS031	5
81	KURAPATI ANIL KUMAR	18BBTCS054	7
82	Sandeep.R.H	18bbtme023	7
83	Ankitha Chowdary	18BBTCS011	7
84	Subhajit Singha Roy	20BBTCS144	3RD SEM
85	NITHIN GOWDA C V	19BBTCS100	5
86	POTHA HEMALATHA	18BBTCS083	7
87	Kruthika.P	19BBTCS070	5th
88	Kruthika.P	19BBTCS070	5th
89	GADDAM CHATURYA	18BBTCS033	7th
90	Anna.Asritha	18BBTCS013	7th
91	Santhosh Kumar.P	19BBTIT057	5 th
92	Nithya. M	19BBTCS102	5th semester
93	M PRATHYUSHA	18BBTCS059	7
94	K.Abhinandhan	18BBTCS045	7
95	Shalini T	18bbtcs115	7
96	Shreekar Sanjeev Kulkarni	18BBTCS123	7
97	Raghav pandey	18BBTCS094	7
98	Gorla. karthikeya Reddy	19BBTCS043	5th semester
99	G.M.PAVAN	20BBTCS107	Second
100	Derren Dsouza	18BBTCS032	7
101	Kiran Kumar R	18BBTCS050	7
102	S PRAVALLIKA	19BBTIT060	5
103	Ramya R	18BBTCS098	7
104	Nanda kumar N	20BMTAI005	2nd
105	Vinayaka K P	18BBTCS146	7th
106	Nikhitha G	18BBTCS077	7
107	Namitha Suresh	18BBTCS073	VII
108	Kushal K P	18BBTCS055	7
109	Karthik k	18BBTCS048	7th
110	Jahnavi K Rao	19BBTIT012	5th sem
111	Shraddha Patil	20BMTDS005	2nd sem

112	Sai Teja Penubakula	18BBTCS108	VII
113	VIGNESH J	19BBTIT036	5
114	Anushka Verma	19BBTCS017	5th
115	M P K P P L N REDDY	18BBTCS058	7
116	Lekhana. M. Reddy	18bbtit009	7
117	Karthik G	18bbtcs047	7
118	Aayush Manoj Tirmalle	18BBTCS002	7
119	MADHU A V	19BBTCS074	5
120	Suresh V	18BBTCS129	7th
121	Rounak Avinash	18BBTCS105	7th
122	Muhammad Furqaan Hashim	19BBTCS088	5th Sem
123	Gundu sai charan reddy	19BBTCS045	5th semester
124	Rafia Akhtar Maham	19BBTCS116	5th
125	BOUNGOU NGANGA Bibene Ismael	20BBTCS027	2
126	S.Meghana	20BBTCS134	2
127	Hari chandra reddy	20BBTIT030	2nd semester
128	YUVARAJ	20BBTCC013	2nd
129	Rakshith pg	20BBTCS122	1st year completed now 3rd sem
130	Konanki laluprasad	20BBTCS072	2 semester completed
131	Sushwanth Raju R	20BBTCS152	2
1	Dr. T Y SATHEESHA	satheesha.t@cmr.edu.in	Faculty
2	Puneetha	puneetha@cmr.edu.in	Faculty
3	Dr S Saravana Kumar	sarvana.k@cmr.edu.in	Faculty
4	Divyashree N	divyashree.n@cmr.edu.in	Faculty
5	Dr.Shabnam	shubnam.@cmr.edu.in	Faculty
6	Dr Rubini P	hod.cse@cmr.edu.in	Faculty
7	Dr.K Babu Rao	hod.it@cmr.edu.in	Faculty
78	Dr. T Y Satheesha	satheesha.t@cmr.edu.in	Faculty
9	Shilpa M	shilpa.m@cmr.edu.in	Faculty
10	Vanitha S	vanitha.s@cmr.edu.in	Faculty
11	Manjunath H	manjunath.h@cmr.edu.in	Faculty

PRAVEEN R

12	Ramachandra H V	ramachandra.h@cmr.edu.in	Faculty

Total No. of Students: 131

Total No. of Industry Personnel/ Research Scholar: 3

Total No. of Faculties:12

Total No. of Participants: 144

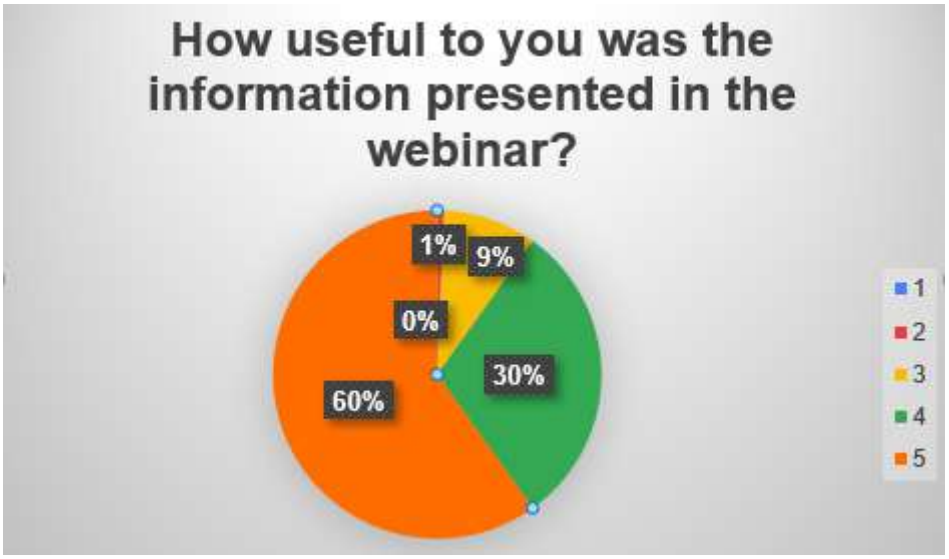
3. Recording Link:

https://zoom.us/rec/share/UTgQ0scNpXa-reTD4uzdMLbLqCH40MfyUQhsObRfKh_tHIPM2krVpA-sCk9ohGC8.eJR72ALM_BuCoHBI?startTime=1630746401000

4. Conclusion Remarks:

Participants learnt about Basics of modern-day Automobile industry, industry trends in Modern Automobile,different other industries using Automated environment , why industries choose Automation. Webinar threw light on different Machine learning Technologies and also opportunities available in this area , automation job market and estimated forecast to future growth of job market in the sector. Participants got exposure to internship support by speaker Webinar concluded by summarizing information on the Automation followed by Q&A Session.

6. Feedback:




How do you rate Q&A session at webinar?
3%
11%
0%
47%
39%
1
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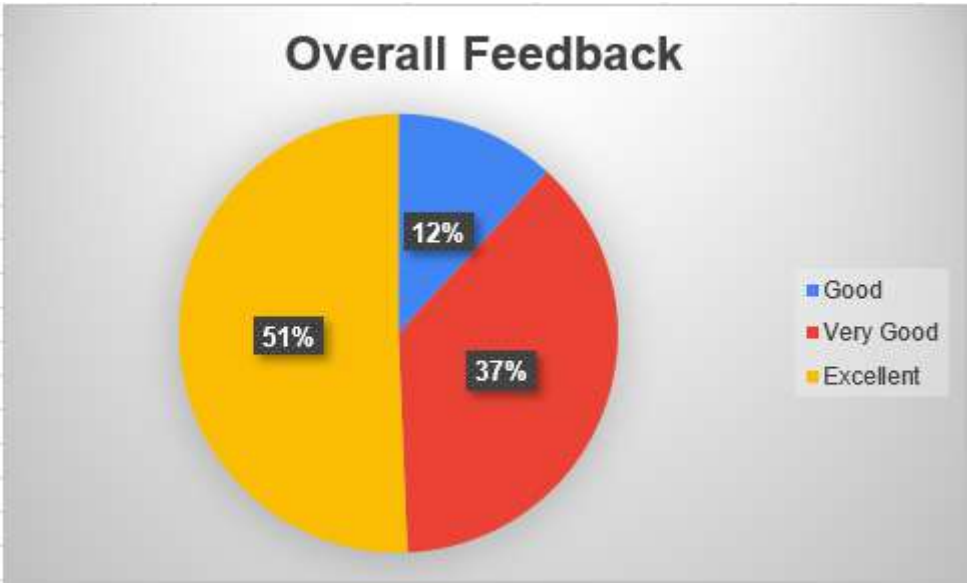
Overall Feedback
12%
51%
37%
Good
Very Good
Excellent

CMR UNIVERSITY

Private University Established in Karnataka State by Act No. 45 of 2013

National Webinar

“A peak in automotive industry and emerging ADAS”

Saturday, 29th SEP 2021–2.30 PM

by

Geethanjali H R

Chief Manager – Head of Department T&V

China Segment

Webinar Registration:

https://forms.gle/Vdva8aVFA3SgsQDG7

Zoom Link for Joining:

https://tinyurl.com/b78ew9eh

Organized by:

Department of Computer Science and Engineering

School of Engineering & Technology.

CMR University (Main Campus),

Bengaluru. 562149

PRAVEEN R

CHIEF PATRONS

Dr. Sabitha Ramamurthy

Chancellor, CMR University.

Shri. K.C. Ramamurthy, IPS (Retd.)

Chairman, CMR Group of Institutions & CMR University.

Shri K. R. Jayadeep

Pro Chancellor, CMR University.

Dr. Tristha Ramamurthy

Provost, CMR University.

Mrs. Shreya Reddy

Director of Finance, CMR University.

PATRONS

Dr. Bhaskar Reddy,

Pro Vice Chancellor, CMR University

Dr. Suresh K. R.,

Pro-Vice Chancellor, CMR University

Dr. Praveen R.,

Registrar, CMR University

Dr. C. Prabhakar Reddy ,

Dean, SoET, CMR University

About the CMR University

CMR University (CMRU) is a private university in the state of Karnataka, established and governed by the CMR University Act-2013. CMR University aims to promote and undertake the advancement of university education in technical, health, management, life sciences and other allied sectors of higher and professional education.

We believe that creativity is the key competence required to excel in our complex world where independent thinkers, product leaders, artists, designers and innovators are the need of the hour. Our students learn creative concepts and design thinking regardless of their area of study. CMR University fosters creative communities where new ideas can be nurtured, new discoveries made and new creations shared.

Overview of the Webinar

Automobiles are the foundation of the next generation of mobile-connected devices, with rapid advances being made in autonomous vehicles.

Today, ADAS systems actively improve safety with the help of embedded Vision by reducing the occurrence of accidents and injury to occupants. Significant automotive safety improvements in the past (e.g., shatter-resistant glass, three-point seat belts, airbags) were passive safety measures designed to minimize injury during an accident.

The opportunity to reduce car accidents is making automotive ADAS even more critical.

Profile of the Speaker

Ms.Geethanjali H R ,The speaker completed his Bachelor of Engineering in Electronics and communications from VTU and MS in Embedded Systems.

She has overall 19+ years of Experience in aerospace, locomotive and automotive domain.She is PMP certified and ASPICE certified.

Coordinators

Dr S Saravana Kumar Ph:8939909018

Prof Manjunath H Ph: 9844741827

Organizing Committee

Dr Babu Rao	Dr Rubini	Dr Parameswaran	Dr.Shabanam
Dr Sathiyaraj	Prof. Vanitha S	Prof. Shilpa M	Prof. Ramachandra H
Prof Srikanth	Prof. Mouna	Prof.Swimpy P	

Post Webinar Report

The event started at 2.30P.M with a welcome speech by Dr.Rubini P, HoD, Department of Computer science. She welcomed the speaker of the event **Ms.Geethanjali.H R**, Chief Manager,T&V China Segment, Honorable Pro-Vice Chancellor **Dr. Suresh K. R**, CMR University, Honourable Register **Dr. Praveen R.,** CMR University , **Dr. C.Prabhakar Reddy,** Dean School of Engineering and Technology, CMR University, Faculties and participants of the event.

Dr. C.Prabhakar Reddy, Dean, School of Engineering and Technology, Motivated the participants by briefing the prominence of Automotive Industry and ADAS systems.

Dr. Suresh K. R, Pro-Vice Chancellor, School of Engineering and Technology, Motivated the participants by briefing the prominence of Automotive Industry and ADAS systems.

The Speaker started his session by overview of ADAS System

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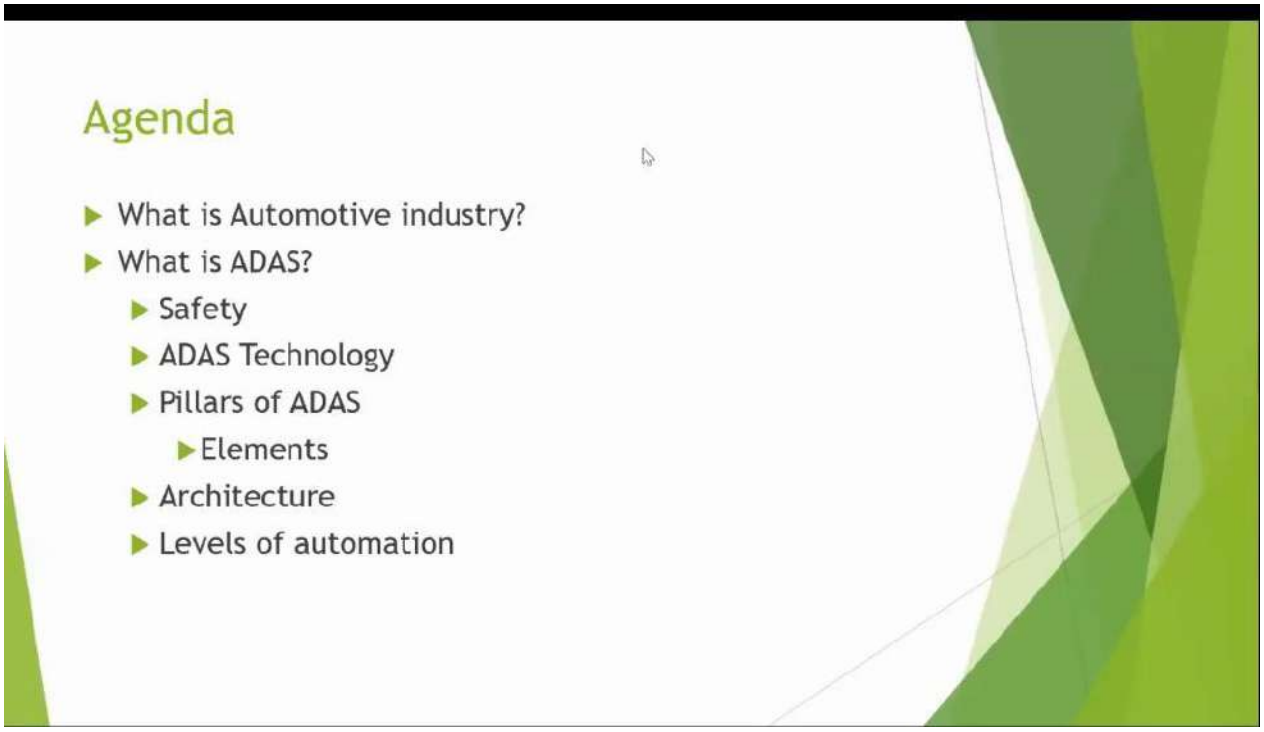
Slide 2:



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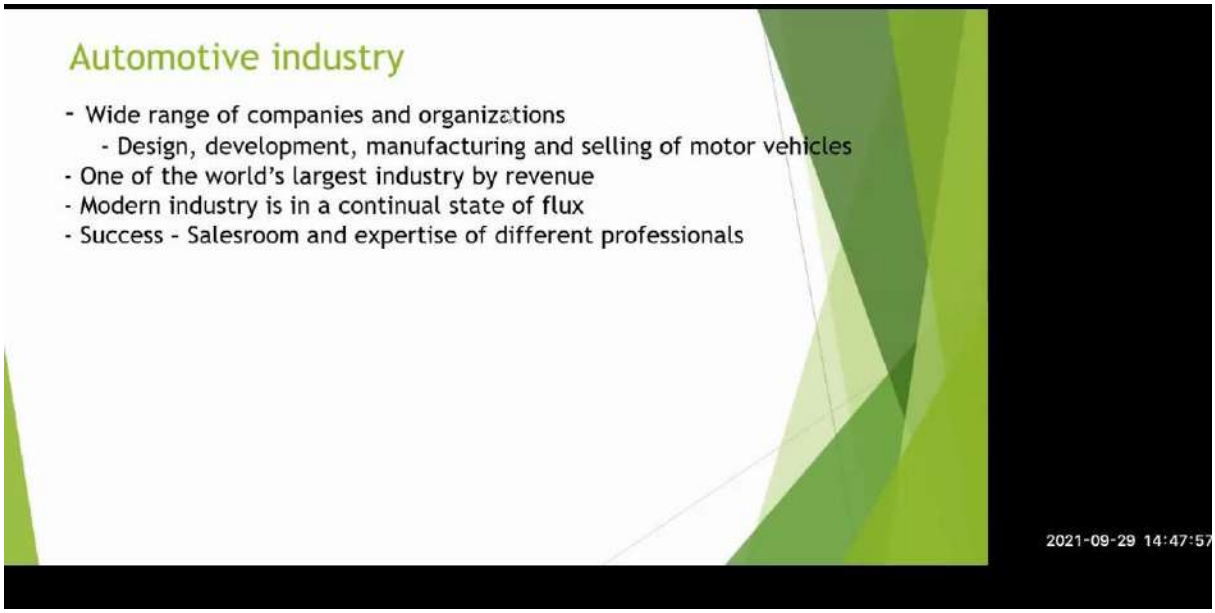

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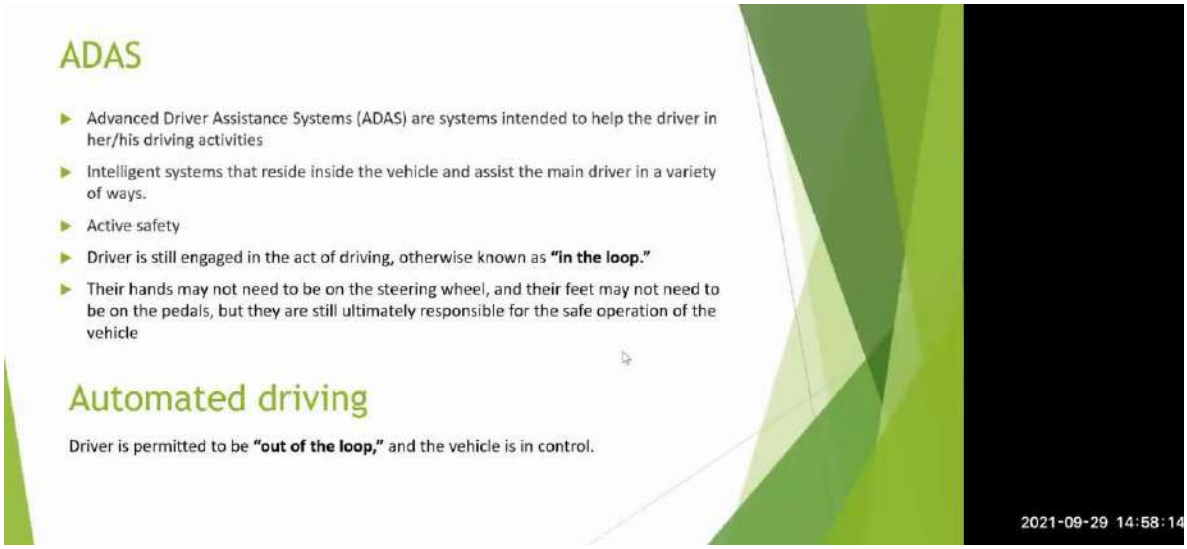
Slide 5:



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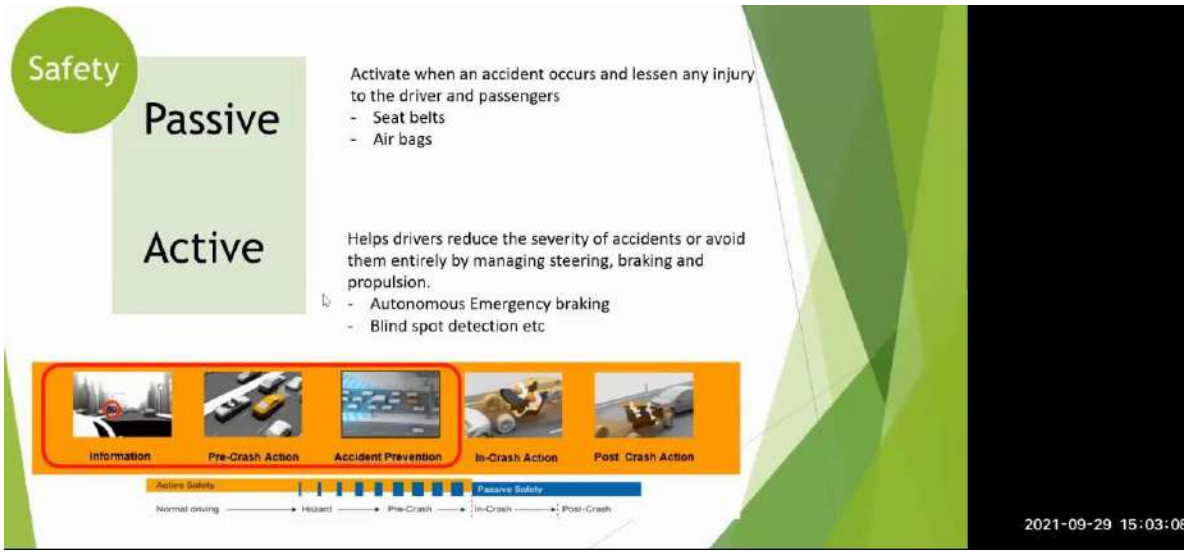

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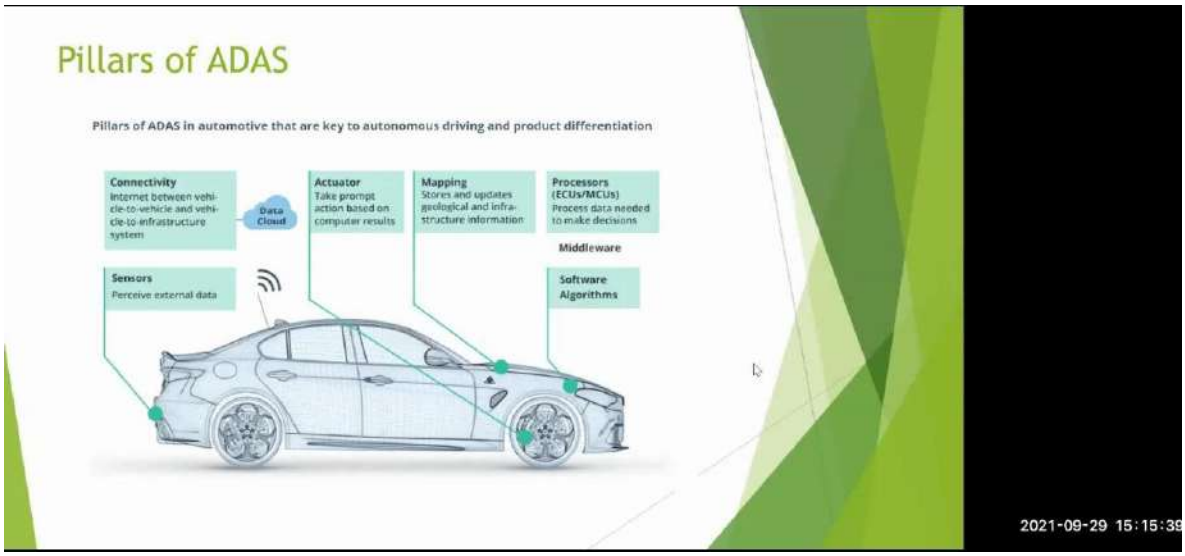

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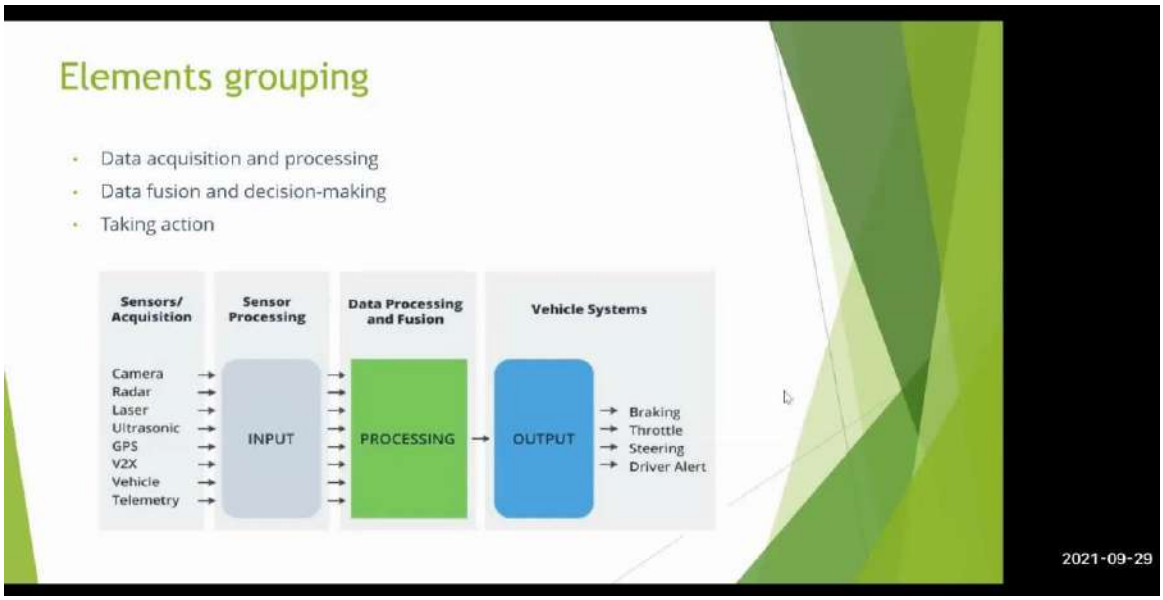

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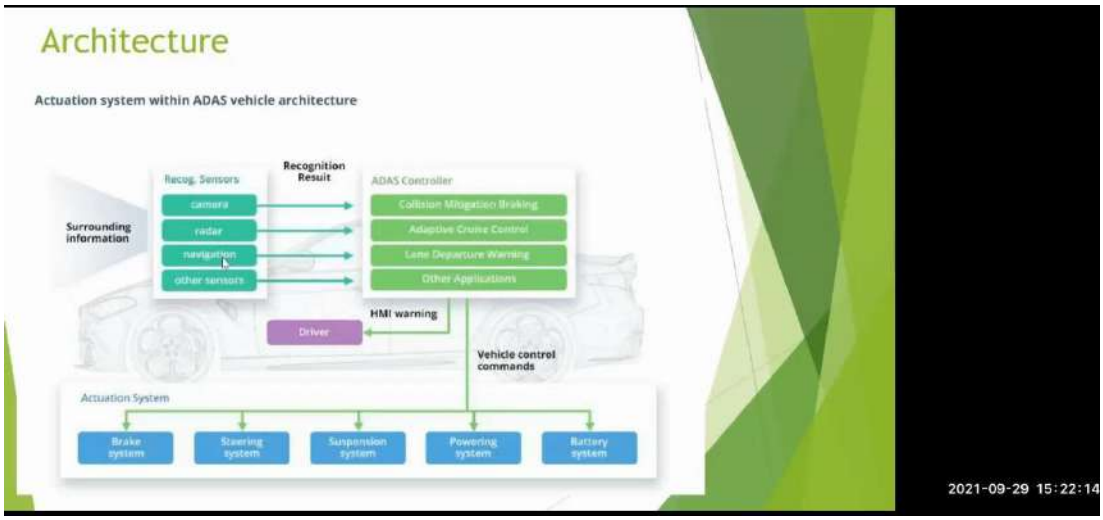

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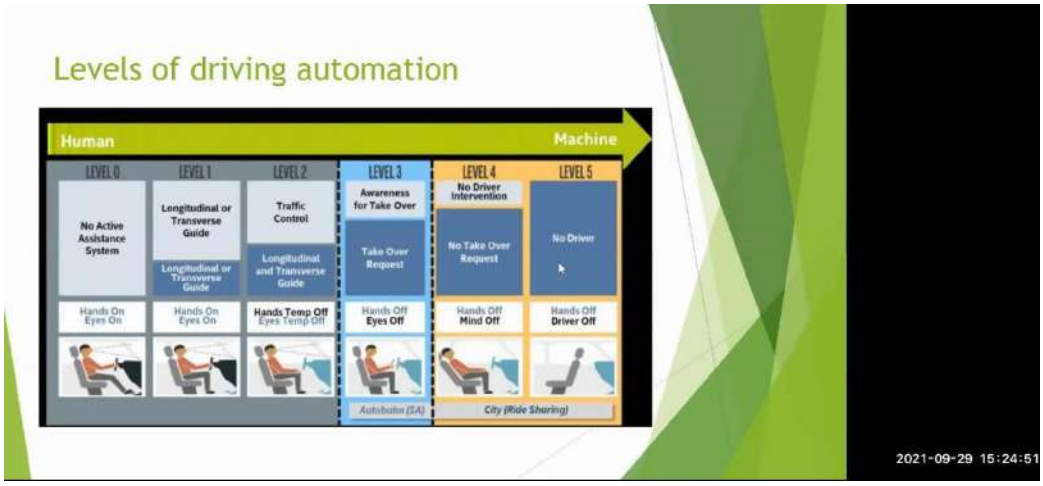


2. List of Participants

SL NO.	FULL NAME	DESIGNATION	DEPARTMENT	NAME OF THE INSTITUTION /COMPANY	CITY	STATE
1	SHANKARA S	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
2	EDULA VARSHITHA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
3	RAJAN KUMAR N	STUDENT	ECE	CMR UNIVERSITY	BANGALORE	KARNATAKA
4	RAMANAIDU	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
5	KONANKI LALU PRASAD	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
6	SONALI RANJAN	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
7	RAKSHITH B R	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
8	B SAI SIDDHARTHA	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
9	IMAN MAKNOJIA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA

10	SRIDHARA C	STUDENT	ME	CMR UNIVERSITY	BANGALORE	KARNATAKA
11	PRIYADARSHINI SANTHOSH	STUDENT	CC	CMR UNIVERSITY	BANGALORE	KARNATAKA
12	MANISH C U	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
13	UMME SARAH	STUDENT	ECE	CMR UNIVERSITY	BANGALORE	KARNATAKA
14	LIYAQATH ALI	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
15	DHEERAJ SATISH	STUDENT	ME	CMR UNIVERSITY	BANGALORE	KARNATAKA
16	GANGAMMA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
17	VENNA NISHANTH	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
18	JAYAN V	STUDENT	ECE	CMR UNIVERSITY	BANGALORE	KARNATAKA
19	MOHAMMED ZAINUL ABIDEEN	STUDENT	ECE	CMR UNIVERSITY	BANGALORE	KARNATAKA
20	PRATHITHI SHETTY	STUDENT	CSE	New Horizon College of Engineering	BANGALORE	KARNATAKA
21	RIYAN ABDUL SALAM	STUDENT	CSE	New Horizon College of Engineering	BANGALORE	KARNATAKA
22	VISHAL SWAMI	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
23	RAKSHITH PG	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
24	MOHAMMED UMMER	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
25	SYED. RIYAZ	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
26	GUDI DUSHYANTH CHOWDARY	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
27	NITHYA SHREE. V	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA

PRAVEEN R

28	BHAVNA JOSHI	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
29	BOUNGOU NGANGA BIBENE ISMAEL	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
30	PAMISETTY THANUSREE	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
31	SHILPA	STUDENT	ECE	CMR UNIVERSITY	BANGALORE	KARNATAKA
32	UMME SARAH	STUDENT	ECE	CMR UNIVERSITY	BANGALORE	KARNATAKA
33	RAHUL S	ASSISTANT PROFESSOR	ME	CMR UNIVERSITY	BANGALORE	KARNATAKA
34	JYOTHI	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
35	PRATEEKSHA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
36	ARJUNA KOTE	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
37	SANTHOSH KUMAR.P	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
38	SABNAVEESU PHANI SRINIVAS	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
39	DHIRAJ GOGOI	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
40	S.MEGHANA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
41	DILIP P	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
42	SANDEEP AM	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
43	RAMANAIDU KOLA	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
44	REVANTH GOWDS ZP	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
45	VISHNUD	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
46	JATIN VAISHNAV	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA

47	NITHIN GOWDA C V	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
48	RUTHVIK PRADEEP	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
49	SRUJAN.20BCS@CMR.EDU.IN	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
50	PRATHAM SHARMA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
51	ZAFFAR WANI	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
52	K.PRAJWAL	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
53	SUBHAJIT SINGHA ROY	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
54	GUDI DUSHYANTH CHOWDARY	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
55	CHIRAAG S	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
56	POTTURU DEEPSAI	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
57	B G NAGADARSHAN	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
58	SOURAV S	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
59	SOURAV S	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
60	B G NAGADARSHAN	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
61	K. SAI KISHORE	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
62	MANISHA R	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
63	SUSHWANTH RAJU R	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
64	SWETHA GY	STUDENT	CC	CMR UNIVERSITY	BANGALORE	KARNATAKA
65	SUMANTH REDDY	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA

66	JOYSA ANTHONY D SILVA L	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
67	TARUN KUMAR	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
68	SANTOSHKUMAR	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
69	KAVANA M NARAYAN	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
70	KALLESHA HANUMANTAPPA UJANIPURA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
71	U.V.JASWANTH	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
72	SHRAVANA NAIK	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
73	SHABUDDIN AHMED	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
74	MANOJ S	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
75	AYUSH SHARMA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
76	NAGALAPPAGARI THARUN	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
77	GOURAV RANA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
78	RAJESH SV	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
79	RAHUL K	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
80	LIYAQATH ALI	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
81	NANDISH M	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
82	VYSHNAVI M	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
83	DARSHAN.E	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA

84	V. ARUN KUMAR	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
85	SUHAS H	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
86	SUPRIYA N	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
87	NOOTAN NARASIMHA KOMAR	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
88	NITEESH R	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
89	MANAV	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
90	MOHAMMED	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
91	AMBIKA ANANDA POOJARY	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
92	VENKATESH BABU R	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
93	EDULA VARSHITHA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
94	RAHUL K	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
95	DHEERAJ C	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
96	SACHIN SISODIYA	STUDENT	M.Tech AI	CMR UNIVERSITY	BANGALORE	KARNATAKA
97	MOHAMMED SAQLAIN	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
98	MOHAMMED FARHAN	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
99	G.M.PAAVN	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
100	G.M.PAVAN	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
101	SUNKARA NALINI DURGA VINAY	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA

102	VAIBHAV KUMAR SINGH	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
103	SANDEEP N	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
104	SANDEEP N	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
105	T NAGA MAHESH	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
106	TAKKOLI NAGEESWAR REDDY	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
107	PRINCE KUMAR	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
108	MANAV TRIPATHI	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
109	JEEVAN	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
110	MADHU A V	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
111	PRAJWAL	STUDENT	CC	CMR UNIVERSITY	BANGALORE	KARNATAKA
112	NAGIDI JOHN KUMAR	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
113	SUDHIR S	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
114	ABDUL REHMAN	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
115	MOHAMMED FAZAL	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
116	NAMITHA SURESH	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA

Total No. of Faculties: 14

Total No. of Research Scholars: Nil

Total No. of IT Professionals: Nil

National Webinar: A peak in automotive industry and emerging ADAS 29th Sep 2021

Total No. of Students: 116

Total No. of Participants: 130

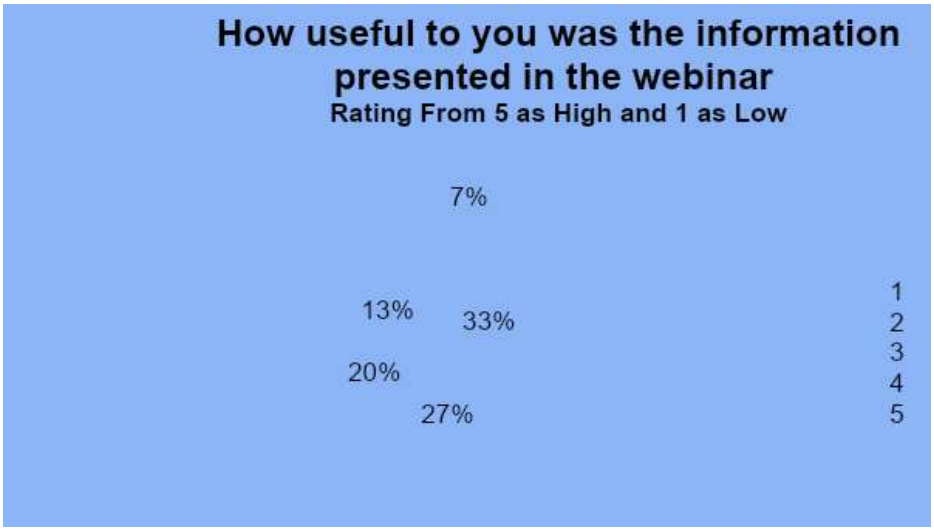
3.Recording Link:

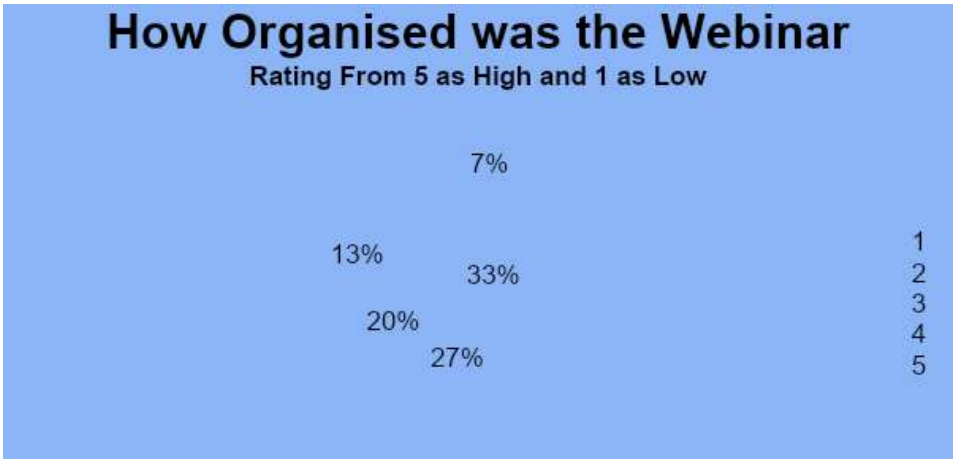
https://zoom.us/rec/play/nhaAMGJDdaNktgyHxVr8GJq2P3w-3CVY3Bet6ZV89408yKStgpHCXMky21jMjeKY4HRfYFZME8niFyD7.Z9CZE2TWyg_DHBBU?continueMode=true&_x_zm_rtaid=fAZyBbWzQSq2bz3DzoU9ZA.1633590836573.e3bc2b8afd7b2650107d7be8c50cc3d1&_x_zm_rhtaid=567

4. Conclusion Remarks:

Coordinator: We are happy that we were able to arrange the Technical session on the **A peak in automotive industry and emerging ADAS** as requested by the SOET faculty & students. The topic requested by the faculty & student and the resource person accepted our request with the help of the Head of Department. The session was good and very informative to all the participants.

5. Feedback






Overall Feedback of the Webinar Rating
From 5 as High and 1 as Low
7%
13%
33%
27%
20%
1
2
3
4
5

CMR UNIVERSITY

SCHOOL OF SCIENCE STUDIES

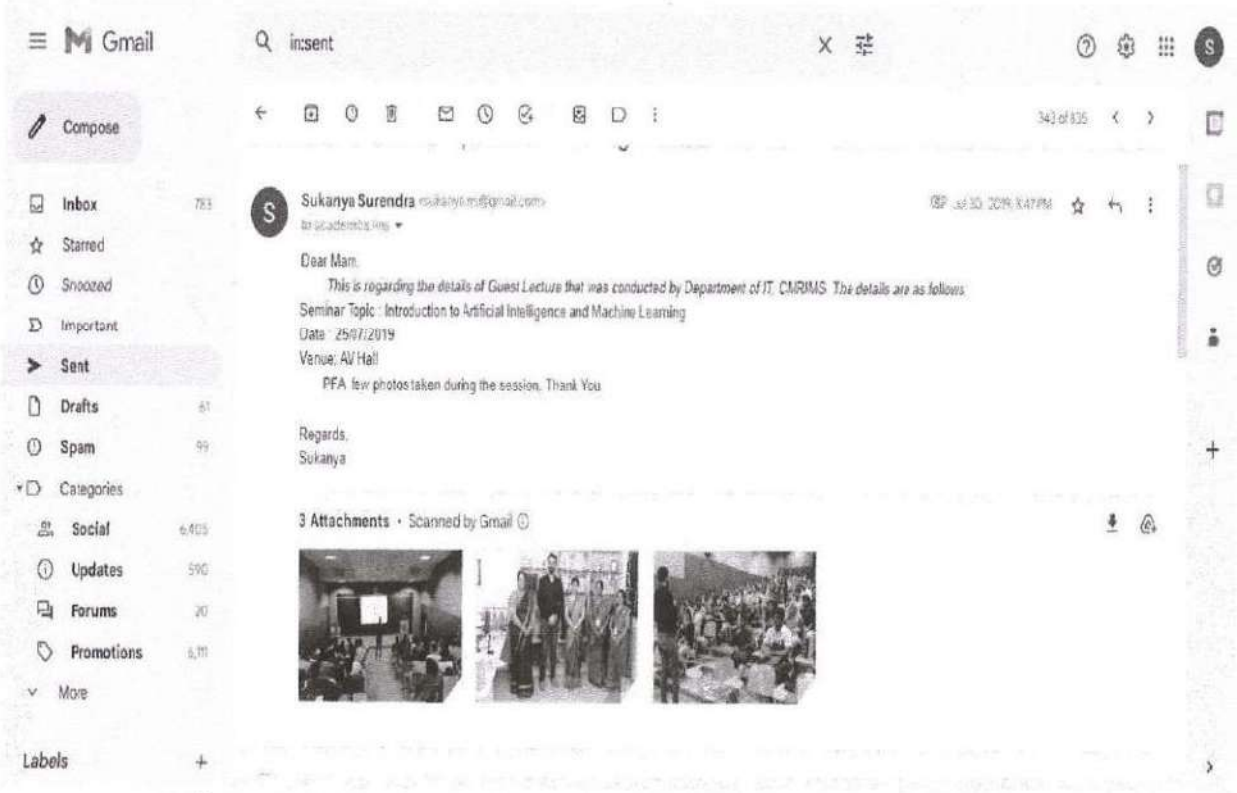
Seminar Topic : Introduction to Artificial Intelligence and Machine Learning

Date : 25/07/2019

Venue : AV Hall, OMBR Campus

Resource Person : Mr. Amin Sama, Freelancer.

Proof Documents



Mail communication showing the report sent to Academics after conducting the event

Director

2019-2020
SOSS

Photo 1 - Resource person and students

Photo 2- Resource person and students

Director
School of Science Studies
CMR University, Bengaluru

Photo 3- Resource person with Principal and Faculty

Seminar In-charge

Director
of Science Studies
niversity, Bengaluru

Program Coordinator

CMR UNIVERSITY

Private University Established in Karnataka State by Act No. 45 of 2013

School of Engineering and Technology

Department of Mechanical Engineering

Technical Webinar Report

On

3rd Online Department Technical Webinar

Titled

"Bio-Composites: Opportunities and Challenges"

Organized by

Department of Mechanical Engineering

Date: 02.05.2020 @ 11.00 AM

Source: ZOOM APP

Prof. Devaraj E
Coordinator

Dr. Rajashekar Patil
HoD and Convenor

Main Campus, Off Hennur - Bagalur Main Road,
Chagalahatti, Bengaluru – 562149, Karnataka, India

2019-20

Contents

2. About Resource Person

Name: Dr. Haseebuddin M R

Designation: Associate Professor

Qualification: M.Tech, Ph.D

Experience: 10 Years

E-mail: haseebuddin-me@dayanandasagar.edu

Dr. Haseebuddin M, Associate Professor and Deputy controller of Exams, with 10 years of experience in teaching. He has published around 60 national and international journal papers and also attended several national and international conferences. Organised several workshop and faculty development program. The main thing of his contribution is he has brought around 7 funded research projects from the state and central government. He is very well specialized in Advanced materials and processing. His area of interest is Nano Materials & Processing, Six Sigma.

3. Topic and Presentation slides

Webinar on

Bio-Composites: Opportunities and Challenges

CMR University, Bangalore

Date : 2nd May 2020

By

Dr. Haseebuddin M R

Associate Professor & Deputy CoE

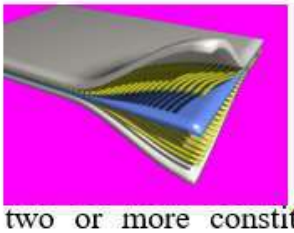
Department of Mechanical Engineering

(Accredited by NBA)

Dayananda Sagar College of Engineering, Bangalore

Dayananda Sagar
College Of Engineering

Composite material



Is a material made from two or more constituent materials with significantly different physical or chemical properties that, when combined, produce a material with characteristics different from the individual.

Bio-Composites

A composite material formed by a matrix (resin) along with reinforced natural fibers. The resin is formed by polymers which come from non-renewable or renewable sources.

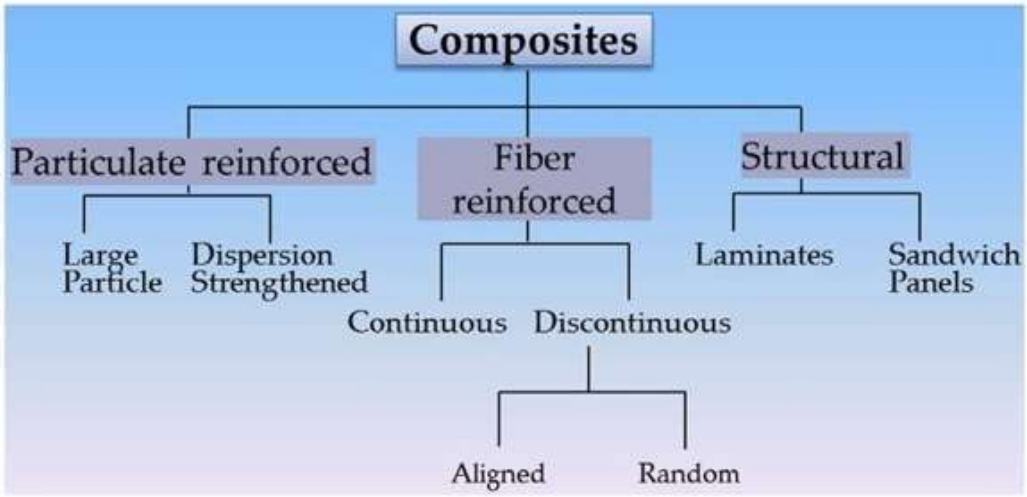
Dept. of Mechanical Engineering, DSCE 2

Some Advantages of Composite Materials

- Light weight
- High specific stiffness and strength
- Easy moldable to complex forms
- Easy bondable
- Low electrical conductivity and thermal expansion
- Good fatigue resistance
- Low radar visibility

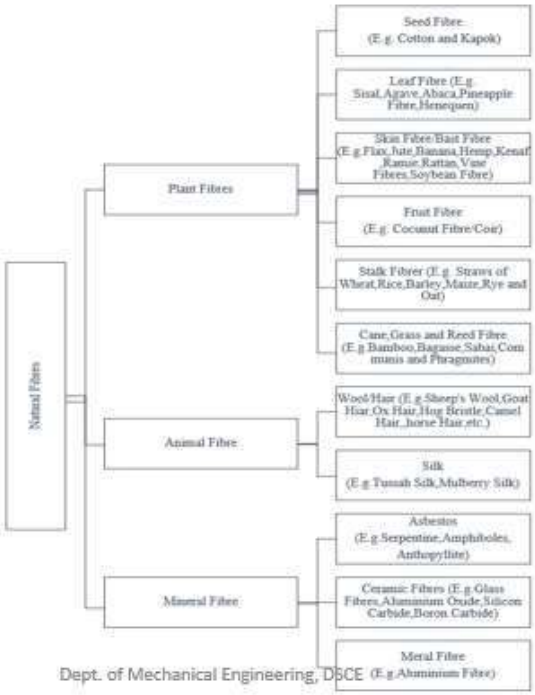
Dept. of Mechanical Engineering, DSCE 3

Classification Based on Reinforcement



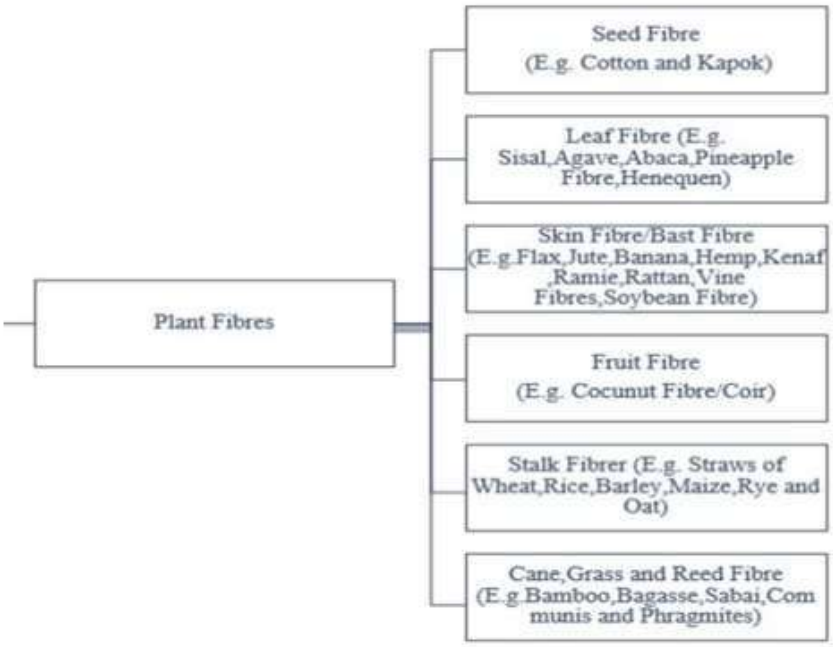
Dept. of Mechanical Engineering, DSCE 4

Classification Based on Natural Fibres



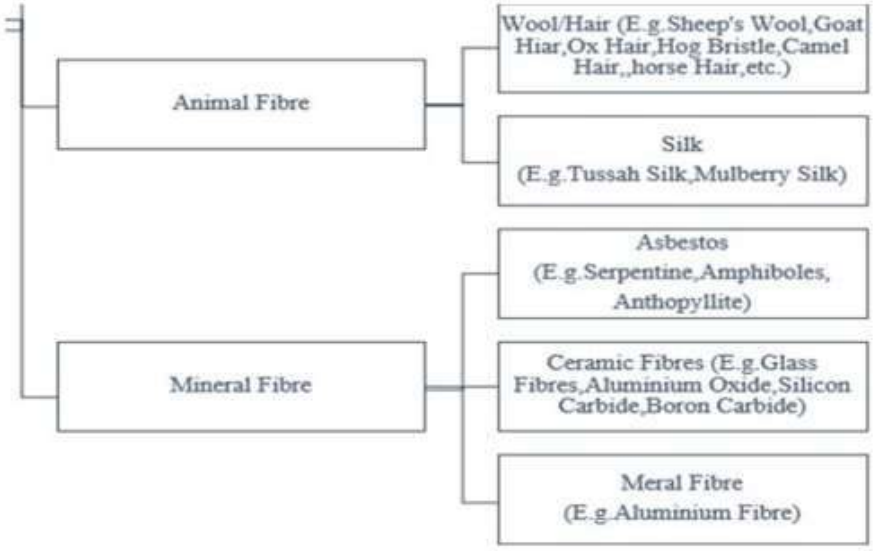
Dept. of Mechanical Engineering, DSCE 5

Classification Based on Natural Fibres



Dept. of Mechanical Engineering, DSCE 6

Classification Based on Natural Fibres



Dept. of Mechanical Engineering, DSCE 7

Mechanical properties of natural and artificial fibers

Fibers	Density (Kg/m^3)	Microfibril angle	Cellulose (%)	Lignin (%)	Tensile strength (MPa)	Elongation at break (%)	Young's modulus (GPa)
E-glass	2.5	–	–	–	2,000–3,500	2.4	70
Aramid	1.4	–	–	–	3000–3150	3.3–3.7	63–67
Carbon	1.7	–	–	–	4000	1.4–1.8	230–240
Bagasse	1.3	10–22	55.2	25.3	290	3–7	17
Bamboo	0.6–0.8	2–10	60.8	32.2	140–800	1.3	11–30
Banana	1.4	11	65	5	500	5.9	12
Coir	1.1–1.5	30–49	32–43	40–45	131–220	15–40	4–6
Cotton	1.5–1.6	33–34	85–90	5.7	287–800	1.2–1.5	13–27
Curaua	1.4	–	73.6	7.5	500–1150	3.7–4.3	11.8
Flax	1.5	5–10	64–71	2	345–1100	2.7–3.2	27.6
Hardwood	0.6–0.9		44–50	20–30	90–110	11–13	–
Hemp	1.5	6.2	90	8	310–750	1.6	30–70
Henequen	1.2	14	60	8	430–570	3.7–5.9	10–16
Jute	1.5	8.1	63	11.7	393–1000	1.16–2.5	13–54
Kenaf	–	–	72	9	930	1.6	53
Oil palm	0.7–1.6	46	65	29	248	25	3.2
Pineapple	0.8–1.6	8–15	81	12.7	1.44	14.5	34.5–82.5
Ramie	1.5	7–12	68–76	0.7	560	15	24.5
Sisal	1.5	20–25	70	12	468–640	5–14	9–22
Softwood	0.3–0.7	–	44–50	20–30	60–90	8–14	–

Dept. of Mechanical Engineering, DSCE 8

Classification of plant fibers, origin, world annual production and cost

Fibre type	Botanical name	Plant origin	Production (10^3 Tonnes)	Cost ($/kg)
Abaca	*Musa textilis*	Leaf	91	
Bagasse	*Saccharum officinarum L*	Stem	102,000	
Banana	*Musa ulugurensis* Warb.	Leaf	200	0.1
Bamboo	*Gigantochloa scortechinii* *Dendrocalamus apus*	Stem	10000	
Coir	*Cocos nucifera L.*	Fruit	650	0.84
Cotton	*Gossypium spp.*	Seed	19010	2
Flax	*Linum usitatissimum*	Stem	830	0.6-0.8
Hemp	*Cannabis sativa* L.	Stem	214	0.7-0.8
Jute	*Corchorus capsularis,* *Corchorus olitorius*	Stem	2850	0.8-0.9
Kapok	*Ceiba pentandra*	Seed	123	0.2
Kenaf	*Hibiscus cannabinus*	Stem	970	0.7-0.8
Phormium	*Phormium tenax*	Leaf	-	
Pineapple	*Ananas cosmosus* Merr.	Leaf	-	
Ramie	*Boehmeria nivea* Gaud	Stem	100	
Sisal	*Agave sisilana*	Leaf	318.8	0.74

Dept. of Mechanical Engineering, DSCE 9

Mechanical Properties bast and leaf fibers

Properties	Tensile strength (MPa)	Specific tensile strength (MPa)	Young's modulus (GPa)	Specific Young's modulus (GPa)	Failure strain (%)
Abaca	12	-	41	-	3.4
Banana	529-914	392-677	27-32	20-24	1-3
Pineapple	413-1627	287-1130	60-82	42-57	0-1.6
Sisal	80-840	55-580	9-22	6-15	2-14
Bamboo	575	383	27	18	-
Flax	500-900	345-620	50-70	34-48	1.3-3.3
Hemp	310-750	210-510	30-60	20-41	2-4
Jute	200-450	140-320	20-55	14-39	2-3
Kenaf	295-1191	-	22-60	-	-
Ramie	915	590	23	15	3.7

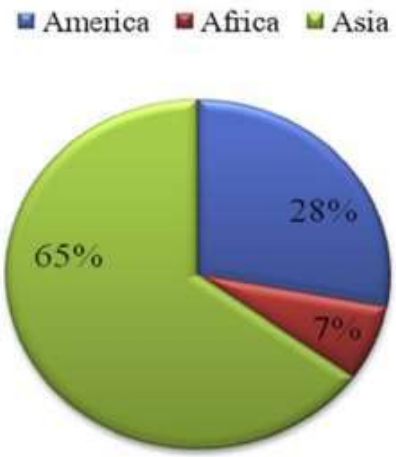
Dept. of Mechanical Engineering, DSCE 10

Commonly used Matrix Materials

Resin Type	Description	$/lb
	General Purpose	3.53-3.57
Polyester (Thermoset)	Isophthalic	3.70-3.80
	Bisphenol-A	5.10-5.90
Vinyl ester	Corrosion Resistant	5.75
	Heat and Corrosion Resistant	6.10
Epoxy	General Purpose	5.20-5.40
	Compounds	5.35-5.65

Dept. of Mechanical Engineering, DSCE 11

Bamboo Cultivation regions



Dept. of Mechanical Engineering, DSCE 12

Bamboo Fiber Reinforced Polymer Composites

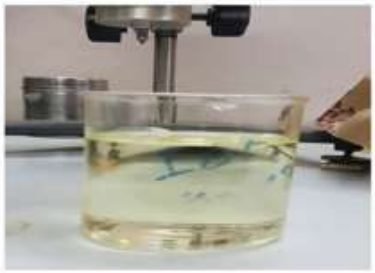
BAMBOO FIBER REINFORCED POLYMER **COMPOSITES** (BFRP)

The high strength to weight ratio of **bamboo** has attracted researcher's attention to maximize its potential in **composites**. BFRP is an eco-**composite** that is lightweight, environmental friendly, and has comparable strength to conventional materials.

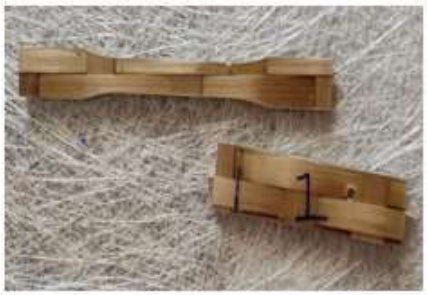
Characteristics of various composite manufacturing methods

Process	Production speed	Cost	Strength	Size	Shape	Raw material
Filament winding	Slow–fast	Low–high	High	Small–large	Axisymmetric cylindrical	Continuous filament, epoxy and polyester resins
Pultrusion	Fast	Low–medium	High in length direction	No length limit, cross-section small-to-medium	Uniform cross-section	Continuous filament, epoxy and polyester resins
Hand lay-up	Slow	High	High	Small–large	Simple–complex	Prepreg or fabric with epoxy
Wet lay-up	Slow	Medium	Medium-high	Medium–large	Simple–complex	Fabric/mat with polyester, epoxy
Spray-up	Medium–fast	Low	Low	Small–medium	Simple–complex	Short fibre with catalyzed resin
RTM, VARTM	Medium	Low–medium	Medium	Small–medium	Simple–complex	Preform and fabric with vinylester and epoxy
SRIM	Fast	Low	Medium	Small–medium	Simple–complex	Fabric or perform with polyurethane, polyester, polyurea, polyisocyanurate resin
Compression moulding	Fast	Low	Medium	Small–medium	Simple–complex	Moulding compound (SMC, BMC), GFT, LFT
Stamping	Fast	Medium	Medium	Medium	Simple—contoured	Fabric impregnated with thermoplastic (tape)
Injection moulding	Fast	Low	Low–medium	Small	Complex	Pellets (short fibre with thermoplastic)
Roll wrapping	Medium–fast	Low–medium	High	Small–medium	Tubular	Prepregs

Development of Bamboo Composite Panels

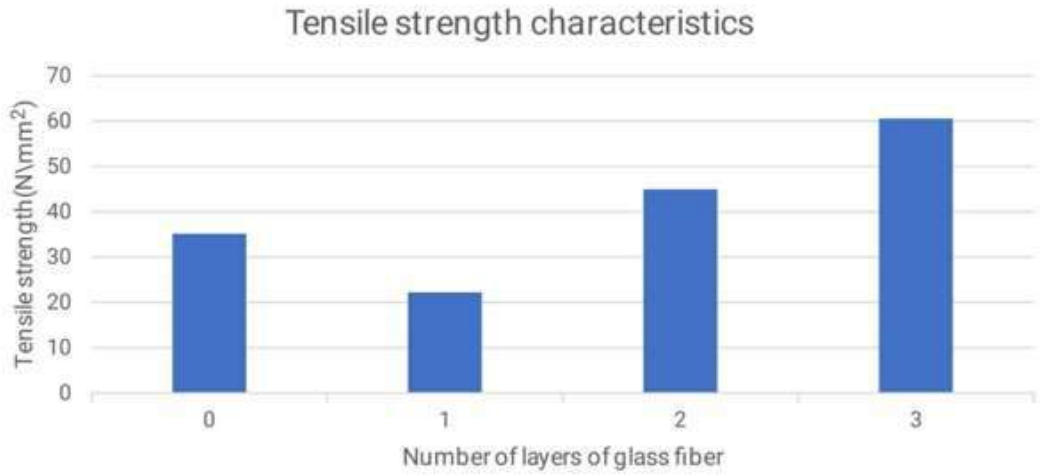



Dept. of Mechanical Engineering, DSCE 15

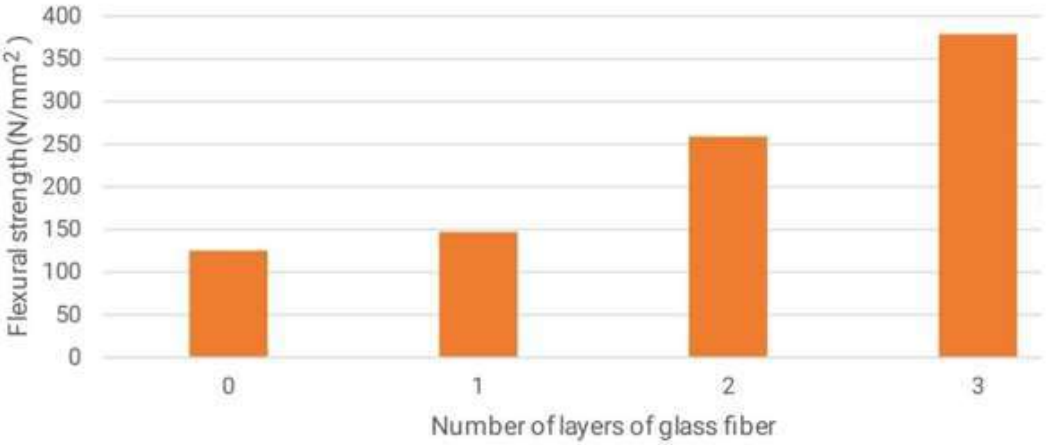



Dept. of Mechanical Engineering, DSCE 16

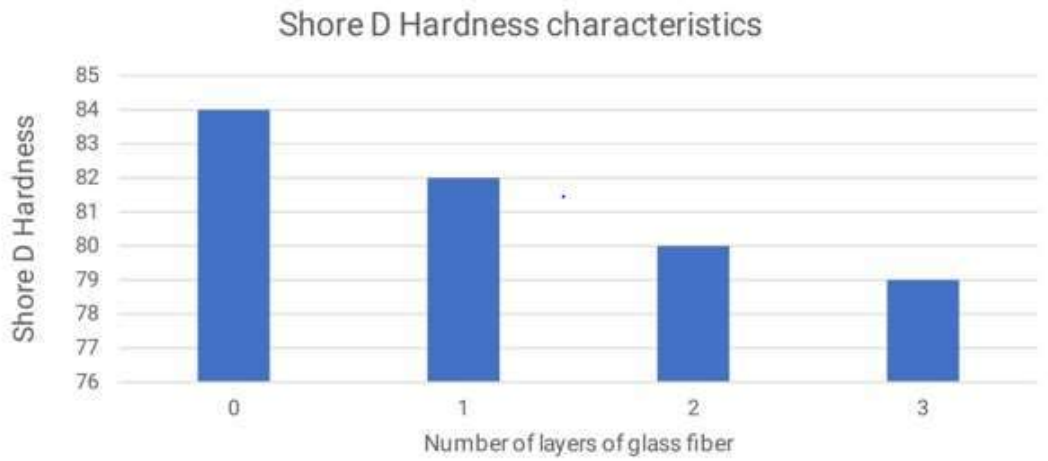
Mechanical Properties of Bamboo/Glass Fiber Polyester Composites



Variation of tensile strength with number of glass fibers



Variation of flexural strength with number of glass fibers



Variation of Hardness (Shore D) with number of glass fibers

Opportunities

For Budding Entrepreneurs:

- Natural fiber/Bamboo fiber reinforced polymer composites as construction materials.
- Food industry (bottles, containers, cups, disposable tableware, and packaging)
- Starch-based biodegradable polymers have some advantages to be medical polymer materials
- Medical applications (disposable equipment and tools designed for easy breakdown)

Challenges

- Low modulus of elasticity.
- High moisture absorption.
- Decomposition in alkaline environments or prone to biological attack.
- Variations in physical properties affect in variation in mechanical properties as well when compare with synthetic fibers.

Products

- Automobiles components (door panels, package trays, seat backs, trunk liners...)

Mercedes S-Class uses 27 bio-based Components

Automobiles using Natural Fiber based Composites

Bio-based content of some automotive components	Feedstock	Material	Application	Bio-based content (%)
BMW 7-series	Sisal	Acrylic polymer	Interior door panel	70
Chrysler sebring	Kenaf, hemp	Polypropylene	Interior door panel	50
Ford fiesta and focus	Kenaf	Polypropylene	Interior door panel	50
Ford fusion and lincoln MKZ	Soy	Polyurethane	Seating headrests	13–16
Multiple fiat vehicles	Castor	Zytel	Fuel lines	60
Nissan leaf	Corn	Sorona	Floor mats	20–37
Toyota camry	Castor	Zytel	Radiator end tank	40

Dept. of Mechanical Engineering, DSCE 23

Products

Indian Plywood Industries Research & Training Institute

Dept. of Mechanical Engineering, DSCE 24

Conclusions

- Bio-composite materials have been adopted in various applications. However, their implementations as alternatives for conventional materials are relatively slow.
- A range of applications exist for natural composites, from small components for consumer and leisure markets to large semi-structural parts in the automotive and construction industries.
- Composites based on natural fibres and synthetic polymers are now used in significant quantities in industry. Wood plastic composites (WPC), consisting of very short wood fibres and PP, PE or PVC, are used to make decking, railings, outdoor furniture and automotive parts.

4. List of Participants

Professors:

Sl No	Name	Designation
1	Dr. Rajashekar Patil	Professor
2	Dr. Anup P Athresh	Associate Professor
3	Dr. Bharath V G	Assist. Professor
4	Prof. Arunkumar K H	Assist. Professor
5	Prof.Bharath G	Assist. Professor
6	Prof. Varaprasad Kaviti	Assist. Professor
7	Prof. Devaraj E	Assist. Professor
8	Prof. Rupa A	Assist. Professor
9	Prof. Mamatha	Assist. Professor
10	Prof. Hema Kapu	Assist. Professor

Students:

Sl No	Student Name	Sem
1	A V RAHUL	6
2	ANTON ANUBHAV RAJAN	
3	ARCHANA V	
4	ASHOK KUMAR R	
5	AVINASH KANNAN M G	
6	CHARAN GOWDA S	
7	DHATHRI S RAO	
8	G SHABREZ	
9	K B MALLIKARJUNA	
10	MANASSEH SAMUEL	
11	MOHAMMED FAAIZ ANSARI	
12	NIKHIL S NANDI	
13	P SACHIN SIYAL	
14	PRAVEEN JADHAV	
15	GHANASHYAM G	
16	MOHAMMED NEHAL AZEEM	
17	SUPRITH G GOWDA	
18	SUSHIL KUMAR M	

5. Link of Recording

https://us04web.zoom.us/j/77932259088?pwd=QS9PNDFNZjA1cjV3R1MxcHVPc2lLZz09

Meeting ID: 779 3225 9088

Password: 0pQMUR

6. Concluding Remarks

Coordinator: Cheerful to say that we are able to arrange the Technical webinar session as it is helpful for capstone project work for the existing third-year students. The topic requested by the students was latest and the resource person accepted our request with the help of Head of Department. The session was good and very informative to all the participants.

Head of Department:

During our regular meeting had a discussion and gathered opinion of all the faculties to conduct online technical webinar and I request Prof. Devaraj E to organize and coordinate the 3rd online Department Technical Webinar. When I contacted resource person, he voluntarily accepted our invitation to deliver a lecture. We worked as a team, patterned and had demo later finally the 3rd departmental technical Webinar was conducted with great success.

I am very happy to inform you that the Department of Mechanical Engineering, SoET, CMR University organized 3rd online Technical Department Webinar. The seminar topic was very relevant to current situation of lockdown due to COVID 19, wherein the seminar gives an insight to the students to help to understand the basics of bio composites, briefly explained the manufacturing of polymer composite with different applications where polymer composite can be used. I thank whole my team and students for making it a grand success.

7. Appreciation Letter

CMR UNIVERSITY

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL ENGINEERING

CERTIFICATE OF APPRECIATION

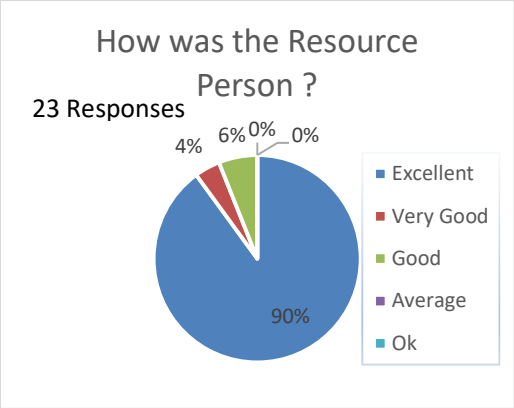
We appreciate and thank **Dr. Haseebuddin M R**, Associate Professor, Dayananda Sagar College of Engineering, Bengaluru for delivering webinar session titled **"Bio-Composites: Opportunities and Challenges"** on 02 May 2020 at 11.00 AM using Zoom Application.

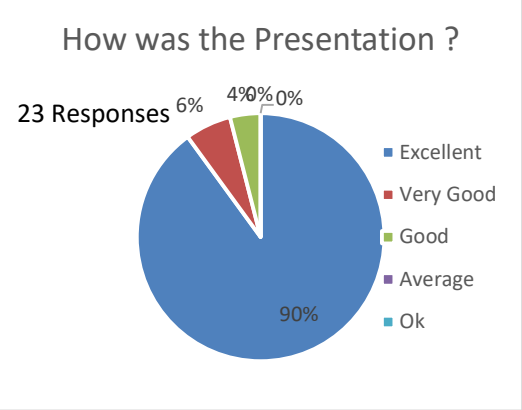
Prof. Devaraj E
Coordinator

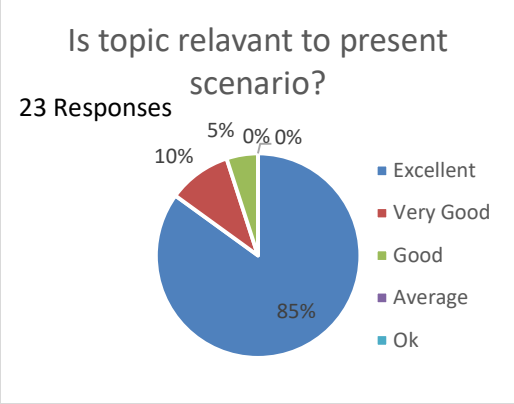
Dr. Rajashekar Patil
HoD, ME

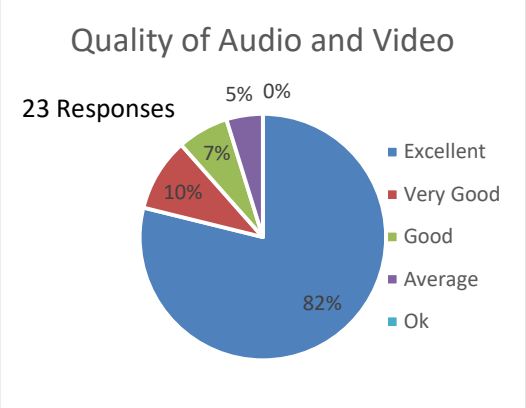
8. Feedback

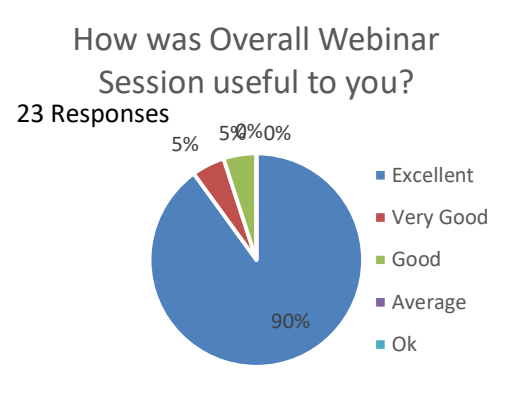
The feedback was collected by all students using google forms.











General Comments (4 Responses)

- It helps us to understand about polymer composites and very much helpful for our 4th year capstone projects.
- Elucidated the topic skillfully.
- Yes, it was a good session and understood about bio composites.
- The topic was different and explained very well. Thank You Sir.

Overall feedback was excellent, and students informed the coordinator and head of the department to conduct few more technical seminars to update the knowledge in current technology used in industries.

9. Acknowledgement

We thank Vice Chancellor, Registrar, Pro Vice Chancellor, Registrar (Evaluation) and SoET, CMR University for their continuous support during Covid-19 period.

We thank Resource Person, Dr. Haseebuddin M R for taking his time to share knowledge for our students during COVID-19.

We thank all teaching and non-teaching faculty, Department of Mechanical Engineering for their valuable inputs for conducting 3rd Online Technical Department Webinar.

Sd/-
Coordinator
Prof. Devaraj E

Sd/-
Convenor and HoD
Dr. Rajashekar Patil

CMR UNIVERSITY

Private University Established in Karnataka State by Act No. 45 of 2013

National Webinar

"Artificial Intelligence in Medical Applications"

Thursday, Nov 12, 2020 - 2.30 p.m. to 4 p.m.

by

Dr. Shiv Prakash and Mrs. Fathima Afroz

iPEC Solutions Pvt.Ltd.,Rajarajeshwari Nagar Bangalore

Webinar Registration:

https://forms.gle/trAvCKd6LfCFpuh18

Organized by:

Department of Computer Science and Engineering

School of Engineering & Technology.

CMR University (Main Campus),

Bengaluru. 562149

PRAVEEN R

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Chancellor, CMR University.

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Registrar, CMR University

Dr. C. Prabhakar Reddy ,

Dean, SoET, CMR University

About the CMR University

CMR University (CMRU) is a private university in the state of Karnataka, established and governed by the CMR University Act-2013. CMR University aims to promote and undertake the advancement of university education in technical, health, management, life sciences and other allied sectors of higher and professional education.

We believe that creativity is the key competence required to excel in our complex world where independent thinkers, product leaders, artists, designers and innovators are the need of the hour. Our students learn creative concepts and design thinking regardless of their area of study. CMR University fosters creative communities where new ideas can be nurtured, new discoveries made and new creations shared.

Overview of the Webinar

1. Importance of Yoga for Students and Faculties. (15 minutes)
2. Introduction to the Webinar Topic
3. Why Now we should think about ML/AI /NLP in Healthcare?
4. Examples of Machine Learning in Healthcare
5. What is Unique About ML in Healthcare?
6. Implementing Machine Learning Methods in a Medical Context

Profile of the Speaker

Dr. Shiva prakash.M is a professor & qualified yoga master. He started yoga practice from high school days seeking guidance from yoga master Ananth kumar . He had done teacher training course from Swami Vivekananda yoga Samsthana (SVYASA), Siddha Samadhi yoga (SSY), Pranic healing course, Sudharashana kriya yoga (ART OF LIVING), Kriya yoga training,Vedanta maharishi yoga, Siddha kundalini yoga, Shaja siddha meditation, Pyramid mediation, Heartfulness meditation,Shiva yoga .He will do Energy management ,Stress management and a Cosmic healer .

Mrs. Fathima Afroz has 15+ years of teaching experience and 3 years of industrial experience. Her Field of Expertise / Interest are Signal processing, Speech Recognition, Artificial Intelligence Predictive Analytics and Machine Learning.

Coordinators

Dr Rubini P Ph: 9600219977

Prof Vanitha S Ph: 9791566245

Prof Shruti Hegde Ph: 8762329029

Organizing Committee

Prof. Naveen G	Prof. Jagadeesh R	Prof. Manjunath H	Prof. Ramachandra H
Prof. Shivali S	Prof. Shivaprakash R	Prof. Mohan G S	

Post Webinar Report

The event started at 2.30P.M with a welcome speech by Dr.Rubini P, HoD, Department of Computer science. She welcomed the speaker of the event Dr. Shiva Prakash and Mrs. Fathima Afroz , iPEC solutiosn, Honorable Pro-Vice Chancellor **Dr. Suresh K. R**, CMR University, Honourable Register **Dr. Praveen R.,** CMR University , **Dr. C.Prabhakar Reddy,** Dean School of Engineering and Technology, CMR University, Faculties and participants of the event.

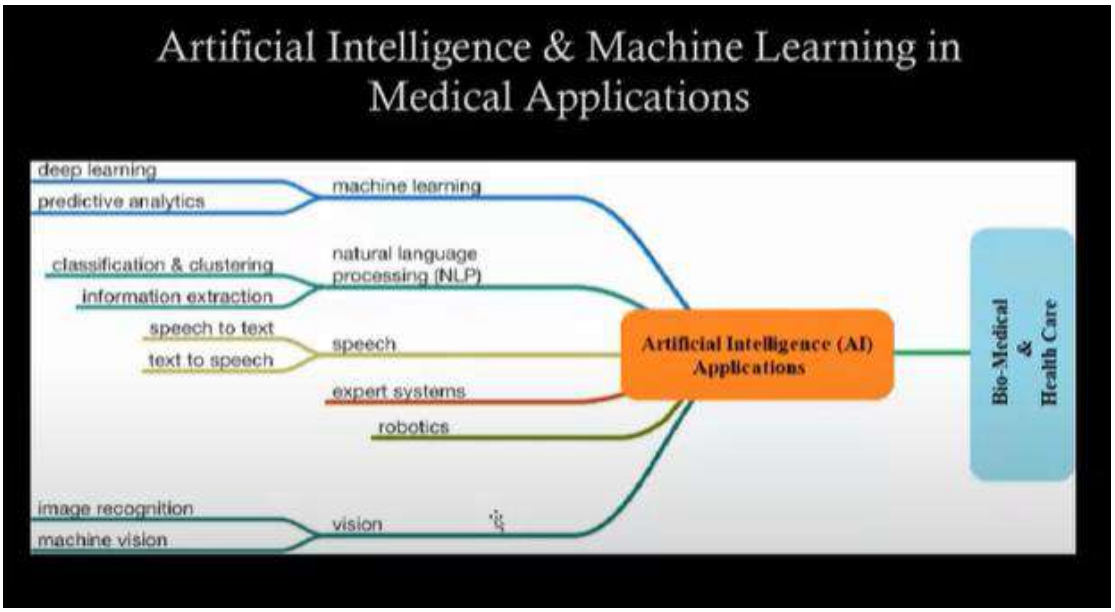
Dr. C.Prabhakar Reddy, Dean, School of Engineering and Technology, Motivated the participants by briefing the prominence of Artificial Intelligence.

Dr. Suresh K. R, Pro-Vice Chancellor, School of Engineering and Technology, Motivated the participants by briefing the prominence of Artificial Intelligence.

The Speaker started his session by overview of Artificial Intelligence

Slide 1:

Slide 2:



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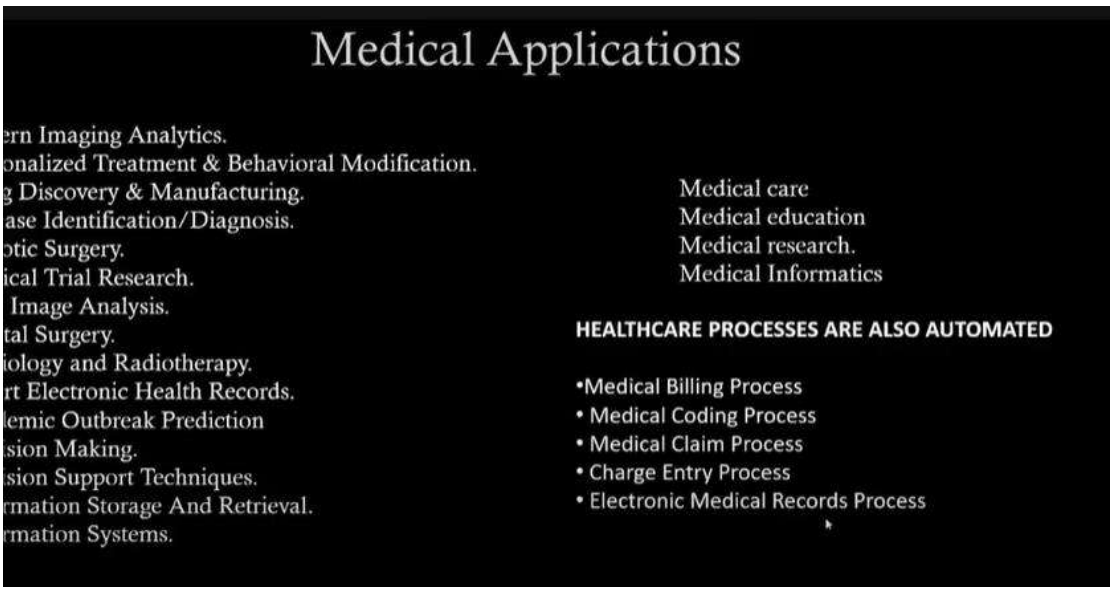

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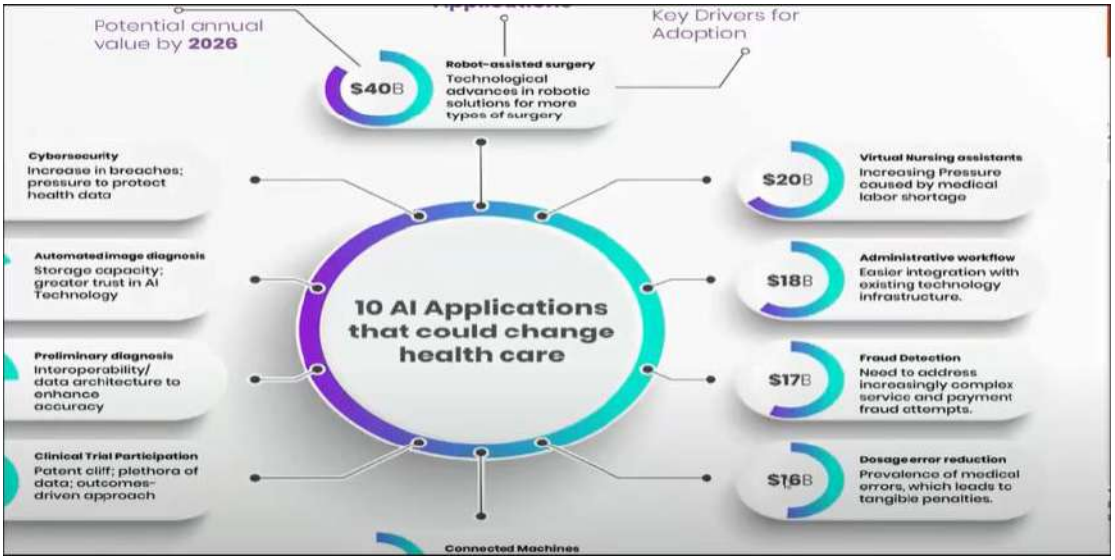

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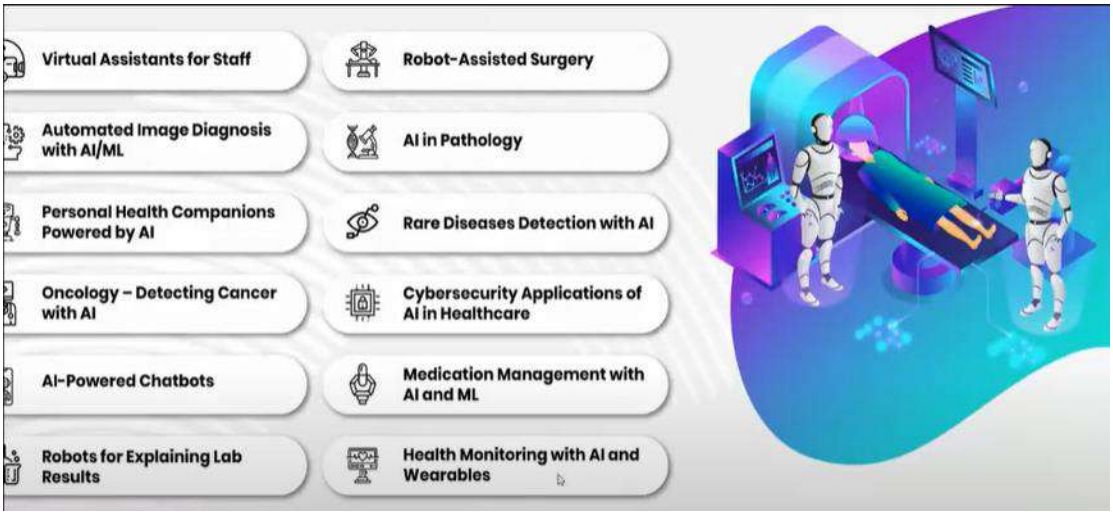

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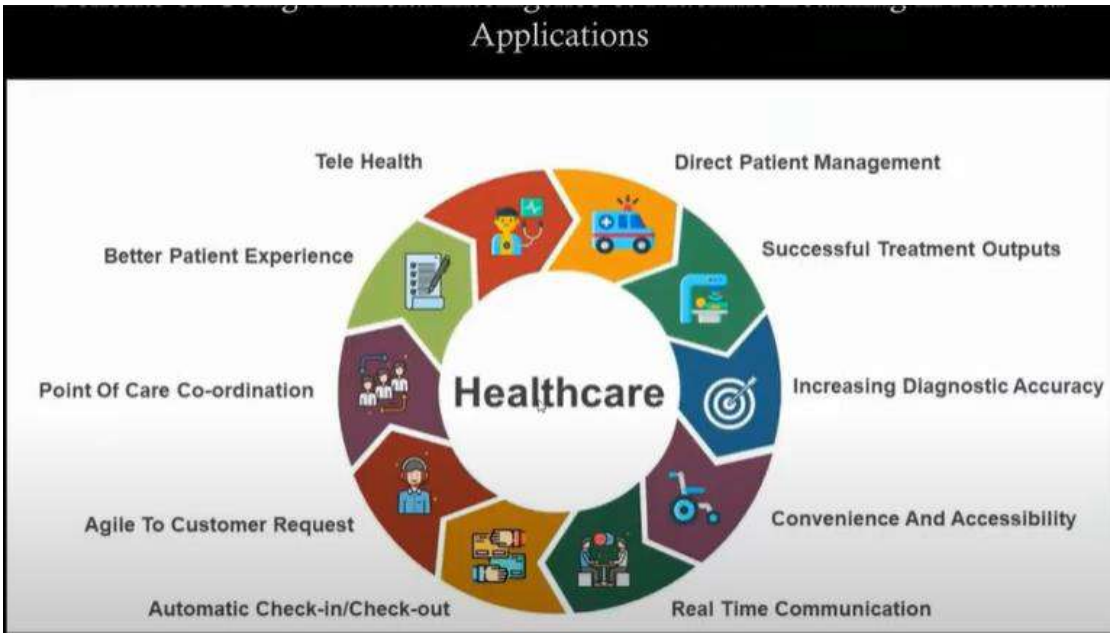

Slide 8:

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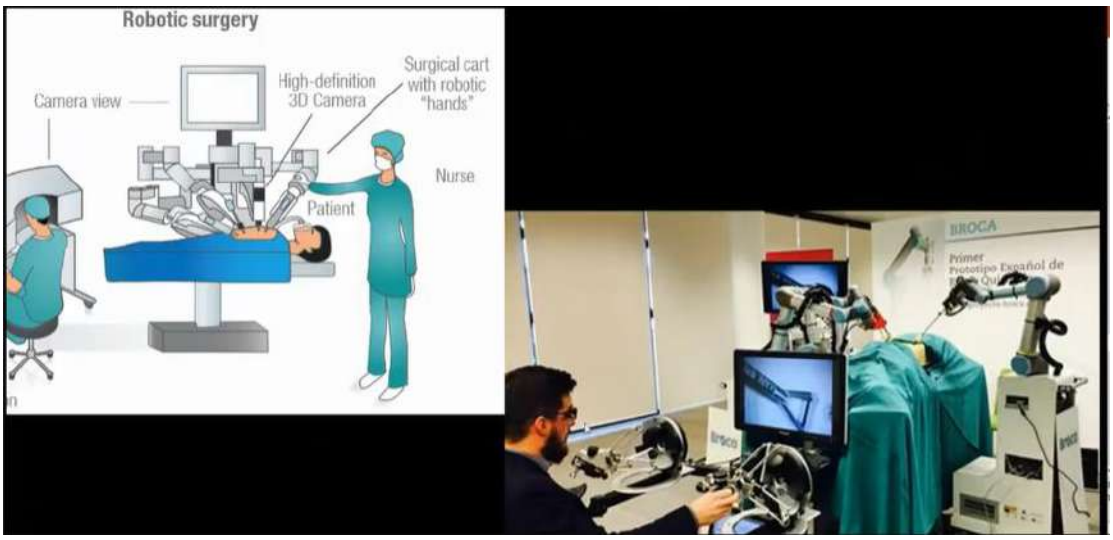
Slide 12:



Slide 13:

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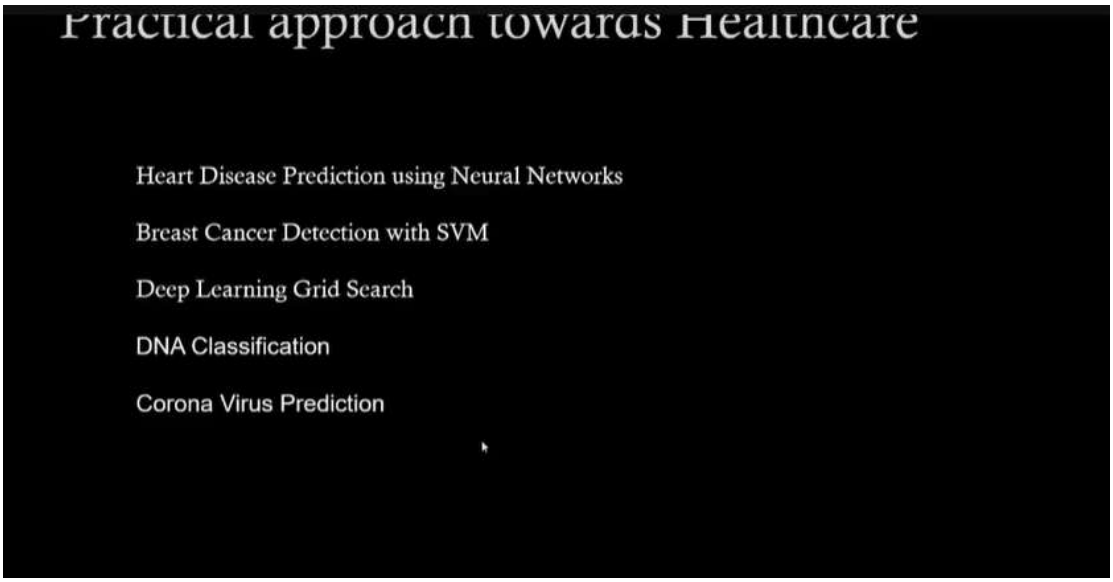

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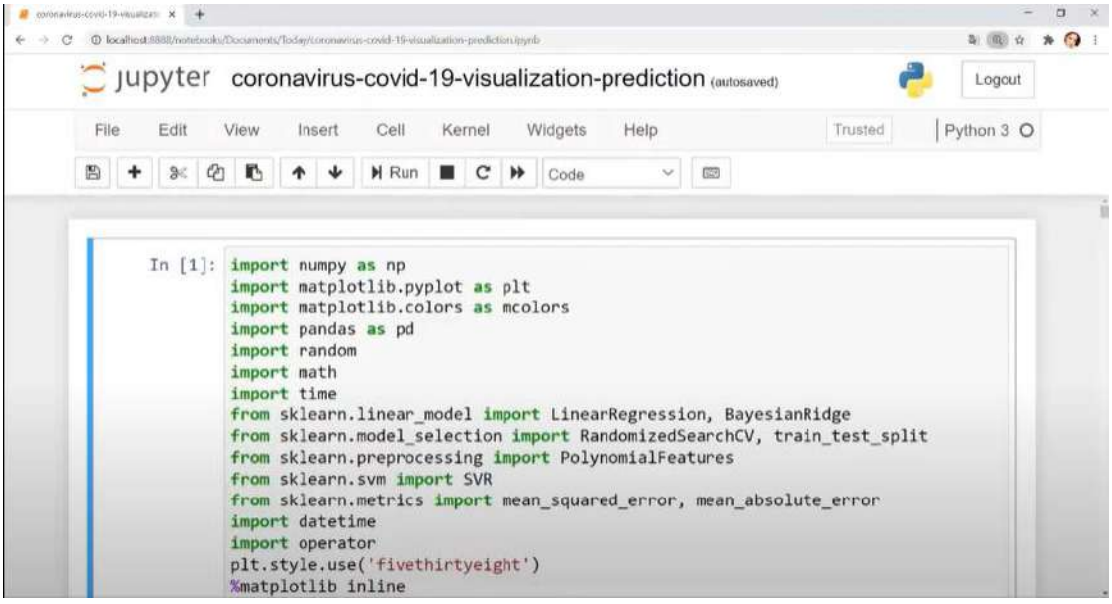

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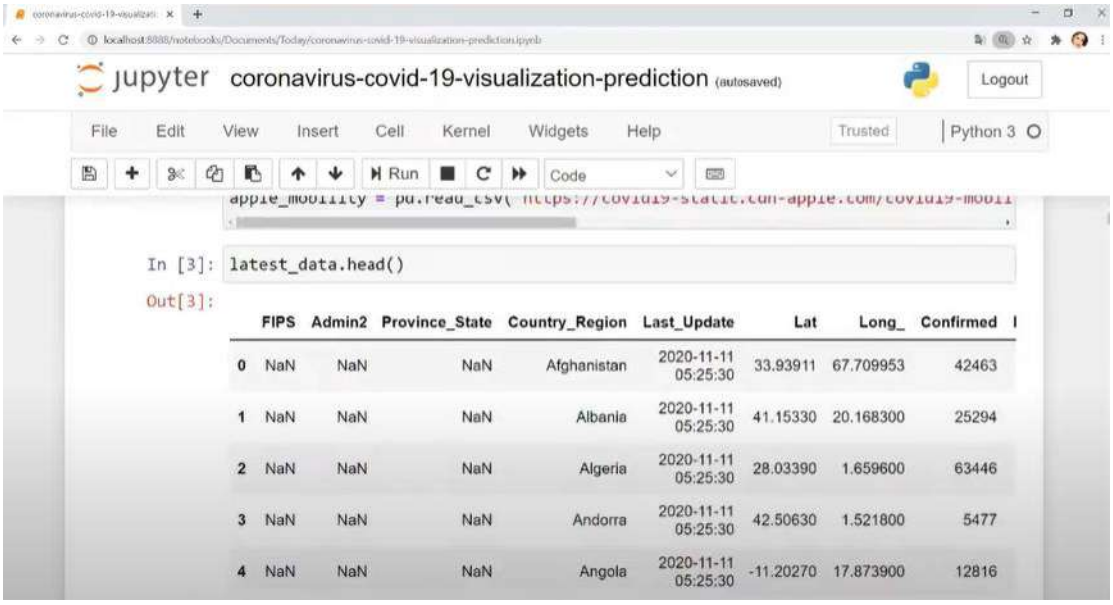

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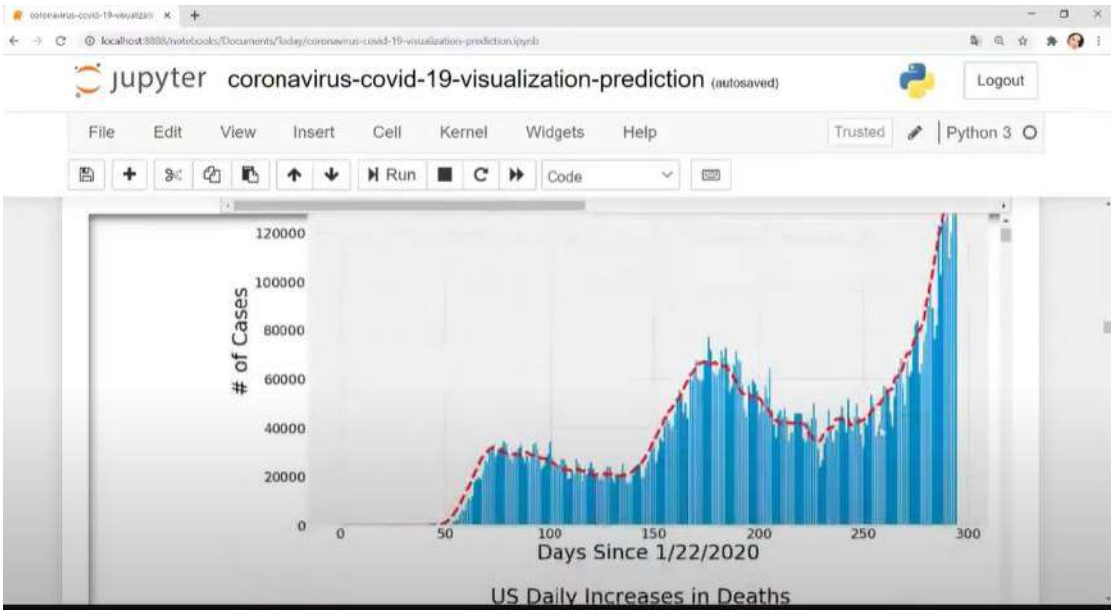

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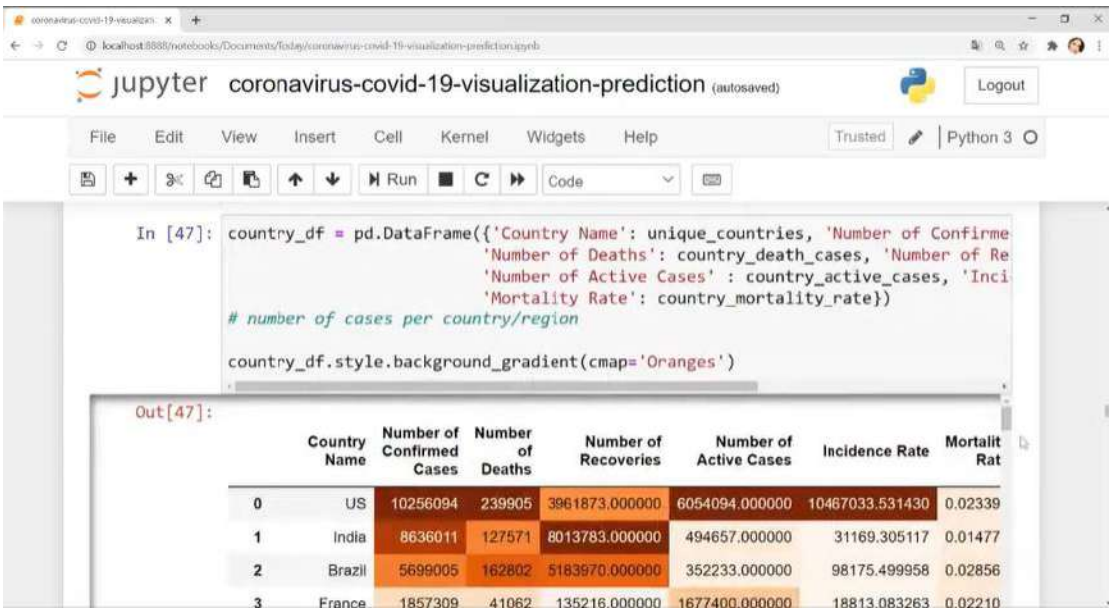

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2	Brazil	5699005	162802	5183970.000000	352233.000000	98175.499958	0.02856
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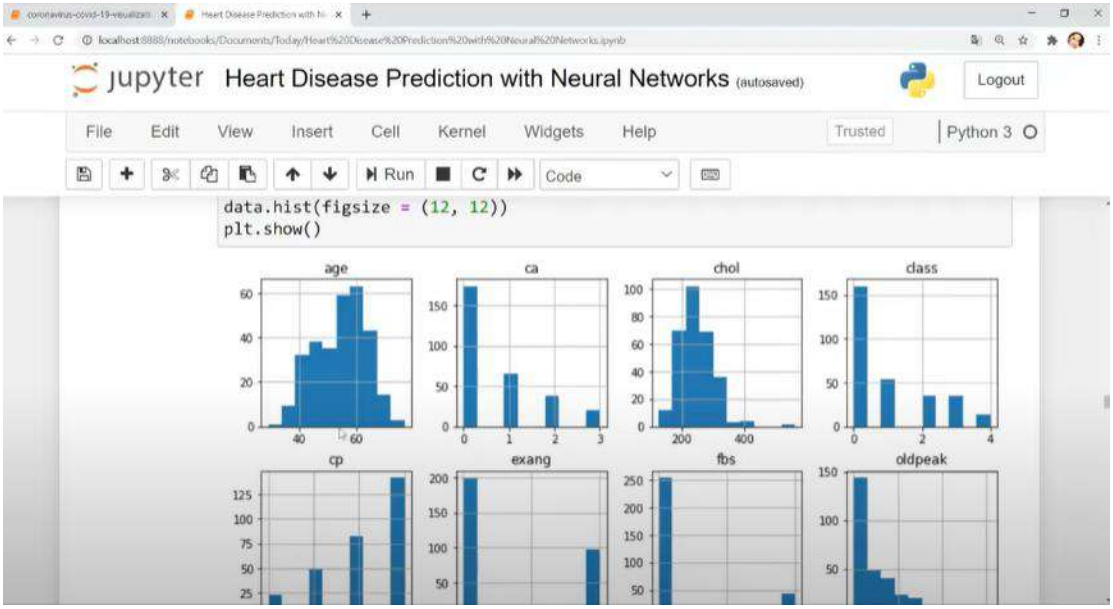


Slide 20:

2. List of Participants

SL NO.	FULL NAME	DESIGNATION	DEPARTMENT	NAME OF THE INSTITUTION /COMPANY	CITY	STATE
1	NAYANA BASAVARAJ ANGADI	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
2	BHARATH B G	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
3	MEDA VENKATA SAI MAHESH	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
4	NAYANATARA D	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
5	K HARIPRIYA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
6	J SANJANA BALA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
7	R ARCHANA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
8	TINA ALEX L	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
9	RAJAN KUMAR N	STUDENT	ECE	CMR UNIVERSITY	BANGALORE	KARNATAKA
10	GUNDU. SAICHARAN REDDY	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
11	PRAJWAL PATIL	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
12	PRIYANKA KARMAKAR	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
13	JENNIFER J	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
14	SURESH V	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
15	M PRATHYUSHA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA

16	NAMRATHA S	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
17	JAHNAVI T	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
18	NANDARAJ M	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
19	SONALI RANJAN	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
20	BHUMIKA K S	STUDENT	ECE	New Horizon College of Engineering	BANGALORE	KARNATAKA
21	AKSHAYA SRINIVASAN	STUDENT	ECE	New Horizon College of Engineering	BANGALORE	KARNATAKA
22	SURYA V	STUDENT	IT CTIS	CMR UNIVERSITY	BANGALORE	KARNATAKA
23	RAGHAV PANDEY	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
24	AMRIT ASHISH	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
25	TAKKOLI NAGEESWAR REDDY	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
26	SUMADEVI.G	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
27	SHAYMALA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
28	ASHISH KUMAR SINGH	STUDENT	ECE	CMR UNIVERSITY	BANGALORE	KARNATAKA
29	SAGAR ROY	STUDENT	IT CTIS	CMR UNIVERSITY	BANGALORE	KARNATAKA
30	BHAVNA JOSHI	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
31	BRINDA RAMESH	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
32	M PRATHYUSHA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA

33	SHRUTI HEGDE	ASSISTANT PROFESSOR	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
34	BINDU D N	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
35	B SAI SIDDHARTHA	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
36	SIDDHARTH NAIR	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
37	HEMALATHA R.S	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
38	TRISHITA GHARAI	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
39	VISHNU DEEPAK	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
40	RAJIV UDDIN AHMED	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
41	SRUJANA SARIKA NAIDU	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
42	SRI HARSHA DV	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
43	PRATIK.S	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
44	AMRIT ASHISH	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
45	ANUSRI CHAURASIA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
46	SHAHANA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
47	ANNA.ASRITHA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
48	T RAKSHA BOPANNA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
49	ANUSRI CHAURASIA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
50	MANOJ BAHADUR	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA

51	K N PRAJWAL SAI	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
52	RENUKACHARYA	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
53	SHRI SHYLA S	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
54	YASHASWINI T S	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
55	GULSHAN KUMAR	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
56	KUSHAL GOWDA C P	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
57	SOUNDARYA P	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
58	SANTHOSH KUMAR S	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
59	DEEPAK KUMAR	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
60	URAVAKONDA ABHIRAM REDDY	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
61	T K ABDUL AHAD	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
62	VIDHYASHREE	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
63	MADHU A V	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
64	MD IMRAN ALI	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
65	KRITIK AGARWAL	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
66	JEEVAN PRANAV	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
67	NIVEDITHA H R	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
68	SUYOG NAVALE	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA

69	HARSHAVARDHAN REDDY MD	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
70	B. KARTHIK REDDY	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
71	SUMADEVI. G	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
72	THILOTHY P	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
73	CHAITRA LINGARAJU	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
74	KUNDURU NAGENDRA REDDY	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
75	VAISHNAVI G	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
76	PRACHI GHOSE	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
77	ANUSHKA VERMA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
78	BELLAMKONDA NAGESH	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
79	BELLAMKONDA NAGESH	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
80	VIJAY.T	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
81	PROF. GOURI PATIL	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
82	ANKITH K.R	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
83	B KALYAN KUMAR REDDY	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
84	KAMYA RACHEL	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
85	STEFFI ROSE SEBASTIAN	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
86	SAKETH RAYANI	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA

87	TARUN PUROHIT	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
88	B.HRISHIKA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
89	R JAISURYA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
90	POLEPALLI JASHWANTH	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
91	POOJA. R	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
92	VIKRAM KP	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
93	NISHITHA VIJAY	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
94	PUSHKAR SUMAN	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
95	AMRENDRA KUMAR	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
96	AYESHA SIDDIQA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
97	SHIVALI SHAKYA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
98	ROUNAK AVINASH	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
99	KRUTHIKA N	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
100	VANI GM	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
101	SHARON CORRIE	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
102	UMA MAHESHWARI M	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
103	SHREEKAR SANJEEV KULKARNI	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
104	SAMYUKTA TARUN	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA

105	SIDHARTHA PARASRAMKA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
106	KIRAN	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
107	KARTHIK G	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
108	ADITYA VIKRAM SREEJITH	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
109	K. KISHORE SAI	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
110	VIGNESH J	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
111	SRILAKSHMI VENUGOPAL	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
112	SHALINI.T	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
113	MANJUNATH V	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
114	MISBA ANJUM	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
115	R.MAHALAKSHMI	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
116	GOPI KRISHNA P	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
117	S. RISHIKA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
118	HARSHITA MAHATA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
119	AKARSH KUMAR	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
120	SHABUDDIN AHMED	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
121	VIPIN SHUKLA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
122	A JENIFER CYNTHYA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA

123	RAMYA R	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
124	VISHAL CB	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
125					BANGALORE	KARNATAKA
126	CHANDANA BHAT B S	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
127	SRINIVAS RAJU S	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
128	KUSHAL K P	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
129	PRUTHVI RAJ	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
130	VIDYASHREE PANDITH P N	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
131	ANSHU	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
132	FAIZAN KHAN	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
133	AAYUSH MANOJ TIRMALLE	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
134	FATHIMA AFROZ	TRAINER	TRAINING	iPEC Solutions Pvt.Ltd	BANGALORE	KARNATAKA
135	DR SHIVA PRAKASH. M	ASSOCIATE PROFESSOR	ECE	Dr AIT	BANGALORE	KARNATAKA
136	M P K P P L N REDDY	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
137	ANKITHA CHOWDARY	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
138	GADDAM CHATURYA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
139	SREEJA ARYAHI K S	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
140	DEEPTHI A P	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA

141	JATIN VAISHNAV	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
142	SMITHA PATIL	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
143					BANGALORE	KARNATAKA
144	SADHANA MISHRA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
145	SWETALINA NAYAK	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
146	NANDISH M	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
147					BANGALORE	KARNATAKA
148	SAHANA.HJ	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
149	KRISHNA KANT PANDEY	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
150	TARUN KUMAR	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
151	NAMITHA SURESH	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
152	AKHILA V SHETTY	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
153	SAMYUKTA TARUN	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
154	VARSHA S RAJAN	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
155	AMAN.G.NAIR	STUDENT	CS	CMR UNIVERSITY	BANGALORE	KARNATAKA
156	THEJASHWINI D	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
157	TANUSHREE N	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
158	P.HEMALATHA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
159	TEJASVI.K	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA

160	GORLA KARTHIKEYA REDDY	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
161	V. YAMINI SWETHA	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
162	K.ABHINANDHAN	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
163	RAFIA AKHTAR MAHAM	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
164	ISAZ AHMED SHAIKH	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
165	ROSHAN RAJ A	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
166	SHILPA J	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
167	VARSHA N	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
168	KOUNDINYA KOORAPATI	STUDENT	CSE	HCL Technologies	BANGALORE	KARNATAKA
169	ABDUR RAHMAN	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
170	J K HARSHITH RAJ	STUDENT	CE	CMR UNIVERSITY	BANGALORE	KARNATAKA
171	RITIKA.R	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
172	MANISHA KATIYAR	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
173	BRUNDA S	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
174	MAHIRA KOUSAR	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
175	SNEHA HEGDE	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
176	SONALI RANJAN	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
177	MD MUJEEB UR REHMAN G	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA

178	TANUJA. S	STUDENT	IT	CMR UNIVERSITY	BANGALORE	KARNATAKA
179	ROHITH JOHN	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA
180	SREEJA ARYAHI K S	STUDENT	CSE	CMR UNIVERSITY	BANGALORE	KARNATAKA

Total No. of Faculties: 3

Total No. of Research Scholars: 1

Total No. of IT Professionals: Nil

Total No. of Students: 176

Total No. of Participants: 180

3. Appreciation Certificate


CMR UNIVERSITY

School of Engineering and Technology

CERTIFICATE OF PARTICIPATION

VANITHA S from SoET, CMR University

has successfully completed National level Webinar on "*Artificial Intelligence in Medical Applications*" held on 12.11.2020

Organised by
Department of CSE / IT
In Association with
iPEC Solutions Pvt.Ltd

DR. C. PRABHAKAR REDDY
Dean

DR. SURESH K R
Pro Vice Chancellor

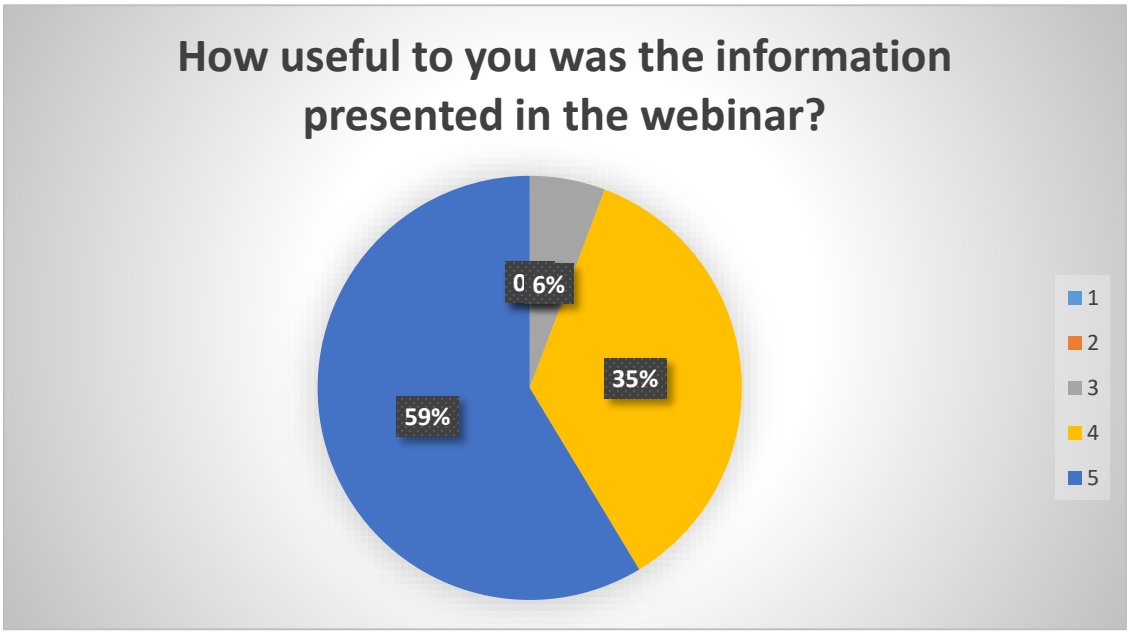
Recording Link:

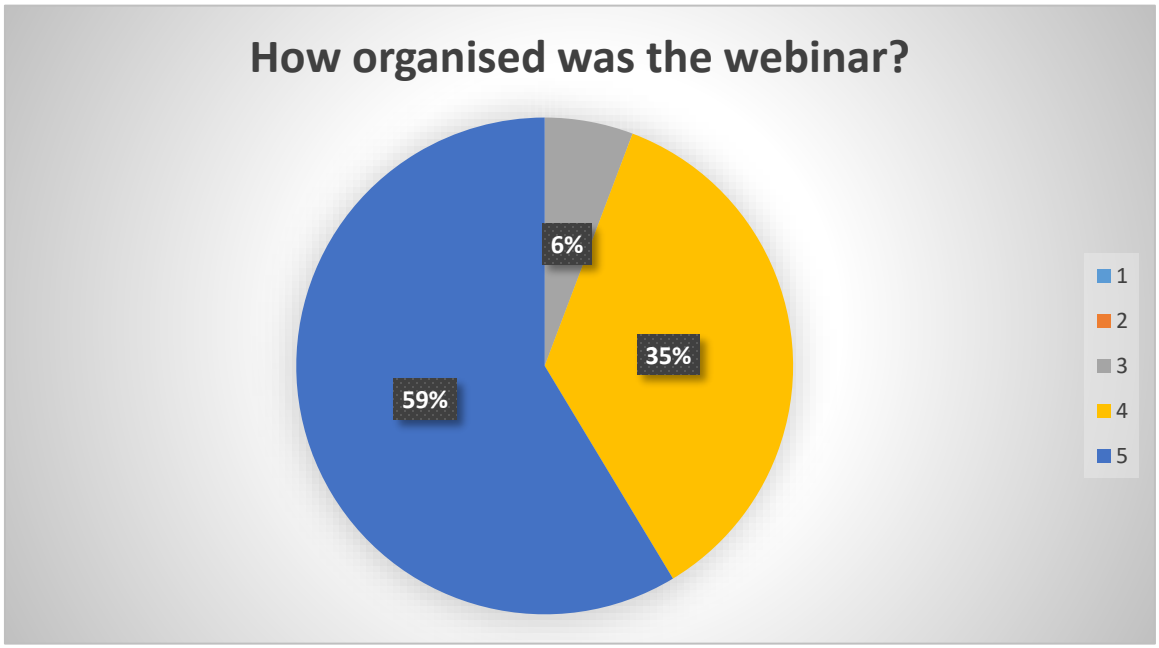
https://drive.google.com/file/d/1Lui9eCMqbRlBDxWMYS91Hc4IPCTkVIdd/view?usp=sharing

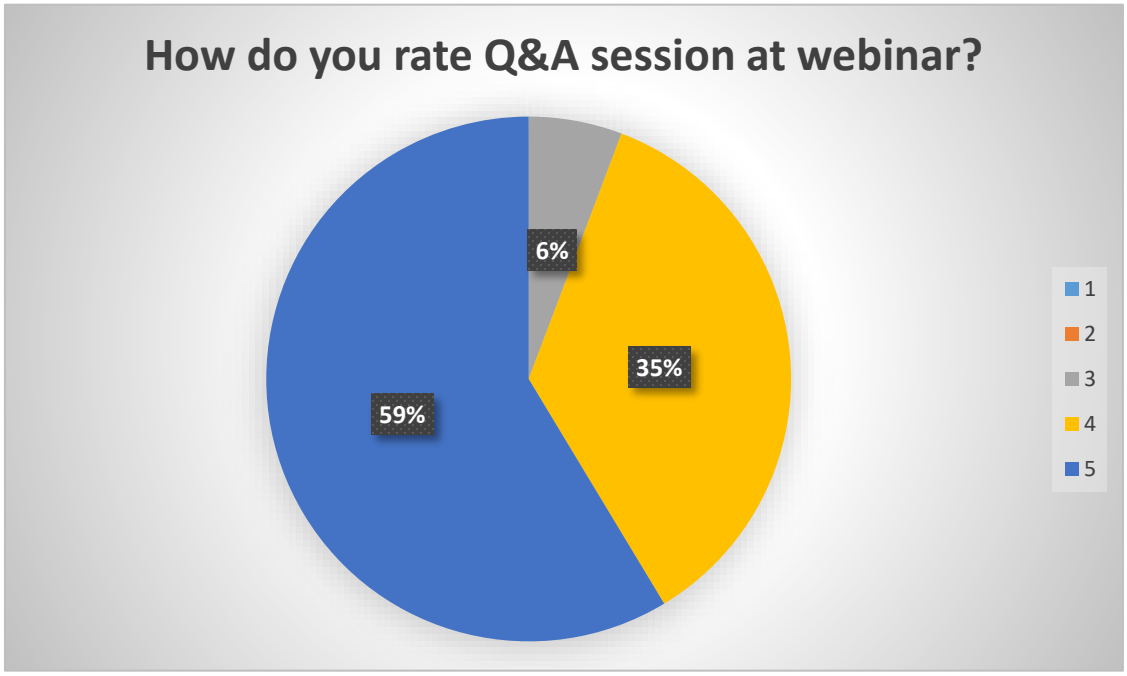
5. Conclusion Remarks:

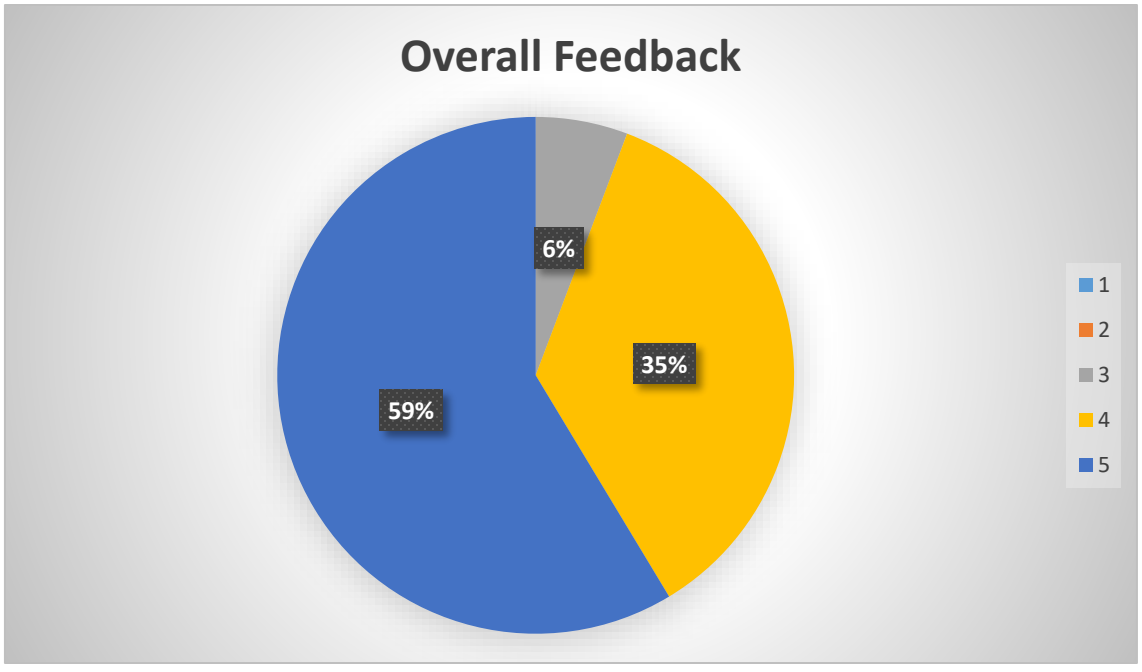
Coordinator: We are happy that we were able to arrange the Technical session on the Artificial Intelligence in Medical Application as requested by the SOET faculty & students. The topic requested by the faculty & student and the resource person accepted our request with the help of the Head of Department. The session was good and very informative to all the participants.

6. Feedback


How useful to you was the information presented in the webinar?
0 6%
35%
59%
1
2
3
4
5


How organised was the webinar?
6%
35%
59%
1
2
3
4
5


How do you rate Q&A session at webinar?
6%
35%
59%
1
2
3
4
5


Overall Feedback
6%
35%
59%
1
2
3
4
5

School of Mechanical Engineering

Department of Mechanical Engineering

Webinar on

ADDITIVE MANUFACTURING

EVEN SEMESTER
2019-2020

Session Date: 9TH May 2020, at 05:00 PM

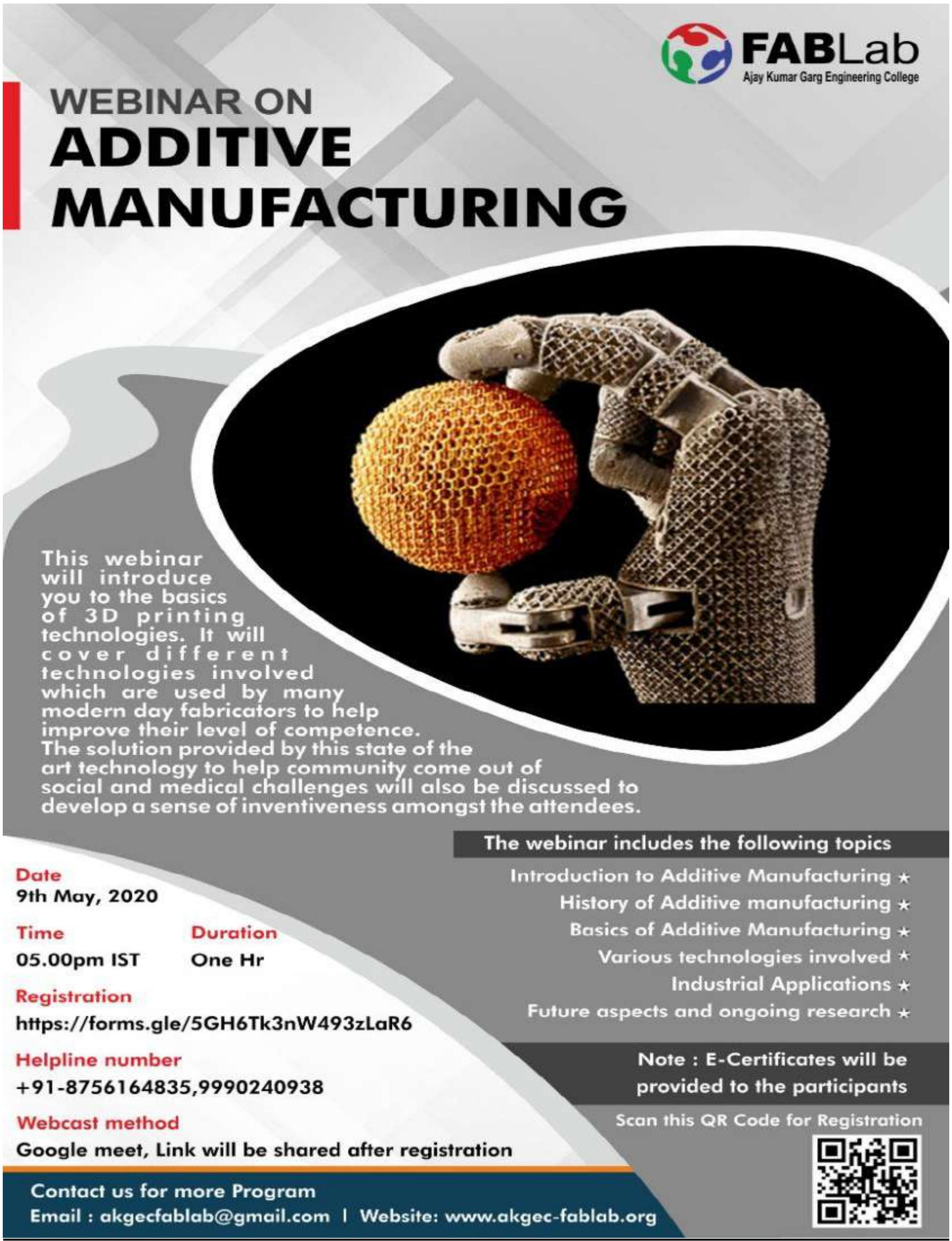
Coordinators: Prof BHARATH G & Prof Arunkumar KH

PRAVEEN R

CONTENTS

CMR UNIVERSITY
SCHOOL OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF MECHANICAL ENGINEERING

1. **Brochure:**



PRAVEEN R

2. Introduction from the Presenter:

Webinar began with the introduction to Additive Manufacturing Techniques, its history, advancement in this field, the Stiff competition, higher quality standards and growing concerns of state-of-the-art for effective utilization of resources and optimized performance of the process plants.

In the current scenario, 3D printing or Additive Manufacturing has been used in manufacturing, medical, industry and sociocultural sectors which facilitate 3D printing or Additive Manufacturing to become successful commercial technology. More recently, 3D printing has also been used in the humanitarian and development sector to produce a range of medical items, prosthetics, spares and repairs. The earliest application of additive manufacturing was on the toolroom end of the manufacturing spectrum. For example, rapid prototyping was one of the earliest additive variants, and its mission was to reduce the lead time and cost of developing prototypes of new parts and devices, which was earlier only done with subtractive toolroom methods such as CNC milling, turning, and precision grinding. In the 2010s, additive manufacturing entered production to a much greater extent. Qualified automation engineers are needed to meet these requirements of designing appropriate automation systems. But, one need to have knowledge of diversified fields such as PC/ PLC based Control, Instrumentation, H/W, S/W, Networking, Industrial AC Drives, Machine Vision, DCS, SCADA/HMI, High speed data acquisition, RTOS etc., to become a successful automation engineer.

The growth of additive manufacturing could have a large impact on the environment. As opposed to traditional manufacturing, for instance, in which pieces are cut from larger blocks of material, additive manufacturing creates products layer-by-layer and prints only relevant parts, wasting much less material and thus wasting less energy in producing the raw materials needed. By making only the bare structural necessities of products, additive manufacturing also could make a profound contribution to lightweighting, reducing the energy consumption and greenhouse gas emissions of vehicles and other forms of transportation. A case study on an airplane component made using additive manufacturing, for example, found that the component's use saves 63% of relevant energy and carbon dioxide emissions over the course of the product's lifetime. In addition, previous life-cycle assessment of additive manufacturing has estimated that adopting the technology could further lower carbon dioxide emissions since 3D printing creates localized production, and products would not need to be transported long distances to reach their final destination.

PRAVEEN R

3. **Focused points in the webinar:**

   a. History of 3D Printing

   b. Introduction to 3D Printing

   c. Types and its Classification

   d. Constrains

   e. Design Rules

   f. Future Trends and Career Options

4. **Webinar Link:**

   http://meet.google.com/siu-yesw-igj

5. **Participants:**

Professors:

Name	Designation
Dr. Rajashekar Patil	Professor & HOD
Dr. Anup	Asso.Professor
Dr. Bharath VG	Assist. Professor
Prof. Rupa	Assist. Professor
Prof. Mamatha	Assist. Professor
Prof. Hema	Assist. Professor
Prof. Devraj E	Assist. Professor

Students:

Reg No.	Name
17BTME001	A V Rahul
17BTME002	Anton Anubhav Rajan
17BTME008	Dhathri S Rao
17BTME009	G Shabrez
17BTME010	K B Mallikarjuna
17BTME012	Mohammed Faaiz Ansari

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17BTME014	Nikhil S Nandi
17BTME015	P Sachin Siyal
17BTME017	Brijesh S Sharma
17BTME018	Ghanashyam G
17BTME023	Thippesh A
16BTMEL01	Mirza Naqui Ali
16UG11001	Anthony Darshan F
16UG11002	Bharath Kumar S
16UG11003	Brionin Dennis Pavana
16UG11004	Chengappa K B
16UG11005	Karan
16UG11006	Namith Raj N
16UG11007	Nikhil M
16UG11010	Rajesh
16UG11013	Shaab Hassan V
16UG11014	V. Nishanth Udaykumar
16UG11017	Manikanta A R
16UG11019	Renuka Prasad
16UG11020	Shaikh Jameer Mohiddin
16BTMEL01	Mirza Naqui Ali
18BBTME002	Amirsohail Kakanodi
18BBTME007	Hari Pramod M
18BBTME009	Jeevan G
18BBTME012	Nagendra S R
18BBTME017	Siddharth Mishra

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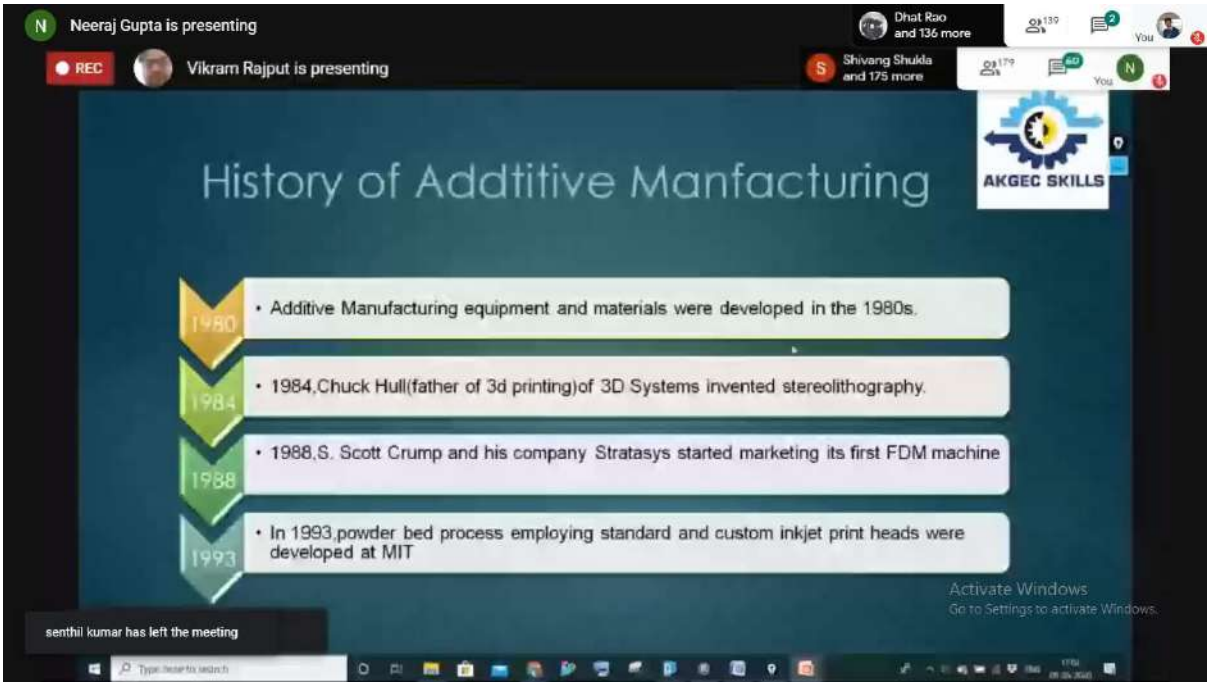
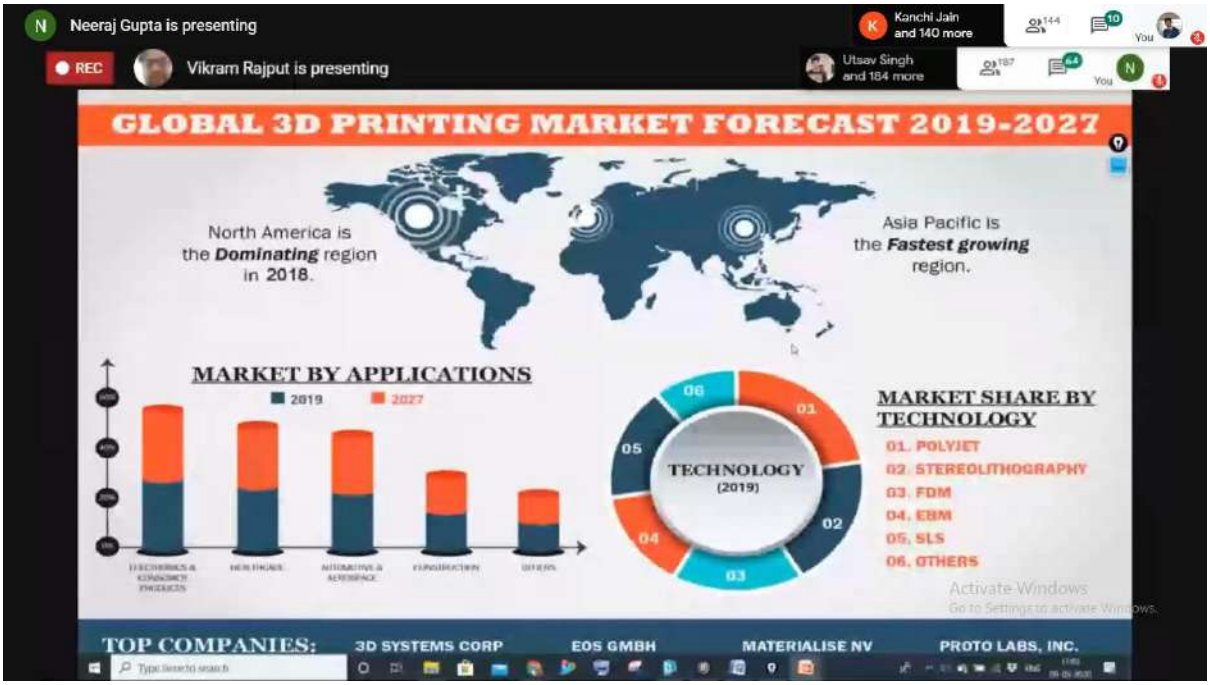
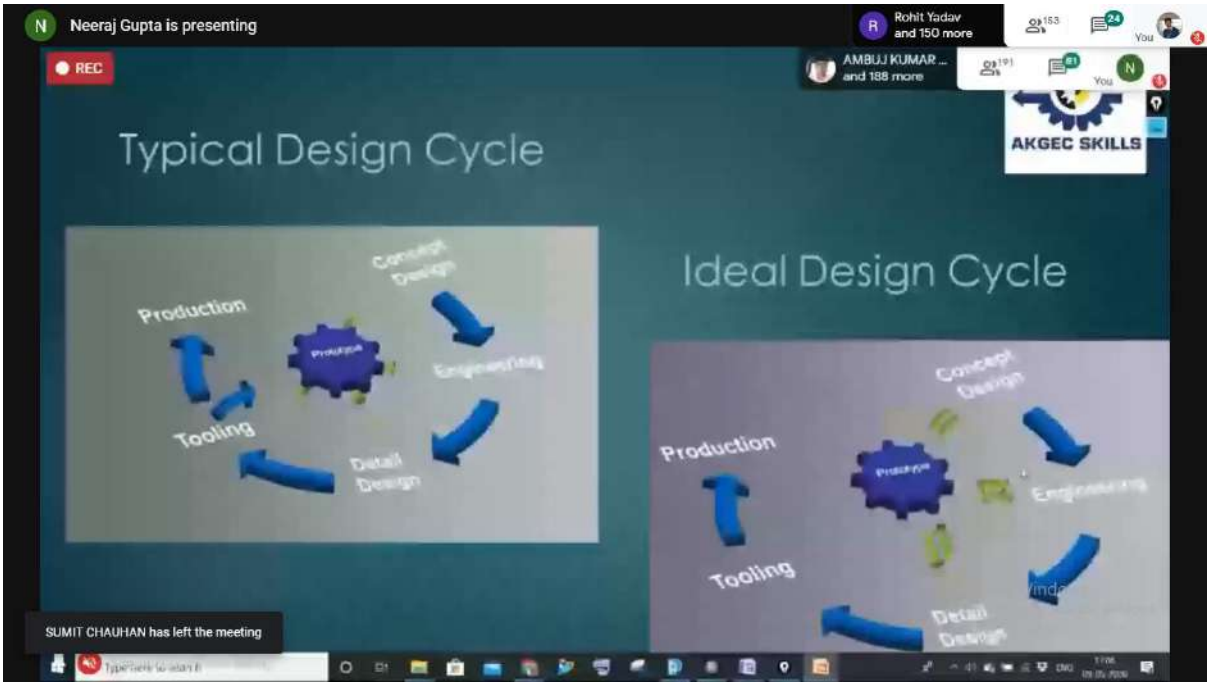
6. Session Clips (Sample):

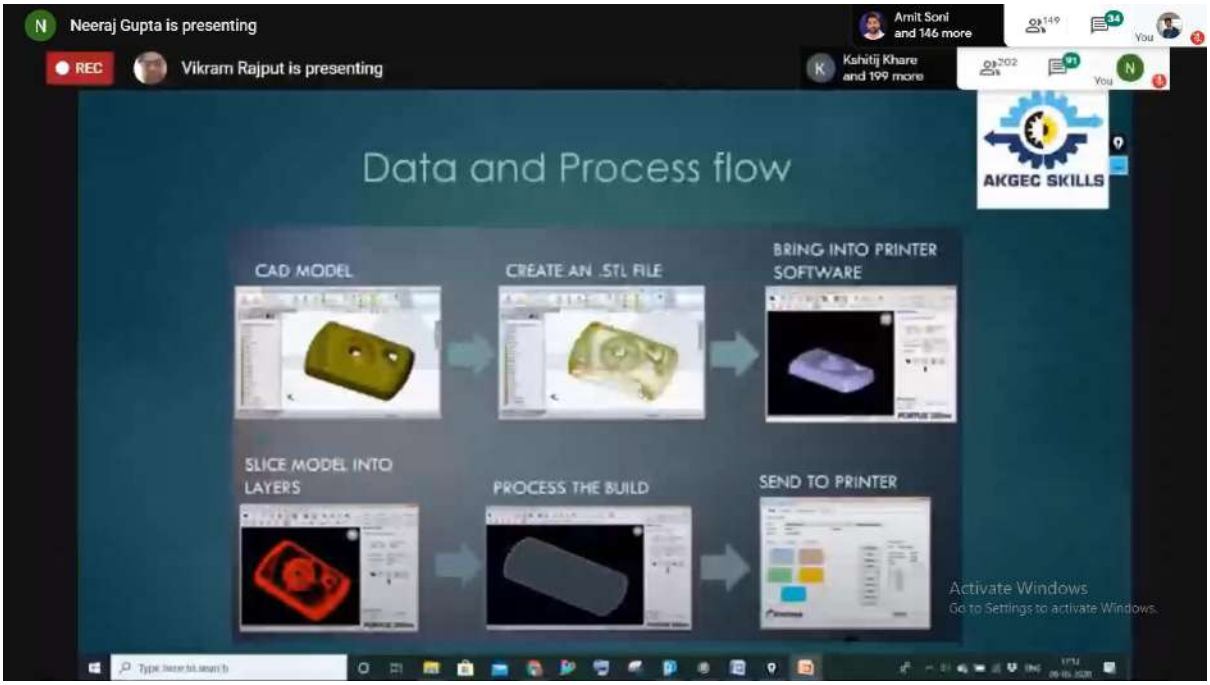
PRAVEEN R


Neeraj Gupta is presenting
REC
Vikram Rajput is presenting
Dhat Rao and 136 more
Shivang Shukla and 175 more
You
AKGEC SKILLS
History of Addtitive Manfacturing
1980
• Additive Manufacturing equipment and materials were developed in the 1980s.
1984
• 1984,Chuck Hull(father of 3d printing)of 3D Systems invented stereolithography.
1988
• 1988,S. Scott Crump and his company Stratasys started marketing its first FDM machine
1993
• In 1993,powder bed process employing standard and custom inkjet print heads were developed at MIT
Activate Windows
Go to Settings to activate Windows.
senthil kumar has left the meeting

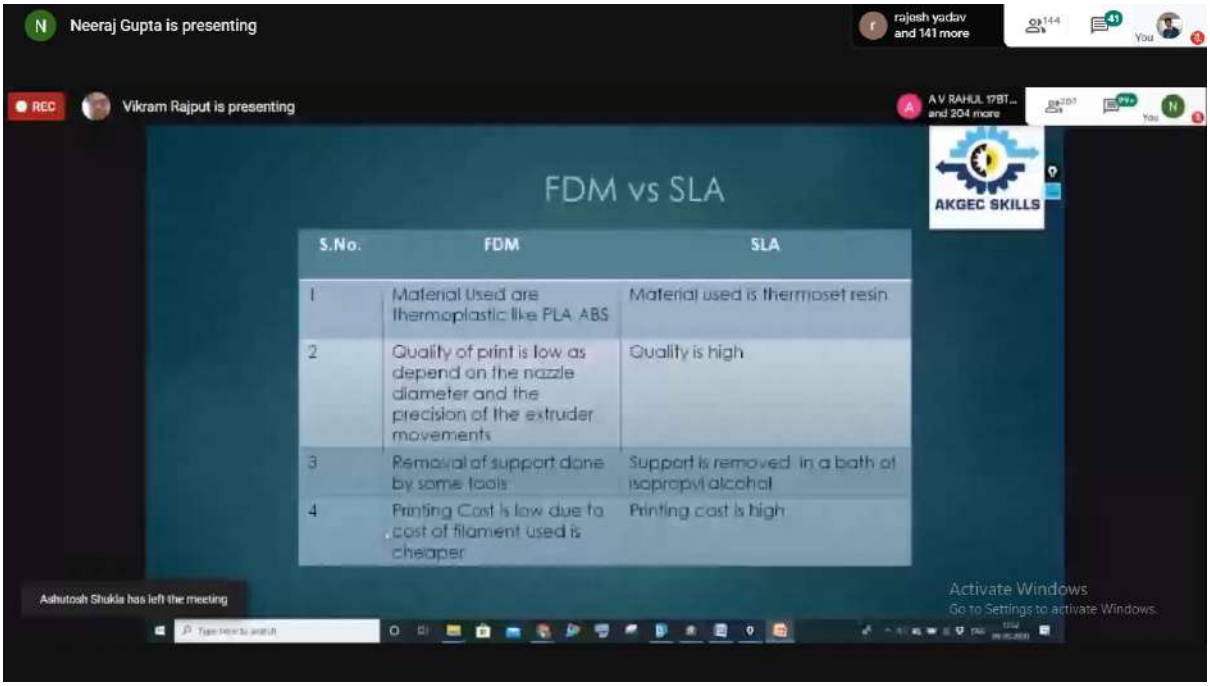

Neeraj Gupta is presenting
REC
Vikram Rajput is presenting
Kanchi Jain and 140 more
Utsav Singh and 184 more
You
GLOBAL 3D PRINTING MARKET FORECAST 2019-2027
North America is the Dominating region in 2018.
Asia Pacific is the Fastest growing region.
MARKET BY APPLICATIONS
2019
2027
TECHNOLOGY (2019)
01
02
03
04
05
06
MARKET SHARE BY TECHNOLOGY
01. POLYJET
02. STEREOLITHOGRAPHY
03. FDM
04. EBM
05. SLS
06. OTHERS
Activate Windows
Go to Settings to activate Windows.
TOP COMPANIES:
3D SYSTEMS CORP
EOS GMBH
MATERIALISE NV
PROTO LABS, INC.

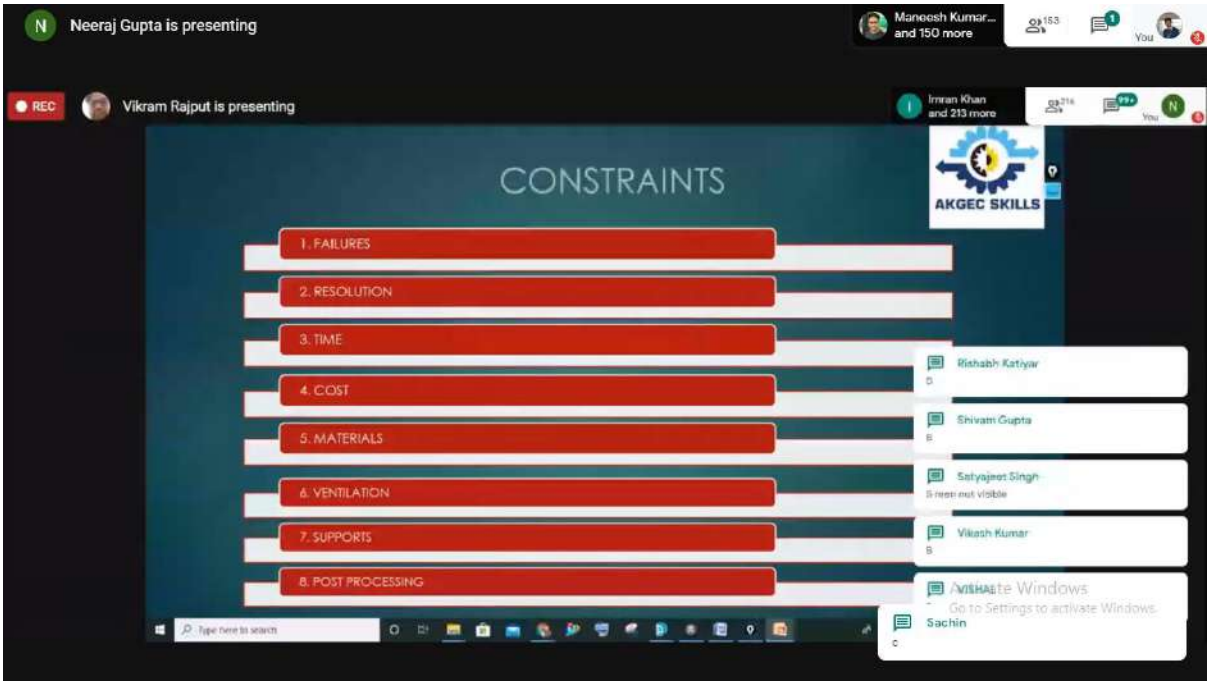
PRAVEEN R


Neeraj Gupta is presenting
REC
Rohit Yadav and 150 more
AMBUJ KUMAR ... and 188 more
AKGEC SKILLS
Typical Design Cycle
Production
Concept Design
Engineering
Tooling
Detail Design
Ideal Design Cycle
SUMIT CHAUHAN has left the meeting

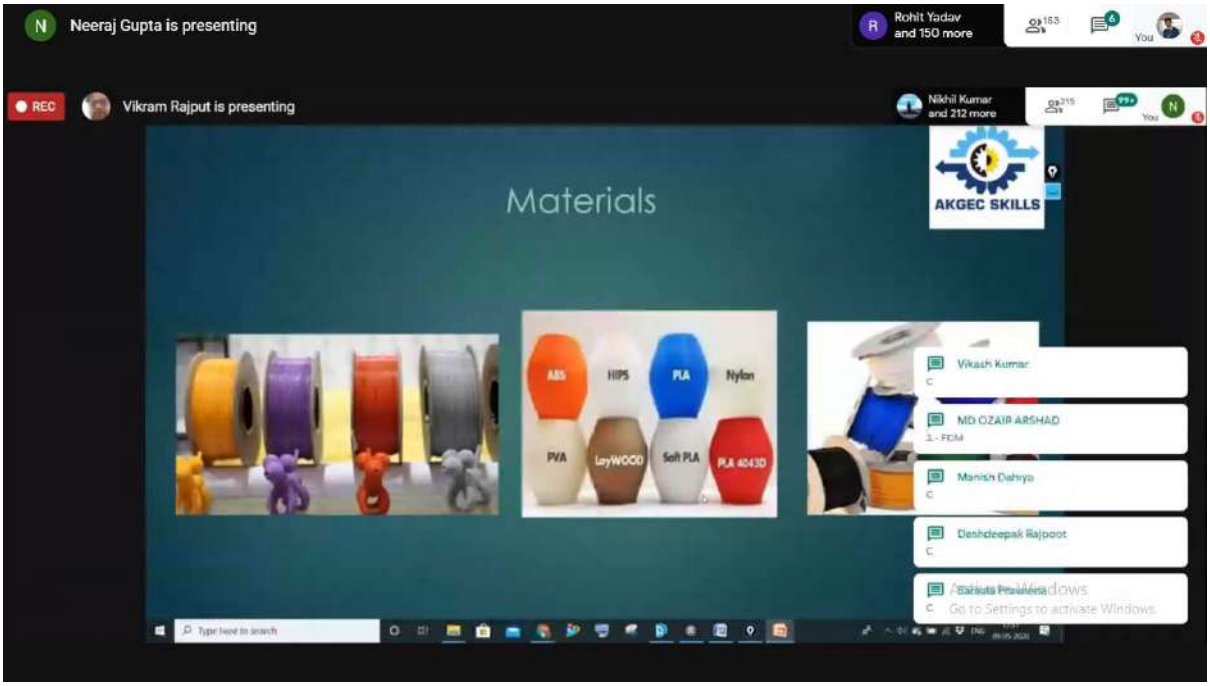

Neeraj Gupta is presenting
REC
Vikram Rajput is presenting
Amit Soni and 146 more
Kshitij Khare and 199 more
AKGEC SKILLS
Data and Process flow
CAD MODEL
CREATE AN .STL FILE
BRING INTO PRINTER SOFTWARE
SLICE MODEL INTO LAYERS
PROCESS THE BUILD
SEND TO PRINTER
Activate Windows
Go to Settings to activate Windows.

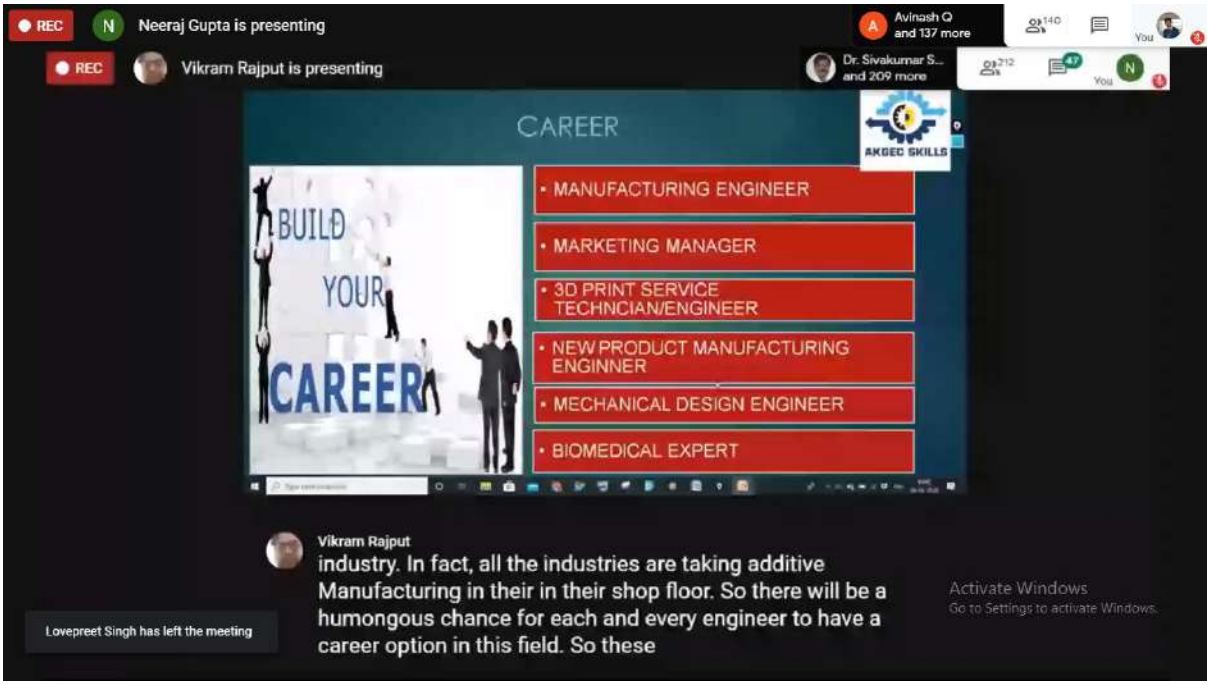
PRAVEEN R


Neeraj Gupta is presenting
rajesh yadav and 141 more
REC
Vikram Rajput is presenting
A V RAHUL 17BT... and 204 more
AKGEC SKILLS
FDM vs SLA
S.No. | FDM | SLA
1 | Material Used are thermoplastic like PLA ,ABS | Material used is thermoset resin
2 | Quality of print is low as depend on the nozzle diameter and the precision of the extruder movements | Quality is high
3 | Removal of support done by some tools | Support is removed in a bath of isopropyl alcohol
4 | Printing Cost is low due to cost of filament used is cheaper | Printing cost is high
Ashutosh Shukla has left the meeting
Activate Windows
Go to Settings to activate Windows.


Neeraj Gupta is presenting
Maneesh Kumar... and 150 more
REC
Vikram Rajput is presenting
Imran Khan and 213 more
AKGEC SKILLS
CONSTRAINTS
1. FAILURES
2. RESOLUTION
3. TIME
4. COST
5. MATERIALS
6. VENTILATION
7. SUPPORTS
8. POST PROCESSING
Rishabh Katiyar
Shivam Gupta
Satyajeet Singh
Vikash Kumar
Sachin
Activate Windows
Go to Settings to activate Windows.

PRAVEEN R


Neeraj Gupta is presenting
Rohit Yadav and 150 more
REC
Vikram Rajput is presenting
Nikhil Kumar and 212 more
Materials
AKGEC SKILLS
ABS
HIPS
PLA
Nylon
PVA
LayWOOD
Soft PLA
PLA 4043D
Vikash Kumar
MD OZAIR ARSHAD
Manish Dahiya
Deshdeepak Rajpoot


REC
Neeraj Gupta is presenting
REC
Vikram Rajput is presenting
Avinash Q and 137 more
Dr. Sivakumar S... and 209 more
CAREER
AKGEC SKILLS
BUILD YOUR CAREER
MANUFACTURING ENGINEER
MARKETING MANAGER
3D PRINT SERVICE TECHNCIAN/ENGINEER
NEW PRODUCT MANUFACTURING ENGINNER
MECHANICAL DESIGN ENGINEER
BIOMEDICAL EXPERT
Vikram Rajput
industry. In fact, all the industries are taking additive Manufacturing in their in their shop floor. So there will be a humongous chance for each and every engineer to have a career option in this field. So these
Lovepreet Singh has left the meeting
Activate Windows
Go to Settings to activate Windows.

PRAVEEN R

7. Conclusions :

The term "3D printing" originally referred to a process that deposits a binder material onto a powder bed with inkjet printer heads layer by layer. More recently, the popular vernacular has started using the term to encompass a wider variety of additive-manufacturing techniques such as electron-beam additive manufacturing and selective laser melting. The United States and global technical standards use the official term additive manufacturing for this broader sense.

CAD models can be saved in the Stereo Lithography file format (STL), a de facto CAD file format for additive manufacturing that stores data based on triangulations of the surface of CAD models. STL is not tailored for additive manufacturing because it generates large file sizes of topology optimized parts and lattice structures due to the large number of surfaces involved. A newer CAD file format, the Additive Manufacturing File format (AMF) was introduced in 2011 to solve this problem. It stores information using curved triangulations

Construction of a model with contemporary methods can take anywhere from several hours to several days, depending on the method used and the size and complexity of the model. Additive systems can typically reduce this time to a few hours, although it varies widely depending on the type of machine used and the size and number of models being produced simultaneously.

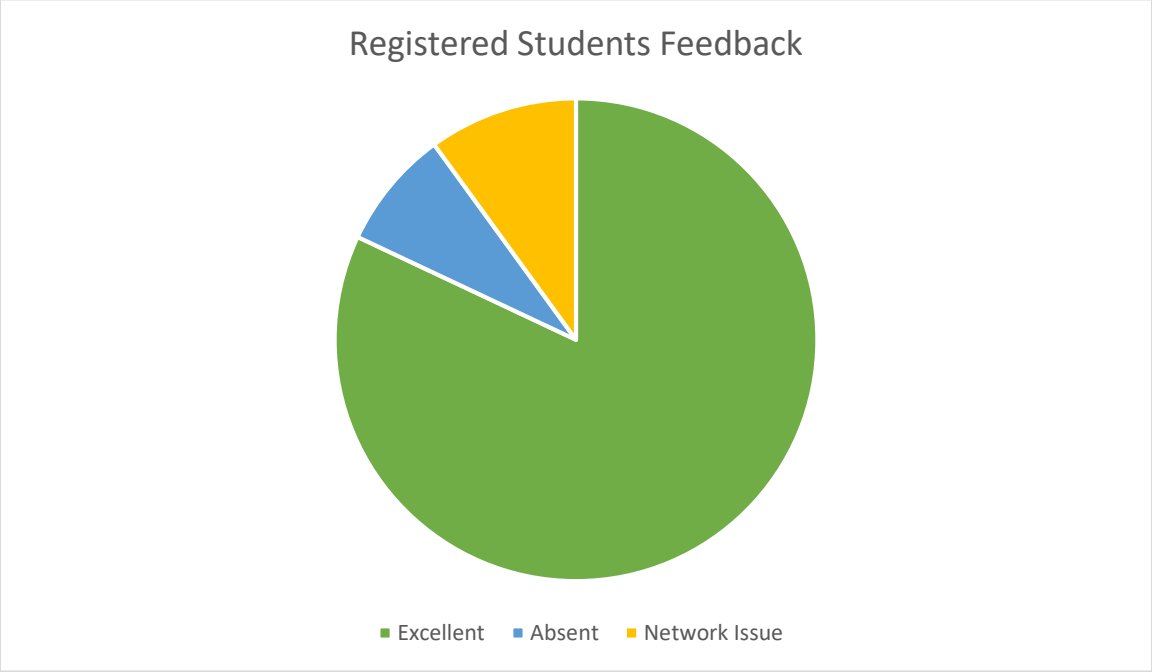
Some methods melt or soften the material to produce the layers. In Fused filament fabrication, also known as Fused deposition modeling (FDM), the model or part is produced by extruding small beads or streams of material which harden immediately to form layers. A filament of thermoplastic, metal wire, or other material is fed into an extrusion nozzle head (3D printer extruder), which heats the material and turns the flow on and off. FDM is somewhat restricted in the variation of shapes that may be fabricated. Another technique fuses parts of the layer and then moves upward in the working area, adding another layer of granules and repeating the process until the piece has built up. This process uses the unfused media to support overhangs and thin walls in the part being produced, which reduces the need for temporary auxiliary supports for the piece. High Information Accuracy

Adding automated data collection, can allow you to collect key production information, improve data accuracy, and reduce your data collection costs. This provides you with the facts to make the right decisions when it comes to reducing waste and improving your processes.

PRAVEEN R

8. **Feedback & Analysis:**

The students were asked about the feedback of the session organized. The students were more satisfied and requested department to conduct the webinars frequently.



9. **Summary:**

The webinar was highly informative to the students and enlightened them the importance of 3D printing. The webinar focused on the new trends and impact of additive manufacturing in industries.

PRAVEEN R

5.1.3

C M R U School of Legal Studies
C M R MEMORIAL GUEST LECTURE SERIES

REPORT ON GUEST LECTURE
[Guest Lecture – IX]

Topic – '*Electronic Commerce in India: Market Trends and Regulations*'

Guest Speaker – Dr. Pratima Narayan
Founder Partner
TechLawLogi Consulting LLP
Bengaluru

Date – 23rd of February 2019 [Saturday]

Schedule –10.00 am to 11.30 am

Venue - A.V Hall, School of Legal Studies campus, CMR University

Report on Guest lecture

The guest lecture was presided over by Dr. Subramanya T.R, Dean - CMRU School of Legal Studies. The guest lecture began with welcome speech by Ms. Darshana [Fourth year BBA LLB student] and Ms. Kavya [Fourth year BA LLB student] proposed the vote of thanks for the Guest speaker. The lecture was received with admiration by the students of final semester BBA LL.B, BA LL.B (5 years course), LL.B (3 years course).

Dr. Prathima Narayan started her talk with asking question for students, regard to usage of E-commerce markets. She exposed us with online market and its selection of products and services, ITU [International Telecommunication usage] and number of users in digital markets (products) etc. She spoke about difference between E-business and E-commerce. She said E-business is the core. Under e-business e-commerce is a one component. And E-commerce is a sub set of E-business.

She discussed about Understanding of Market Strategy, traditional [evolution] ⟶ E-commerce ⟶ Multi channel [Omni channel (new normal channel) – eg. Lenskart], online and offline transactions etc. What is the market trend?

She explained What is E-commerce? And its meaning and origin: WTO – 1999 definition, DIPP (Department of Industrial Policy & Promotion) – depends on FDI recommendations (goods, services and digital products) etc. And U.K. Consumer Protection Act 2013 – they consist the digital products. OIDARS – defined under IGST. We are in era of IOT. She conversed E-commerce models – (1) Inventory based model [eg. Tanishk – manufacturer and producer is same] (2) Market based model or intermediates [eg. Bookmyshow, amazon, flipcart, swiggy]

With regard to E-commerce Process, she elucidated first step is the Advertisements (SEBI, IFSSI regulations) (role of aggrigators – eg. Trivargo, OlaCabs) ⟶ followed with Search/selection of products (legal advisors has to be specific with mandatireal disclosure) (information is obligation) ⟶ Order stage ⟶ Payment stage (online payment – PSS Act)

(payment Act) ⟶ Performance & delivery stage ⟶ Post-sale events (cases relate to unsatisfactory products) (refunds. Returns, cancellation) cooling-of-period – time limitation for returning goods) etc.

Further she continued with B2C concerned with Indian Legal System – IT Act, Consumer Protection Act, Policies of RBI, TRAI, IRDA, SEBI, FSSAI etc.

- IT Act – Sec. 2(1)(w) – intermediators, Sec. 79 (extent of Intermediatory Liability), Privacy Policy Statement, IT (Intermediary guidelines) Rules 2011 (rule 3), Jan. 2019 (IT department has amended) – Privacy, data security.
- Theams of Consumer Complaint : (1) defect in goods, (2) deficiency in services NCDRTC (2012 case – Rediff.com case – deficiency in services), (3) unfair trade practices (delhi HC – chritian), (4) Restrictive Trade Practices.
- Consumer Protection Bill, 2018: Provision relating to E-Commerce – definition (advitisement, consumers, defeciency of services, e-commerce, e-commerce service providers, unfair trade practice, data protection) etc.

Her expert knowledge in the E-commerce filed has enlighten us about the brief idea about what is E-commerce and what is its process and how legal and market regulation works in online or digital market.

Guest Lecture photos

Faculty Co-coordinator

Dean – CMR School of Legal Studies

CMR UNIVERSITY
SCHOOL OF
LEGAL STUDIES, BENGALURU.

No. 5 Bhuvanagiri OMBR Layout
Banaswadi Bangalore 560043
T: +91 80 25453077/88
E: admin.sols@cmr.edu.in
www.ls.cmr.ac.in

5.1.3

Electronic Commerce in India: Markets Trends and Regulations

Sl.No	USN	Name
1.	18DBLBT020	Mohammed Azharuddin A
2.	18DBLBT001	Abhuday
3.	18DBLBT002	Akhil Babu
4.	18DBLBT003	Amruth K M
5.	18DBLBT004	Aravindh. M
6.	18DBLBT005	Arundhathi K S
7.	18DBLBT006	Ashwinkarthik M
8.	18DBLBT007	Asmita Anant Padanad
9.	18DBLBT008	Dhaval K Patel
10.	18DBLBT009	Harshanth Anand
11.	18DBLBT012	Kisiya Kath
12.	18DBLBT014	Krishnareddy Alekhya
13.	18DBLBT015	Krithika Vinod
14.	18DBLBT010	Lalhriatrenga H
15.	18DBLBT016	Lambodhar D
16.	18DBLBT017	Likith D
17.	18DBLBT018	Livitha RG
18.	18DBLBT019	Lourd Sandesh J
19.	18DBLBT021	Mohammed Kasheef
20.	18DBLBT022	Neha N D
21.	18DBLBT013	Nikitha.K
22.	18DBLBT011	Karania Nishi Jitendra
23.	18DBLBT023	Nithisha G
24.	18DBLBT024	Pooja Agarwal
25.	18DBLBT025	Prajwal B
26.	18DBLBT026	Pushpalatha SP
27.	18DBLBT027	Raghu V
28.	18DBLBT028	Rahul Singh
29.	18DBLBT029	Rohan Gowda BR
30.	18DBLBT030	Sailal V R
31.	18DBLBT031	Sapuru Kalyan
32.	18DBLBT032	Shalu Singh
33.	18DBLBT033	Sherly Thomas
34.	18DBLBT034	Shibu Immanuel
35.	18DBLBT035	Sivananda R

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BENGALURU

PRAVEEN R

36.	18DBLBT036	Soumya Shreedhar Hegde
37.	18DBLBT037	Sowkhya Patil
38.	18DBLBT038	Srishti John
39.	18DBLBT039	Sudhin S
40.	18DBLBT040	Sumana K
41.	18DBLBT041	Sunil Kumar V
42.	18DBLBT042	Surya Prakash P
43.	18DBLBT043	Thejanuo Metha
44.	18DBLBT044	Tokiumong
45.	18DBLBT045	Vaishnav N J
46.	18DBLAW011	Bhargava Reddy K V
47.	18DBLAW012	Chandana S Gopi
48.	18DBLAW013	Chandragiri Rubean Paul
49.	18DBLAW014	Chinju Kuruvilla
50.	18DBLAW015	Divya Nag
51.	18DBLAW017	G Jatin
52.	18DBLAW016	Gayathri Vijayan
53.	18DBLAW018	Gokhul Lakshman K S
54.	18DBLAW019	Gurumayum priyalakshmi devi
55.	18DBLAW020	Harshita Raj
56.	18DBLAW021	Hujwala Shree N
57.	18DBLAW040	J S Prakyat
58.	18DBLAW022	Jaiprasath S
59.	18DBLAW023	Janni Sherina
60.	18DBLAW024	Jithy Pradeep
61.	18DBLAW037	Joel M
62.	18DBLAW025	Jyothsna D
63.	18DBLAW028	K Prathik
64.	18DBLAW027	Karan Sharma
65.	18DBLAW029	Krithik. M. Sasi
66.	18DBLAW030	Lalith S Reddy
67.	18DBLAW031	Lee Johns Robson
68.	18DBLAW032	Likitha P Mahdiker
69.	18DBLAW033	Maheshwari S
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81.	18DBLAW046	Sangavi P
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110.	18DBALB030	Prakash Kumar Shaw
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