POORNIMA
COLLEGE OF ENGINEERING

Promoted by Shanti Education Society, Affiliated to Rajasthan Technical University & Approved by AICTE

# Report on 6-days Short Term Training Program

- **TITLE AND DURATION:** "Artificial Intelligence & 5G Communication Technology" from April 26-May 1, 2021.

- **SPONSORS:** AICTE Quality Improvement Scheme (AQIS)

- **SUPPORTERS:** Nil.

- **ORGANIZERS:** Department of Electronics & Communication Engineering, Poornima College of Engineering, Jaipur.

- **OBJECTIVES:** The objective of general AI is to design a system capable of thinking for itself just like humans do. Currently, general AI is still under research, and efforts are being made to develop machines that have enhanced cognitive capabilities.

- **EXPECTED OUTCOMES:**

1. Evaluate the advantages, disadvantages, challenges, and ramifications of human–AI augmentation.
2. Design and develop symbiotic human–AI systems that balance the information processing power of computational systems with human intelligence and decision making.
3. Explain the benefits, limitations, and tradeoffs of designing engaging and ethical conversational user interactions, including those supported by chatbots, smart speakers, and other AI-driven, voice-based technologies.
4. Design and evaluate conversational interfaces for different users and contexts of use.

Dr. Mahesh Bundele
B.E., M.E., Ph.D.
Director
Poornima College of Engineering
ISI-6, RIICO Institutional Area
Sitapura, JAIPUR

- **BROCHURE / POSTER / LEAFLET / FLYER:**

Dr. Mahesh Bundele
B.E., M.E., Ph.D.
Director
Poornima College of Engineering
ISI-6, RIICO Institutional Area
Sitapura, JAIPUR

## SPEAKERS

**Dr. Nagendra Prasad Pathak**
Professor, IIT Roorkee

**Dr. Rajveer S. Shekhawat**
Provost & Director, Manipal University Jaipur

**Dr. Sudan Jha**
Professor, Chandigarh University, Punjab

**Dr. Abhinav Kumar**
Associate Professor, IIT Hyderabad

**Dr. Prabhat Kumar Upadhyay**
Associate Professor, IIT Indore

**Lyla B. Das**
Associate Professor, NITC

**Dr. Gaurang Patkar**
Associate Professor & Head of Department, DBCE, Goa

**Dr. Asoke K Talukder**
Chief Science & Technology Officer, SRIT Bangalore

**Dr. Sanjeev Sharma**
Assistant Professor, IIT BHU

**Dr. Siba Narayan Swain**
Assistant Professor, IIT Dharwad

**Dr. Sk. Subidh Ali**
Assistant Professor, IIT Bhilai, Chattisgarh

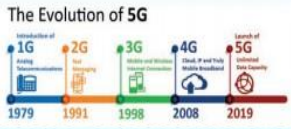
**Dr. Udit Satija**
Assistant Professor, IIT Patna

**Dr. Rahul Pandya**
Assistant Professor, IIT Dharwad

**Dr. Sudharsan**
Assistant Professor, NIT, Truichirappalli

**Dr. Sandeep Joshi**
Assistant Professor, BITS Pilani

**Dr. Ritesh Kumar Saraswat**
Assistant Professor, M.L.V. Govt. College, Bhilwara




## REGISTRATION AND FEE PARTICULARS

- Faculty/Research Scholars from Universities/ AICTE recognized Institutions are only eligible.
- No Registration Fees
- E-Certificates will be provided after successful completion of STTP
- Registration Link: **https://tinyurl.com/sxrv8dwe**

## RESOURCE PERSONS

The resource persons will be from reputed institutions and industries in the area of communication such as IITs, NITs, and other premier institutes.

## IMPORTANT DATES

| | |
|---|---|
| **Last date for Registration** | **April 22, 2021** |
| **Intimation of selection by mail** | **April 24, 2021** |
| **STTP Duration** | **April 26 to May 01, 2021** |

## CORRESPONDENCE

**Dr. Garima Mathur**
Head, Department Electronics & Communication Engineering,
Poornima College of Engineering, Jaipur
✆ : +91-9829393517
✉ : drg.mathur@poornima.org

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**Six Days Short Term Training Programme (STTP) under AICTE-AQIS on**

# Artificial Intelligence and 5G Communication Technology

**April 26 to May 01, 2021**

**Sponsored by**

**Organized by**
**Department of**
**Electronics & Communication Engineering**

POORNIMA
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## POORNIMA COLLEGE OF ENGINEERING

Poornima College of Engineering (PCE), established as a brand of Technical Education in the year 2000, has its own glorious legacy of leading the young engineers to the mammoth sky of success. Its accomplishments forecast its journey through the hardships and its triumph over them one after another. PCE left no stone unturned since its establishment in turning the glorious vision into unbelievable reality providing the platform for knowledge and research and their practical implementations in different engineering professional prospects. Glorious glimpses of PCE:

- Highly recognized and renowned affiliated technical institution all over Rajasthan with built up area more than 3.5 lacs square feet
- Affiliated to RTU, Kota & approved by AICTE, New Delhi
- The most preferred NBA Accredited Engineering College with running of six specializations of Engineering at UG Level (CSE, ECE, EE, ME, IT, CIV) and two at PG level (CS & VLSI)
- The only institution permitted by RTU to admit FN/PIO/Gulf students & designated as centre of excellence by IBM
- An excellent institution building its rapport in all sectors of education, research and development

## ABOUT THE DEPARTMENT

The Department of Electronics and Communication Engineering (ECE) was established in year 2003. National Board of Accreditation (NBA) accredited the ECE department in the year 2009, 2016 & 2018 for subsequent three years. It has intake capacity of 180. It also offers M. tech in VLSI Design with intake capacity of 18 students. The department has highly qualified committed and research oriented faculty members. The department has laboratories as per Rajasthan Technical University Syllabus with State-of-the-Art facilities in diversified fields such as Electronic Circuits, VLSI Design, DSP (Digital signal processing), Embedded Systems, Advanced Wireless Communication and Microwave etc. Research is being carried out in the areas of Antenna Design and Wireless Communication, and VLSI design. The department also has to his credit three labs, (i) Microwave Engineering lab & (ii) Advance Antenna & Wireless Communication lab (iii) Advancement of Wireless and Optical Fiber Lab supported by MODROBS Grants of AICTE, New Delhi.

IETE Student Forum (IFS) of the Department has been recognized as Most Active ISF for session 2016-17 by IETE Rajasthan Center, Jaipur. The department also has state of the art lab facility for the value added IBM Career Education Programs for faculty members and students on emerging technologies such as IBM BlueMix for Cloud, IBM Cognos for Business Intelligence and IoT Application Development & Deployment using IBM BlueMix.

## ABOUT STTP

The aim of this STTP is to enhance the AI research also overlaps with tasks such as robotics, control systems, scheduling, data mining, logistics, speech recognition, facial recognition and many others. Upgrading the new era in 5G to handle data from millions more IoT devices and install low-power sensors. 5G is not only important because it has the potential to support millions of devices at ultrafast speeds, but also because it has the potential to transform the lives of people around the world. Improvements in 5G technology can help make life better.

## Course Modules

- Multiband and Multifunctional RF integrated circuits & Systems for 5G and beyond
- Reinforcement Learning Application in 5G and Beyond Networks
- 6G Vision, Potential Technologies and Challenges
- WoT and AIoT: Technologies for the Smart Connected World
- The Fundamental Principles of Deep Learning including Back Propagation
- Stochastic geometry analysis of 5G network
- Spectral- and Energy-Efficient Techniques for 5G and Beyond Wireless Networks
- AI Trending - from Local Data to 5G Communications
- Edge Analytics to Address Challenges of Smart Healthcare
- Automated grading of Oil Palm Fruits using Fuzzy Logic and Rough Set Theory
- Machine learning and Security
- IoT Device Localization
- Deep Learning-Based Wireless Communications
- Device-to Device Communication in 5G Cellular Networks
- Antenna Design for Wireless Application with Implementation of Frequency Band Reconfigurability Characteristics
- Cellular Internet of Things

## OBJECTIVES OF STTP

- To provide an exposure to the participants regarding current scenario in advanced communication technologies & their applications.
- To provide the knowledge of cutting edge researches and developments carried out/observed by the Eminent Speakers in advance communication domains (from IITs, NITs, other Esteemed Institutions & Industry), for products having immediate industrial applications for self-reliance of the Country.

## PATRON

**Dr. Mahesh M. Bundele**
Principal & Director
Poornima College of Engineering, Jaipur

## ADVISORS

**Mr. Pankaj Dhemla**
Vice Principal, Poornima College of Engineering, Jaipur

**Dr. Rekha Nair**
Dean, First Year, Poornima College of Engineering, Jaipur

**Mr. Devendra Somwanshi**
Registrar, Poornima College of Engineering, Jaipur

## PROGRAM CHAIR

**Dr. Garima Mathur**
Head of Department ECE, Poornima College of Engineering

## COORDINATORS

| | |
|---|---|
| **Dr. Payal Bansal**<br>Associate Professor,<br>ECE, PCE | **Mr. Tarun Mishra**<br>Assistant Professor<br>ECE, PCE |

## PCE ORGANIZING COMMITTEE

| | |
|---|---|
| **Dr. Anila Dingra** | Associate Professor, ECE |
| **Mr. Amit Kumar Jain** | Assistant Professor, ECE |
| **Mr. Durgesh Kumar** | Assistant Professor, ECE |
| **Mr. Manish Sharma** | Assistant Professor, ECE |
| **Ms. Manisha Kumawat** | Assistant Professor, ECE |

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- **PROGRAM SCHEDULE:**

# POORNIMA
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### Department of Electronics & Communication Engineering

**Fourth AICTE-AQIS Sponsored Short Term Training Program (STTP) on Artificial Intelligence and 5G Communication Technology from April 26 – May 01, 2021**

| | 11:00 AM | 11.30AM – 01:00 PM | 01:30 PM 03:00 PM | 03:15 PM 04:45 PM |
|---|---|---|---|---|
| **Monday (26.04.21)** | **Inaugural Session**<br>**Chief Guest**: Col. B. Venkat, Director (Faculty Development), AICTE, New Delhi<br>**Guest of Honour**: Dr. Nagendra Prasad Pathak, Professor, IIT, Roorkee | **Multiband and Multifunctional RF Integrated Circuits & Systems for 5G & Beyond**<br>Dr. Nagendra Prasad Pathak, Professor, IIT, Roorkee | **5G Communication for IoT**<br>Dr. M Lakshmi, Professor, SRM Institute of Science & Technology, Tamil Nadu | **Artificial Intelligence for Physical Layer Wireless Communications**<br>Dr. Upena. D. Dalal, Professor, SVNIT, Surat |

| | 09:30AM -11:00 AM | 11.30AM – 01:00 PM | 01:30 PM – 3:00 PM |
|---|---|---|---|
| **Tuesday (27.04.21)** | **6G Vision, Potential Technologies and Challenges**<br>Dr. Rahul Pandya, Assistant Professor, IIT, Dharwad | **WoT and AIoT: Technologies for the Smart Connected World**<br>Dr Asoke K. Talukder, Chief Science & Technology Officer, SRIT, Bangalore | **The Fundamental Principles of Deep Learning including Back Propagation**<br>Lyla B.Das, Associate Professor, NIT, Calicut |
| **Wednesday (28.04.21)** | **Stochastic geometry analysis of 5G network**<br>Dr. Sudharsan, Assistant Professor, NIT, Truichirappalli | **Spectral- and Energy-Efficient Techniques for 5G and Beyond Wireless Networks**<br>Dr. Prabhat Kumar Upadhyay, Associate Professor, IIT, Indore | **AI Trending - from Local Data to 5G Communications**<br>Dr. Sudan Jha, Professor, Chandigarh University, Punjab |
| **Thursday (29.04.21)** | **Automated Grading of Oil Palm Fruits using Fuzzy Logic and Rough Set Theory**<br>Dr. Gaurang Patkar, Associate Professor & Head, DBCE, Goa | **Edge Analytics to Address Challenges of Smart Healthcare**<br>Dr. Rajveer S. Shekhawat, Provost & Director, Manipal University, Jaipur | **Reinforcement Learning Application in 5G and Beyond Networks**<br>Dr. Siba Narayan Swain, Assistant Professor, IIT, Dharwad |
| **Friday (30.04.21)** | **IoT Device Localization**<br>Dr. Udit Satija, Assistant Professor, IIT, Patna | **Deep Learning-Based Wireless Communications**<br>Dr. Sanjeev Sharma, Assistant Professor, IIT, BHU | **Device-to Device Communication in 5G Cellular Networks**<br>Dr. Sandeep Joshi, Assistant Professor, BITS, Pilani |
| **Saturday (01.05.21)** | **Antenna Design for Wireless Application with Implementation of Frequency Band Reconfigurability Characteristics**<br>Dr. Ritesh Kumar Saraswat, Assistant Professor, M.L.V. Govt. College, Bhilwara | **Cellular Internet of Things**<br>Dr. Abhinav Kumar, Associate Professor, IIT, Hyderabad | **Significance of Artificial Intelligence in Digitization and Automation: Digital India Perspective**<br>Dr. Sandeep Kumar, Associate Professor, IIT, Roorkee |

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- **INAUGURAL SESSION:**

# SHORT TERM TRAINING PROGRAM

**On**

**Artificial Intelligence & 5G Communication Technology**

**April 26 to May 01, 2021**

**Sponsored by AICTE Quality Improvement Scheme (AQIS)**

**Organized by Department of Electronics & Communication Engineering,**

**Poornima College of Engineering, Jaipur**

**Date: April 26, 2021** **Time: 11:00 – 11:35 AM**

**Venue: Online (MS Teams: https://tinyurl.com/2y9wzkty)**

## Q- Sheet Inaugural Session

| S. No | Activity | Duration | Time |
|---|---|---|---|
| 1. | Welcome of Dignitaries and Introduction of STTP by **Dr. Payal Bansal**, Associate Prof., ECE, PCE<br>• **Col. B. Venkat,** Director (Faculty Development), AICTE, New Delhi **(Chief Guest)**<br>• **Dr. Nagendra Prasad Pathak,** Professor, IIT Roorkee **(Guest of Honor)**<br>• **Ar. Rahul Singhi**, Director, Poornima Group<br>• **Dr. Mahesh Bundele,** Director & Principal, PCE<br>• **Mr. Pankaj Dhemla,** Vice Principal, PCE<br>• **Dr. Garima Mathur,** Professor & Head, ECE, PCE | 03 Min | 11:00 AM-11:03 AM |
| 2. | Welcome address by **Dr. Mahesh Bundele**, Director & Principal, PCE | 05 Min | 11:03 AM-11:08 AM |
| 3. | Motivational Words by **Ar. Rahul Singhi,** Director, Poornima Group | 05 Min | 11:08 AM-11:13 AM |
| 4. | Address by **Guest of Honor Dr. Nagendra Prasad Pathak, Professor, IIT Roorkee** | 10 Min | 11:13 AM-11:23 AM |
| 5. | Inaugural Address by **Chief Guest Col. B. Venkat, Director (Faculty Development), AICTE, New Delhi** | 10 Min | 11:23 AM-11:33 AM |
| 6. | Vote of Thanks by **Dr. Garima Mathur,** Professor & Head, ECE, PCE | 02 Min | 11:33 AM-11:35 AM |

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- **DETAILS OF RESOURCE PERSONS:**

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**Department of Electronics & Communication Engineering**

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**<u>INAUGRAL SESSION ON 26 April 2021:-</u>**

Inaugural session witnessed the presence of Col. B. Venkat, Director (Faculty Development), AICTE, New Delhi (Chief Guest), Dr. Nagendra Prasad Pathak, Professor, IIT Roorkee (Guest of Honor),Dr. Mahesh Bundele, Director, PCE, Jaipur, Mr. Pankaj Dhemla, Vice Principal, PCE, Jaipur, Dr. Garima Mathur convenor of STTP & Dr. Payal Bansal Coordinator of STTP, PCE, participants along with the faculty members. The event started with the online inaugural ceremoney in presence of chief guest, Guest of honour & Dr. Mahesh Bundele, Director PCE. Dr Garima Mathur addressed the participants about the STTP & Its area of learning and its content. In welcome address Dr. Mahesh M. Bundele, director, PCE, update the participants about the new techniques related to Artificial Intelligence. Dr. Pathak addressed the gathering with his knowledgeable words. &

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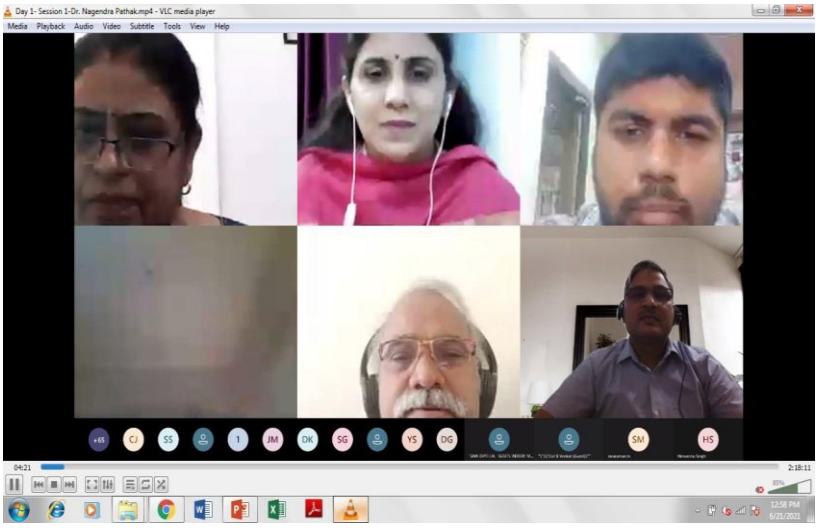
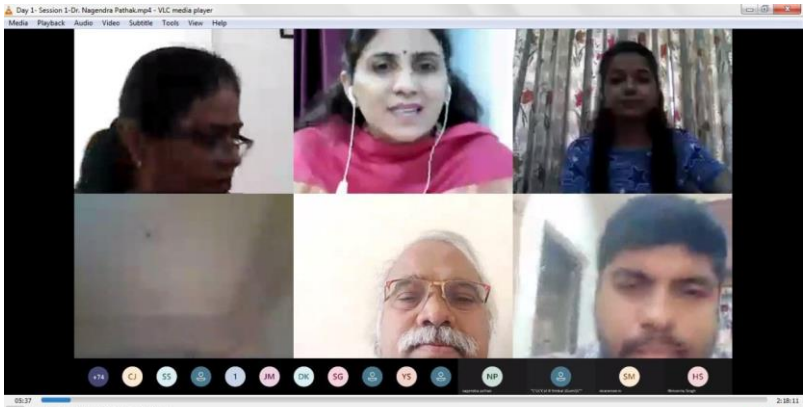
then after Col. B. Venkat updated the participants about the new technologies to be on work. In last the inaugural session concluded by vote of thanks delivered by Dr. Payal Bansal (coordinator of STTP).

**Glimpses of Inaugural session**





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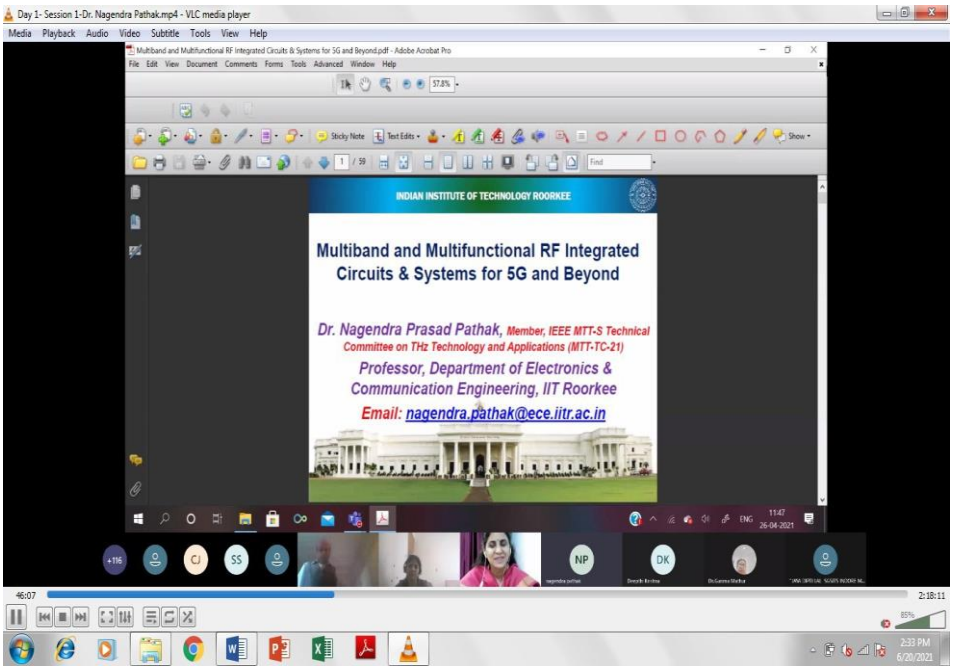
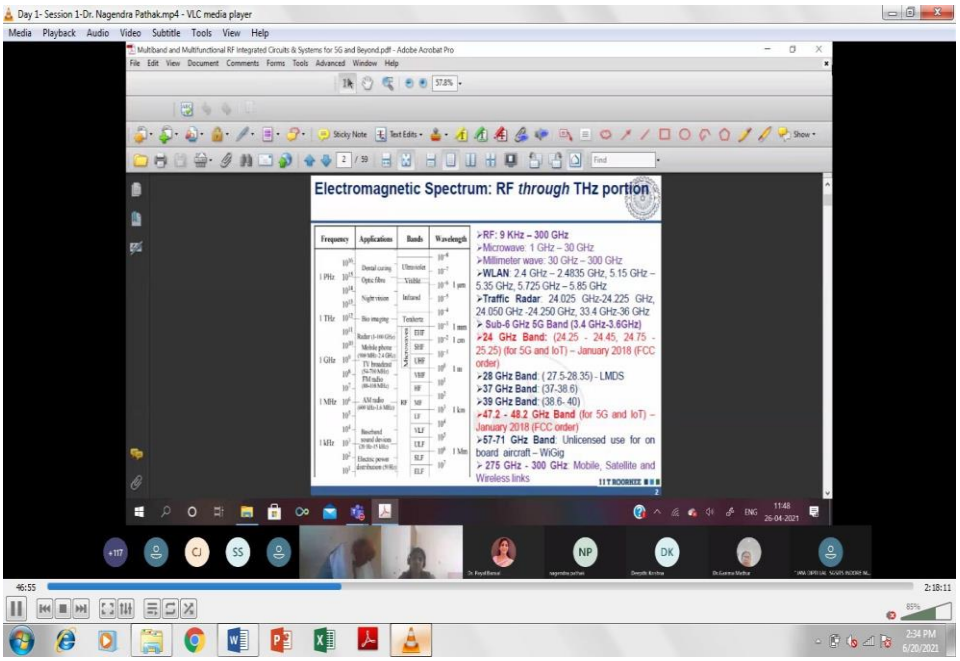
## Expert Talk-1

**Topic: Multiband and Multifunctional RF Integrated Circuits & Systems for 5G & Beyond**

**Resource Person: Dr. Nagendra Prasad Pathak, Professor**

**Venue: Ms Teams**

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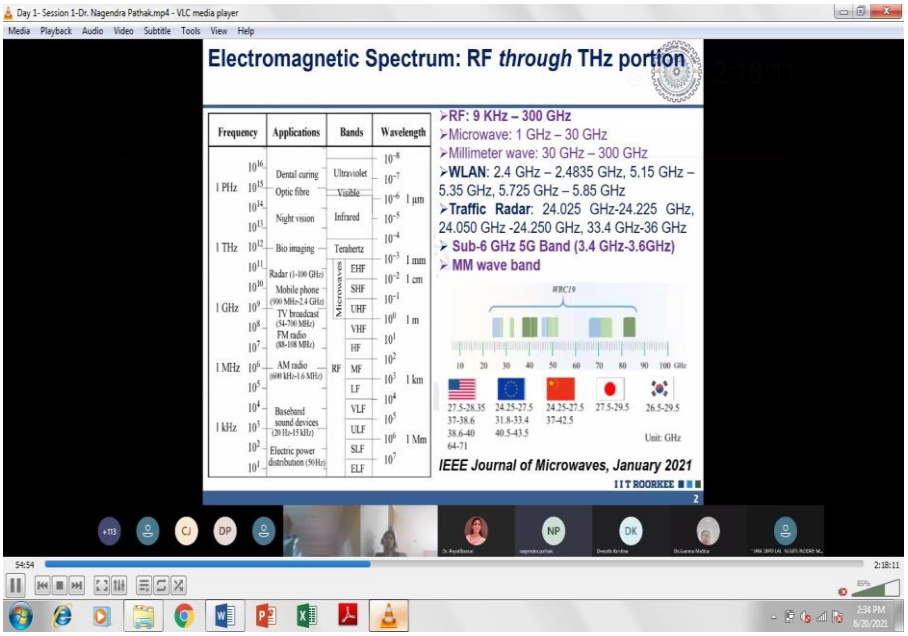


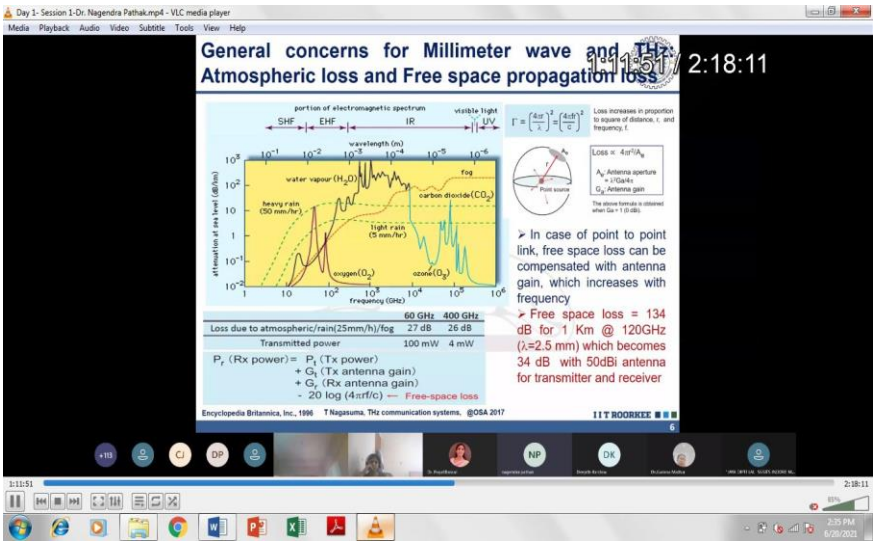


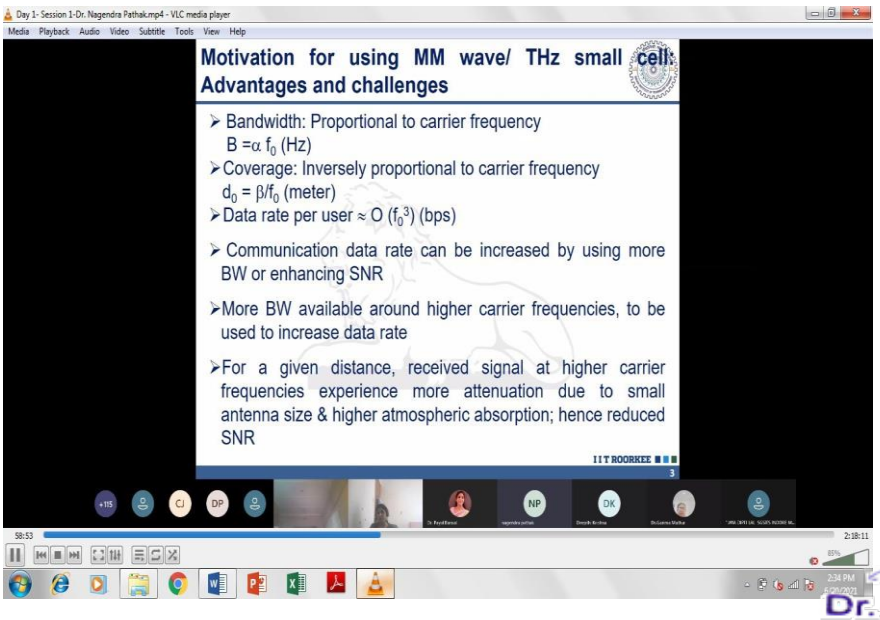


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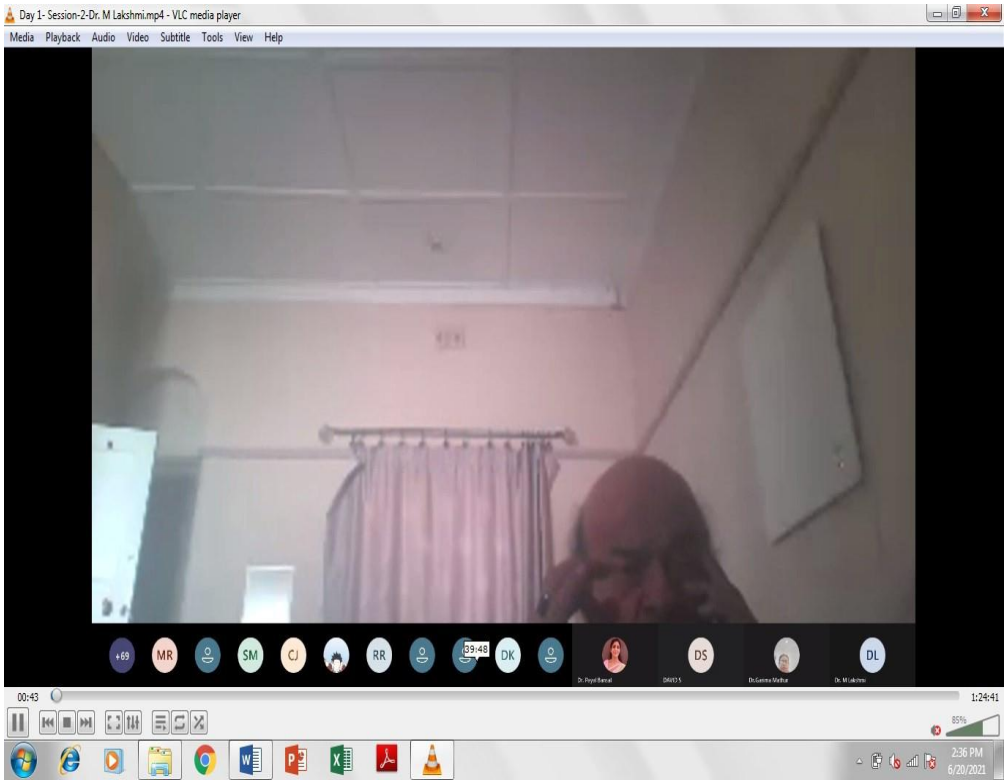
## Expert Talk-2

**Topic: 5G Communication for IoT**

**Resource Person: Dr. M Lakshmi, Professor**

**Venue: online**

**Memories of event**

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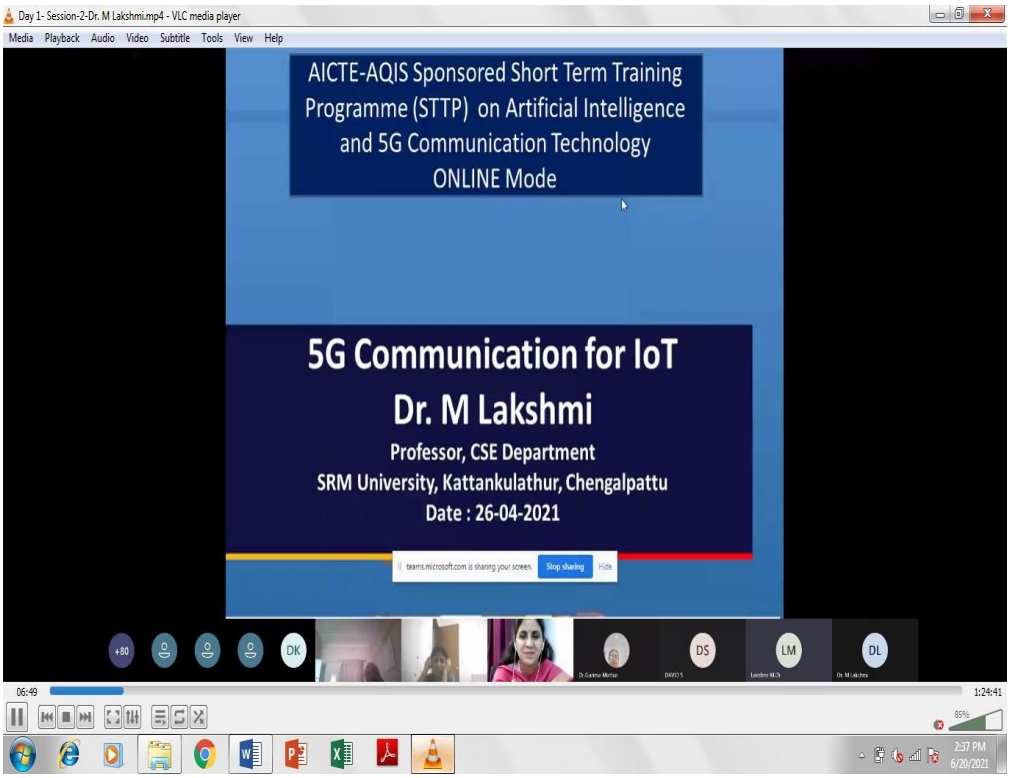


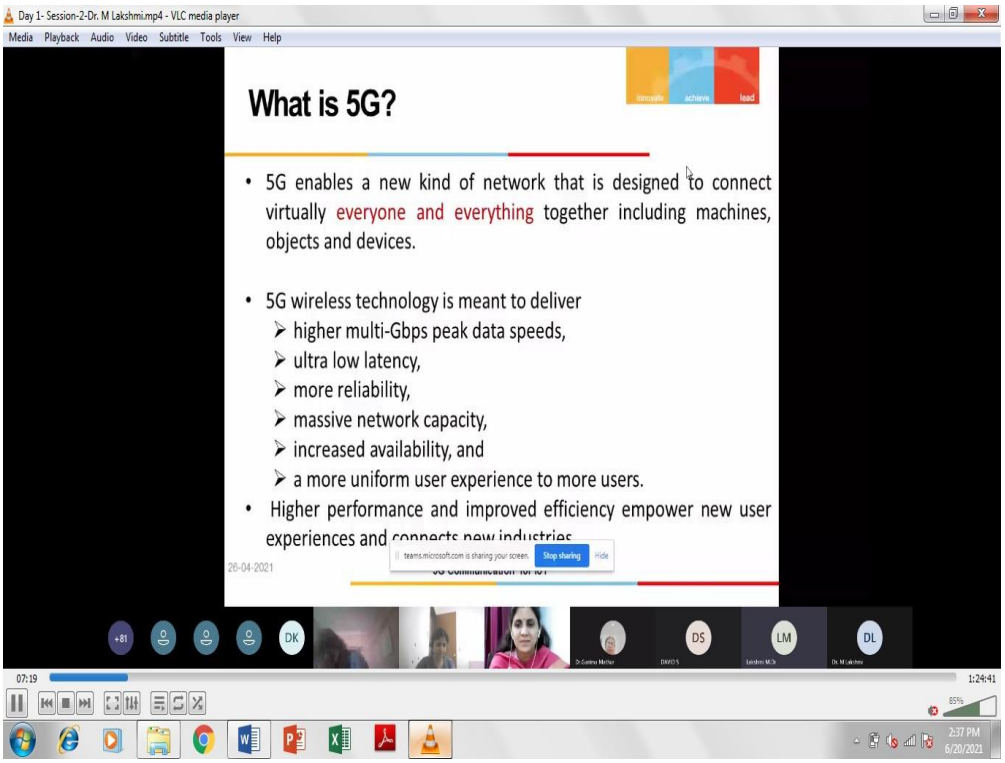


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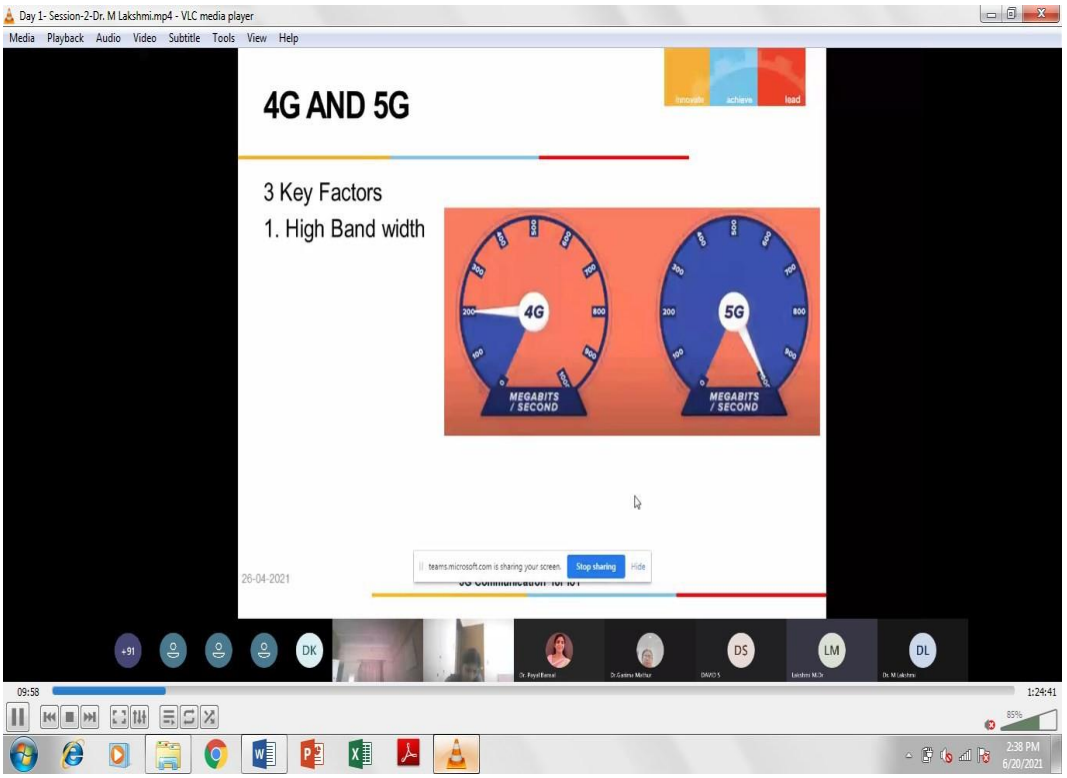


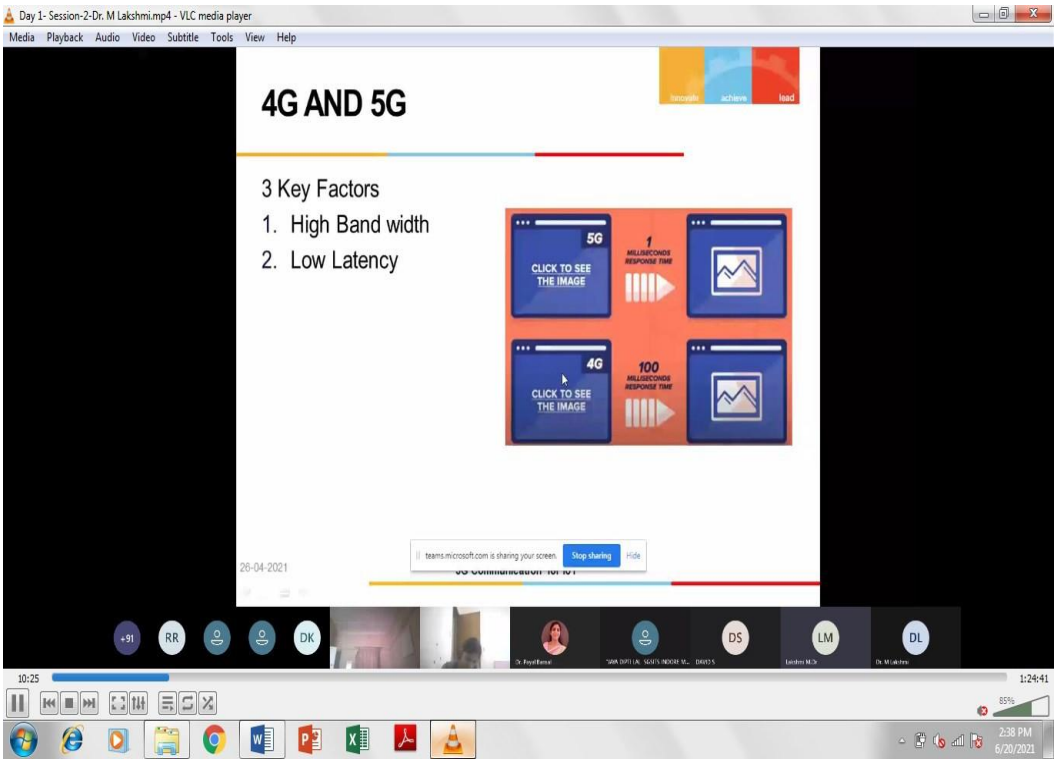


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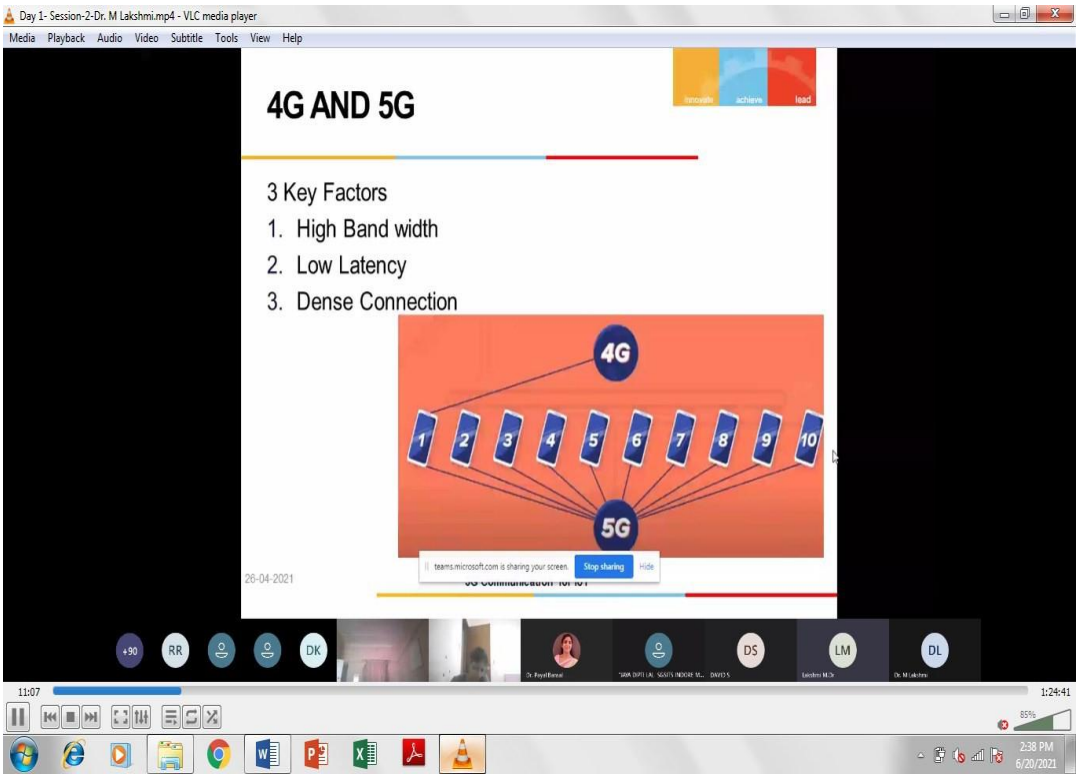
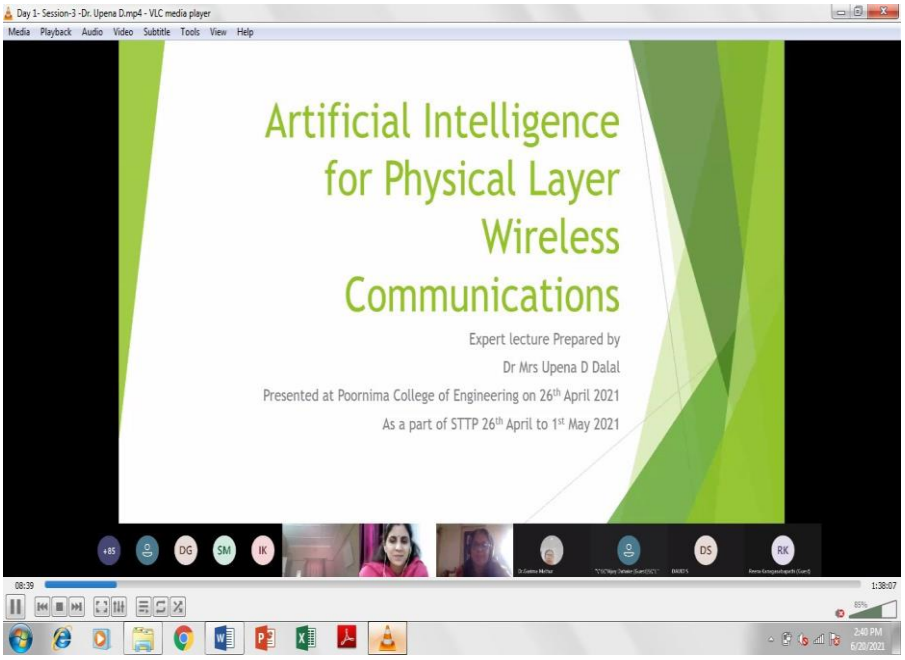



## Expert Talk-3

**Topic: Artificial Intelligence for Physical Layer Wireless Communications**

**Resource Person: Dr. Upena. D. Dalal, Professor and Ex-Head**

**Venue: online**

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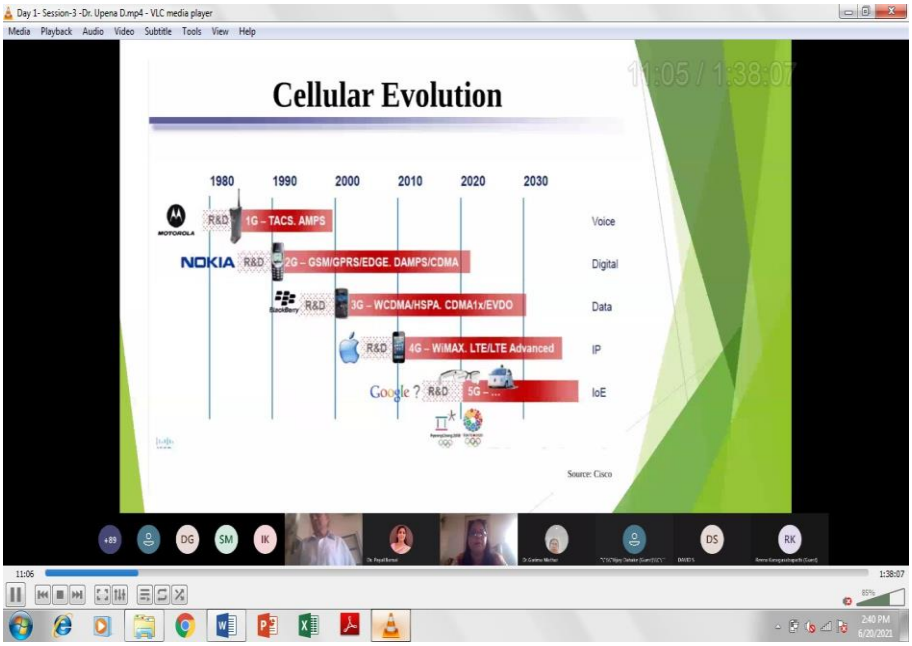


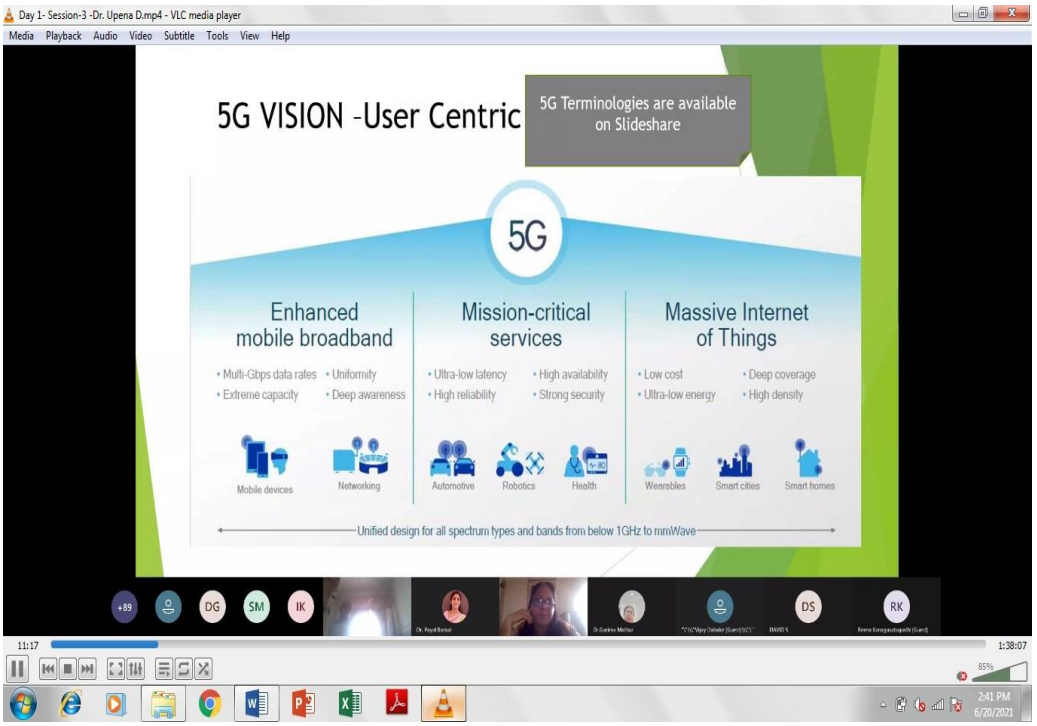


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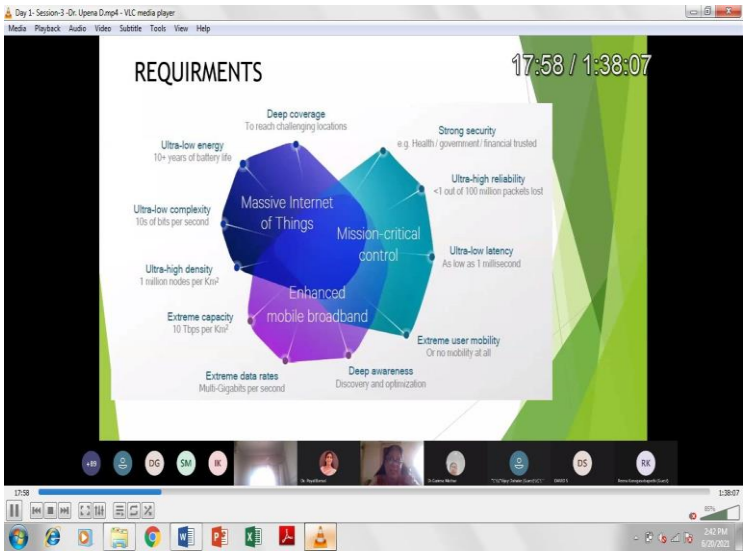

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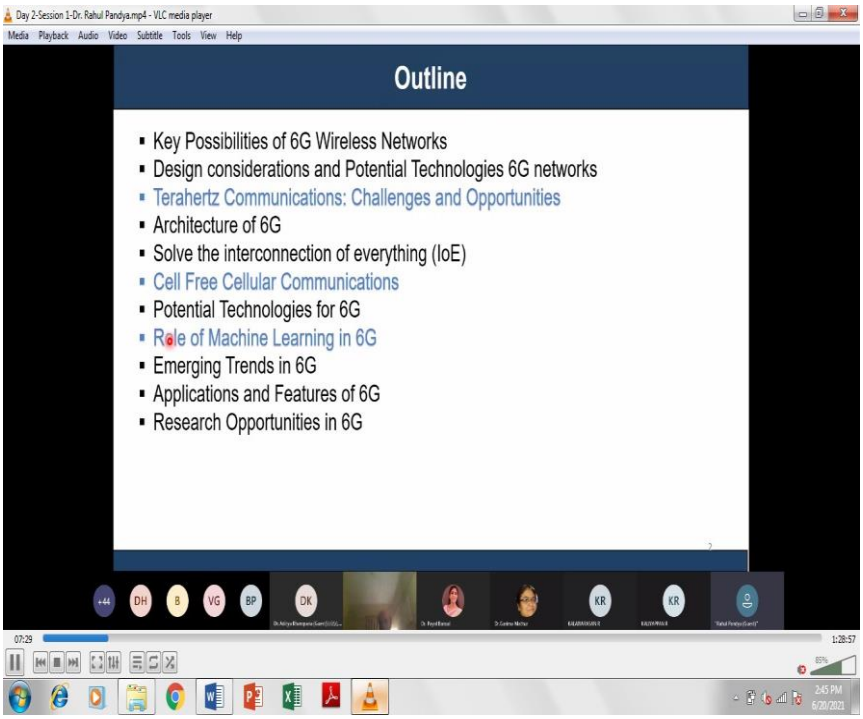
## Expert Talk-4

**Topic: 6G Vision, Potential Technologies and Challenges**

**Resource Person: Dr. Rahul Pandya, Assistant Professor**

**Venue: online**

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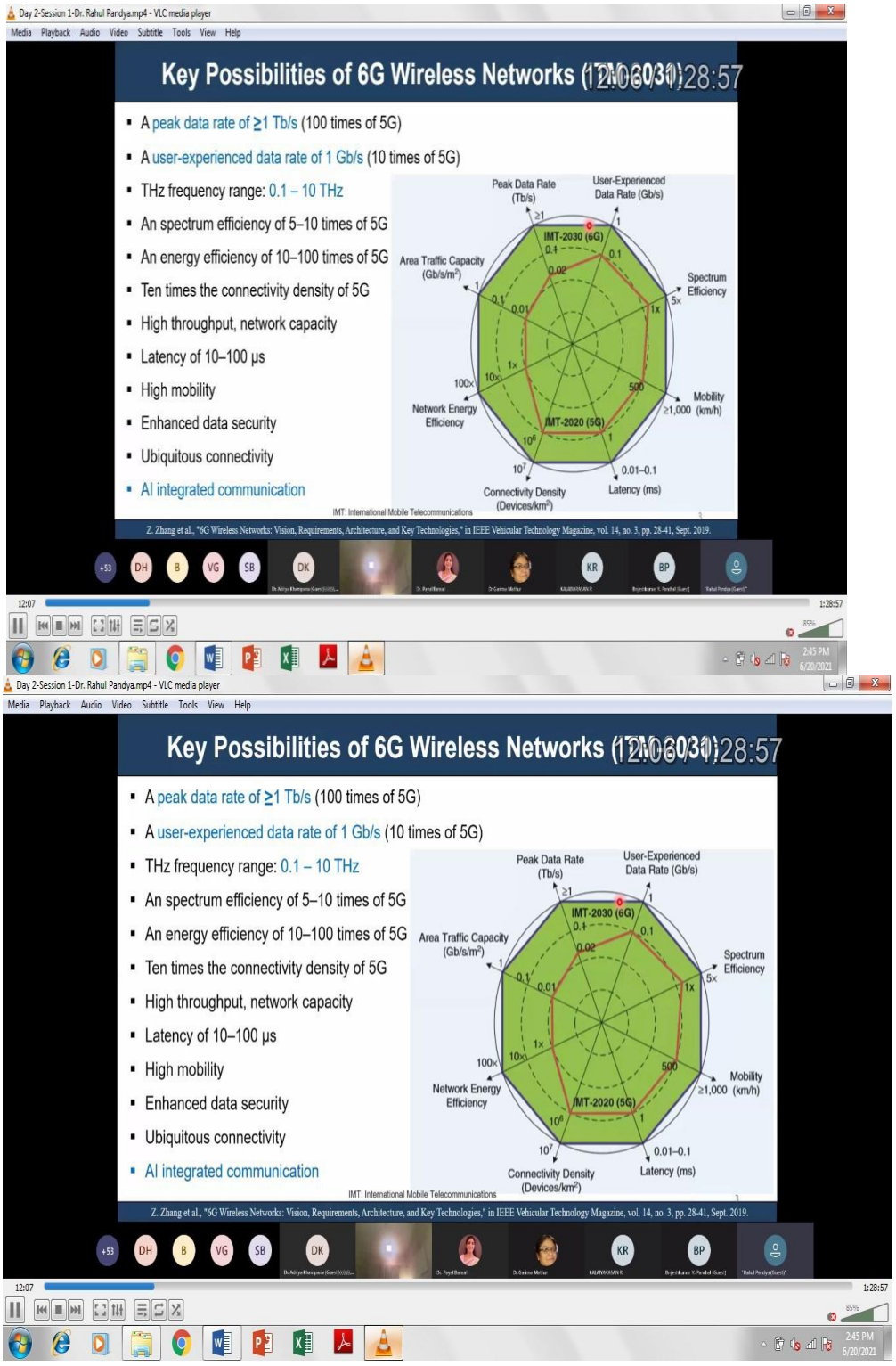





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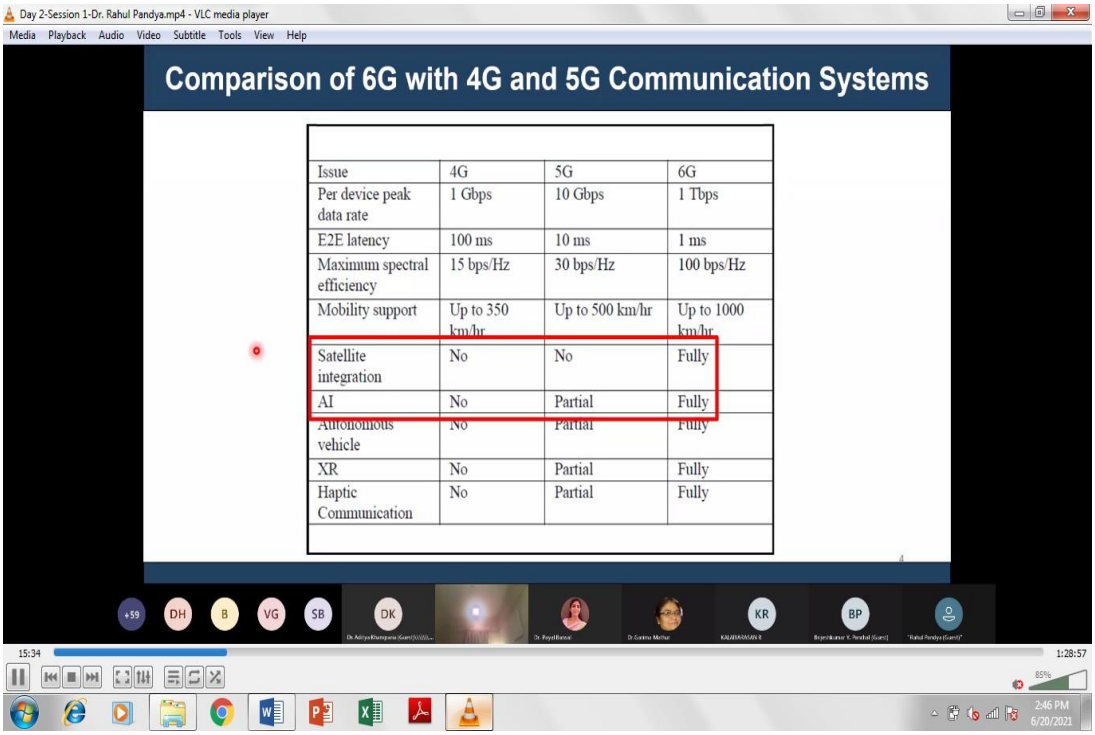


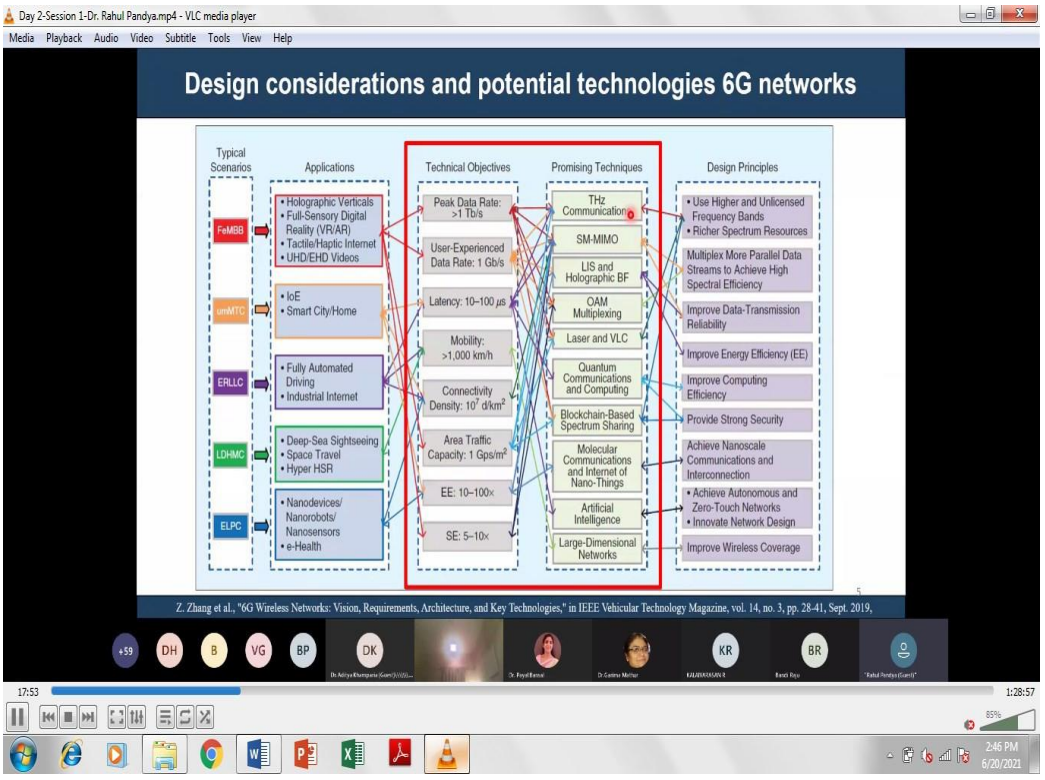


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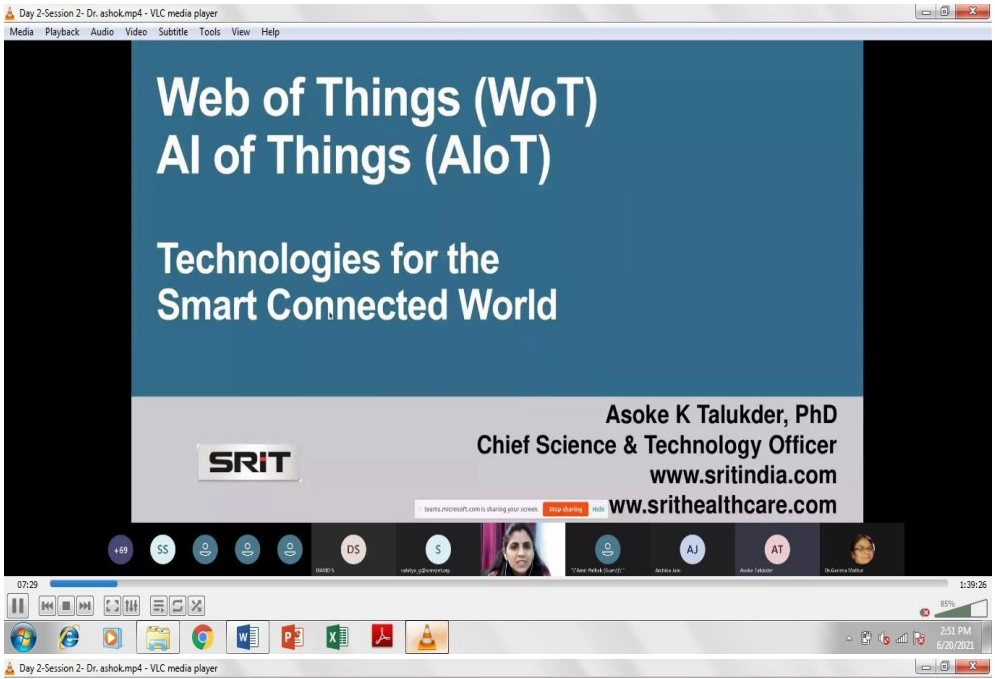
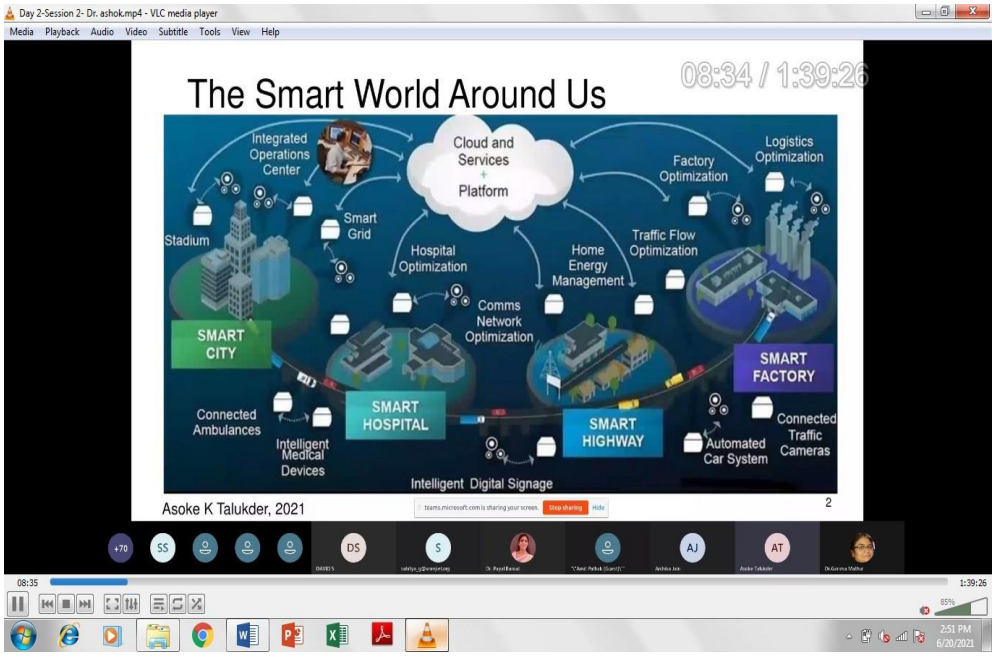
## Expert Talk-5

**Topic: WoT and AIoT: Technologies for the Smart Connected World Resource Person: Dr Asoke K Talukder, Chief Science & Technology Officer**
**Venue: online**

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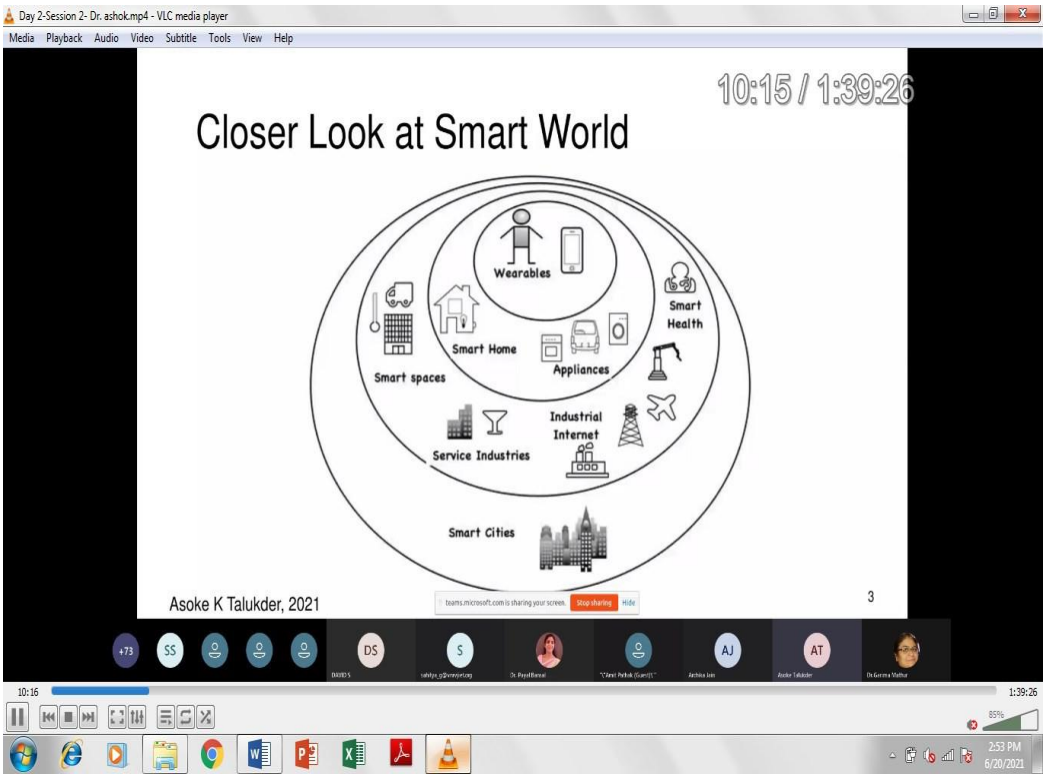


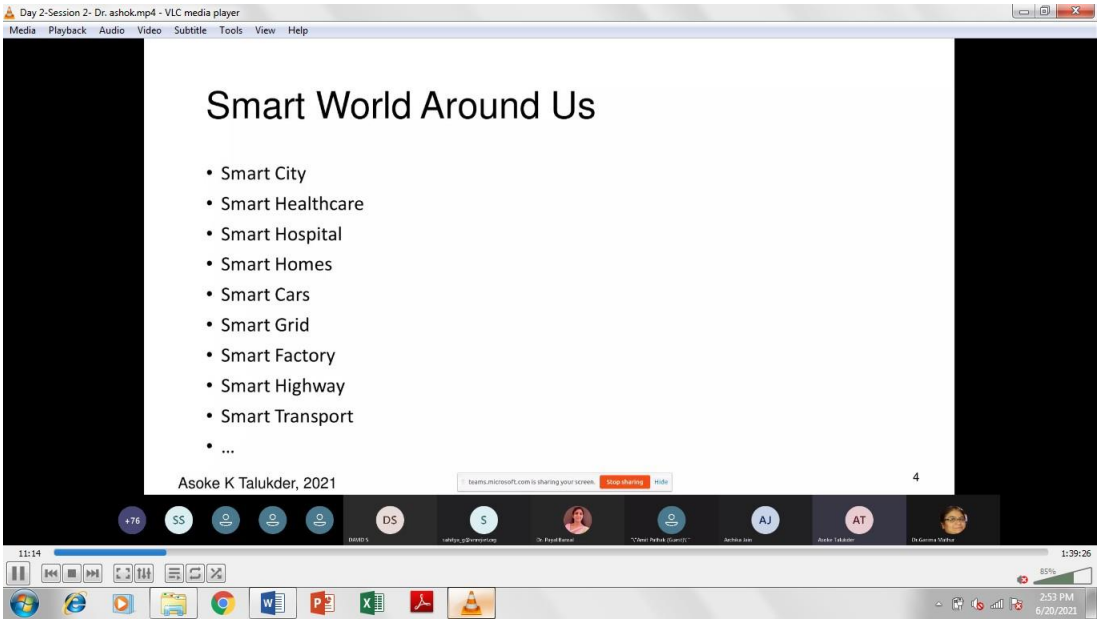


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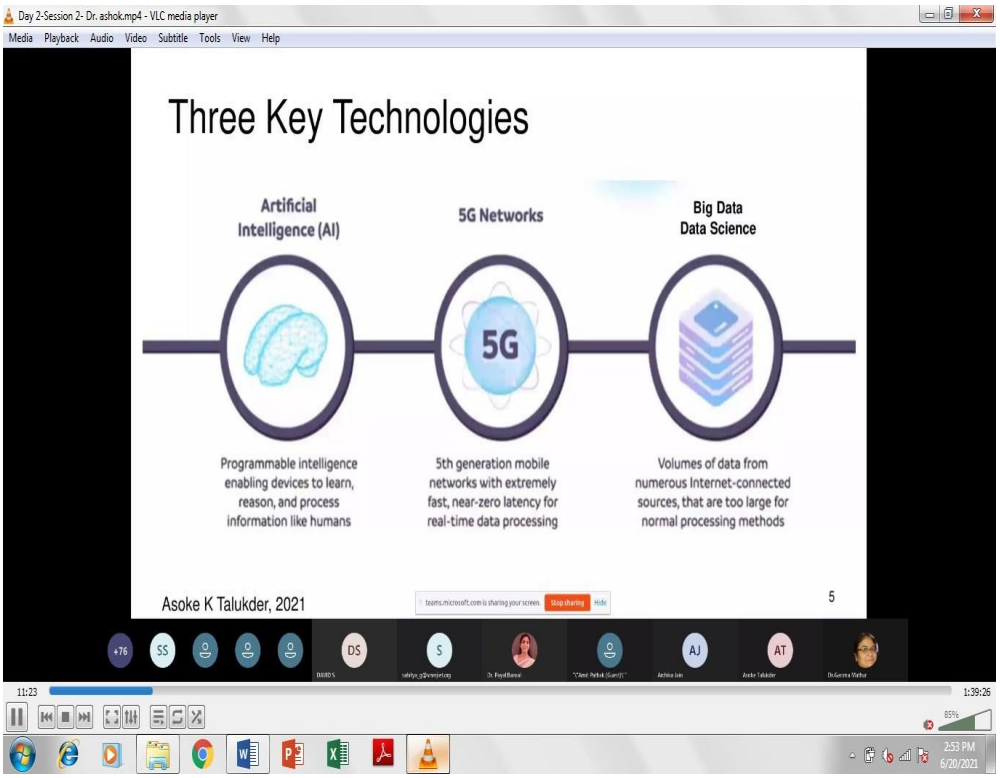


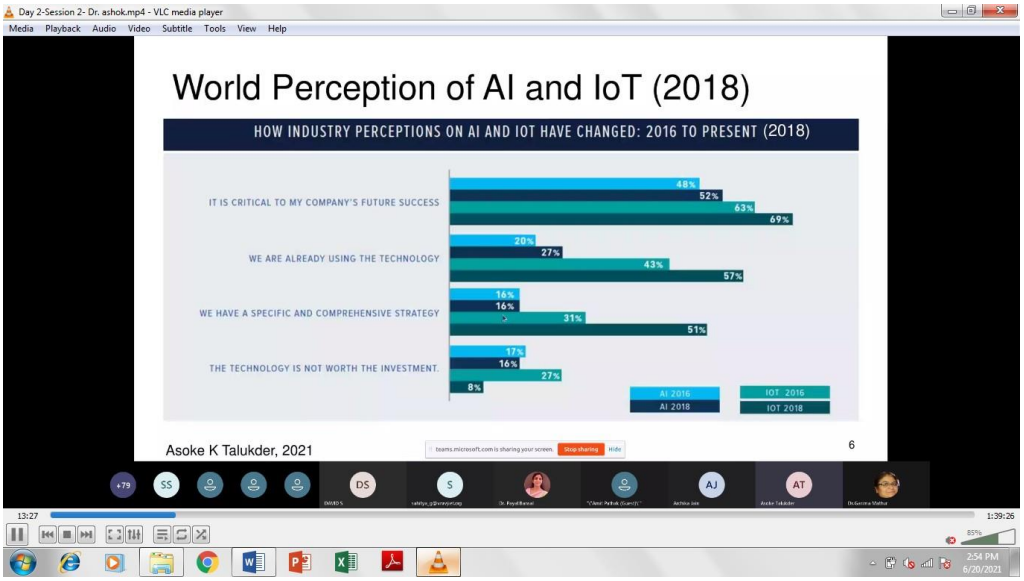


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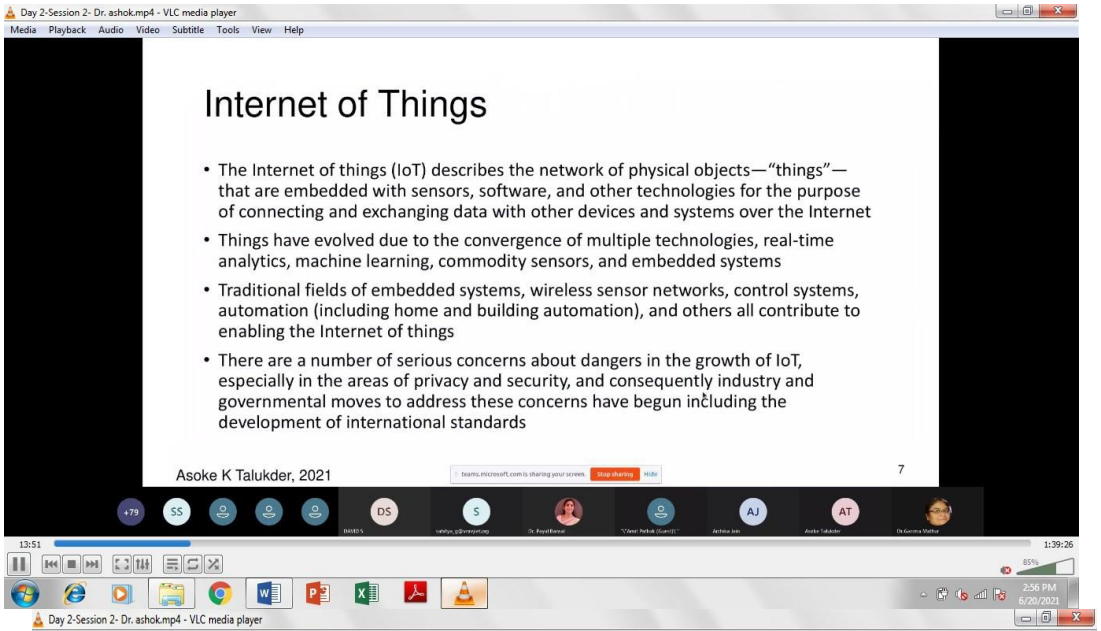
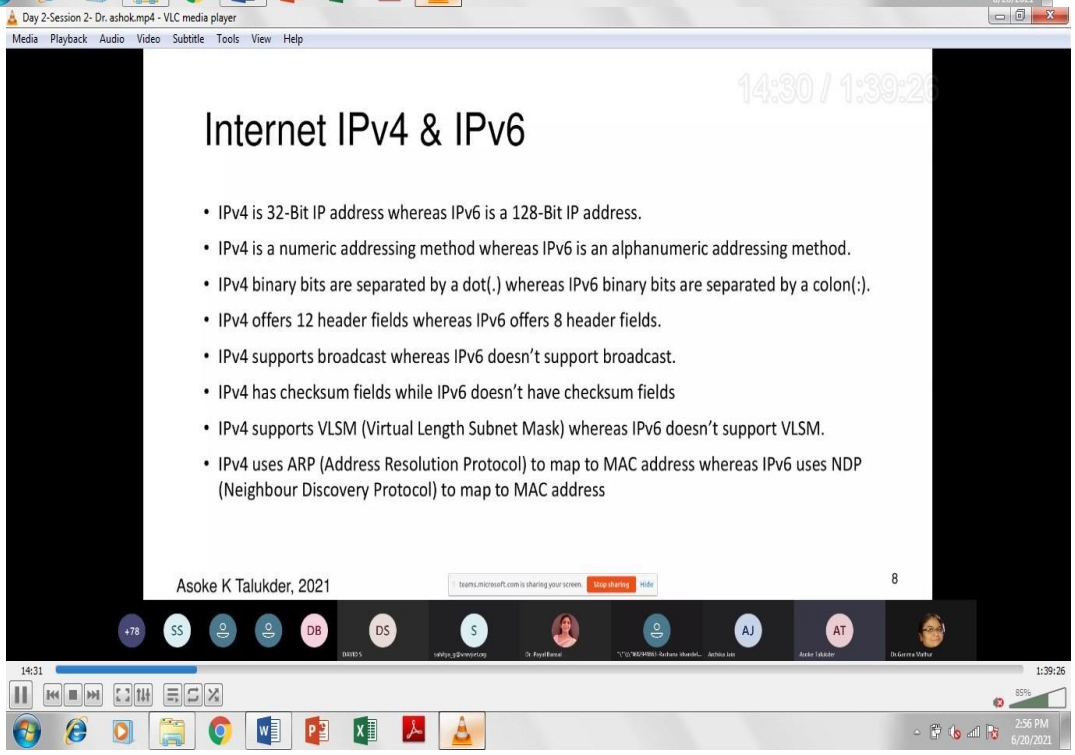
## Expert Talk-6

**Topic: The Fundamental Principles of Deep Learning including Back Propagation**
**Resource Person: Lyla B.Das, Associate Professor**
**Venue: online**

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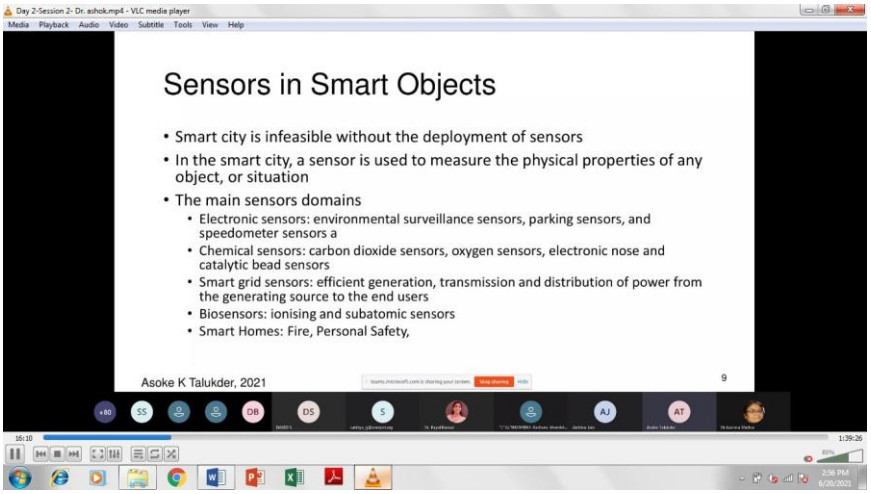


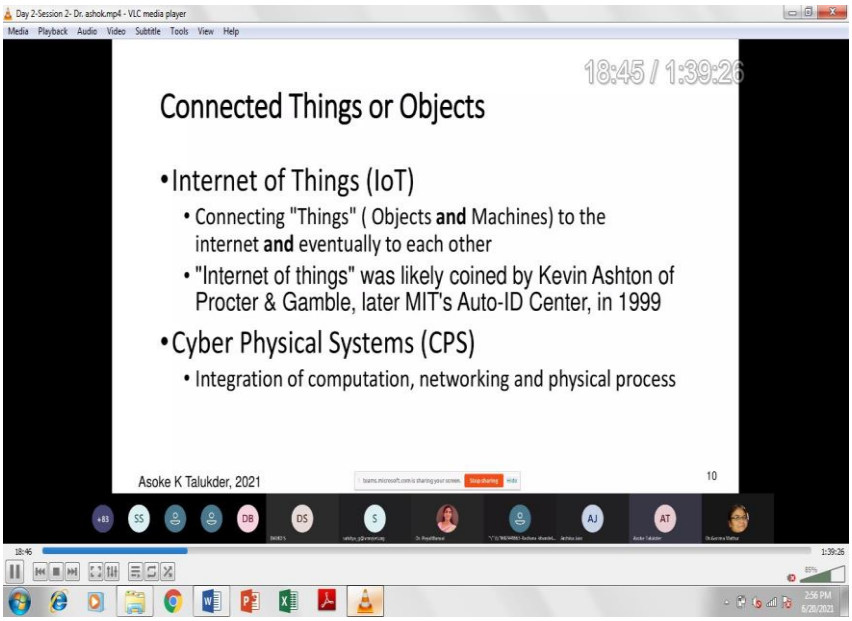

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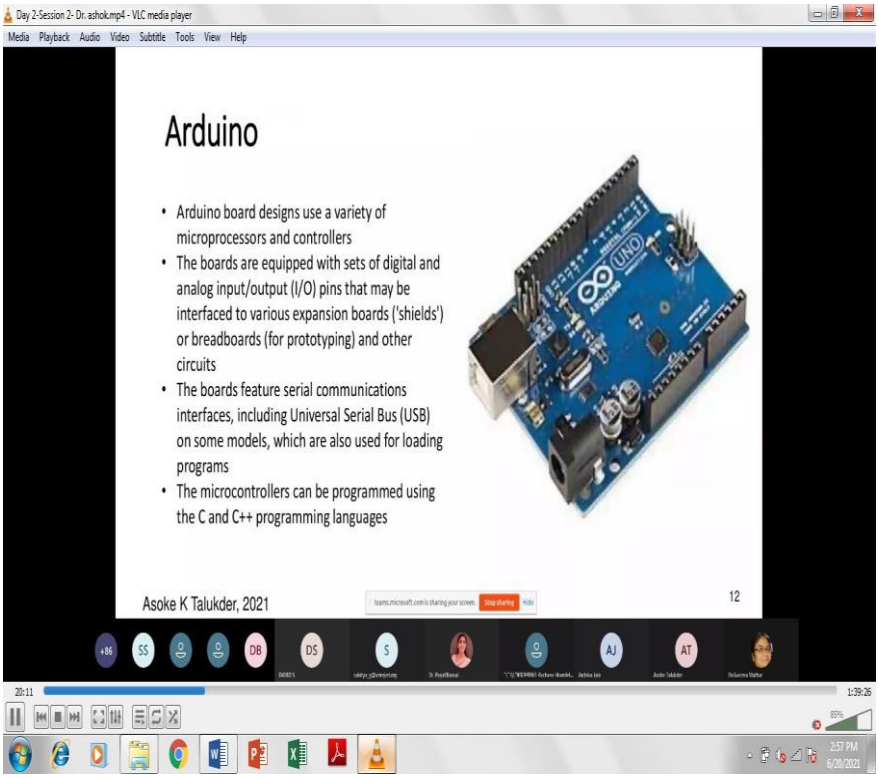
## Expert Talk-7

**Topic: Stochastic geometry analysis of 5G network Resource Person: Dr. Sudharsan, Assistant Professor**

**Venue: Online**




## Expert Talk-8

**Topic: Spectral- and Energy-Efficient Techniques for 5G and Beyond Wireless Networks**

**Resource Person: Dr. Prabhat Kumar Upadhyay, Associate Professor**

**Venue: online**

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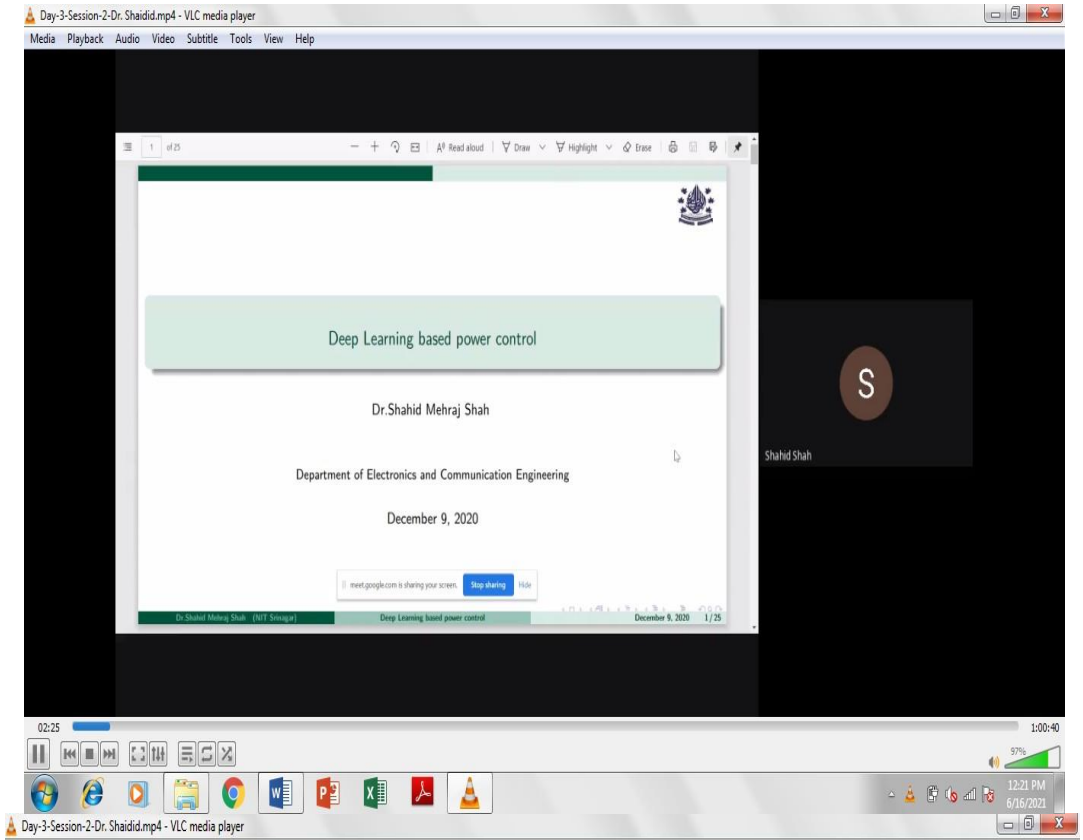


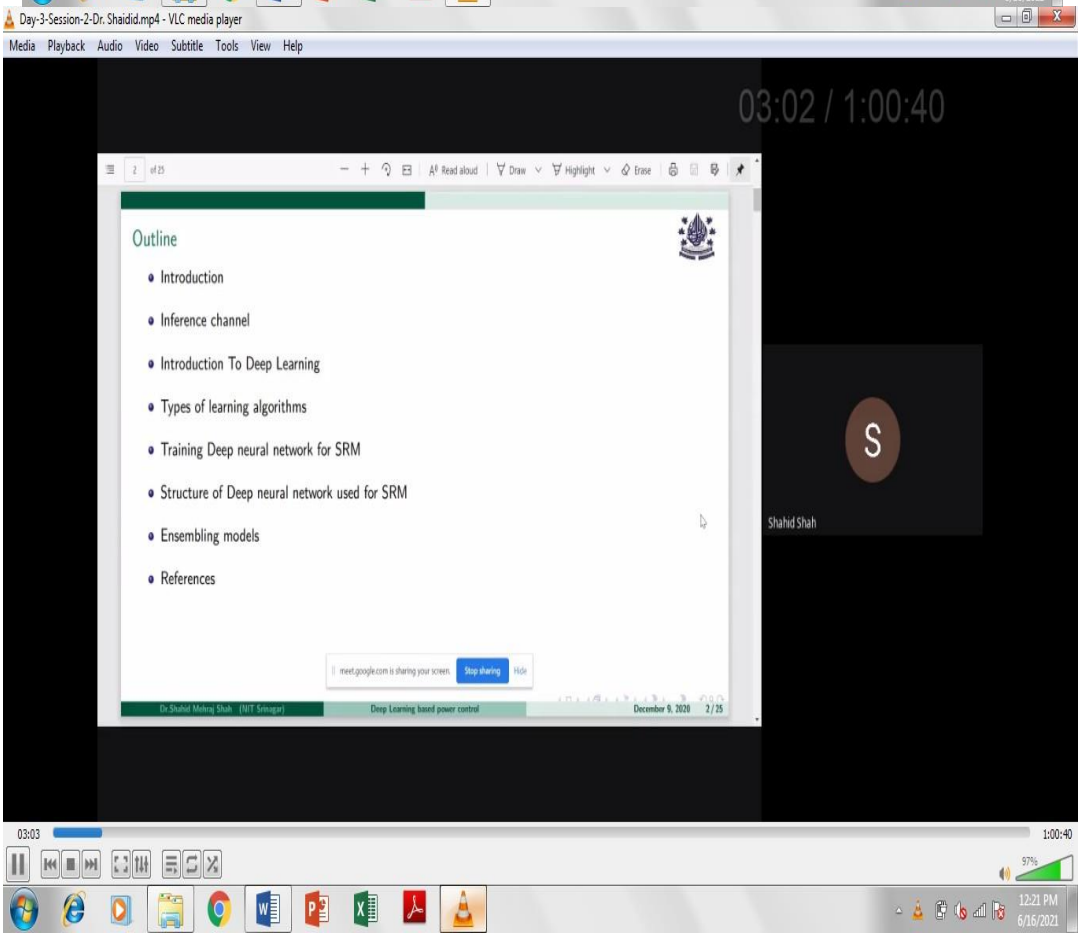


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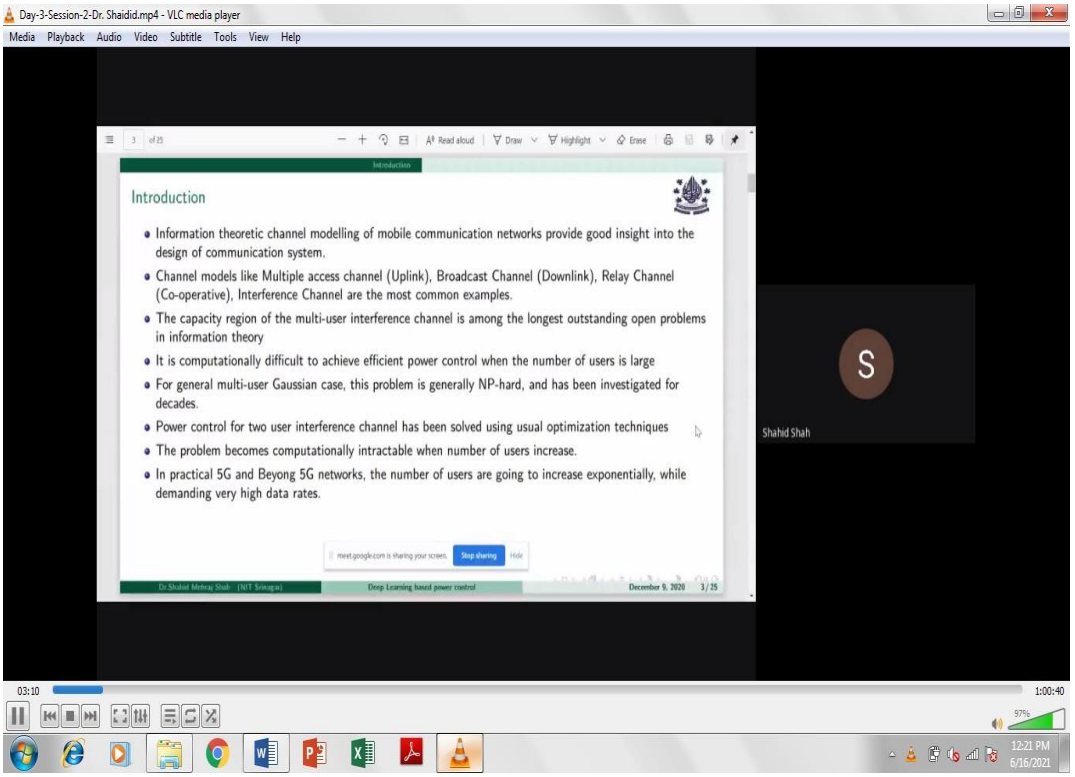


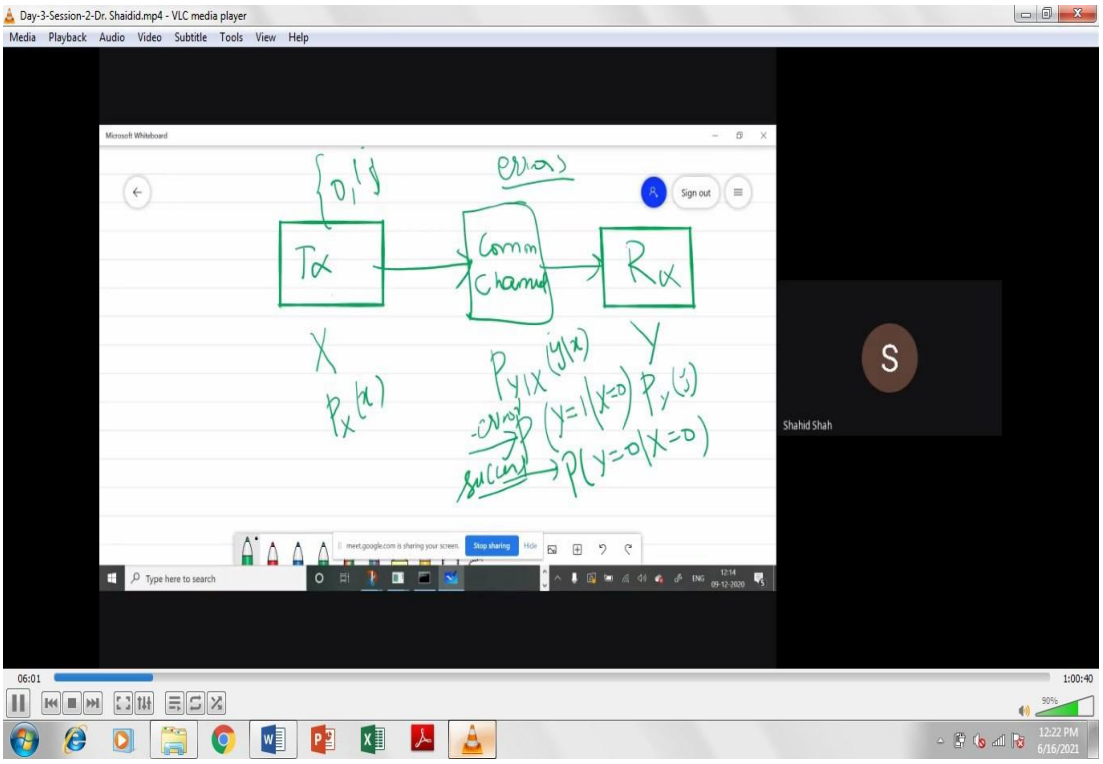


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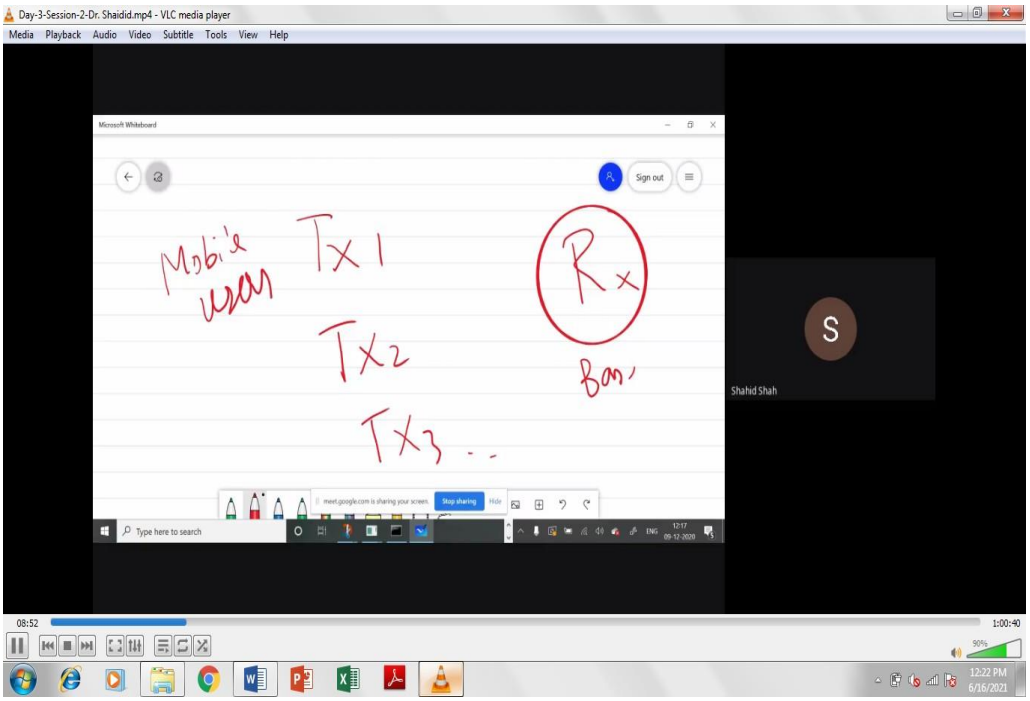


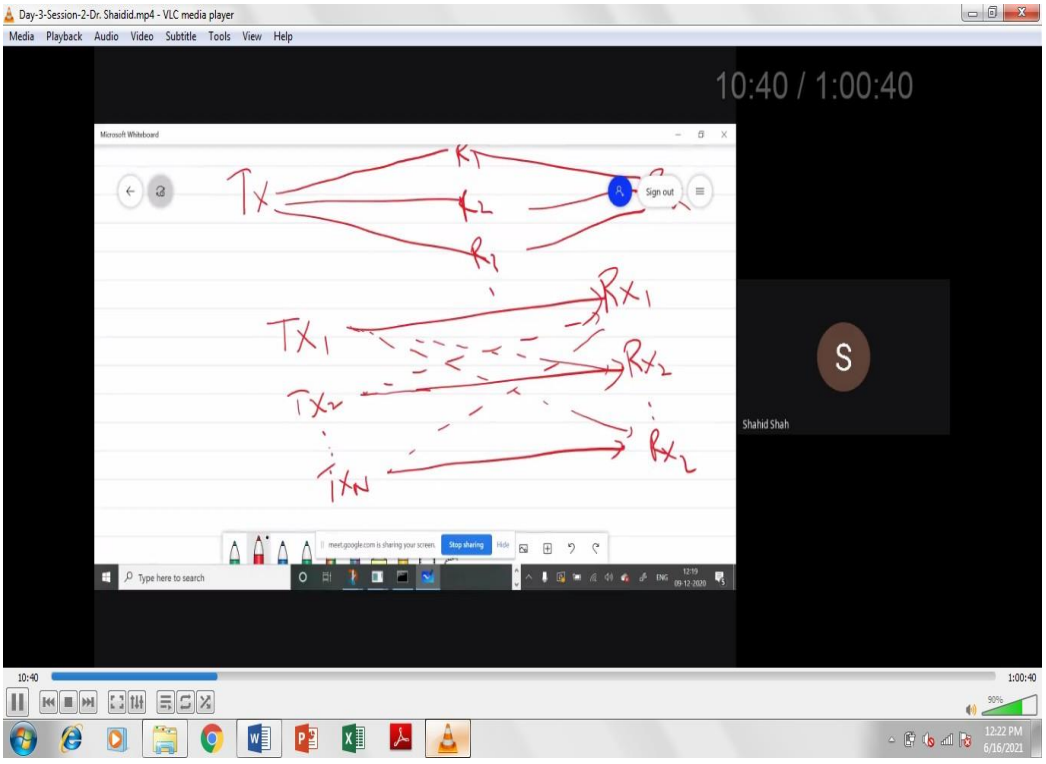


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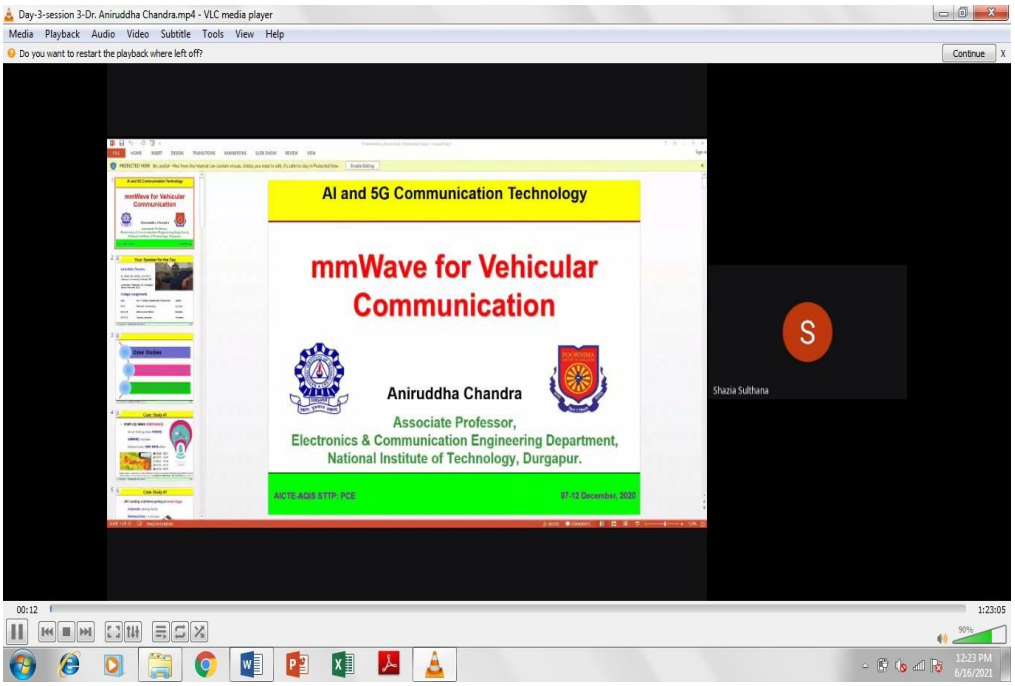
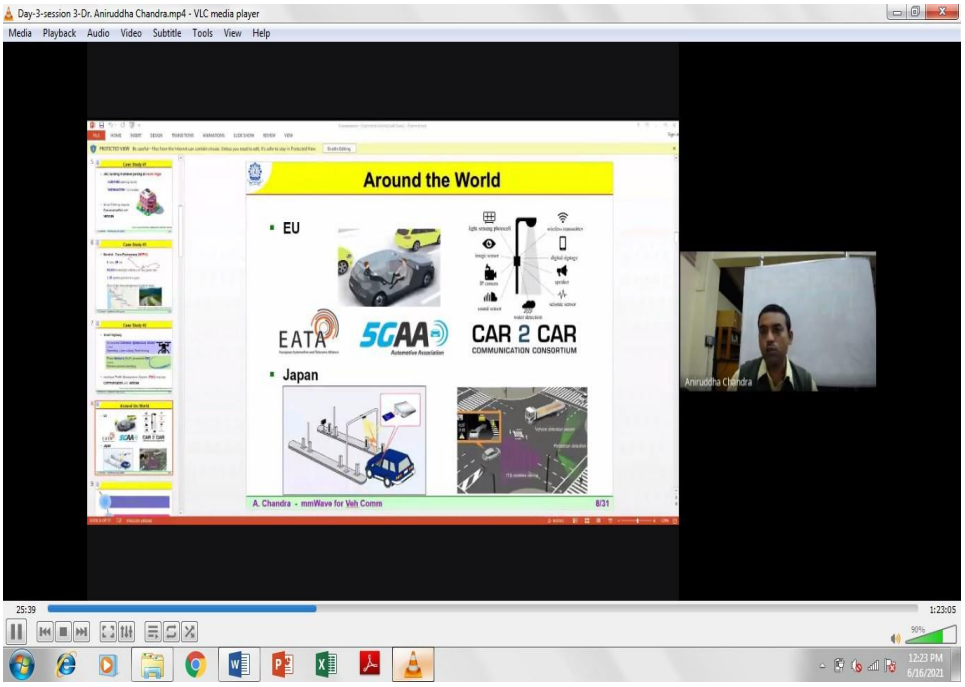
Expert Talk-9

**Topic: AI Trending - from Local Data to 5G Communications**

**Resource Person: Dr. Sudan Jha, Professor**

**Venue: online**

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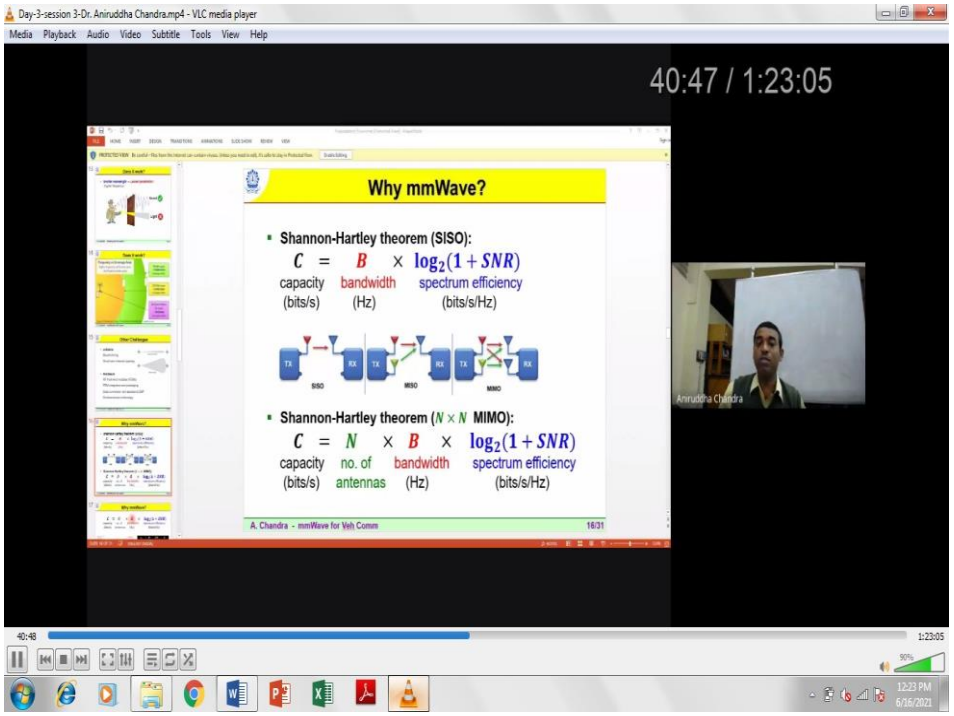
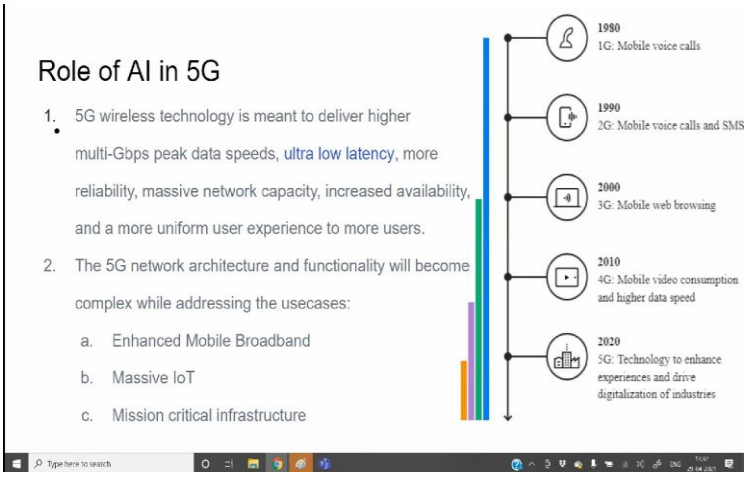



Expert Talk-10

**Topic: Automated Grading of Oil Palm Fruits using Fuzzy Logic and Rough Set Theory.**

**Resource Person: Dr. Gaurang Patkar, Associate Professor – Head of Department Venue: online**

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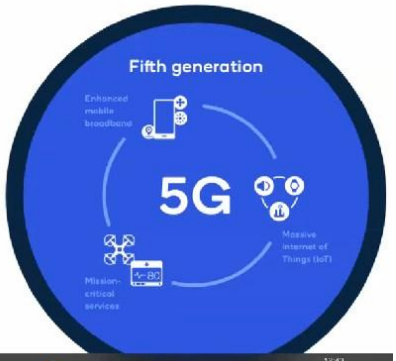
## Role of AI in 5G

- Increased complexity in the management of a vast number of devices and huge data. AI and ML will help to reduce this complexity
- AI assists in making mobile networks more proactive and immediately responsive to the needs of customers.




## Reinforcement Learning

- Reinforcement Learning is a feedback-based Machine learning technique in which an agent learns to behave in an environment by performing the actions and seeing the results of actions. For each good action, the agent gets positive feedback, and for each bad action, the agent gets negative feedback or penalty.

- **The agent learns automatically using feedbacks without any labeled data.**The agent interacts with the environment and explores it by itself. The primary goal of an agent in reinforcement learning is to improve the performance by getting the maximum positive rewards.

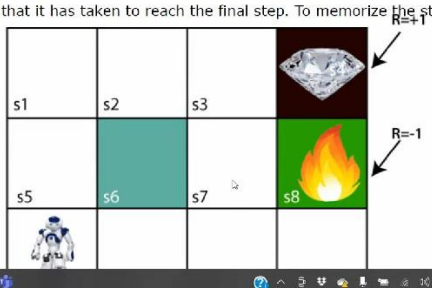
## Maze Example

The maze is consisting of an $S_6$ block, which is a **wall**, $S_8$ a **fire pit**, and $S_4$ a **diamond block.**

The agent cannot cross the $S_6$ block, as it is a solid wall. If the agent reaches the $S_4$ block, then get the **+1 reward;** if it reaches the fire pit, then gets **-1 reward point**. It can take four actions**: move up, move down, move left, and move right.**

The agent can take any path to reach to the final point, but he needs to make it in possible fewer steps. Suppose the agent considers the path **S9-S5-S1-S2-S3**, so he will get the +1-reward point.

The agent will try to remember the preceding steps that it has taken to reach the final step. To memorize the steps, it assigns 1 value to each previous step.

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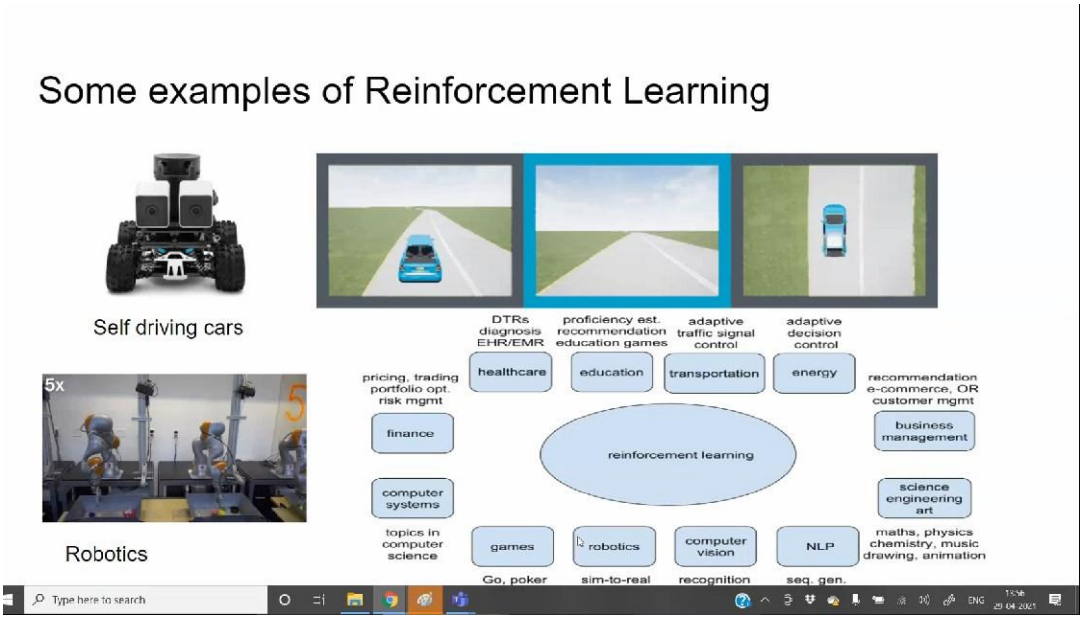
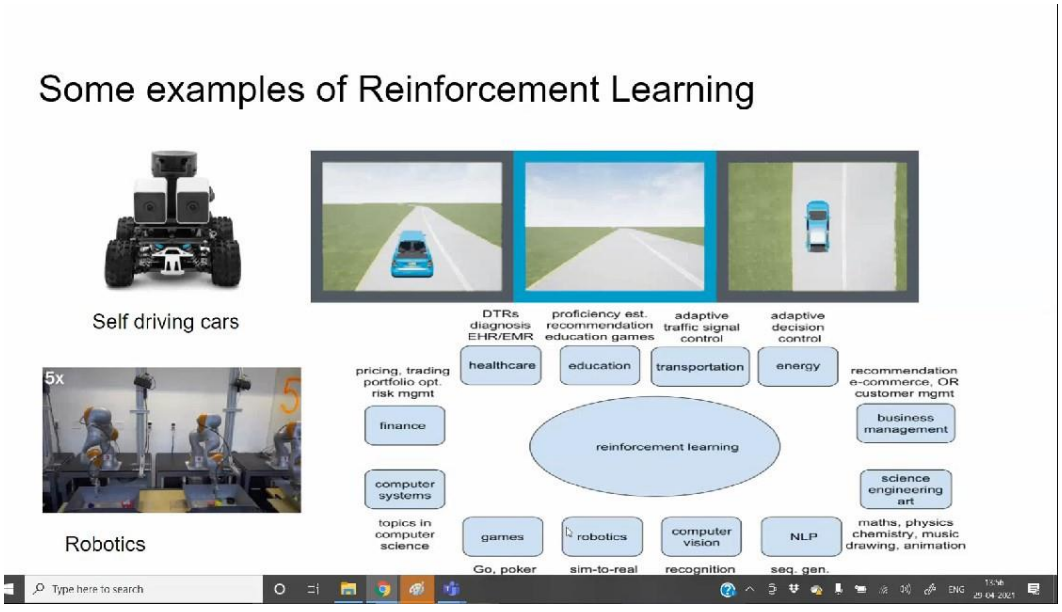
Expert Talk-11

**Topic: Edge Analytics to Address Challenges of Smart Healthcare**

**Resource Person: Dr. Rajveer S. Shekhawat, Provost& Director**

**Venue: online**

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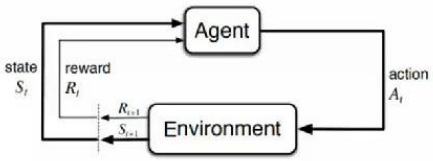
## Terms used in Reinforcement Learning

- **Agent():** An entity that can perceive/explore the environment and act upon it.
- **Environment():** A situation in which an agent is present or surrounded by. In RL, we assume the stochastic environment, which means it is random in nature.
- **Action():** Actions are the moves taken by an agent within the environment.
- **State():** State is a situation returned by the environment after each action taken by the agent.
- **Reward():** A feedback returned to the agent from the environment to evaluate the action of the agent.
- **Policy():** Policy is a strategy applied by the agent for the next action based on the current state.




## Markov Property

Markov Process is a memoryless process with a sequence of random states $S_1$, $S_2$, ....., $S_t$ that uses the Markov Property.

Markov Property: *Future is Independent of the past given the present.*

$$P[S_{t+1} \mid S_t] = P[S_{t+1} \mid S_1, \ldots, S_t]$$

***If the agent is present in the current state S1, performs an action a1 and move to the state s2, then the state transition from s1 to s2 only depends on the current state and future action and states do not depend on past actions, rewards, or states.***

***Example:*** A **Chess game, the players only focus on the current state and do not need to remember past actions or states**.

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Expert Talk-12

**Topic: Reinforcement Learning Application in 5G and Beyond Networks**

**Resource Person: Dr. Siba Narayan Swain, Assistant Professor**

**Venue: online**

Reward Function: $\mathcal{R}_s^a = \mathbb{E}[R_{t+1} \mid S_t = s, A_t = a]$

State-action value function:

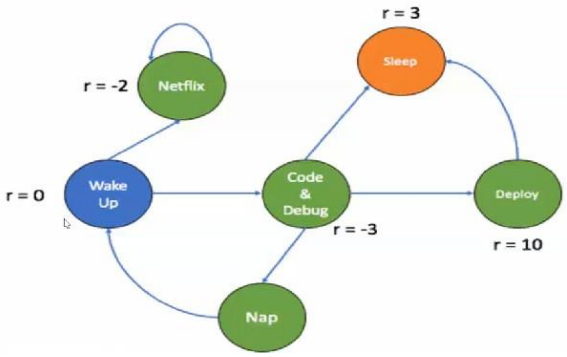
$$q_\pi(s,a) \doteq \mathbb{E}_\pi[G_t \mid S_t = s, A_t = a] = \mathbb{E}_\pi\left[\sum_{k=0}^{\infty} \gamma^k R_{t+k+1} \,\middle|\, S_t = s, A_t = a\right].$$

This function specifies the **how good** it is for the agent to take action (a) in a state (s) with a **policy** $\pi$

Basically, it tells us the value of performing a certain action(a) in a state(s) with a policy $\pi$

## Example of Markov Decision Process

we can see that there are no more probabilities.In fact now our agent has choices to make like after waking up ,we can choose to watch netflix or code and debug.Of course the actions of the agent are defined w.r.t some policy π and will be get the reward accordingly.

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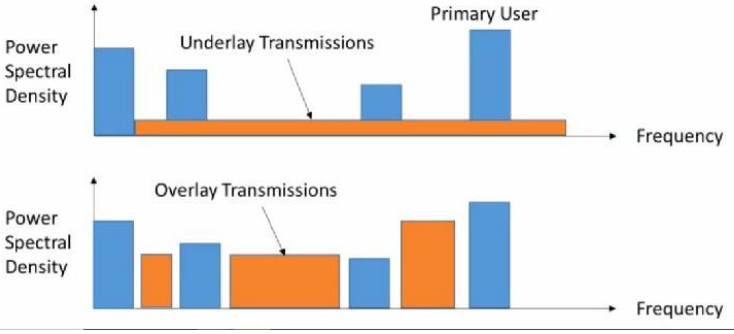
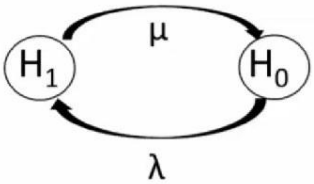
## Dynamic Spectrum Access- Cognitive Radio

Overlay - SU transmits on PU channels in an opportunistic manner whenever PUs are not transmitting.




## Temporal Behavior of Primary Users




- H1 - PU transmits
- H0 - PU does not transmit

The two states or hypotheses are linked by factors such as λ (arrival rate of PU) and μ (termination rate of the PU). The temporal behaviour of the PU transmission which comprises of the arrival and termination rates, is modelled as a random Poisson Exponential Process

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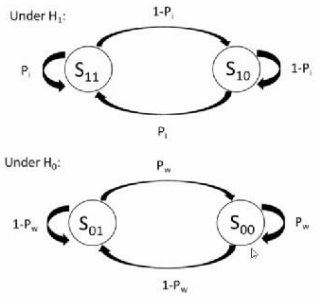
Expert Talk-13

**Topic: IoT Device Localization**
**Resource Person: Dr. Udit**

**Satija, Assistant Professor**

**Venue: online**

## SU modelled as Markov Decision Process (RL)




S00 - SU does not transmit | H0
S01 - SU transmits | H0
S10 - SU does not transmit | H1
S11 - SU transmits | H1

Pi = Probability of interference - simultaneous transmissions of PU and SU

Pw = Wastage Probability - due to false alarm

## Q-Learning

Q-Learning is a straightforward and model-free reinforcement learning algorithm adopted to define the values of transition probabilities and to find an optimal policy for a MDP.

**The main objective of Q-learning is to learn the policy which can inform the agent that what actions should be taken for maximizing the reward under what circumstances.**

It also converges to an optimal policy given a finite action-state MDP

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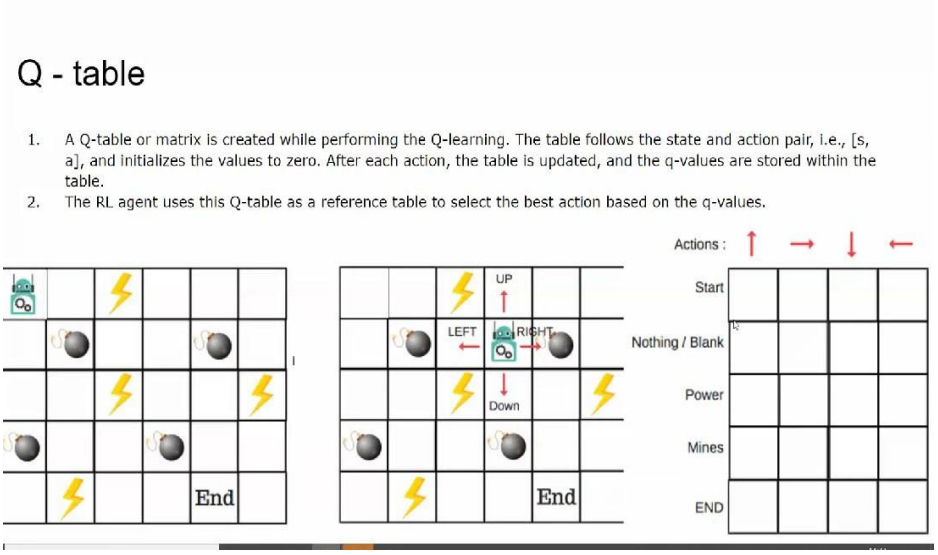
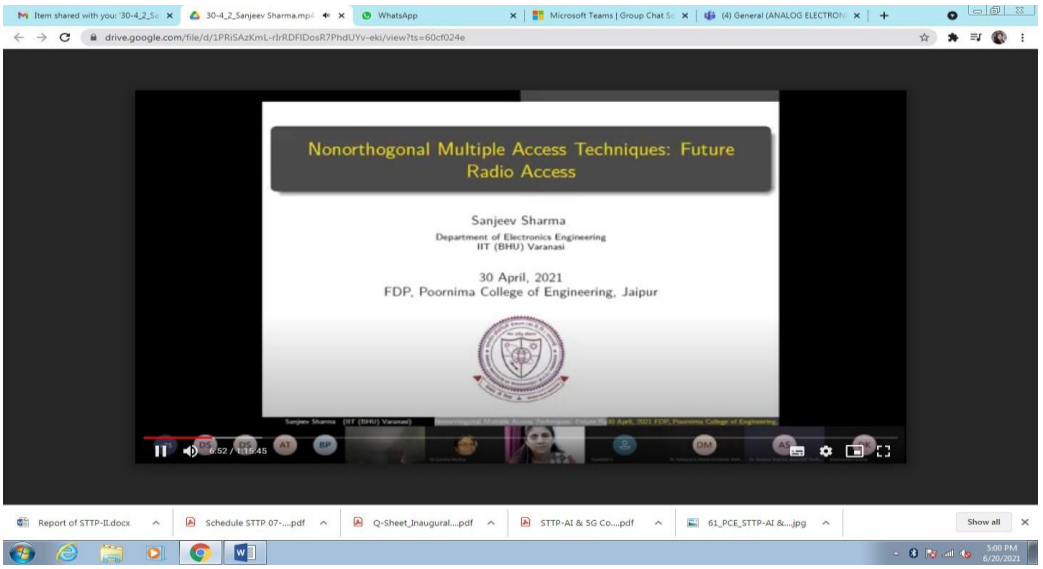



## Expert Talk -14

**Topic: Deep Learning-Based Wireless Communications**

**Resource Person: Dr. Sanjeev Sharma, Assistant Professor**

**Venue: online**

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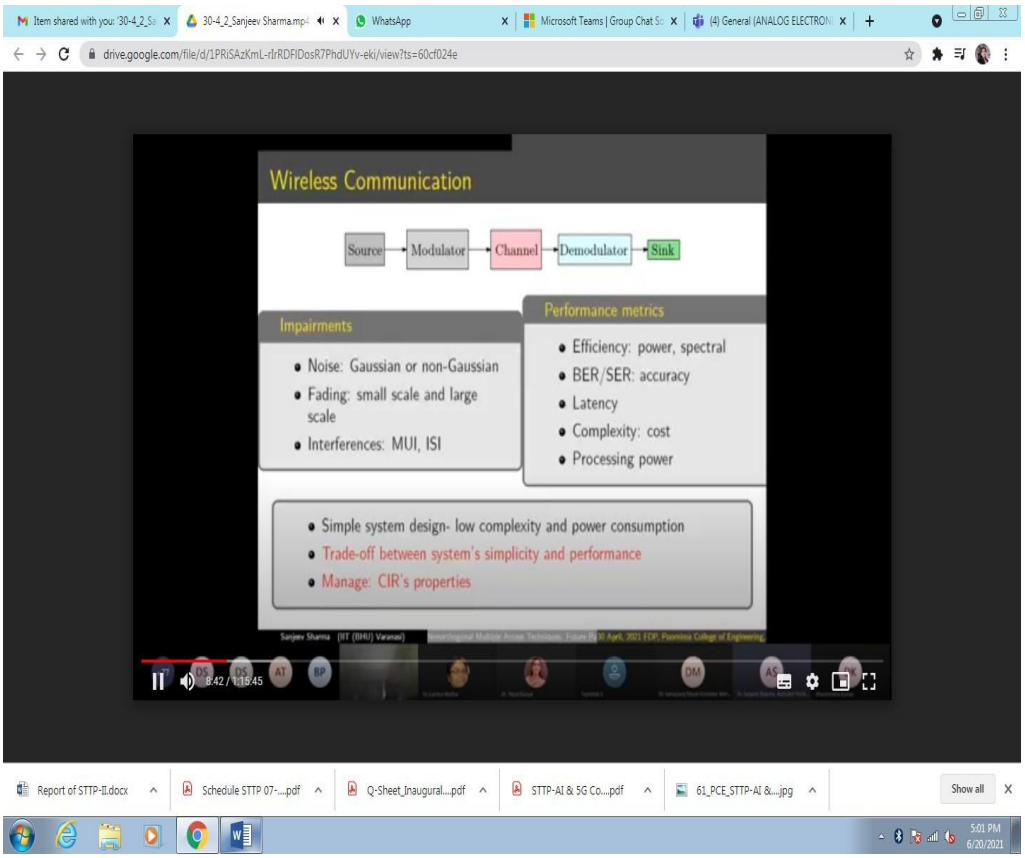


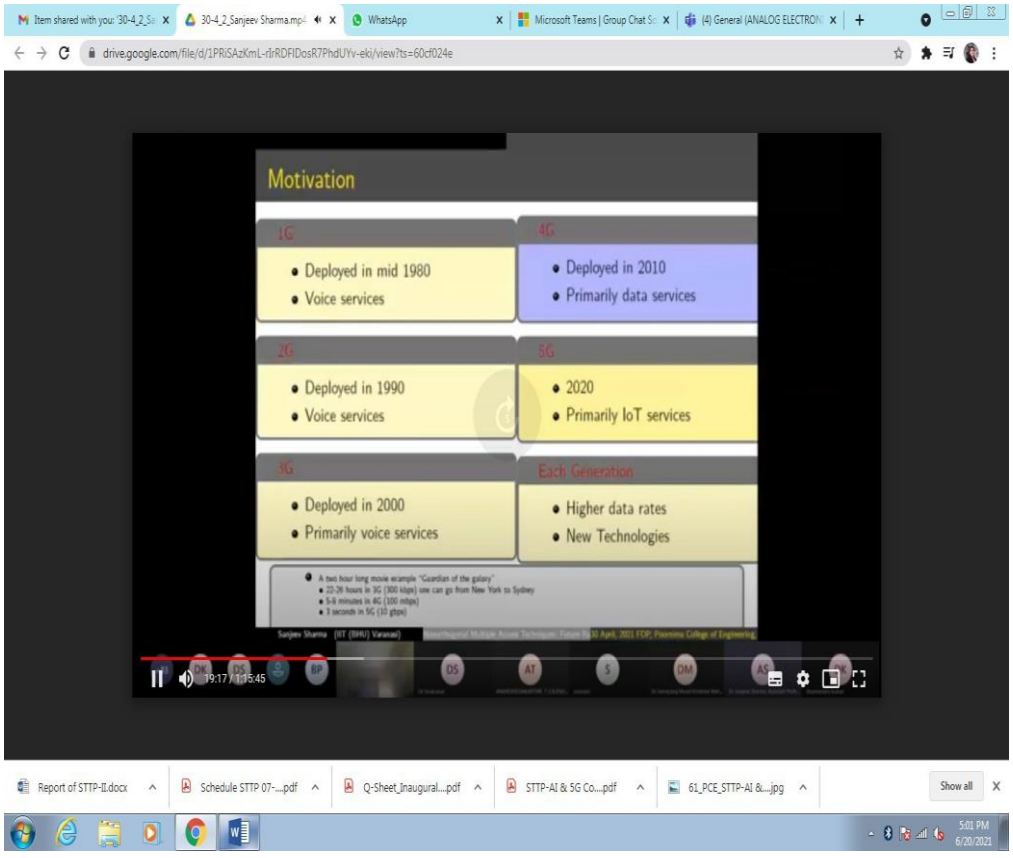


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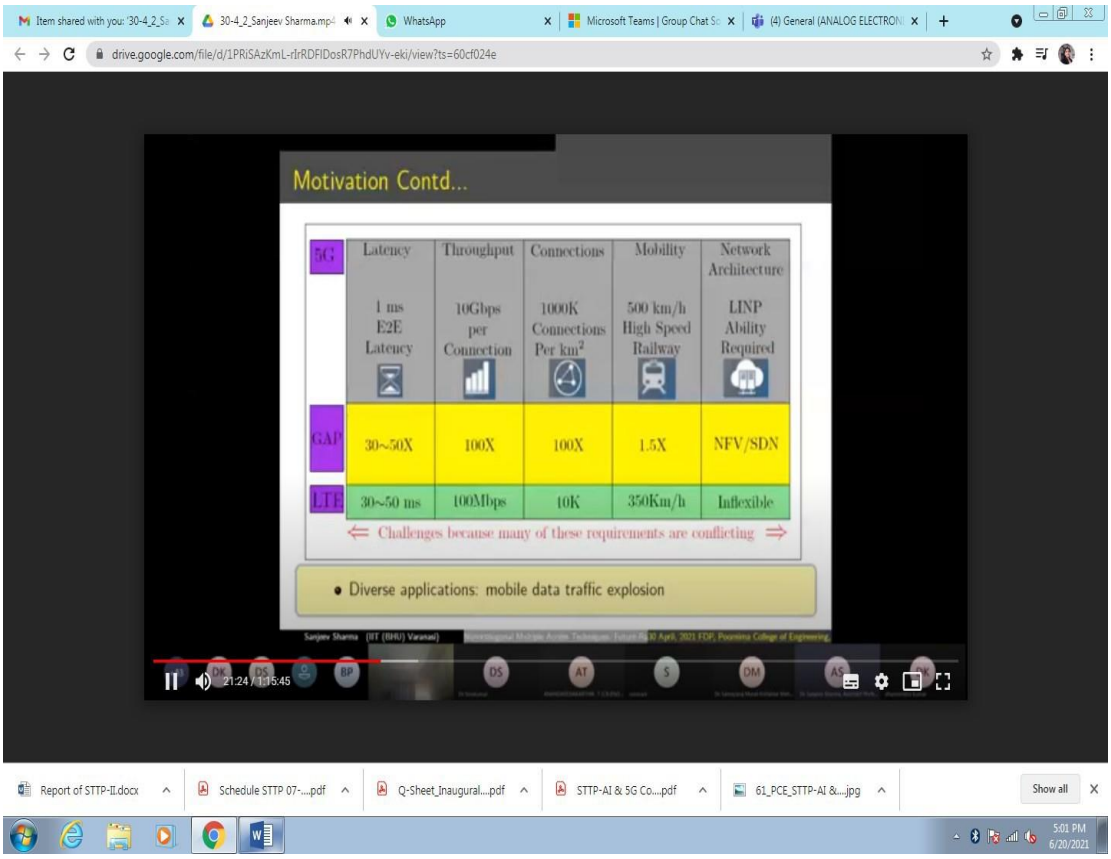


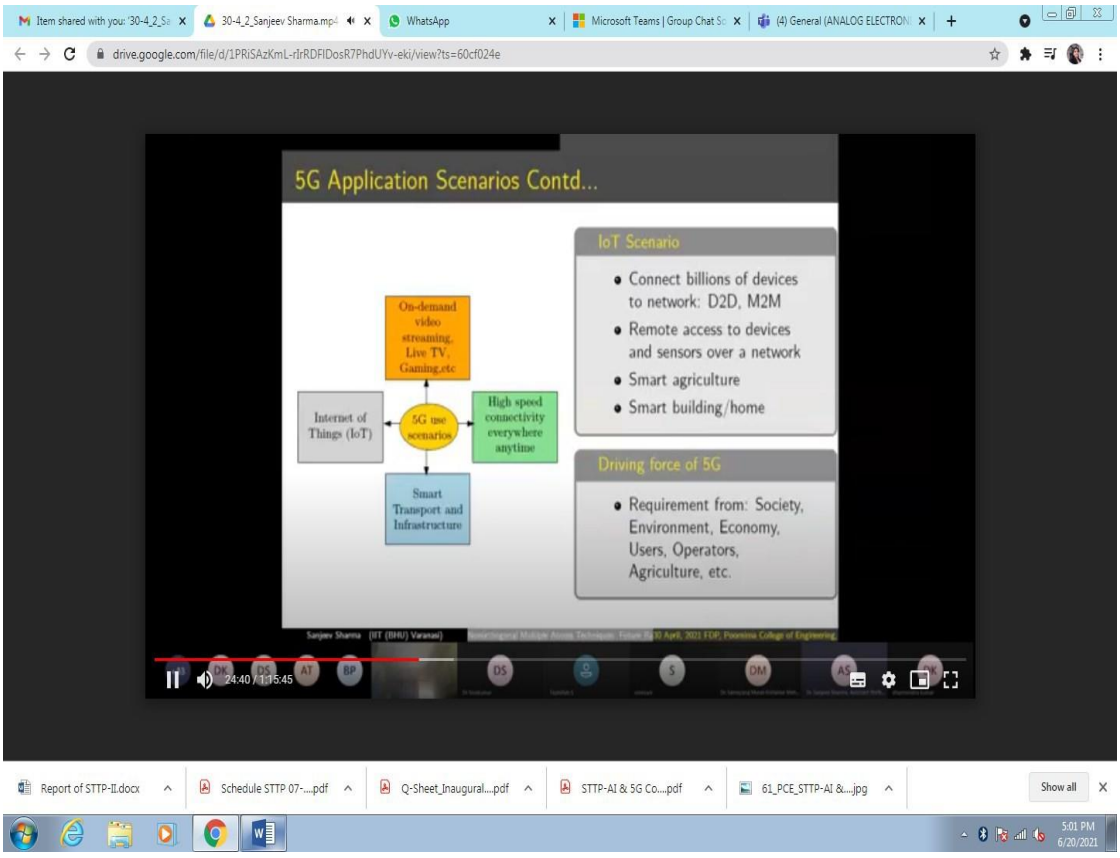


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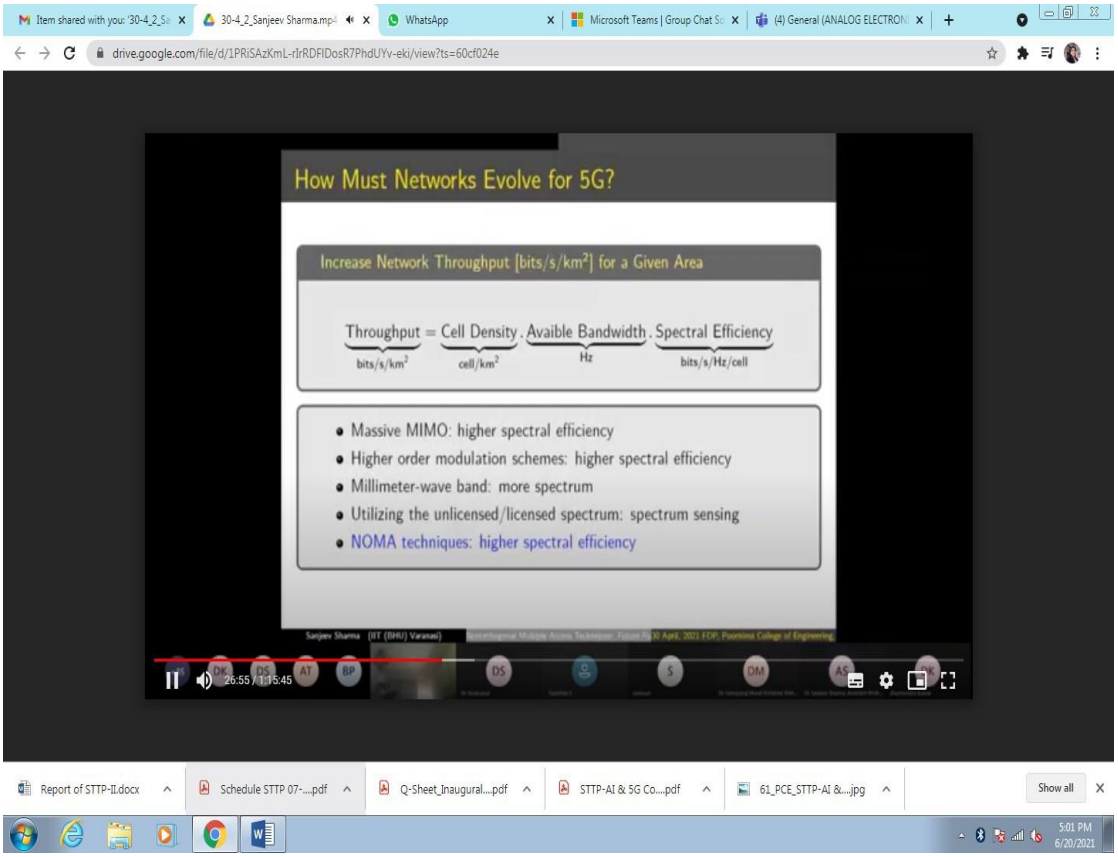
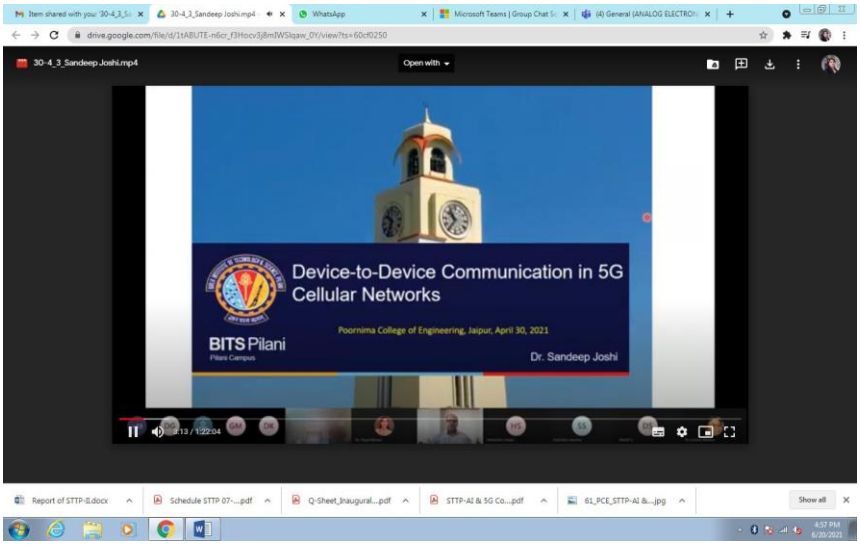



## Expert Talk-15

**Topic: Device-to Device Communication in 5G Cellular Networks**

**Resource Person: Dr. Sandeep Joshi, Assistant Professor**

**Venue: online**

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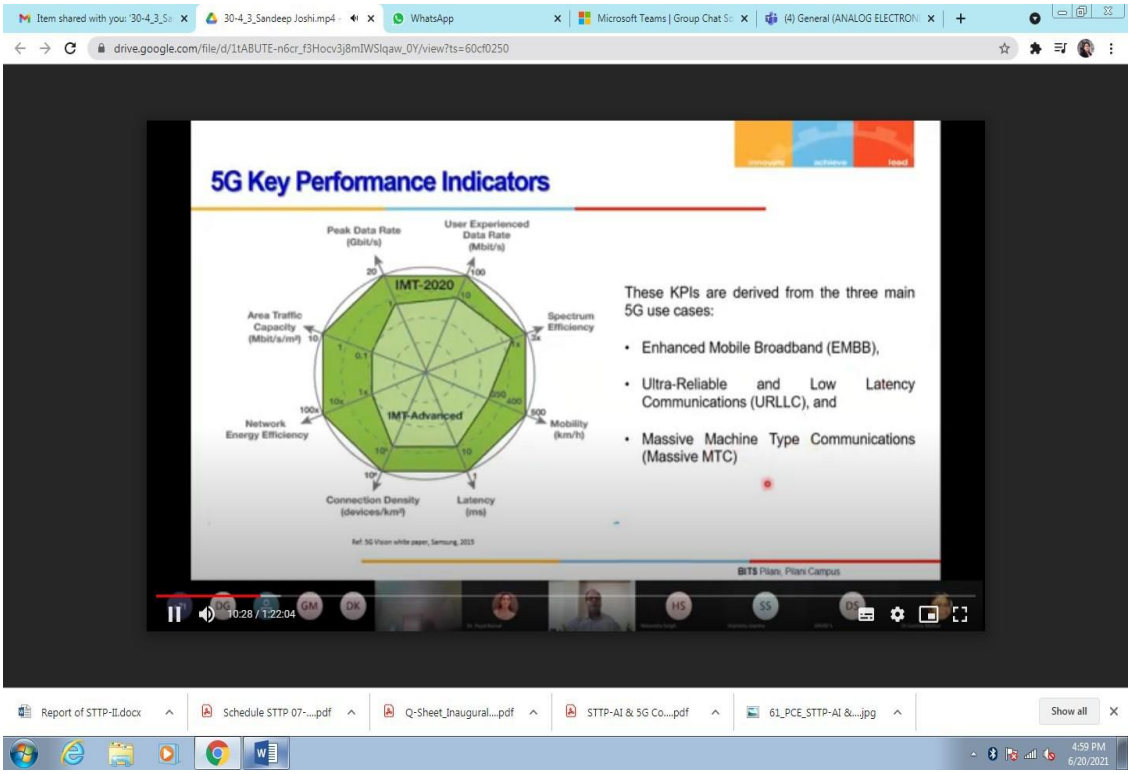


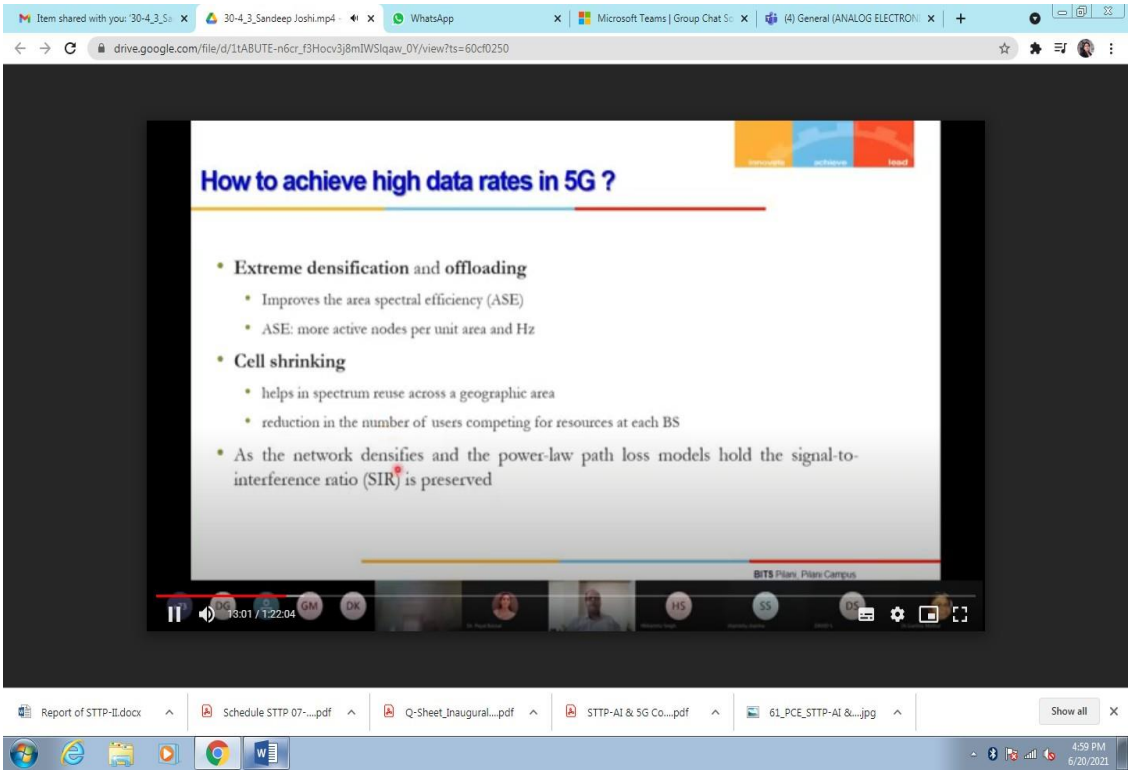


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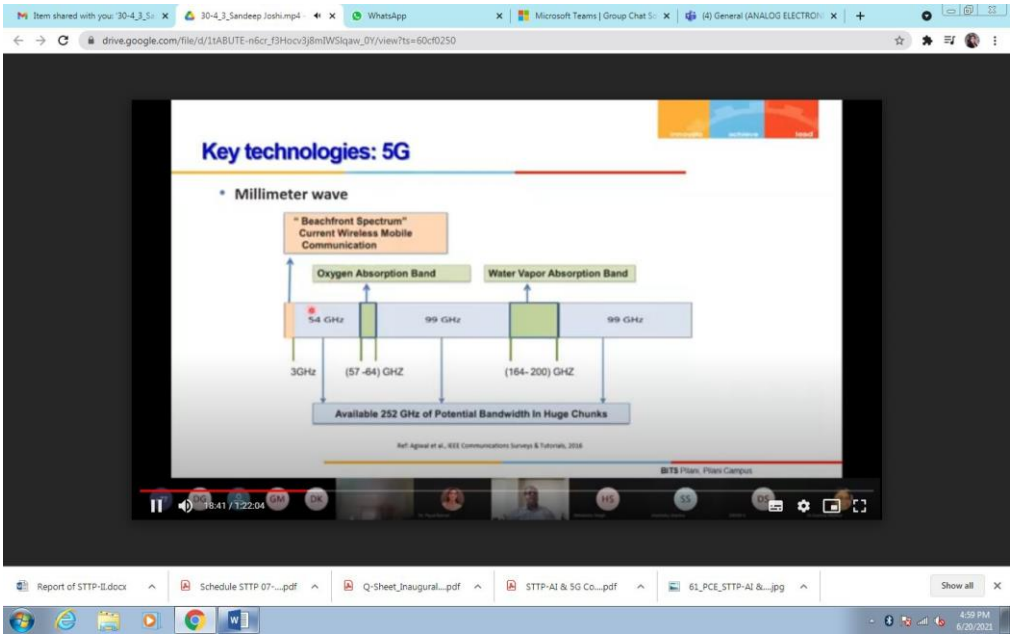


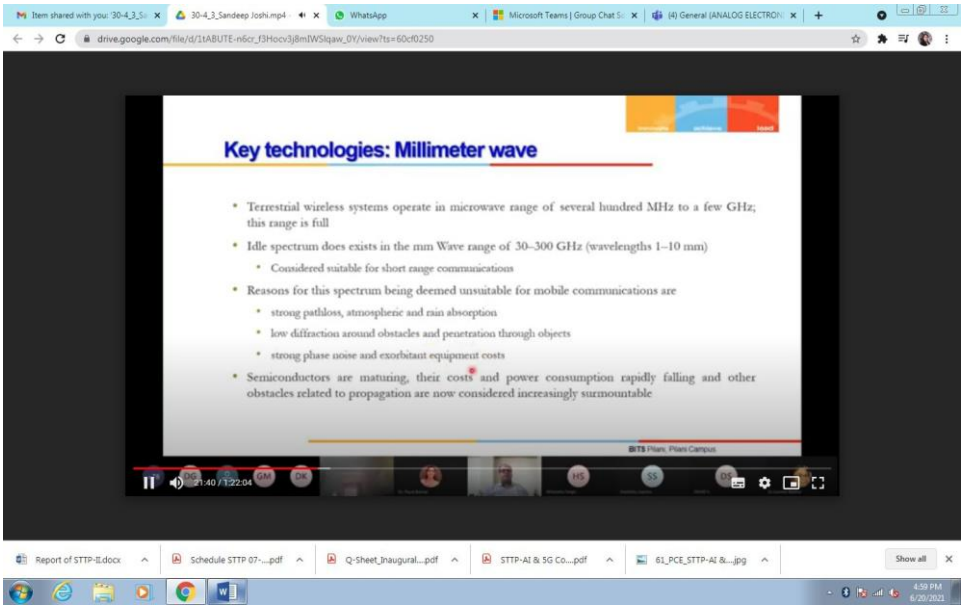


## Expert Talk-16

**Topic: Antenna Design for Wireless Application with Implementation of Frequency BandReconfigurability Characteristics**

**Resource Person: Dr. Ritesh Kumar**

**Saraswat, Assistant ProfessorVenue: online**

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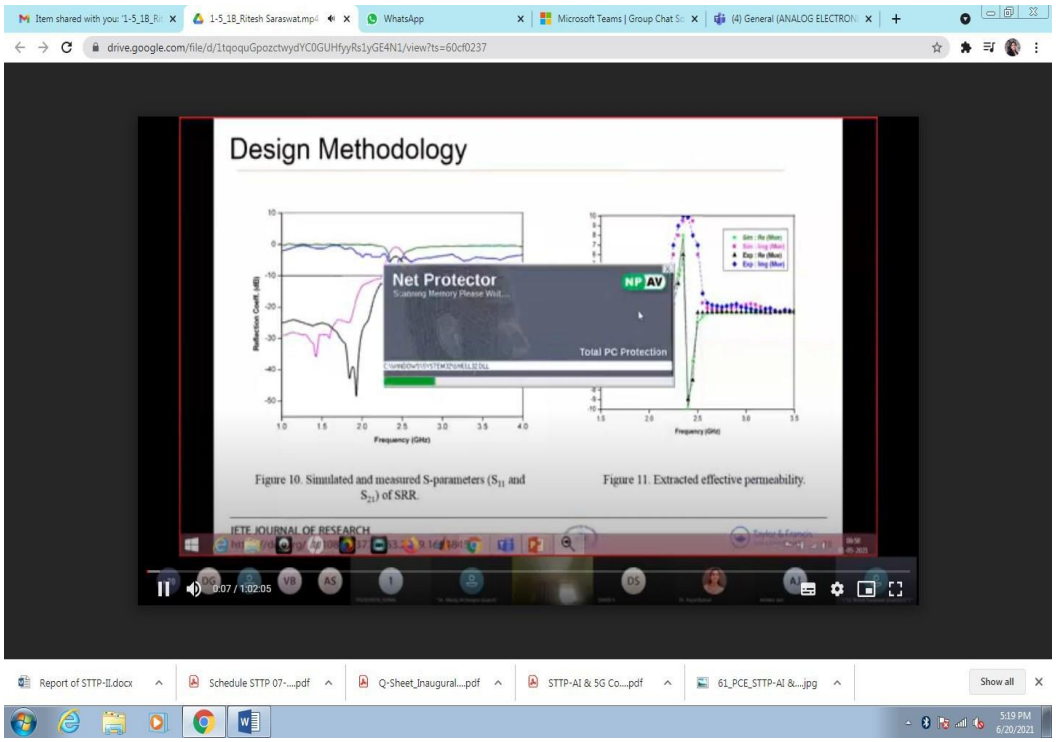


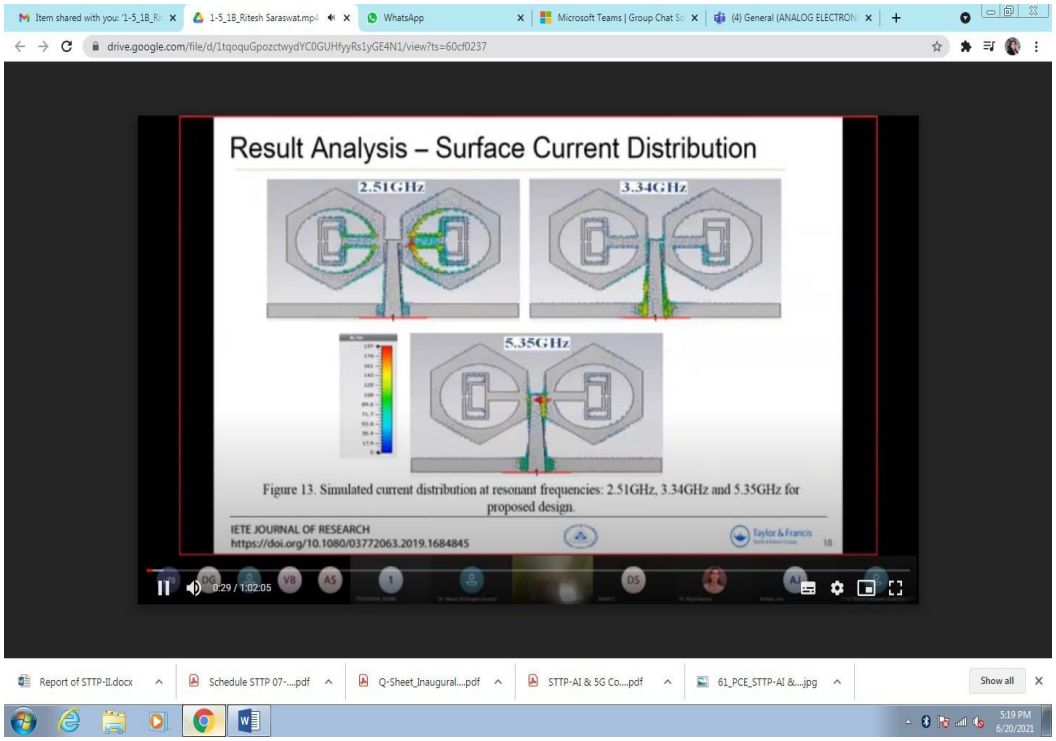


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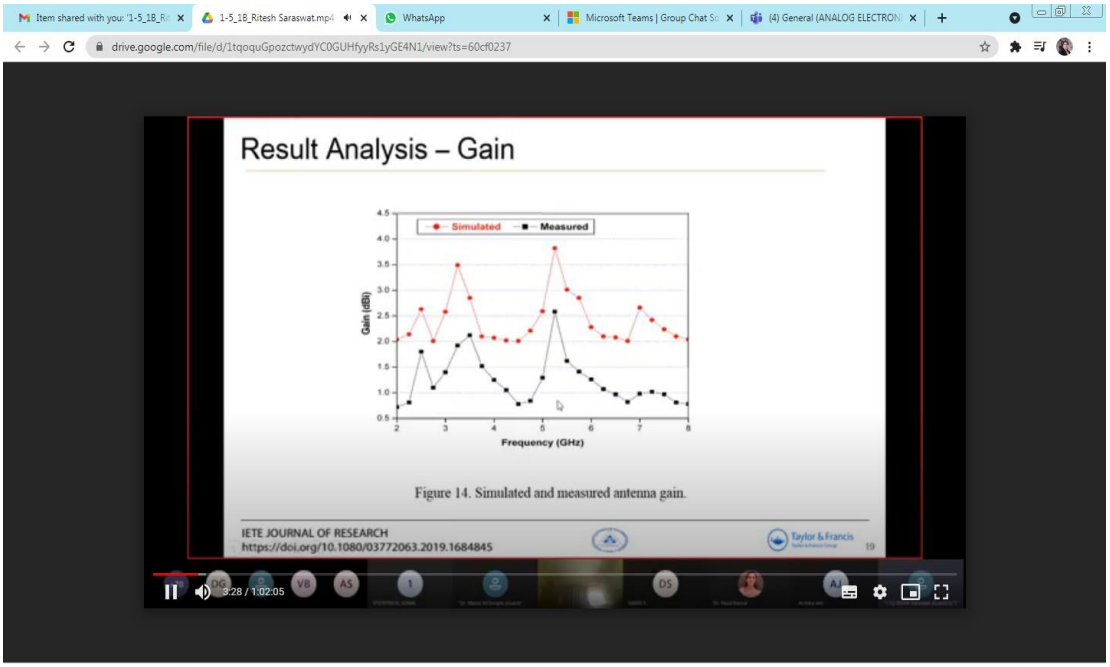


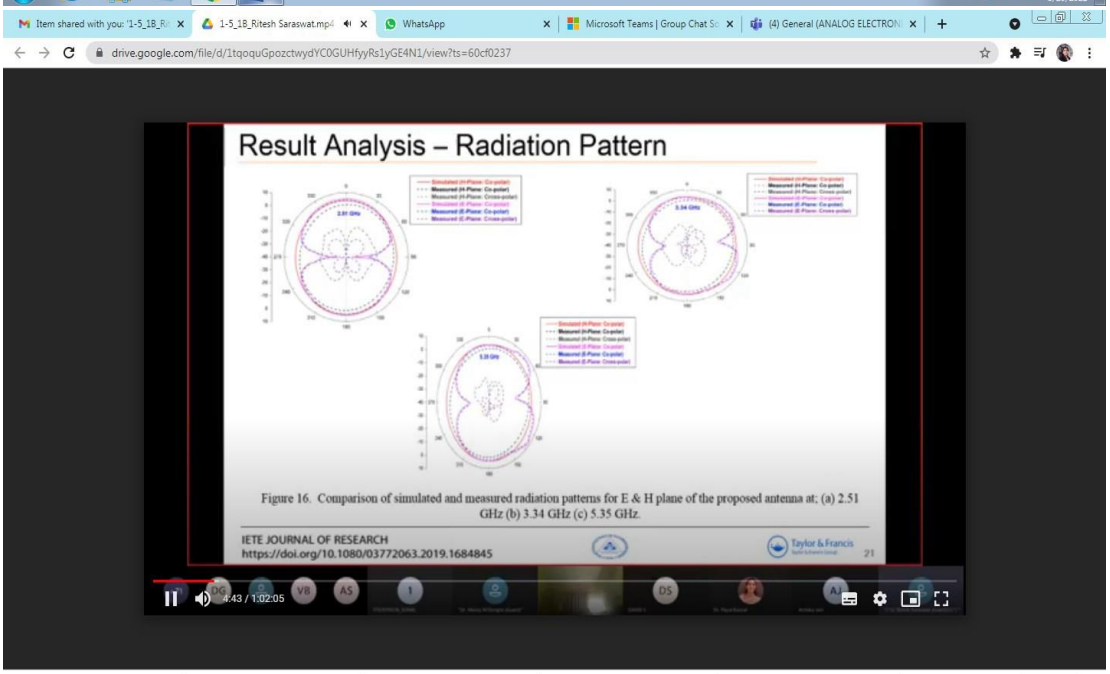


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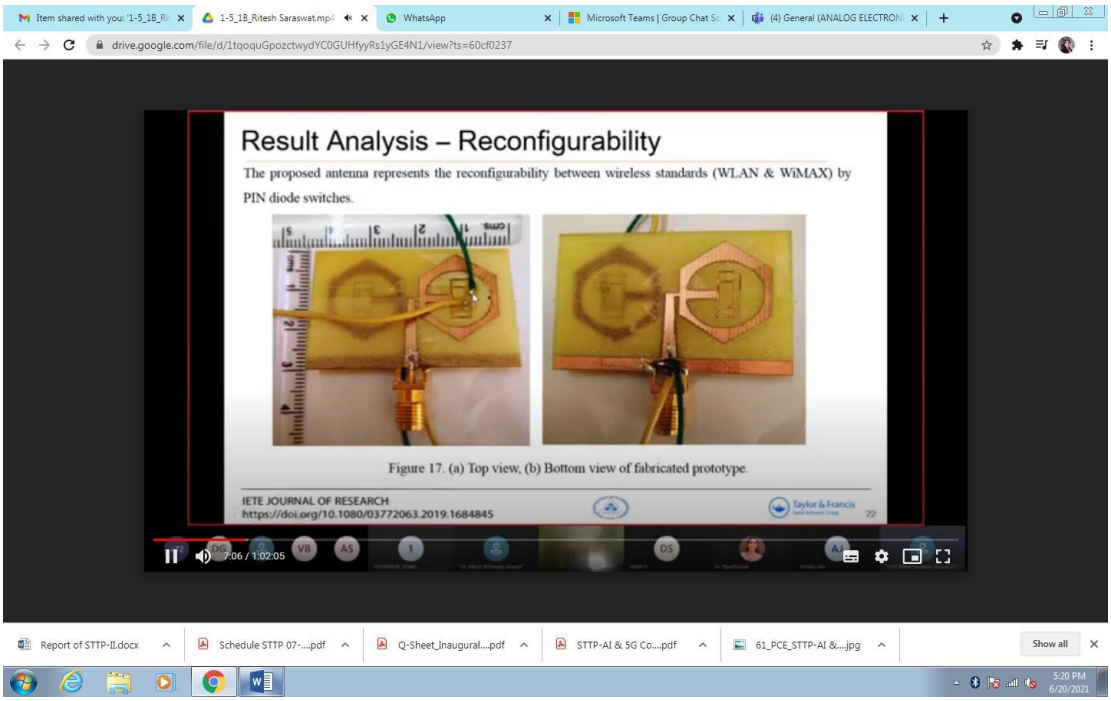


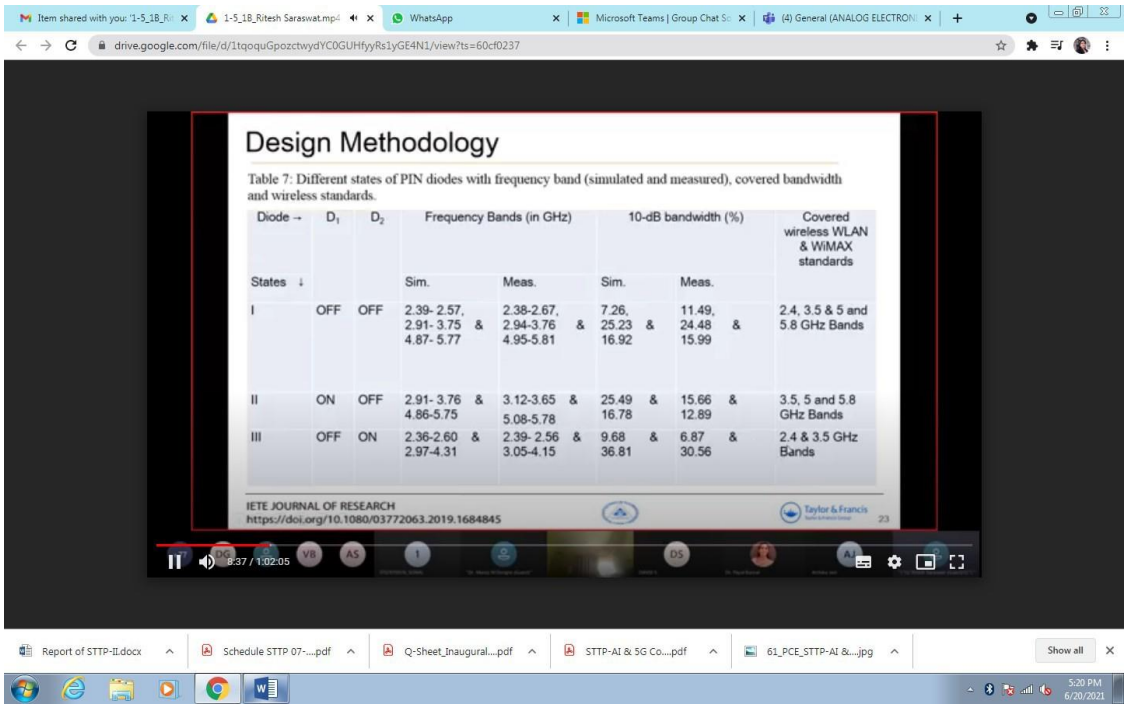


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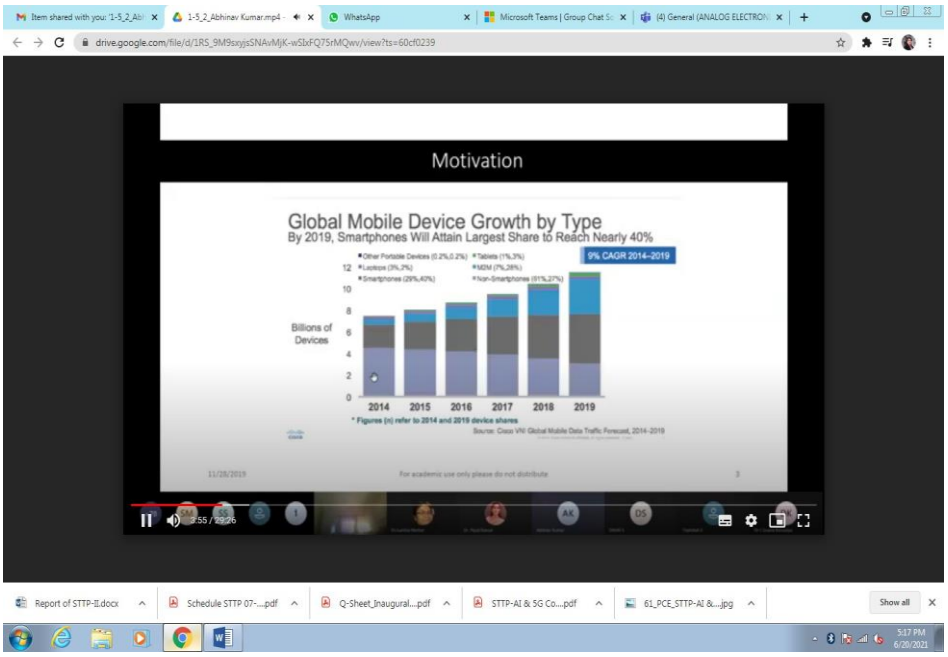
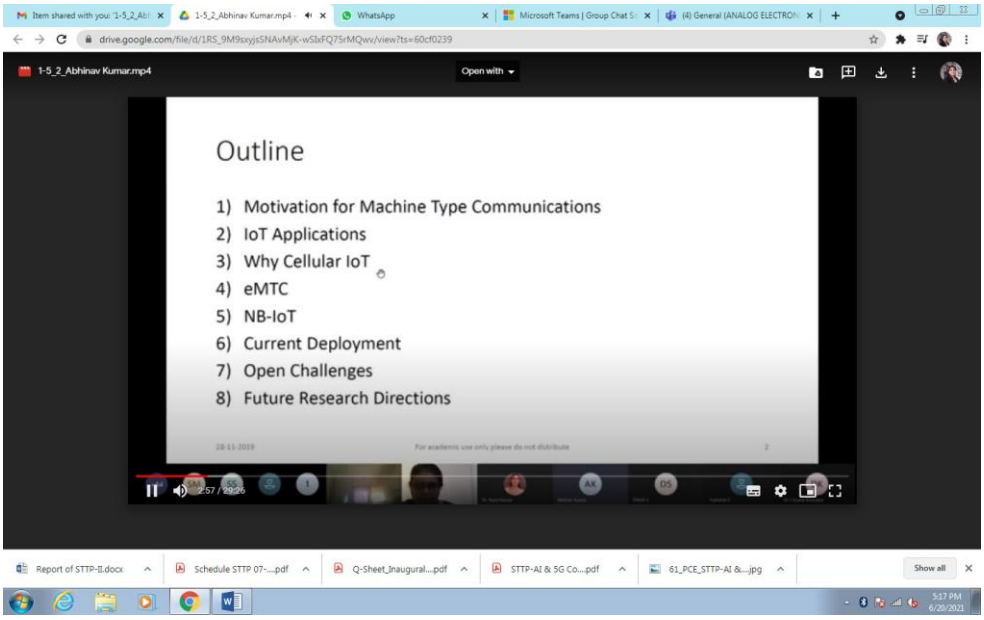
## Expert Talk-17

**Topic: Cellular Internet of Things**

**Resource Person: Dr. Abhinav Kumar, Associate ProfessorVenue: online**

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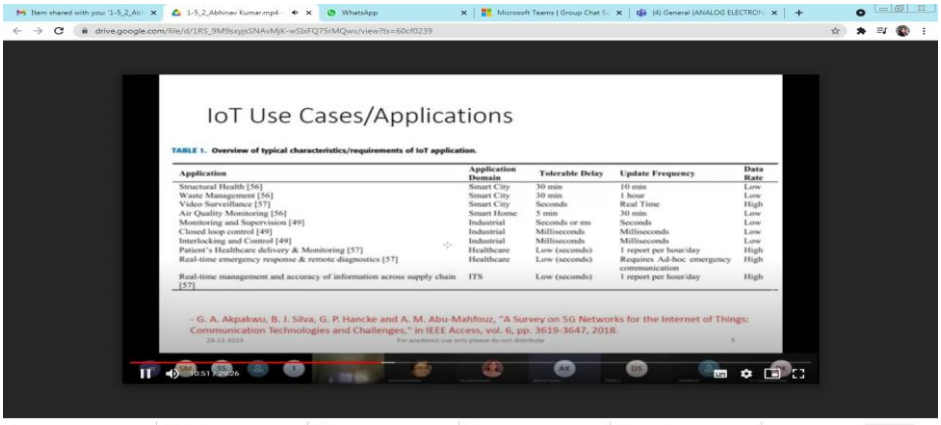


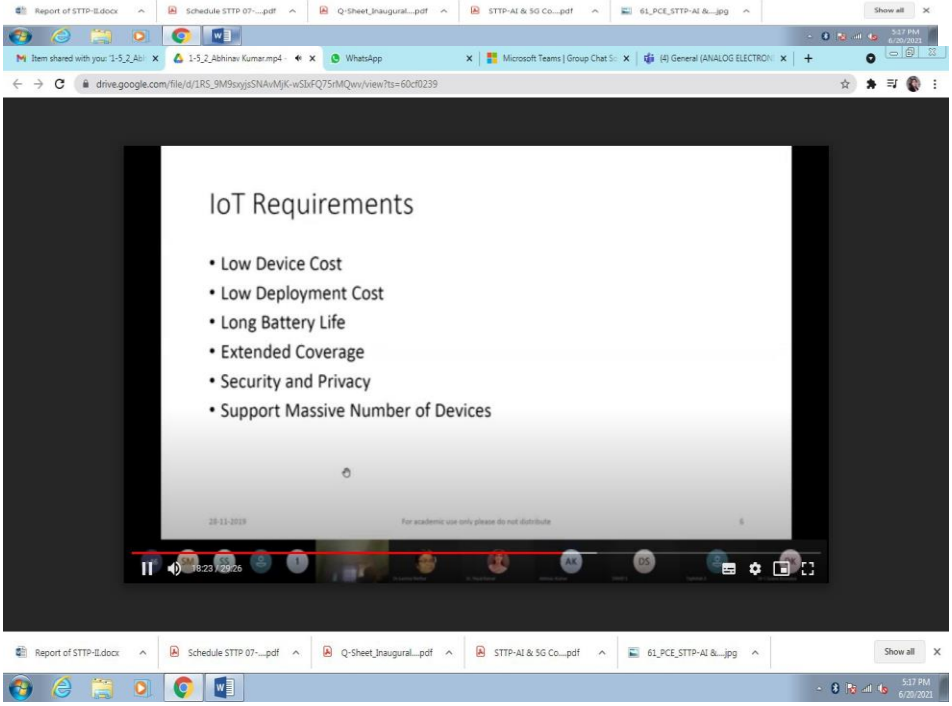


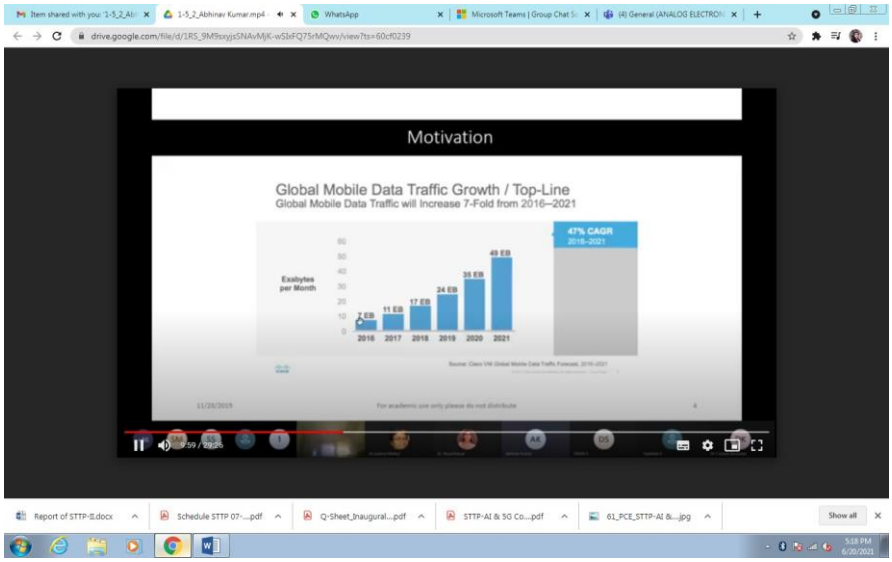


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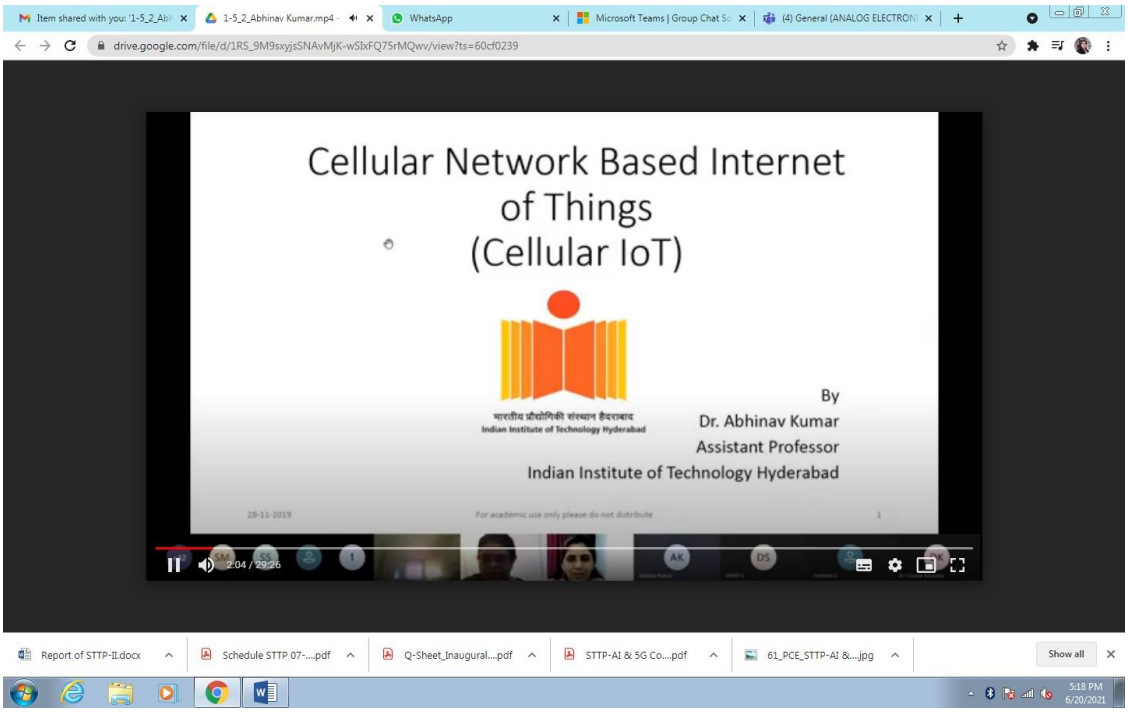
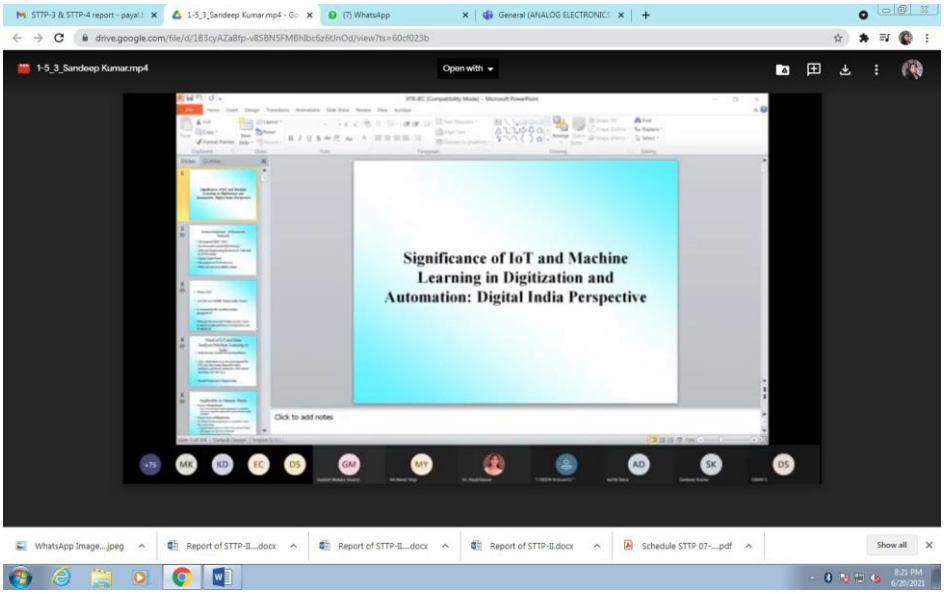



## Expert Talk-18

**Topic: Significance of Artificial Intelligence in Digitization and Automation: Digital IndiaPerspective**

**Resource Person: Dr. Sandeep Kumar,**

**Associate ProfessorVenue: online**

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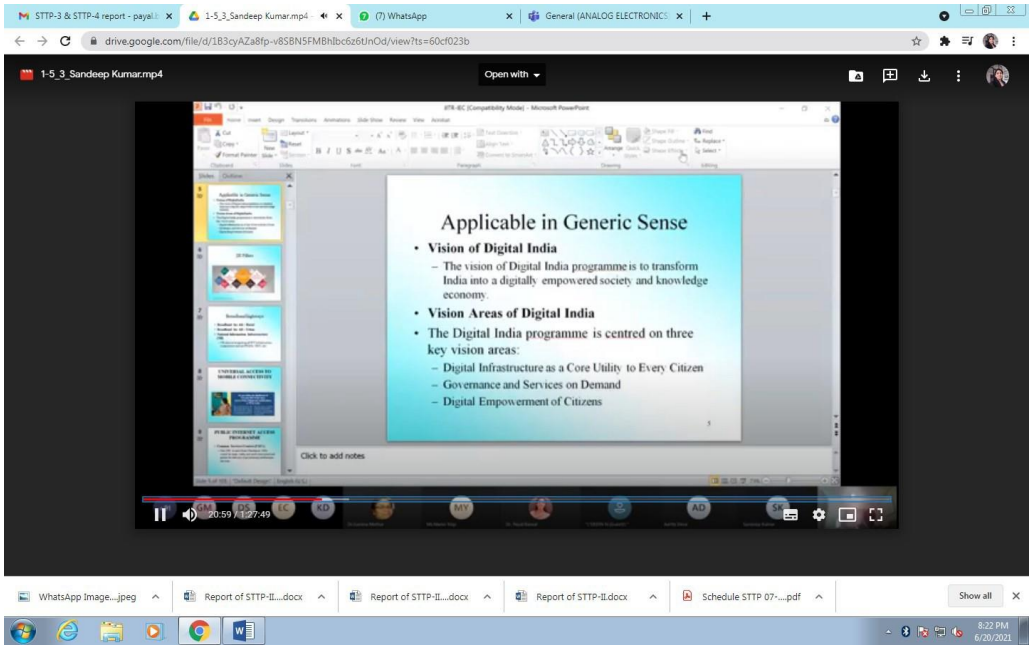


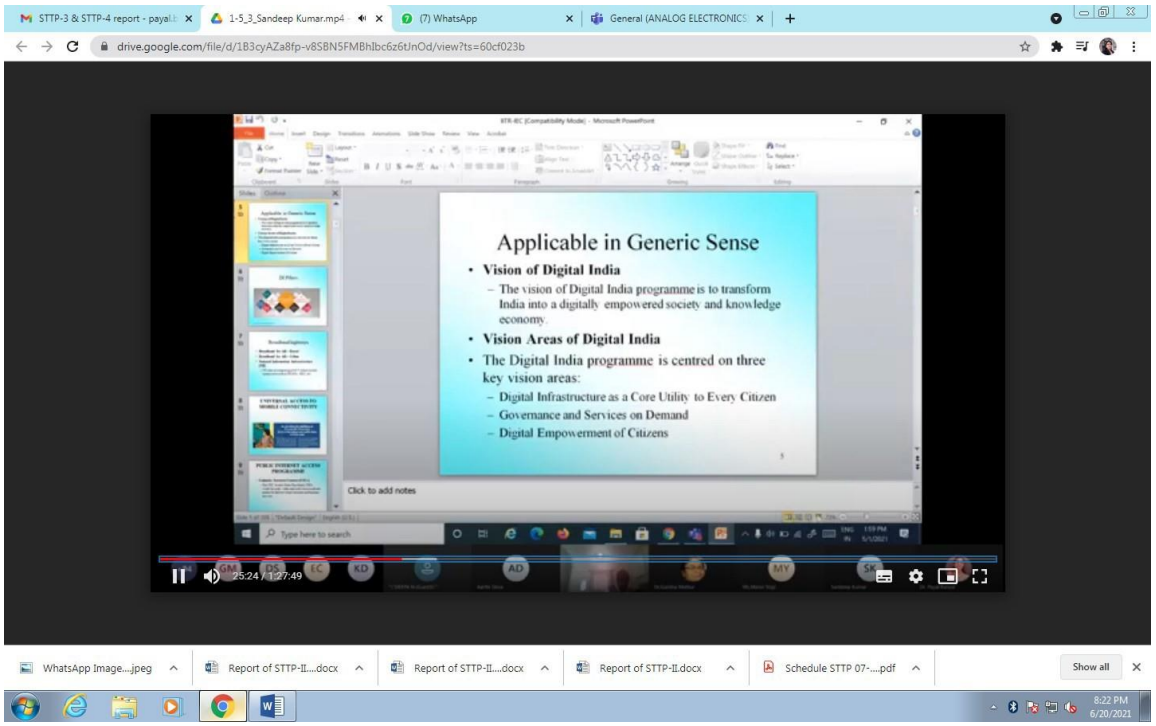


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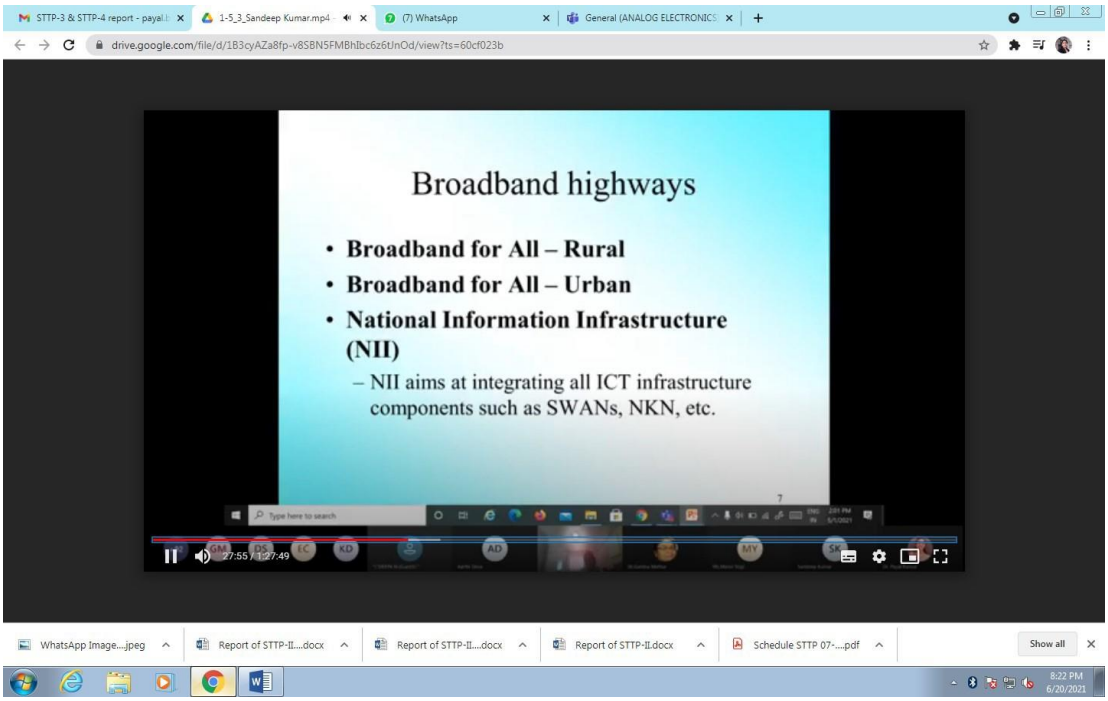


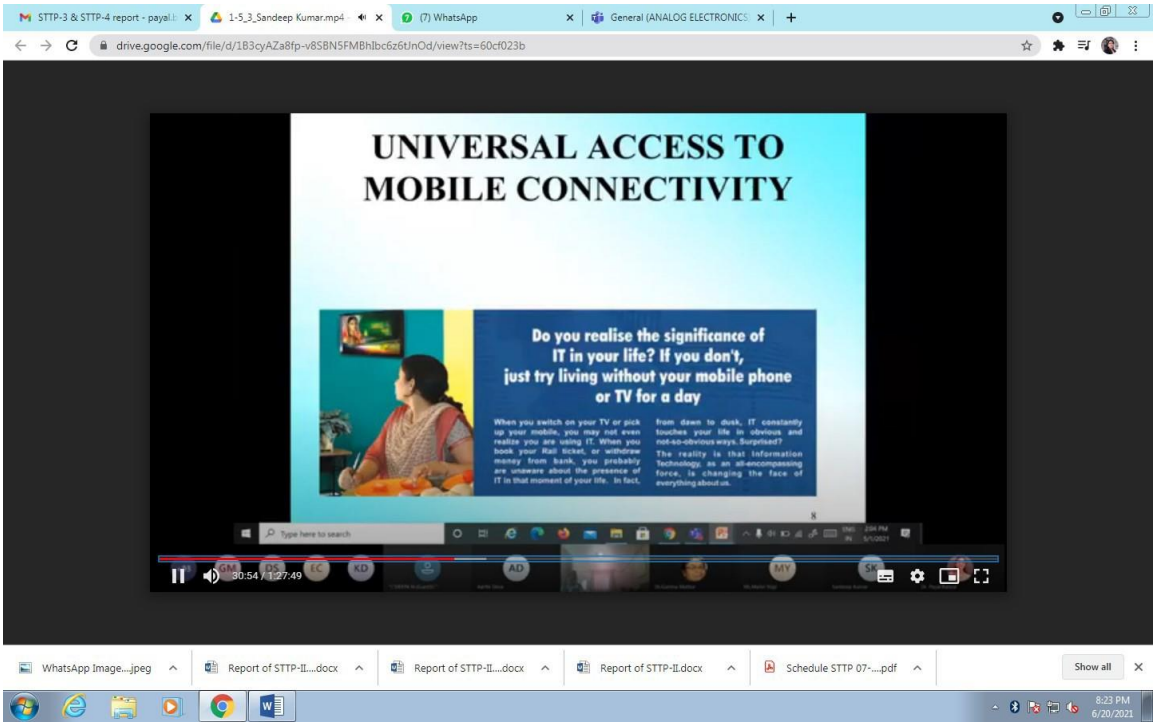


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**Valedictory session:-**

After Lunch valedictory session was held. Dr. Rajveer S. Shekhawat, Provost & Director, Manipal University Jaipur (Chief Guest) , Dr. Mahesh M Bundele, Director, PCE, Jaipur, Mr. Pankaj Dhemla, Vice Principal, PCE, Jaipur, Dr. Garima Mathur, Dr. Payal Bansal Coordinator, PCE, participants and faculty members attended the session. It started with the felicitation of Chief Guest Dr. Rajveer S. Shekhawat, by Dr. Mahesh M Bundele, Principal & Director, PCE, Jaipur. A brief report on worksop was presented by Dr. Payal Bansal, Valuable feedback was taken from the participants. The Certificate of participation was awarded to all the participants who successfully completed the Program. Dr. Mahesh M Bundele congratulated the participants for taking keen interest in learning the new technologies in his address. He also appreciated the organizing team. Dr. Preetam Kumar said that active involvement of most prominent speakers and delegates and their innovative ideas will create a stimulating atmosphere for the further development of multi-disciplinary and convergent research in the area of network security and smart antenna. Dr. Payal Bansal, Associate Professor, ECE Deptt., PCE proposed the Vote of Thanks. At the end of sessiona group photograph was taken with the Dignitaries including participants.

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**AICTE**

**Six Days Short Term Training Program**

**On**

Artificial Intelligence & 5G Communication **Technology**

**April 26 – May 31, 2021**

Organized by Department of Electronics & Communication Engineering,

Poornima College of Engineering, Jaipur

Date: May 31, 2021 Time: 03:30 PM - 04:00 PM

Venue: Online

Q- Sheet Valedictory Session

| S. No | Activity | Duration | Time |
|---|---|---|---|
| 1. | Welcome of Dignitaries and Introduction of Refresher Program by Dr. Garima Mathur, Head & Professor ECE, PCE<br>Dr. Rajveer S. Shekhawat, Provost & Director, (Chief Guest)<br>Ar. Rahul Singhi, Director, Poornima Group<br>Dr. Mahesh Bundele, Director & Principal, PCE<br>Mr. Pankaj Dhemla, Vice Principal, PCE | 05 Min | 03:30 PM - 03:35 PM |
| 2. | Welcome address by Dr. Mahesh Bundele, Director & Principal, PCE | 05 Min | 03:35 PM - 03:40 PM |
| 3. | Motivational Words by Ar. Rahul Singhi, Director, Poornima Group | 05 Min | 03:40 PM - 03:45 PM |
| 4. | Inaugural Address by Chief Guest Dr. Rajveer S. Shekhawat, Provost & Director | 10 Min | 03:45 PM - 03:55 PM |
| 5. | Vote of Thanks by Dr. Payal Bansal, Associate Prof., ECE, PCE | 05 Min | 03:55 PM - 04:00 PM |

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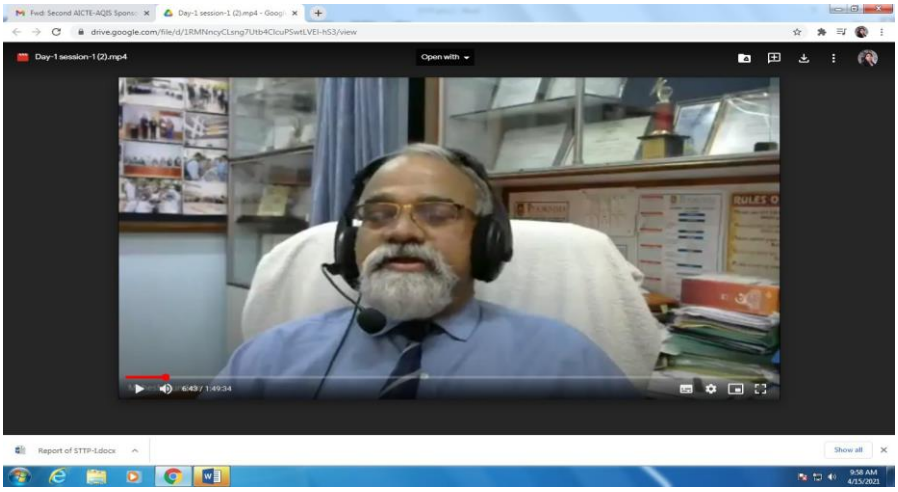
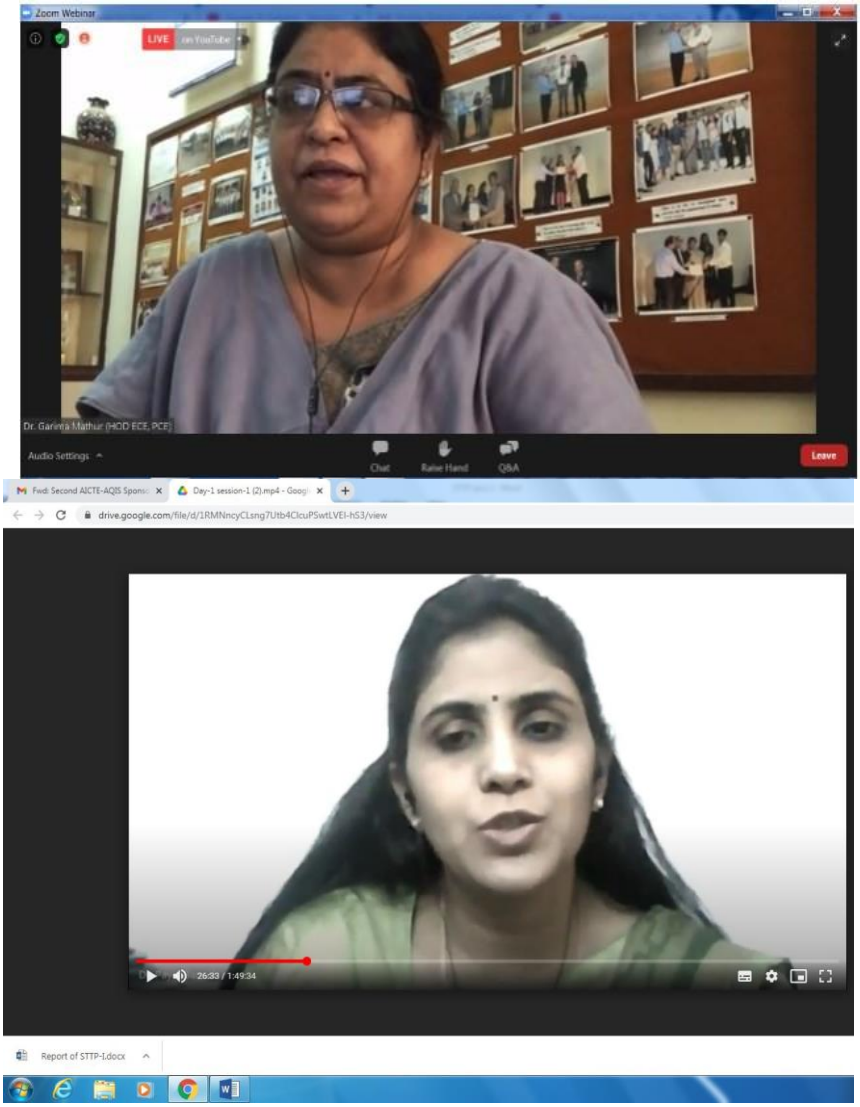
## Memories of Velidictory session

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Virtual feedback and views shared by the participants about the FDP. The FDP has successfully fulfilled the objectives of the FDP set forth. All the participants in their oral feedback has given positive remarks in all respects and shown their satisfaction over all the arrangements and the time management.

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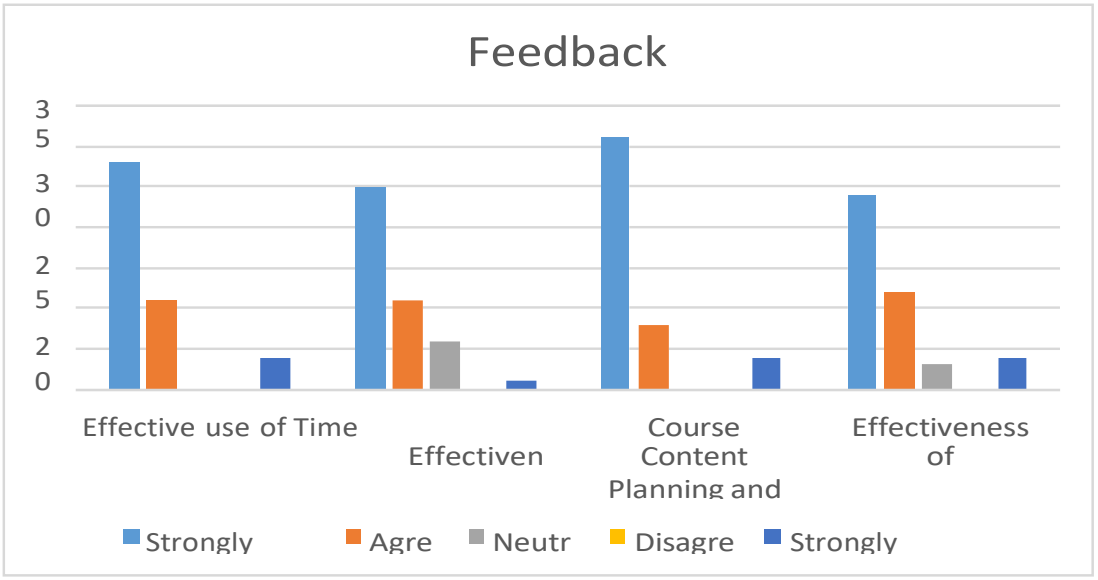
- **FEEDBACK ANALYSIS:**

| | Effective use of Time | Effectiveness of Theoretical Session | Course Content Planning and Organization | Effectiveness of Hands on Sessions |
|---|---|---|---|---|
| **Strongly Agree** | 28 | 25 | 31 | 24 |
| **Agree** | 11 | 11 | 8 | 12 |
| **Neutral** | 0 | 6 | 0 | 3 |
| **Disagree** | 0 | 0 | 0 | 0 |
| **Strongly Disagree** | 4 | 1 | 4 | 4 |

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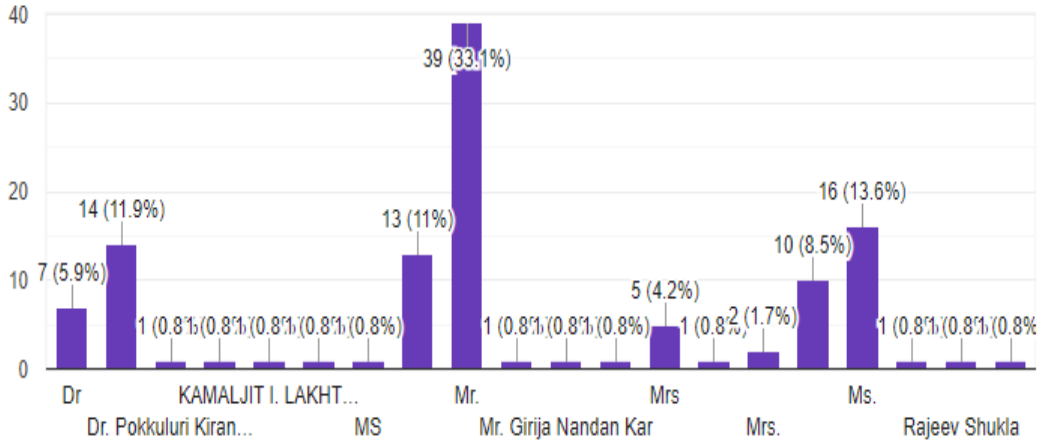
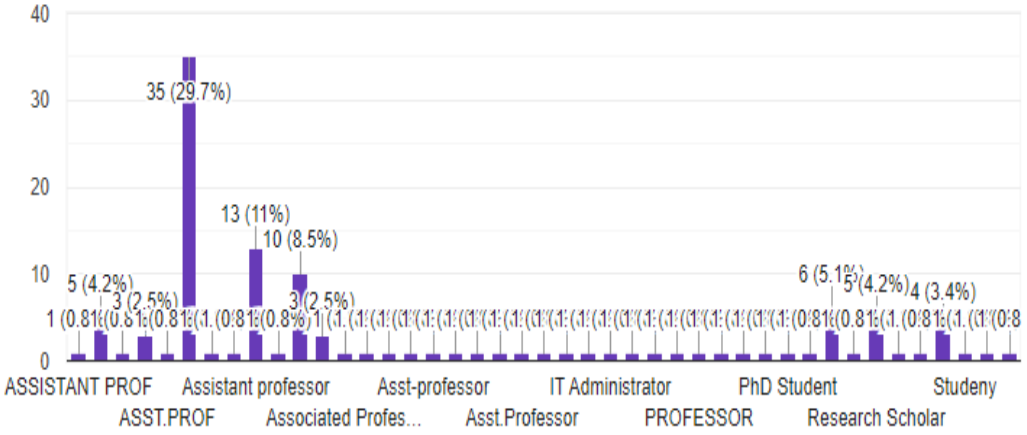
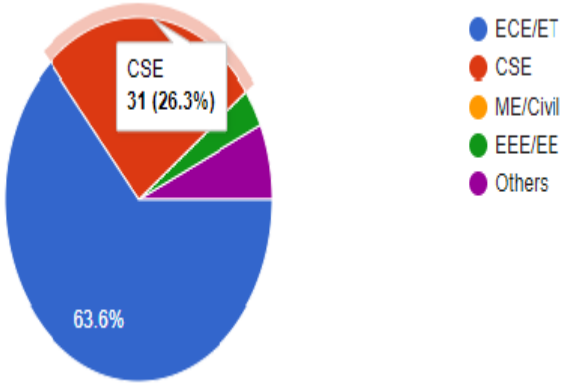
- **SWOT ANALYSIS:**




- **BUDGET & ACTUALS: NIL**

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