



POORNIMA

COLLEGE OF ENGINEERING

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

A Report on 4-days Faculty Development Program

Flyer:



RTU (ATU) TEQIP-III sponsored
4 Days Faculty Development Programme
on
"Mobile Robotics and Internet of Things"
September 16-19, 2020

Rajasthan Technical University, Kota &
Department of Electronics & Communication Engineering, Poornima College of Engineering
Cordially invite you to Inaugural Session



Prof. R. A. Gupta
Chief Guest
Hon'ble Vice Chancellor
RTU Kota



Prof. Dhirendra Mathur
Guest of Honour
TEQIP Coordinator
RTU Kota



Prof. Sudhan Majhi
Guest of Honor
Associate Professor
IIT, Patna



Mr. Pankaj Kumar
RTU Event Coordinator
Assistant Professor
RTU, Kota



Ar. Rahul Singhi
Director, Poornima Group



Dr. Mahesh M. Bunde
Director & Principal, PCE, Jaipur



Dr. Payal Bansal
Associate Prof. ECE, PCE

Resource Persons



Dr. Balwinder Singh Dhalwal
Associate Professor
NITTTR, Chandigarh



Dr. Divyang Rawal
Assistant Professor
LMNIT, Jaipur



Suman Kr. Dey
Assistant Professor
NIT, Rourkela



Dr. Arka Prokash Mazumdar
Assistant Professor
MNIT, Jaipur



Dr. Sumit Kalra
Assistant Professor
IIT, Jodhpur



Dr. Aneek Adhya
Assistant Professor
IIT, Kharagpur



Dr. Pankaj Kumar Goswami
Associate Professor, TMU, Moradabad



Dr. Debasis Das
Assistant Professor, IIT, Jodhpur



Dr. Debashish Pal
Principal Scientist, CEERI, Pilani



Dr. D. Narendar Singh
Associate Professor, Anurag University, Hyderabad



Dr. Abhishek Sharma
Assistant Professor, LMNIT, Jaipur

Day Date : Wednesday, September 16, 2020 • Time: 9.30 am onward

To join the Inaugural Session on



<https://tinyurl.com/y2ll0v2b>

RSVP

Mr. Pankaj Kumar
(RTU, Event Coordinator)

Dr. Payal Bansal
(Host Institute Coordinator)


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

- ♦ **TITLE AND DURATION:** “Mobile Robotics & Internet of Things” from 16th – 19th September 2020.
 - ♦ **SPONSORS:** TEQIP-III, Rajasthan Technical University Kota.
 - ♦ **SUPPORTERS:** Rajasthan Technical University Kota.
 - ♦ **ORGANIZERS:** Rajasthan Technical University, Kota, and Department of Electronics & Communication Engineering, Poornima College of Engineering, Jaipur.
- OBJECTIVES:**

The main objective of this FDP is to develop internet connectivity for daily purposes devices that can efficiently send and receive data. These IoT devices may come in the form of your printer, thermometer, alarm clock, phone, and other daily used devices as well. The Internet of things (IoT) is a system of interrelated computing devices, mechanical and digital machines provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

♦ **EXPECTED OUTCOMES:**

Bringing together the Robot Mobile technologists, enthusiasts, and faculty to discuss the Latest applications and issues in the area of Mobile Robotics & Internet of Things. Identify industry challenges and sensitize about latest trends and technologies in Robot Mobile and IoT.

To provide use-case demonstrations, and research oriented discussion along with theoretical concepts, which shall facilitate the understanding of process through practical implementation in area of Mobile Robotics & Internet of Things.

♦ **BROCHURE / POSTER / LEAFLET / FLYER:**

PCE ORGANIZING COMMITTEE

Er. Pankaj Dhemla	Vice-Principal, PCE
Dr. Rekha Nair	Dean I Year, PCE
Dr. Anila Dingra	Associate Professor, ECE
Mr. Tarun Mishra	Assistant Professor, ECE
Mr. Durgesh Kumar	Assistant Professor, ECE
Mr. Manish Sharma	Assistant Professor, ECE
Ms. Manisha Kumawat	Assistant Professor, ECE
Mr. Gaurav Saxena	Assistant Professor, ECE
Mr. Amit Kumar Jain	Assistant Professor, ECE
Mr. Jitendra Gupta	Assistant Professor, ECE

RESOURCE PERSONS

		
Prof. Sudhan Majhi Associate Professor IIT, Patna	Dr. Balwinder Singh Dhillon Associate Professor NITRR, Chandigarh	Dr. Divyanshu Rawal Assistant Professor LMNIT, Jaipur
		
Suman K. Dey Assistant Professor NIT, Raourkela	Dr. Arka Prakash Mazumdar Assistant Professor MNIT, Jaipur	Dr. Samit Kalra Assistant Professor IIT, Jodhpur
		
Dr. Anek Aditya Assistant Professor IIT, Kharagpur	Dr. Pankaj Kumar Gargwal Associate Professor TMU, Moradabad	Dr. Debasis Das Assistant Professor IIT, Jodhpur
		
Dr. Debashish Pal Principal Scientist CEERI, Pilani	Dr. D. Narendar Singh Associate Professor Amravati University, Hyderabad	Dr. Abhinav Sharma Assistant Professor LMNIT, Jaipur

RESOURCE PERSONS

The resource persons for the FDP will be Eminent Professors and Experts in the area of IOT, Robotics & wireless Communication from IITs, NITs and other Esteemed Institutions.

ELIGIBILITY

This course is open to all the Faculty Members of AICTE Approved Institutions, Research Scholars, and Persons working in R&D organizations or Industry. Number of participants for FDP is limited. All the sessions will be conducted online only.

REGISTRATION AND FEE PARTICULARS

- There is no registration fee for faculty from AICTE approved Institutions, Participants from Industry, and Research Scholars.
- Registration for the program may be done by filling the Registration Form online, Reg. Link: <https://tinyurl.com/y2llv2b>

IMPORTANT DATES

Last date of receipt of application	September 13, 2020
Intimation of selection by mail	September 15, 2020
FDP duration	September 16-19, 2020

CORRESPONDENCE

Dr. PAYAL BANSAL
Associate Professor, ECE
✉ : Payal.bansal@poornima.org • ☎ : +91-9785487195

Venue

**Department of
Electronics & Communication Engineering**
ISI-6, RIICO Institutional Area, Sitapura, Jaipur, Rajasthan 302022
www.pce.poornima.org





TEQIP-III SPONSORED



Faculty Development Program on MOBILE ROBOTICS AND INTERNET OF THINGS

September 16-19, 2020



**The
INTERNET
of THINGS**

Organized by

**Rajasthan Technical University, Kota
&
Department of
Electronics & Communication Engineering**



**POORNIMA
COLLEGE OF ENGINEERING**

Affiliated to RTU, Kota • Approved by AICTE & UGC under 2013 • Accredited by NBA

x8.52 in


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

ABOUT TEQIP-III

The Project, third phase of Technical Education Quality Improvement Programme (referred to as TEQIP-III) is fully integrated with the Twelfth Five-year Plan objectives for Technical Education as a key component for improving the quality of Engineering Education in existing institutions with a special consideration for Low Income States and Special Category States and support to strengthen few affiliated technical universities to improve their policy, academic and management practices.

RAJASTHAN TECHNICAL UNIVERSITY

Rajasthan Technical University (RTU) is located in Kota in the state of Rajasthan. It was established in 2006 by the Government of Rajasthan. The University currently affiliates about 129 Engineering Colleges, 4 B.Arch., 41 MCA Colleges, 95 MBA Colleges, 44 M.Tech. Colleges and 3 Hotel Management and Catering Institutes. The University aims to provide quality technical education which may help Rajasthan in its technical development and will boost technical environment in the country.

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

DEPT. OF ELECTRONICS & COMM. ENGINEERING

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 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 its 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 FACULTY DEVELOPMENT PROGRAM

The Internet of Things aims to develop internet connectivity for the daily purpose devices that can efficiently send and receive data. These IoT devices may come in the form of your printer, thermometer, alarm clock, phone, and other daily used devices as well. The Internet of things (IoT) is a system of interrelated computing devices, mechanical and digital machines provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

Robotics is an interdisciplinary research area at the interface of computer science and engineering. Robotics involves design, construction, operation, and use of robots. The goal of robotics is to design intelligent machines that can help and assist humans in their day-to-day lives and keep everyone safe.

Applications of wireless communication involve security systems, television remote control, Wi-Fi, Cell phones, wireless power transfer, computer interface devices and various wireless communication based projects.

TOPICS TO BE COVERED

- IOT Introduction
- Embedded Systems
- Security Issues
- Sensor Networks
- Wireless Communication
- Wireless Technologies
- IOT Protocols
- IoT with Cloud Computing
- Mobile Robotics
- Optical Communication



FDP COMMITTEE

CHIEF PATRON

Prof. (Dr.) R. A. Gupta
Hon'ble Vice Chancellor, RTU Kota

PATRON

Dr. Mahesh M. Bunde
Principal & Director, Poornima College of Engineering

RTU (ATU) TEQIP-III COORDINATOR

Prof. (Dr.) Dharendra Mathur

RTU EVENT COORDINATOR

Mr. Pankaj Kumar (RTU, Kota)

RTU (ATU) TEQIP-III COMMITTEE

Dr. Harish Sharma	Nodal officer
Prof. D. K. Sambariya	Nodal officer Procurement
Dr. S. D. Purohit	Nodal officer Finance
Dr. Irum Alvi	Conference
Mr. Santosh Sharma	Expert Lecture
Mr. Anshul Bansal	GATE & Induction
Mr. Dinesh Kumar	Workshop

HOST INSTITUTE COORDINATORS

Dr. Payal Bansal	Associate Professor
Dr. Garima Mathur	Professor & Head ECE

♦ **PROGRAM SCHEDULE:**

Poornima College of Engineering						
Department of Electronics & Communication Engineering						
Faculty development Program on "Mobile Robotics and Internet of Things "						
	09:30 AM -10:00 AM	10:00 AM -11:30 AM	10:30 AM -11:45 AM	11:45 AM - 01:00 PM	01:00 PM - 02:00 PM	02:00 PM - 03:15 PM
Wednesday 16.09.2020	Inaugural Seesion	Dr. Sudhan Majhi (IIT Patna) " Intelligent receiver design for 5G and beyond wireless communication."	Tea Break	Dr. Balwinder Singh (NITTTR Chandigarh) Introduction to Arduino Hardware and software"	Lunch Break	Dr. Divyang Rawal (LNMIIT, Jaipur) "Performance of NOMA in IOT network"
Thrusday 17.09.2020		Dr. Arka Prokash Mazumdar (MNIT Jaipur) "ICN for IoT".		Dr. Debasis Das (IIT, Jodhpur) "Internet of Things(IoT) Security for Smart Cities "		Dr. Abhishek Sharma (LNMIIT, Jaipur) "Internet of Things: Transforming Digital World"
Friday 18.09.2020		Dr. Aneek Adhya (IIT Kharagpur) "Use of Passive Optical Networks in Internet of Things applications"		Dr.D.Narendar Singh (Anurag University,Hyderabad) " Introduction to the Internet of Things and Its Applications"		Dr. Pankaj Goswami (TMU, Moradabad) "antenna utility for IoT applications"
Saturday 19.09.2020		Dr. Sumit Kalra (IIT,Jodhpur) "Software Architectural perspective of IoT Data Analytical Systems"		Dr. Debashish Pal (Principal Scientist,CEERI, PILANI) "mm Wave antennas for wireless communication"		Dr. Suman Kr. Dey (NIT Rourkela) "Emerging wireless optical technologies for IoT and 5G/6G"

INAUGURAL SESSION:



**RAJASTHAN TECHNICAL UNIVERSITY,
KOTA**

Poornima College of Engineering
TEQIP-III RTU (ATU) SPONSORED
Faculty Development Program on
Mobile Robotics and Internet of Things
(September 16-19, 2020)



Date: September 16, 2020

Time: 9:30-10:00AM

Venue: Online

Q-Sheet- Inaugural Session

S. No	Activity	Duration	Time
1.	<p>Welcome of Dignitaries and Introduction of FDP by Dr. Payal Bansal, (Associate Prof.) Coordinator, PCE</p> <ul style="list-style-type: none"> • Prof. (Dr.) R.A. Gupta, Hon'ble Vice Chancellor, RTU Kota (Chief Guest) • Prof. (Dr.) Dhirendra Mathur, RTU (ATU) TEQIP-III Coordinator (Guest of Honour) • Dr. Sudhan Majhi, Associate Prof. (IIT Patna) (Guest of Honour) • Mr. Pankaj Kumar, Assistant Professor, (RTU Event Coordinator) • Ar. Rahul Singhi, Director, Poornima Group, Jaipur • Dr. Mahesh Bunde, Director & Principal, Poornima College of Engineering, Jaipur • Dr. Garima Mathur, HOD,ECE, Poornima College of Engineering 	05 Min	9:30AM - 9:35AM
2.	Welcome Address by Dr. Mahesh Bunde , Director & Principal, Poornima College of Engineering , Jaipur	05 Min	9:35AM - 9:40AM
3.	Address by Ar. Rahul Singhi , Director, Poornima Group , Jaipur	05 Min	9:40AM - 9:45AM
4.	<p>Introduction of Guest of Honour & Address by Guest of Honour</p> <p>Prof (Dr.) Dhirendra Mathur, RTU (ATU) TEQIP-III Coordinator</p> <p>Dr. Sudhan Majhi, Associate Prof. (IIT Patna)</p>	05 Min	9:45AM - 09:50AM
5.	Introduction of Chief Guest & Inaugural Address by the Chief Guest Prof. (Dr.) R.A. Gupta , Hon'ble Vice Chancellor, RTU Kota	10 Min	09:50AM - 10:00 AM
6.	Vote of Thanks by Dr. Garima Mathur , HOD,ECE, PCE	05 Min	10:00AM- 10:05AM


Dr. Mahesh Bunde
B.E., M.E., Ph.D.
Director
Poornima College of Engineering
ISI-6, FIICO Institutional Area
Jaipur, JAIPUR

♦ **DETAILS OF RESOURCE PERSONS:**

1. Dr. Sudhan Majhi (IIT Patna)
2. Dr. Balwinder Singh (NITTTR Chandigarh)
3. Dr. Divyang Rawal (LNMIIT, Jaipur)
4. Dr. Arka Prokash Mazumdar (MNIT Jaipur)
5. Dr. Debasis Das (IIT, Jodhpur) Venue
6. Dr. Abhishek Sharma (LNMIIT, Jaipur)
7. : Dr. Aneek Adhya (IIT Kharagpur)
8. Dr. D.Narendar Singh
(AnuragUniversity,Hyderabad)
9. Dr. PankajGoswami (TMU, Moradabad)
10. Dr. Sumit Kalra(IIT,Jodhpur)
11. Dr. Debashish Pal (Principal Scientist, CEERI, PILANI)
12. Dr. Suman Kr. Dey(NIT Rourkela)

♦ **GLIMPSES OF CONDUCTION:**

Day 1: 16th September 2020:

Inaugural session witnessed the presence of Chief Guest Prof. Sudhan Majhi, Professor IIT Patna, Dr. Mahesh Bundeale, Director, PCE, Jaipur, Mr. Pankaj Dhemla, Vice Principal, PCE, Jaipur, Dr. Garima Mathur, HOD, Department of ECE & Dr. Payal Bansal Coordinator of FDP, PCE, participants along with the faculty members. The event started with the online inaugural ceremony in presence of chief guest Prof. R. A. Gupta & Dr. Mahesh Bundeale, Director PCE. Dr. Payal Bansal addressed the participants about the FDP & its area of learning and its content. In welcome address Dr. Mahesh M. Bundeale, director, PCE, update the participants about the new techniques related to Internet of Things & its applications. Dr. Garima Mathur proposed vote of thanks in the inaugural session. Dr. Sudhan Majhi(IIT Patna) deliver his talk on “Intelligent receiver design for 5G and beyond wireless communication.” Another Talk was delivered by Dr. Balwinder Singh (NITTTR Chandigarh) on the topic 'Introduction to Arduino Hardware and software". After Lunch the session was delivered by Dr. Divyang Rawal (LNMIIT, Jaipur) on the topic "Performance of NOMA in IOT network".


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

Inaugural Session

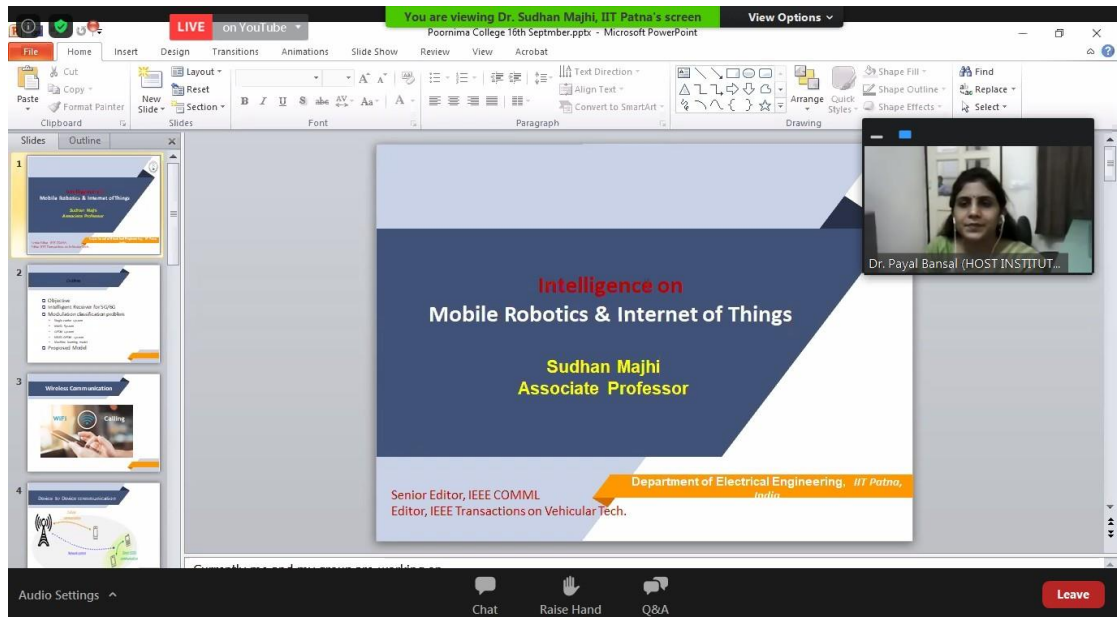
Welcome address by Dr. Payal Bansal (Coordinator FDP)



Motivational speech by Dr. Mahesh M Bunde (Director PCE)


Dr. Mahesh Bunde
B.E., M.E., Ph.D.
Director
Poornima College of Engineering
ISI-6, FIICO Institutional Area
Sisupura, JAIPUR

Address by Dr. Sudhan Majhi (Chief Guest, Prof. IIT Patna)



Vote of Thanks by Dr. Garima Mathur



CONTENT DELIVERY / PRACTICAL SESSIONS:

Day 1: 16th September 2020:

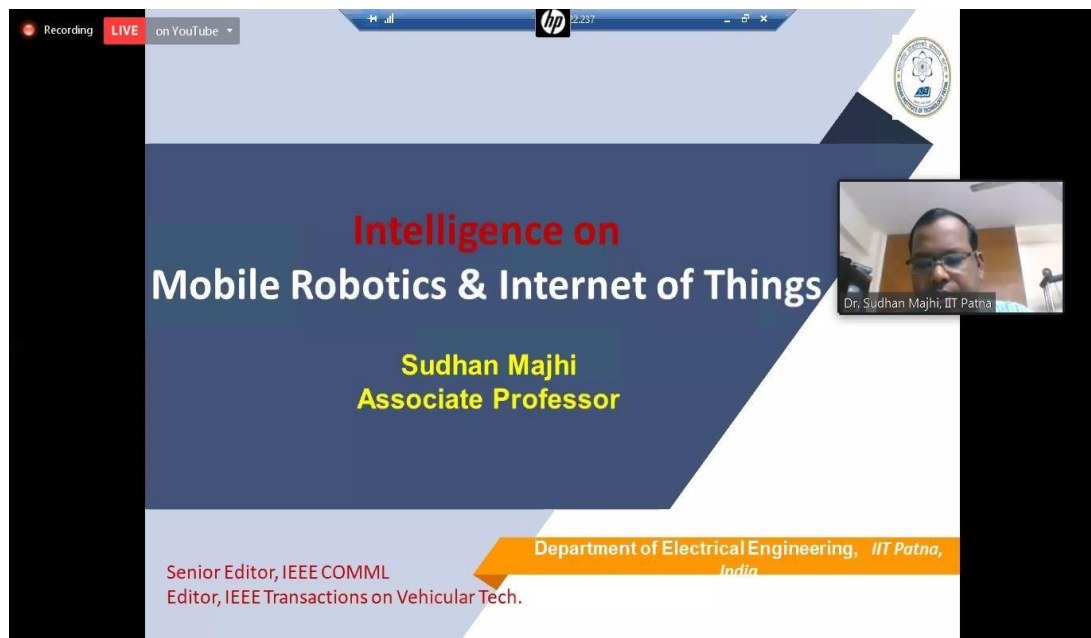
Expert Talk-1

Topic: Intelligent receiver design for 5G and beyond wireless communication

Resource Person: Dr. Sudhan Majhi (IIT Patna)

Venue: Online Via Zoom

Dr. Sudhan Majhi delivered his talk on intelligent receiver design for 5G and beyond wireless Communication. He told us about the designing of receiver, its applications etc. He also update about the new unique features bring some new challenges in the design of the new transceivers with 5G communication. Also brief about the security aspects of the 5G & its BW, Its advantages, its speed etc.



Session started by Dr. Sudhan Majhi

Recording LIVE on YouTube You are viewing Dr. Sudhan Majhi, IIT Patna's screen View Options

Intelligent on Coding

```
graph LR; InputSignal[Input Signal] --> SourceCoding[Source Coding]; SourceCoding --> ChannelCoding[Channel Coding]; ChannelCoding --> Modulation[Modulation]; Modulation --> ReceiveAntenna[Receive Antenna]; ReceiveAntenna --> Demodulation[Demodulation]; Demodulation --> ChannelDecoding[Channel Decoding]; ChannelDecoding --> SourceDecoding[Source Decoding]; SourceDecoding --> OutputSignal[Output Signal];
```

Audio Settings Chat Raise Hand Q&A Leave

Recording LIVE on YouTube You are viewing Dr. Sudhan Majhi, IIT Patna's screen View Options

Wireless Communication

Audio Settings Chat Raise Hand Q&A Leave

The screenshot shows a presentation slide titled "Choosing Wireless Technologies for IoT". Under the heading "Security", there is a list of points:

- growing in importance
- ability to encrypt the over-the-air link
- secure management interfaces
- ability to create multiple user accounts with password complexity rules
- traditional automation and control solutions: not exposed to security issues, hacking targets
- Major security breaches could slow down the adoption of IoT
- Several LAN and WAN technologies with different levels of security and network management requirements need to work seamlessly to realize an end-to-end IoT system

Below the text is a diagram illustrating an IoT network. It shows a "Data Center" connected to "Server 2" and "Server 4". A "Cloud Obstruction" is shown between the servers. A "Drone" is flying over the network, and "Anomaly Activity" is indicated by a red line. A video call interface is visible on the right, showing a man speaking, with a name tag that reads "Dr. Sudhan Majhi, IIT Patna". At the bottom of the interface are buttons for "Audio Settings", "Chat", "Raise Hand", "Q&A", and a "Leave" button.

Expert Talk-2

Topic: Introduction to Arduino Hardware and software

Resource Person: Dr. Balwinder Singh (NITTTR Chandigarh)

Venue: online

Dr. Balwinder Singh delivered his talk on "Introduction to Arduino Hardware and software". He describes the hardware requirements of Arduino.



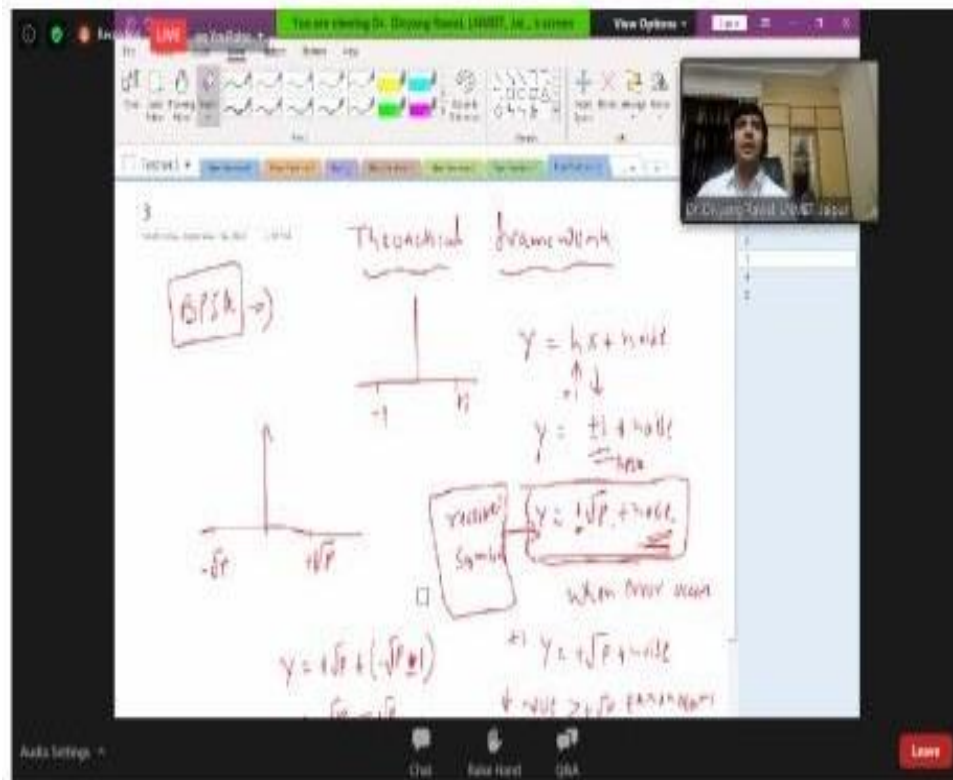
**Dr. Balwinder Singh (NITTTR
Chandigarh)**

Expert Talk-3

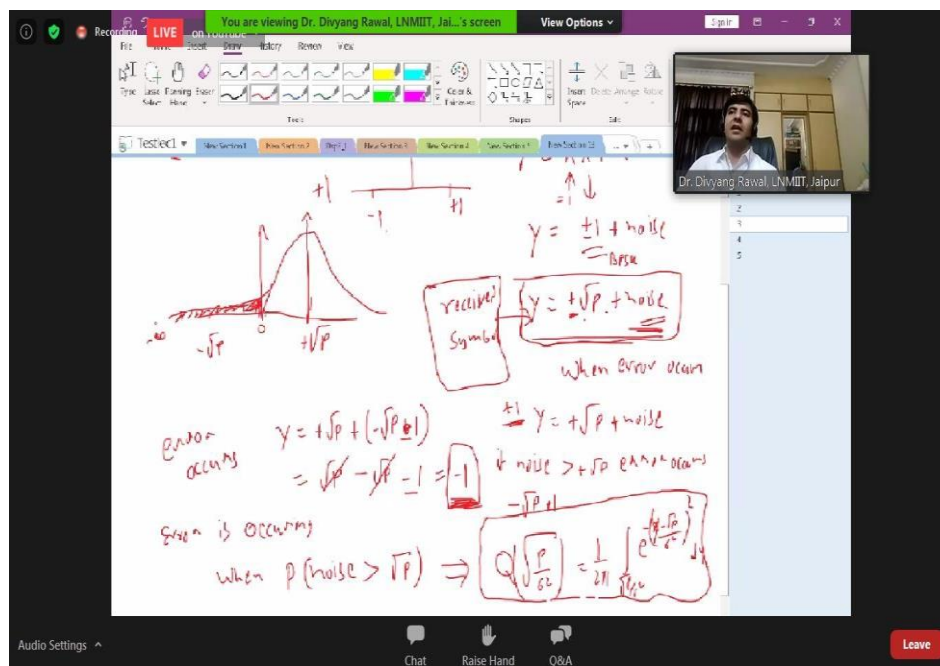
Topic: Performance of NOMA in IoT network

Resource Person: Dr. Divyang Rawal (LNMIIT, Jaipur)

Venue: online



Session delivered by Dr Divyang Rawal



Day 2: 17th September 2020:

Expert Talk-3

Topic: ICN for IoT

Resource Person: Dr. Arka Prokash Mazumdar (MNIT Jaipur)

Venue: online

Dr. Arka Prokash Mazumdar (MNIT Jaipur), delivered his talk on “ICN for IoT”. He explained about various configuration of antennas and smart antenna applications.

Introduction

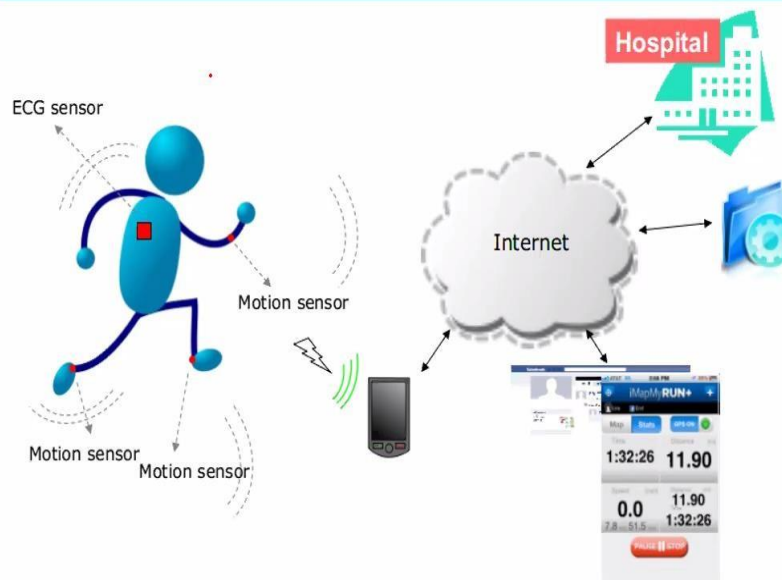
- Internet of “**Things**”
 - Internet of “**Everything**”
 - Web of “**Things**”
- **Environment** that provides **interconnection**
- **Uniquely** identifiable devices (objects)
- **Without** Human intervention.
- Information Centric Network (ICN)
 - focuses on getting Data **irrespective** of it's **Location**

CISCO

The Internet: Technology Centric Network

- Global computer network
- Provides a variety of information and communication facilities
- Interconnected networks
- Heterogeneous & Complex Network
- Heterogeneous & Complex Data

4




Dr. Mahesh Bundele
B.E., M.E., Ph.D.
Director
Peernima College of Engineering
ISI-6, RIIICO Institutional Area
Shapura, JAIPUR

After Lunch valedictory session was held. Dr. Kota Soloman Raju. Chief Guest, Dr. Mahesh M Bundele, Director, PCE, Jaipur, Mr. Pankaj Dhemla, Vice Principal, PCE, Jaipur, Dr. Garima Mathur, Coordinator, PCE, participant, and faculty members attended the session. It started with the felicitation of Chief Guest Dr. Kota Solomon Raju, by Dr. Mahesh M Bundele, Principal & Director, PCE, Jaipur. A brief report on the workshop was presented by Dr. Garima Mathur. 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 a keen interest in learning the new technologies in his address. He also appreciated the organizing team. Dr. Kota Soloman Raju said that the 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 mobile network security and smart antenna. Dr. Anila Dhingra, Associate Professor, ECE Deptt., PCE proposed the Vote of Thanks. At the end of the session, a group photograph was taken with the Dignitaries including the participants.

Expert Talk-2

Topic: Internet of Things (IoT) Security for Smart Cities

Resource Person: Dr. Debasis Das (IIT, Jodhpur)

Venue: online

Dr. Debasis Das (IIT, Jodhpur) delivered his Talk on “Internet of Things (IoT) Security for Smart Cities”. Antennas for wireless communications are commonly developed in the form of passive planar structures, which consist of a main radiating element, a supporting ground plane, a supporting substrate, and a feeding structure. The design configurations, sizes and type of substrates will depend on the desired frequency of operation and its radiation performances.

Internet of Things (IoT) Security for Smart Cities

Dr. Debasis Das
Department of Computer Science and Engineering
IIT Jodhpur

Indian Institute of Technology Jodhpur

Dr. Debasis Das, IIT, Jodhpur

Intelligent Transport System (ITS)

- Advanced vehicles and associated transportation infrastructures that use IT&C technology to make driving safer, efficient and comfortable
- Operation of vehicles, manage vehicle traffic, assist drivers with safety and other information, provisioning of convenience applications for passengers
- ITS
 - high interest for companies, operators, government, academia, research; many countries have public and private sector bodies working on ITS
 - Important technologies - implementing many applications related to vehicles, vehicle traffic, drivers, passengers and pedestrians
- Typical use cases and services/applications
 - Active road safety applications
 - Warnings, notifications, assistance
 - Traffic efficiency and management applications
 - Infotainment applications

Dr. Debasis Das, IIT, Jodhpur

11:52 AM
17/09/2020

Recording LIVE on YouTube

Intelligent Transport System (ITS)

- **Typical use cases and services/applications**
 - **Active road safety applications**
 - Collision warning: Intersection, Risk, Head on, Rear end, Co-operative forward, Pre-crash
 - Warning on: Overtaking vehicle, Wrong way driving, Stationary vehicle, Traffic condition, Signal violation, Control Loss, Emergency vehicle proximity, etc.
 - Lane change assistance
 - Emergency electronic brake lights
 - Hazardous location notification
 - Co-operative merging assistance
 - **Message types for safety apps:** time-triggered position messages and event-driven hazard warnings
 - **Traffic efficiency and management applications**
 - Speed management and Co-operative navigation
 - **Infotainment applications**
 - Co-operative local services
 - Global Internet services

Dr. Debasis Das, IIT, Jodhpur

Expert Talk-3

Topic: Internet of Things: Transforming Digital World

Resource Person: Dr. Abhishek Sharma (LNMIIT, Jaipur)

Venue: online

REC

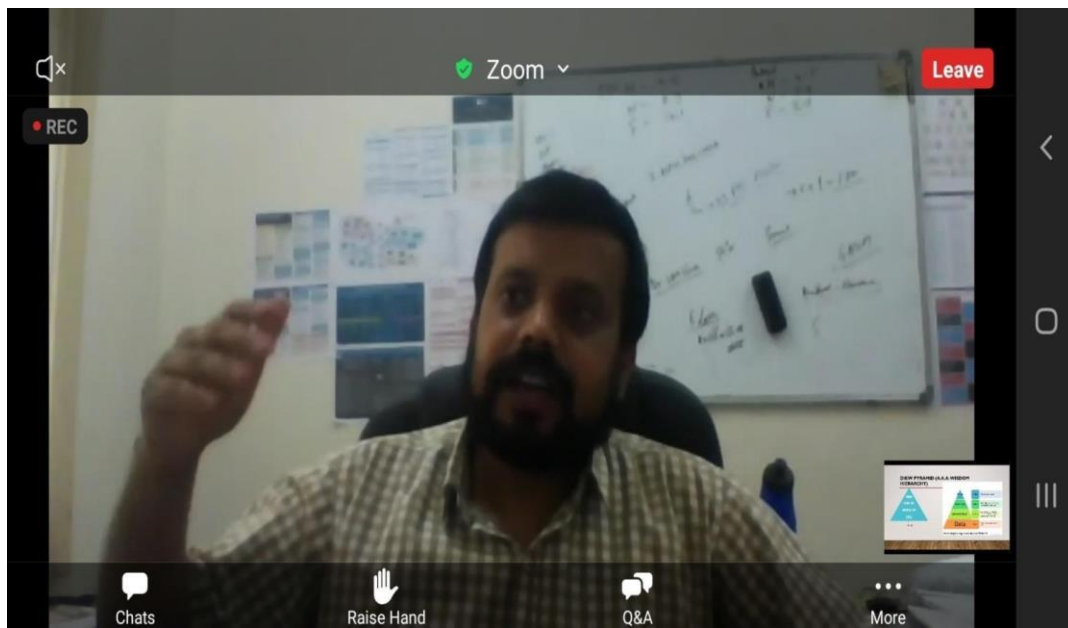
WHAT IS IT?

The Internet of Things
From connecting devices to human value

• Product of people
• Digital fabric
• Things share things

<https://www.i-scoop.eu/internet-of-things/>

Dr. Abhishek Sharma, Assistant Professor (LNMIIT JAIPUR)'s screen



The Internet of Things a very short story

This year, 2016, we will have **4.9 billion** connected things, so get ready, the Internet of Things is here to stay

Companies like **Google** and **Samsung** are investing in home devices and having a connected kitchen could save the food and beverage industry as much as **15%** annually

The global wearable device market has grown **223% in 2015**

According to some estimates, the Internet of Things will add **USD 10-15 trillion** to global GDP in the next **20 years**

By 2020, **250K** vehicles will be connected to the Internet

Google's self-driving cars average about **10,000 autonomous miles** per week

ATMs were some of the **first** Internet of Things objects as far back as **1974**

The "Internet of Things" is a phrase that **87%** of people haven't heard of

Back in **2008**, there were already more objects connected to the Internet than people

<https://www.iso.org/news/2016/09/Ref2112.html>

Dr. Abhishek Sharma, Assistant Professor (LMNIIT JAIPUR)'s screen

Day 3: 18th September 2020:

Expert Talk-1

Topic: Use of Passive Optical Networks in Internet of Things applications

Resource Person: Dr. Aneek Adhya (IIT Kharagpur)

Venue: online Via Zoom

Exclusive Pair communication model

- Exclusive Pair is a bidirectional, fully duplex communication model that uses a persistent connection between the client and server.
- Once the connection is setup it remains open until the client sends a request to close the connection.
- Client and server can send messages to each other after connection setup.

The diagram illustrates the communication flow between a Client (orange box) and a Server (blue box):

- Request to setup Connection (Client to Server)
- Response accepting the request (Server to Client)
- Message from Client to Server (Client to Server)
- Message from Server to Client (Server to Client)
- Connection close request (Client to Server)
- Connection close response (Server to Client)

Dr. D. Narasimha Singh

Assam University

Session delivered by Dr. Aneek Upadhyay

REC Think Before....

IoT primitives	Aspect	Aristocratic Risk?	Reliability Risk?	Security Risk?
Sensor	Physical	Y	Y	Y
Aggregator	Virtual	Y	Y	Y
Communication channel	Virtual and/or Physical	Y	Y	Y
e-Utility	Virtual or Physical	Y	Y	Y
Decision trigger	Virtual	Y	Y	Y



REC

IoT Level-4

- A level-4 IoT system has multiple nodes that perform local analysis. Data is stored in the cloud and application is cloud-based.
- Level-4 contains local and cloud-based observer nodes which can subscribe to and receive information collected in the cloud from IoT devices.
- Level-4 IoT systems are suitable for solutions where multiple nodes are required, the data involved is big and the analysis requirements are computationally intensive.

Dr. D. Nandini Singh

Academy University

Expert Talk-2

Topic: Introduction to the Internet of Things and Its Application

Resource Person: Dr. D. Narendar Singh (Anurag University, Hyderabad)

Venue: online Via Zoom



Internet of Things
A Hands-On Approach

IOT & IOT domain Applications
by
Dr. D. Narendar Singh
Anurag University

Dr. D. Narendar Singh
Anurag University

Dr. D. Narendar Singh, "Anurag University Hyderabad"'s screen

Exclusive Pair communication model

- Exclusive Pair is a bidirectional, fully duplex communication model that uses a persistent connection between the client and server.
- Once the connection is setup it remains open until the client sends a request to close the connection.
- Client and server can send messages to each other after connection setup.

Client

Server

Request to setup Connection

Response accepting the request

Message from Client to Server

Message from Server to Client

Connection close request

Connection close response

Dr. D. Narendar Singh
Anurag University

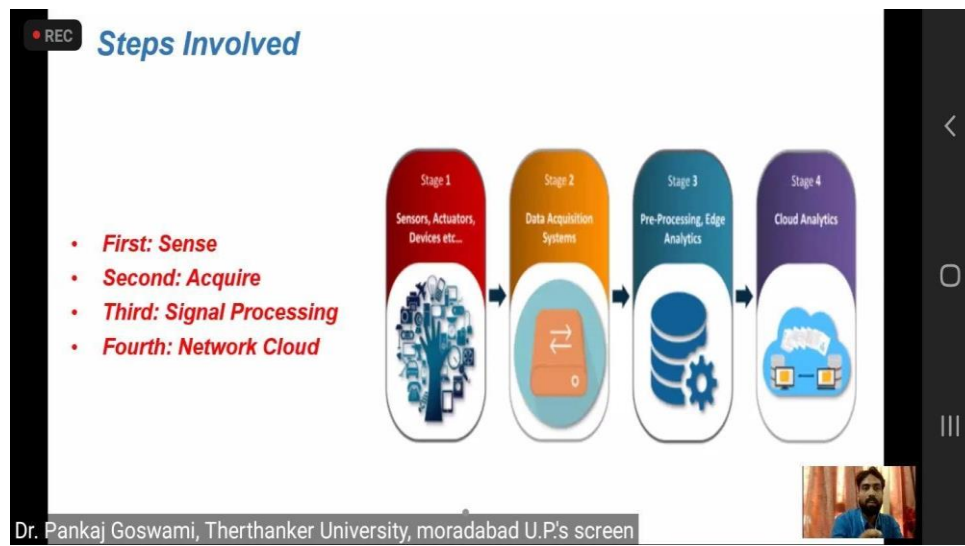
Dr. D. Narendar Singh, "Anurag University Hyderabad"'s screen

Expert Talk-3

Topic: Antenna utility for IoT application

Resource Person: Dr. Pankaj Goswami (TMU, Moradabad)

Venue: online Via Zoom



Day-4:- 19 September 2020

Expert Talk-1

Topic: Software Architectural perspective of IoT Data Analytical Systems

Resource Person: Dr. Sumit Kalra (IIT, Jodhpur)

Venue: online Via Zoom

The screenshot shows a Zoom 'About Me' profile for Dr. Sumit Kalra. The profile includes a photo of Dr. Kalra, his title as Assistant Professor at the Department of Computer Science & Engineering, IIT Jodhpur, and a list of past associations: IIT Kanpur (M.Tech. & Ph.D.) from 2012-2018, IBM India Research Lab (Summer Intern) in 2013 and 2015, Infosys Ltd. from 2010-2011, and UIET, Panjab University Chandigarh (B.Tech.) from 2006-2010. Below this, the 'Software Innovation Lab' is highlighted, with a focus on Software Architecture, Software Engineering, Internet of Things, Edge & Fog Computing, and Tele Health. Collaborations listed include AIIMS Jodhpur, NP Bridge, Uniconverge Technologies, Naturesense, Kickstartups, and Queensland University of Technology. The Zoom interface shows a 'REC' indicator and navigation icons on the right.

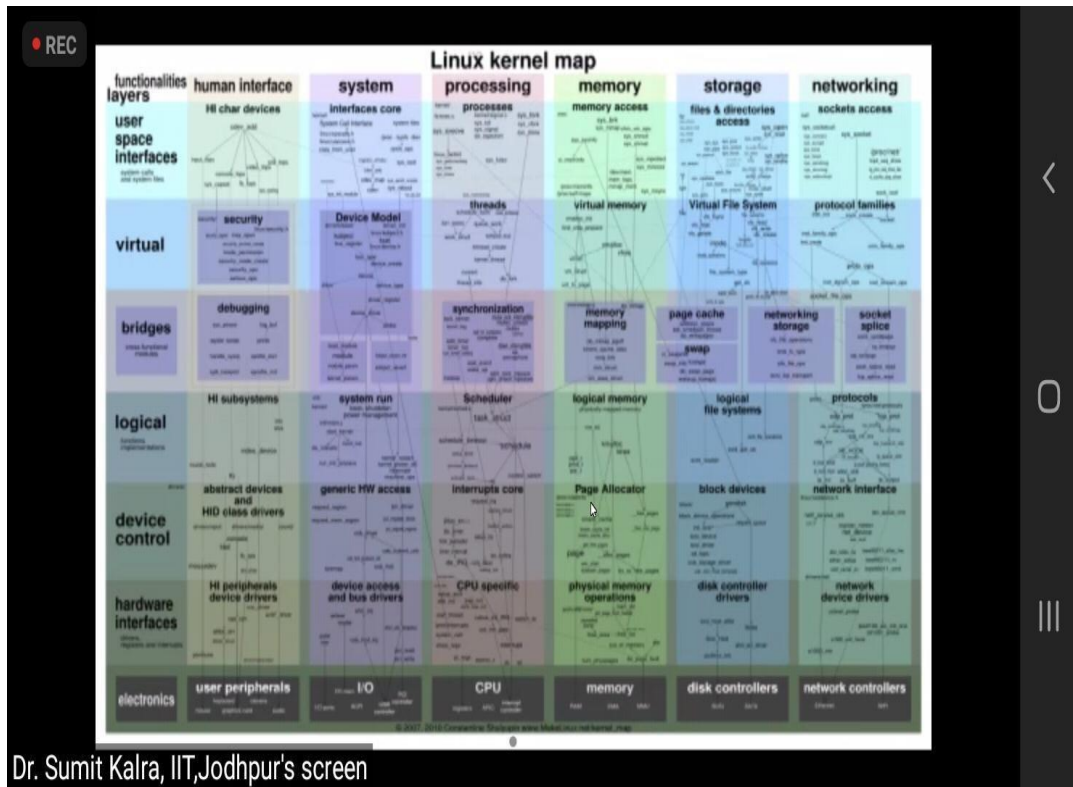
Dr. Sumit Kalra
Assistant Professor
Department of Computer Science & Engineering
IIT Jodhpur

Past Association:
IIT Kanpur (M.Tech. & Ph.D.): 2012-2018
IBM India Research Lab (Summer Intern): 2013, 2015
Infosys Ltd.: 2010-2011
UIET, Panjab University Chandigarh (B.Tech.): 2006-2010

Software Innovation Lab
Software Architecture, Software Engineering, Internet of Things, Edge & Fog Computing, Tele Health
Collaborations: [AIIMS Jodhpur](#), [NP Bridge](#), [Uniconverge Technologies](#), [Naturesense](#), [Kickstartups](#), [Queensland University of Technology](#)

Dr. Sumit Kalra, IIT,Jodhpur's screen

Session delivered by Dr. Sumit Kalra

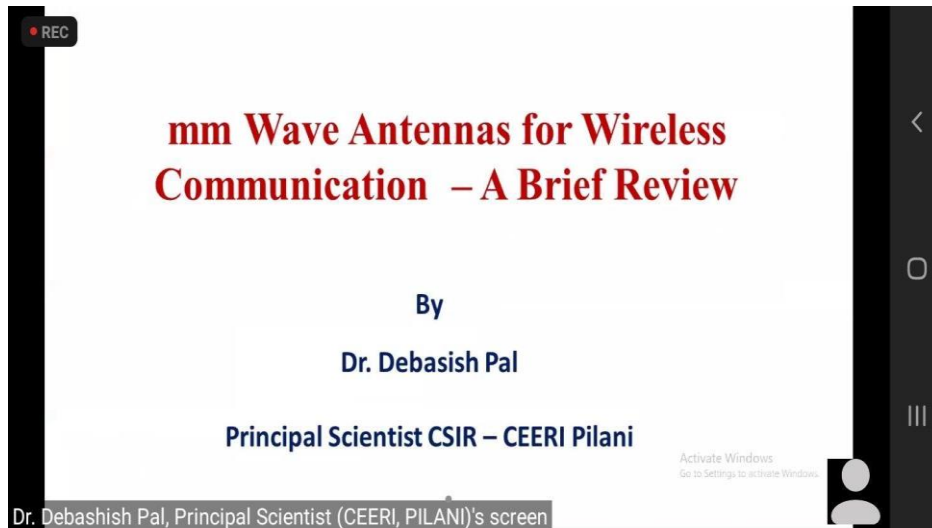


Expert Talk-2

Topic: mm Wave antennas for wireless communication

Resource Person: Dr. Debashish Pal (Principal Scientist, CEERI, PILANI)

Venue: online Via Zoom



Session Delivered by Dr. Debashish Pal

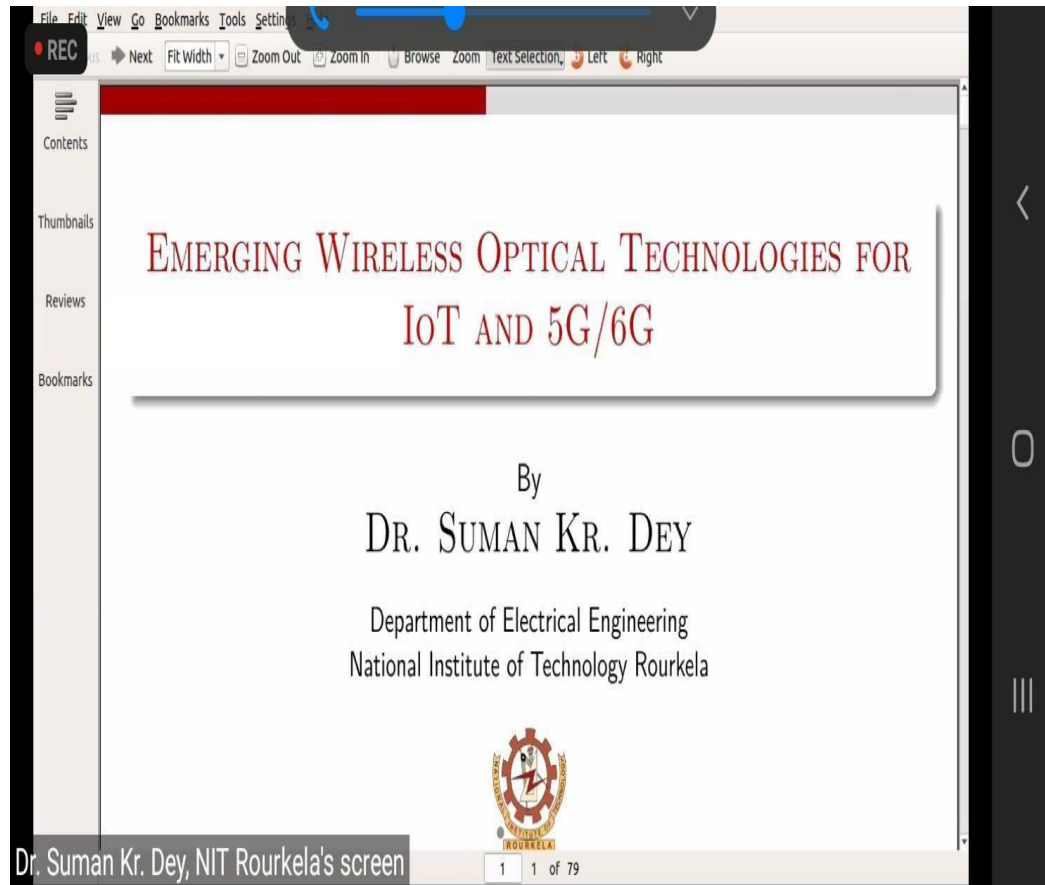


Expert Talk-3

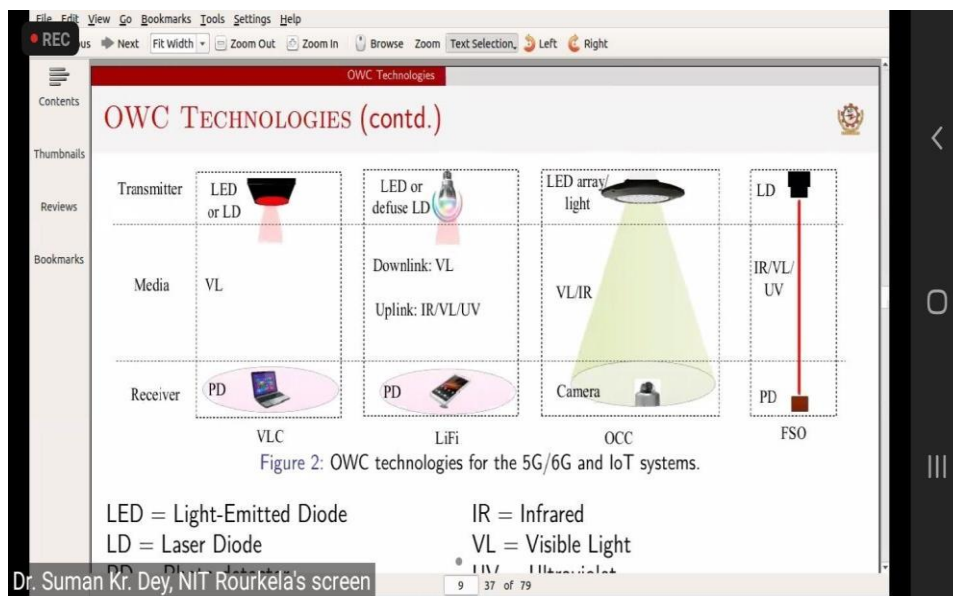
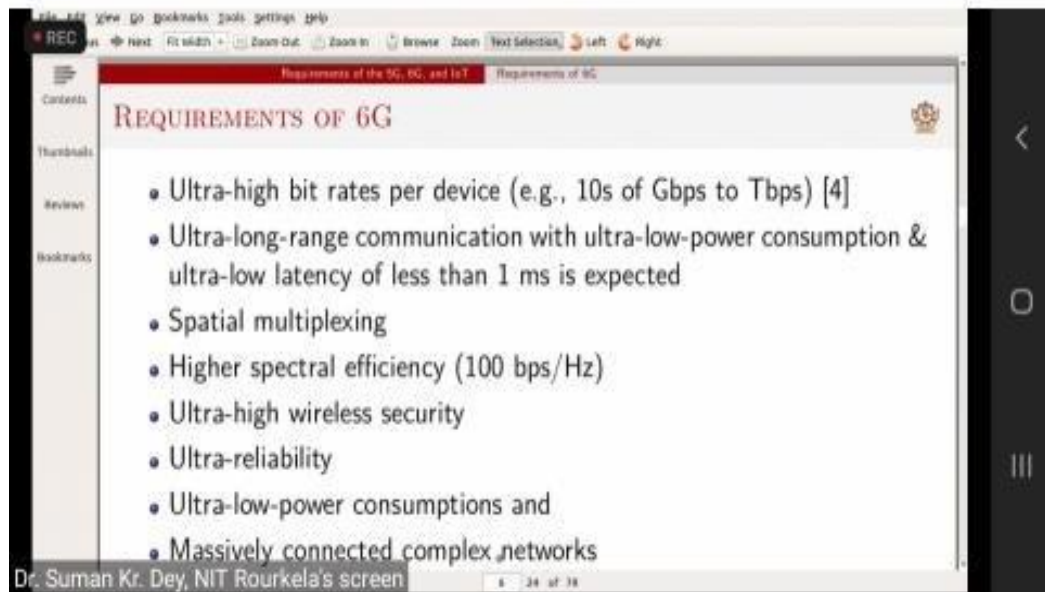
Topic: Emerging wireless optical technologies for IoT and 5G/6G

Resource Person: Dr. Suman Kr. Dey (NIT Rourkela)

Venue: online Via Zoom



Session delivered by Dr. Suman Kr. Dey



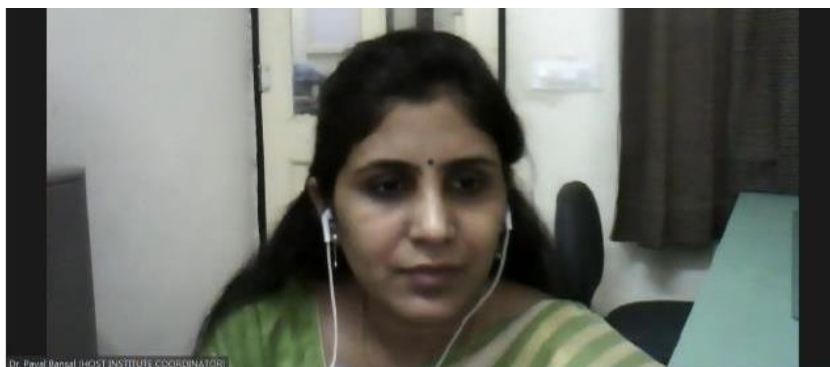
VALEDICTORY SESSIONS:

Poornima College of Engineering - Activity Report - 2020-21

Address by Dr. Mahesh M. Bundeale



Report presented by Dr. Garima Mathur



Vote of Thanks by Dr. Payal Bansal


Dr. Mahesh Bundeale
B.E., M.E., Ph.D.
Director
Poornima College of Engineering
ISI-6, FIICO Institutional Area
Sikapura, JAIPUR

Certification Distribution

After an online quiz & attendance criteria, certificates are distributed to 82 participants in total. The format of certificate & the final list of participants is attached here for reference-



LIST OF PARTICIPANTS:

S.No.	Name of Participants	Affiliation
1	DR. SONAL SHARMA	Poornima College of Engineering, Jaipur
2	DR. PARESH JAIN	SGVU, Jaipur
3	G HARI KRISHNAN	Sree Vidyanikethan Engineering College, Tirupati, Andhra Pradesh
4	GAJENDRA SINGH CHAWDA	IIT Jodhpur
5	GAURAV SAXENA	Poornima College of Engineering
6	GAURAV KAPOOR	Modi Institute of Technology
7	GHUFRAN KHAN	I-Nurture Education Pvt Ltd, Bangalore
8	DR HIMANI GOYAL SHARMA	Poornima College of Engineering
9	ISHITA CHAUHAN	Poornima college Of Engineering, Jaipur
10	KALPANA MEENA	Rajasthan technical University
11	KAMLESH GAUTAM	Arya Institute of Engineering Technology and Management, Jaipur
12	KANA RAM MALI	Rajasthan Technical University, Kota
13	KRUSHNA CHANDRA SAHOO	Dreims Aotonomous Engineering College, Cuttack
14	KUSUM YADAV	JECRC Jaipur
15	LAKSHYA RUSTAGI	Poornima college of engineering
16	LOKESH DASHORA	Laxmi Builders Private limited
17	MADHU JAIN	Jaypee Institute of Information Technology, Noida
18	MANISH SHARMA	Poornima College of Engineering, Jaipur
19	MANISH SHARMA	Department of Information Technology and Communication, Govt. of Rajasthan
20	MANISH DUBEY	Poornima College of Engineering, Jaipur
21	MANISH SHARMA	Apex institute of engineering and technology

Dr. Mahesh Bunde
B.E., M.E., Ph.D.
Director
Poornima College of Engineering
ISI-0, FIICO Institutional Area
Jaipur, JAIPUR

22	MANISHA KUMAWAT	Poornima College of Engineering, Jaipur
23	MOHIT SONI	Poornima College of engineering
24	MUKESH CHAND	Poornima College of Engineering, Jaipur
25	NEHA	Poornima college of engineering
26	OM PRAKASH KUMAWAT	IEI Kolkata
27	PABITRA KUMAR NAYAK	Synergy Institute of Engineering and Technology, Dhenkanal
28	PANKAJ DADHEECH	Swami Keshvanand Institute of Technology, Management & Gramothan, Jaipur
29	PRUTHWIJEET PATNAYAK	NPTI, NAGPUR
30	RAHUL RATHI	Poornima College of Engineering
31	RAHUL SHARMA	Poornima College of Engineering
32	RAJ KUMAR JAIN	Poornima college of engineering
33	RAMESH CHAND MEENA	STPI, Ministry of Electronics and IT
34	RAVI PRAKASH MEGHWANSI	Rajasthan Technical University, Kota
35	REENAL JAIN	UBS
36	RIYANSHI JAIN	Rajasthan Technical University, Kota
37	SAKSHI TIWARI	Arya college of engineering &IT
38	SANA FIROZ	Poornima college of engineering
39	SHEFALI SHARMA	Jaipur National University
40	SHIKHA SHRIVASTAVA	Jaipur Engg College and Research Centre
41	SHIVALI SISODIYA	Rajasthan Technical University Kota
42	SHUBHAM SHARMA	Rajasthan technical Univercity
43	SUMIT KUMAR MANNA	Vidyasagar Metropolitan College
44	SUNIL KUMAR MAHAPATRO	Regional College for Education, Research and Technology, Sitapura, Jaipur, Rajasthan
45	SURBHI SHRINGI	Rajasthan Technical University Kota
46	SUSANTA SARANGI	Ietr Soa Deemed To Be University, Odisha
47	SUSHANTA KUMAR SETHY	DRIEMS Autonomous Engineering College
48	SUSHMA SHESHADRI	Mharaj Institute of technoplogy
49	TARUN MISHRA	Poornima College of Engineering
50	VINIT SHAH	
51	ANKITA MEENA	Rajasthan Technical University, Kota
52	MONIKA MATHUR	Research Scholar
53	MS. KHUSHI YADAV	Shivam ITI Pvt. Ltd.
54	SAURABH CHOPRA	M.B.M. Engineering College, Jodhpur
55	VIJAY DEEP GUPTA	Poornima College Of Engineering
56	ASHISH VIJAY	Allen Carrier Institute

Online feedback

- 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 have given positive remarks in all respects and shown their satisfaction with all the arrangements and the time management.

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

