

**EXPERT LECTURE ON "DATA
COMMUNICATION VIA
SATELLITE LINK"**

DATE: 11/04/2021

Event Coordinator(s):

Prof. Shailaja Udtewar

Student Coordinator(s):

Mr. Preetam Lobo

Time & Place:

11th April 2021

10:30 a.m. to 12:00 p.m.

Google Meet

Department:

**Electronics and
Telecommunication**

No. of Participants:

37 Students

BE EXTC

OBJECTIVE:

Electronics and Telecommunication department had organized a guest lecture on "Data Communication via Satellite Link" for Final year students under the subject Satellite Communication by Prof. Shailaja Udtewar. This lecture was arranged so that students will have a glimpse of different components used in Satellite Communication System. The specifications of different satellites such as LEO, MEO, GEO, IPSTAR and different Multiple Access Techniques were clearly explained.

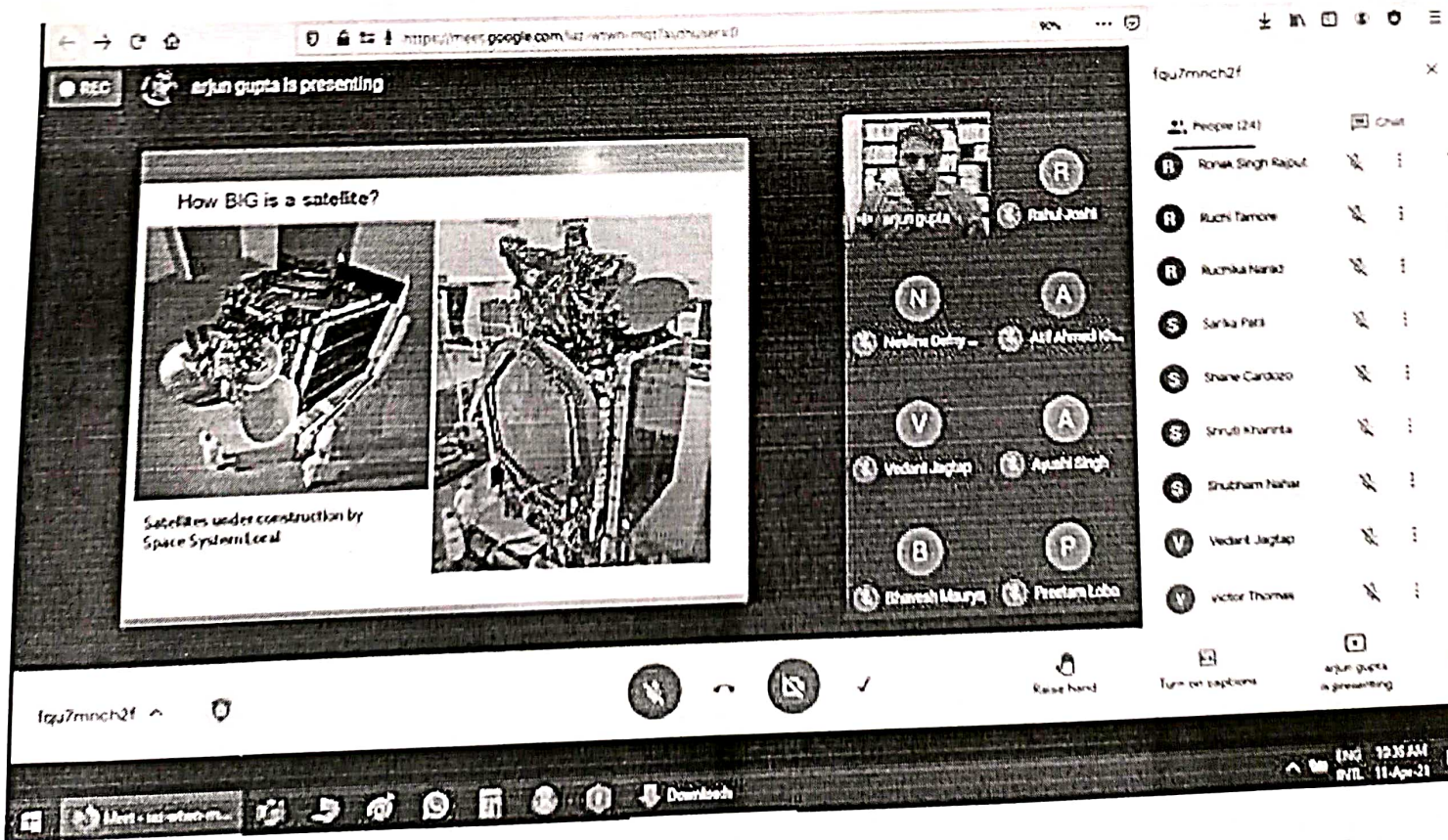
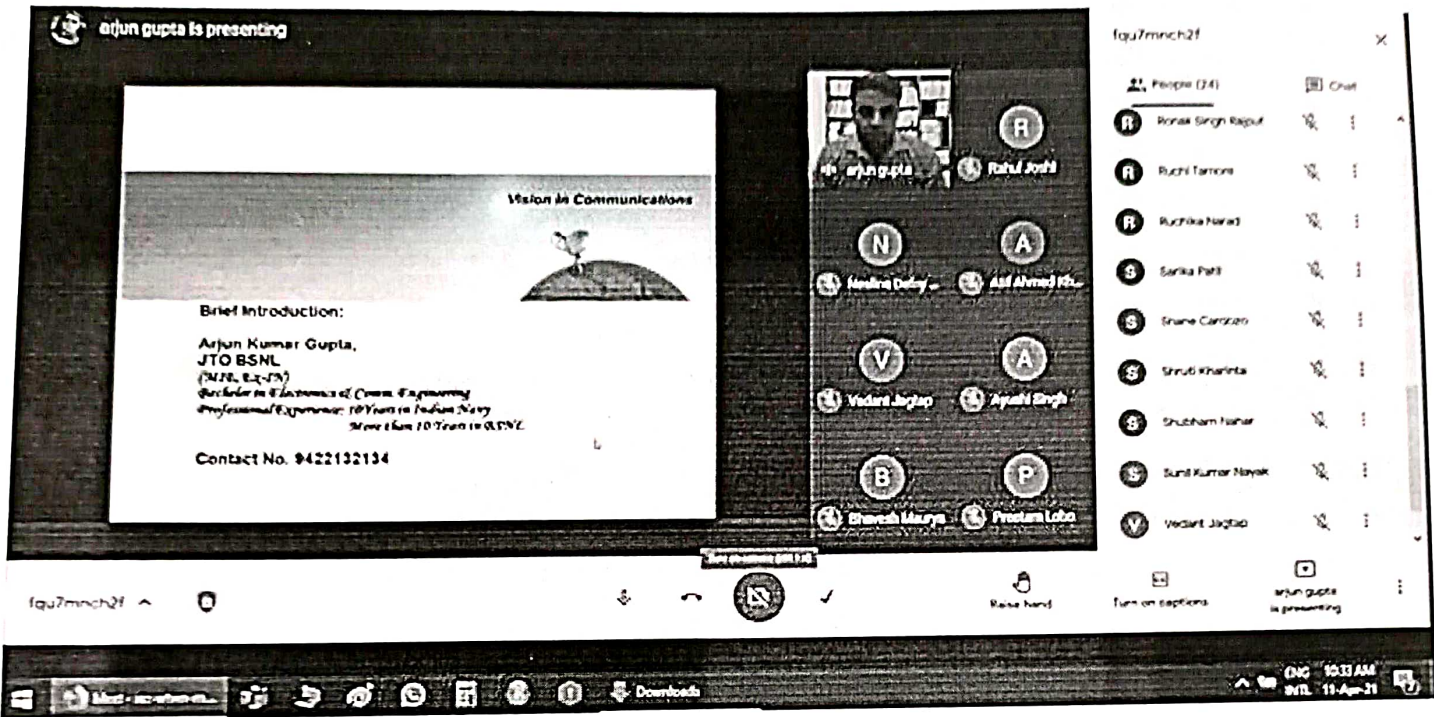
SCOPE:

This lecture was arranged for final year EXTC students to make the students aware of the communication satellites and the components used in that communication satellite. It includes study of the performances of different multiple access techniques in terms of channel utilization, throughput and delay characteristics. The scope is to study the communication Payload for Low Earth Orbit satellite systems and applications.

RESOURCE PERSONS:

Mr. Arjun Kumar Gupta
Junior Telecom Officer,
BSNL, Mumbai.

PHOTOS:



REC arjun gupta is presenting

Satellite Mission Payload & Transponder

The diagram illustrates the internal components of a satellite transponder. It is divided into two main sections: the Receiver Section and the High Power Amplifier (Transponder) section. The Receiver Section includes an LNA (Low Noise Amplifier) and a Feed Element. The High Power Amplifier section includes a PA (Power Amplifier), a PA Driver, and a PA Output. The diagram shows the flow of signals from the receiver to the transmitter.

Participants in the meeting:

- arjun gupta
- Karan Har
- Saurabh Shriv
- Shubham Thapar
- Shane Carizzo
- Shruti Khanna
- Shubham Harsh
- Saavir Dasa
- Vedant Jagtap
- Viktor Thomas
- Yash Dinkale
- Abd Ahmed Khan
- Ayush Singh
- Nishant Tawde
- Pratham Laha

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IPSTAR System

1. Space System

2. Ground System

User Terminal

| OOU | IOU | NW | NMS & IE | OSS | RF |
|---|---|--|---|--|---|
| <ul style="list-style-type: none"> 1. Antenna 2. Feed Horn 3. LNB 4. LNB 5. PA LNB | <ul style="list-style-type: none"> 1. LNB 2. PA LNB | <ul style="list-style-type: none"> 1. Core Network 2. Core Router 3. Edge Router 4. Firewall | <ul style="list-style-type: none"> 1. Core Router 2. Edge Router 3. NMS Servers 4. Firewall | <ul style="list-style-type: none"> Monitoring 1. Call 2. SIMSON 3. NMS 4. NMS <ul style="list-style-type: none"> Provisioning 1. NMS 2. IE 3. Webportal | <ul style="list-style-type: none"> Equipment 1. LNB 2. BUC 3. HPA 4. PA 5. PA 6. LNB 7. Antenna 8. Antenna 9. MFC |

Gateway

Participants in the meeting:

- arjun gupta
- Vikram Patel
- Sunil Kumar Nayak
- Abd Ahmed Khan
- Vedant Jagtap
- Ayush Singh
- Karan Har
- Saurabh Shriv
- Saavir Dasa

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IPSTAR Gateway Block Diagram

The diagram illustrates the IPSTAR Gateway architecture. It is divided into two main sections: Indoor Equipment and Outdoor Equipment. The Indoor Equipment section includes a cloud representing the Internet (IP), a Network (NW), and an Operations Support System (OSS). The Outdoor Equipment section includes a Radio Frequency (RF) unit. The RF unit is connected to the NW and OSS. Two communication paths are shown: Ka Band and Ku. The IPSTAR Satellite is shown in orbit, receiving and transmitting signals through these bands. The bottom of the slide features a navigation bar with icons for mute, video, and chat.

IPSTAR Satellite

Ka Band

Ku

Indoor Equipment

Outdoor Equipment

REC Sarika Patel and 23 more

False hand

Turn on captions

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10:42 AM

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OFDM

- OFDM is the multiplexing technique used in IPSTAR system
- OFDM stands for Orthogonal Frequency Division Multiplexing
- The concept of OFDM is the same as FDM but has more frequency bandwidth efficient.

The slide compares Frequency Division Multiplexing (FDM) and Orthogonal Frequency Division Multiplexing (OFDM). FDM is shown with four channels (Channel 1 to Channel 4) represented by sine waves. There are distinct gaps (guard bands) between the channels. A text box notes: "FDM requires the guard bands to prevent the interference among channels" and "Guard band = wasting of bandwidth". OFDM is shown with four channels (Ch1 to Ch4) represented by overlapping sine waves. A text box notes: "OFDM". The bottom of the slide features a navigation bar with icons for mute, video, and chat.

Channel 1

Channel 2

Channel 3

Channel 4

Frequency

FDM

OFDM

REC Sarika Patel and 23 more

False hand

Turn on captions

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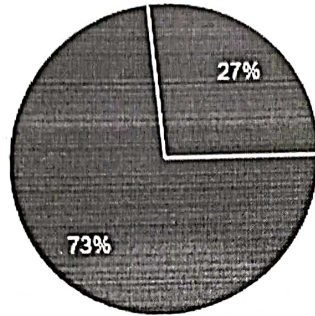
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FEEDBACK:

How was the overall organization of the session?

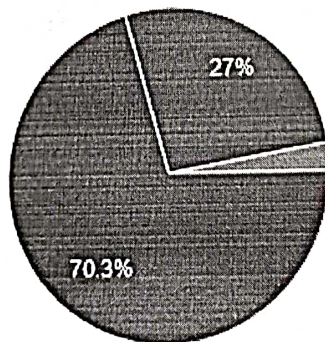
37 responses



- Excellent
- Very Good
- Good
- Fair
- Poor

How relevant was the content discussed by the speaker?

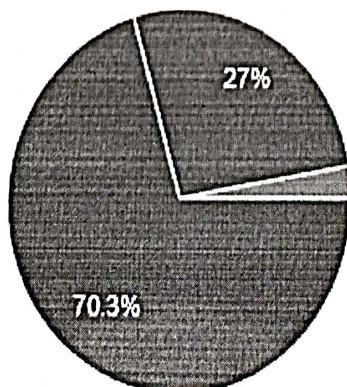
37 responses



- Excellent
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- Fair
- Poor

Are you satisfied with the time and venue/platform?

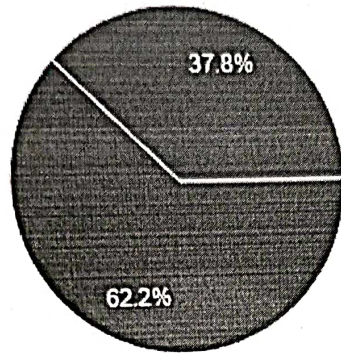
37 responses



- Excellent
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How much interesting this session was for you?

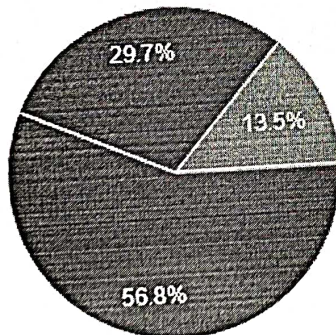
37 responses



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- Poor

How was your preparation about the topic before the guest lecture?

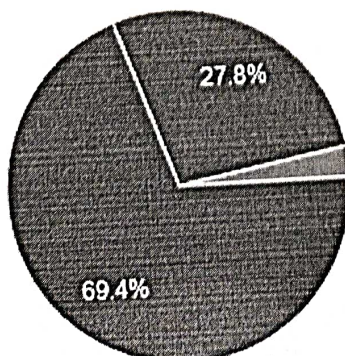
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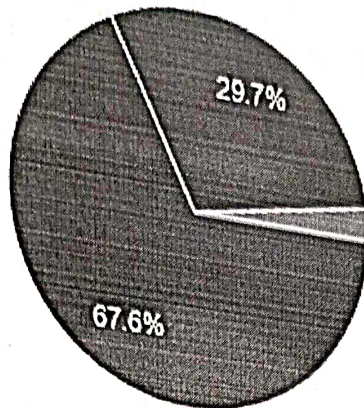
Did the lecture cover what you were expecting?

36 responses



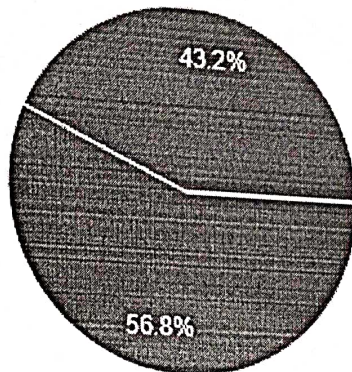
- Excellent
- Very Good
- Good
- Fair
- Poor

What is your opinion about the speaker?
37 responses



- Excellent
- Very Good
- Good
- Fair
- Poor

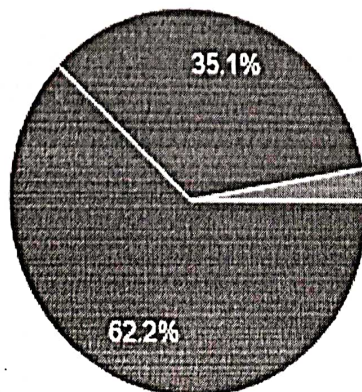
How much this session was useful from the knowledge and information point of view
37 responses



- Excellent
- Very Good
- Good
- Fair
- Poor

Overall effectiveness of the session

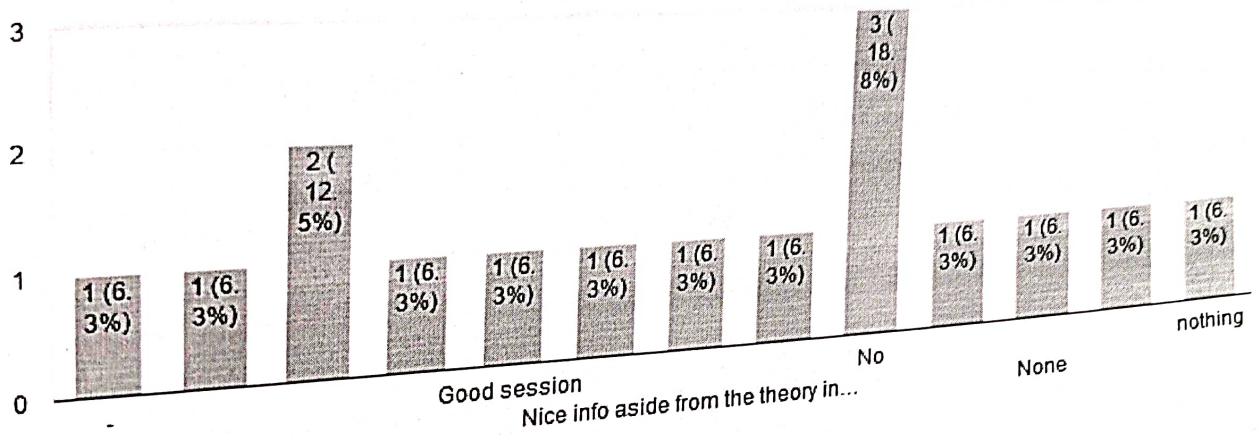
37 responses



- Excellent
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- Good
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Additional comments and suggestions for future

16 responses



Prof. Shailaja Udtewar

Subject In-charge

Dr. Vidya Sarode

HoD, EXTC