



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

**Department of Electronics and Telecommunication**

**A.Y. 2021-22**

Sr.No.	Name of faculty	Semester	Class	Subject	Methodology used
1	Ms. Purnima Vadak	IV	S.E. EXTC	Principles of communication Engineering	Inquiry based learning
2	Ms. Shubhangi Verulkar	IV	S.E. EXTC	Microcontroller	Screen casting and mind mapping
3	Mr.Rahul Naware	IV	S.E. EXTC	LIC	Screen casting
4	Christina Bage	IV	S.E. EXTC	SS	Experiment based Learning
5	Christina Bage	V	B.E.EXTC	DTSP	Future Aspect of DSP
6	Ms.Aarti Bakshi	V	T.E.EXTC	Data Structure and Algorithm	Power Point Presentation
7	Ms.Aarti Bakshi	V	T.E.EXTC	Digital Communication	Case Study
8	Ms. Shubhangi Verulkar	VI	T.E. EXTC	Electromagnetics and antenna	Poster making
9	Ms.Aarti Bakshi	VI	T.E.EXTC	VI	Neural Network and Fuzzy Logic
10	Mrs. Anupama Chaurasia	VII	B.E.EXTC	Microwave Engineering	Video making, QUIZ making
11	Ms. Shubhangi Verulkar	VII	B.E.EXTC	Mobile communication system	Screen casting and video making
12	Dr. Baban U. Rindhe	VII	B.E.EXTC	Optical communication	Screen casting and video making
13	Ms.Sowmya kini	VII	B.E.EXTC	Big data analytics	Self mind mapping



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

**Department of Electronics and Telecommunication**

					activity
14	Ms. Riya Pal	VII	B.E.EXTC	NMT	Screen Casting or Video making
15	Mrs. Anupama Chaurasia	VIII	B.E. EXTC	RF Design	Industrial Visit at EMI EMC Division Kharghar, Navi Mumbai
16	Dr. Baban U. Rindhe	VIII	B.E.EXTC	Wireless Networks	Screen Casting or Video making,



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

**Name of Faculty:** Purnima Vadak

**Subject:** Principles of Communication Engineering

**Class:** S.E.EXTC SEM: IV

**Methodology followed:** Google classroom, PPT, Written Notes, Classroom teaching

**Difficulty faced:** Students used to get the things explained in the classroom and also the notes directly for preparation. Students were facing difficulty in answering the high blooms level questions as their analyzing skills or finding the solution for the problem on their own were not addressed much.

**New method identified:** Inquiry based Learning

### **Activity report:**

Inquiry based learning is basically a form of active learning and more of students engagement and participation. In traditional teaching learning the teacher teaches and provides whatever knowledge they have, however in this method the teacher gives a topic, a problem statement or something like that on which the student has to do the research or find the solution on his own or even with the help of teacher/ facilitator. The inquiry-based instruction is principally very closely related to the development and practice of thinking and problem solving skills.

For the PCE subject this concept of Inquiry based learning was applied with a small modification. The topic for inquiry and hence learning was allotted to a group instead of an individual. Students were asked to use find out the information related to given topic through at least three different information gathering tools from the following:

1. Research Papers
2. Research articles/Technical articles/ Technical Magazine
3. Reference books
4. Internet
5. Any other

After gathering the information the group was asked to undertake detailed discussion on the topic within the group, to note the points of discussion and to prepare a report on the same.

**Outcome:** This activity improved the student's engagement in the learning process as they were actively involved in learning rather than getting everything ready. As it was a group activity it made the group members to work differently on the same topic and have a discussion on it to reach to a conclusion thus improving team building. After the activity students were asked to prepare the report or a video for the discussion. This contributed a bit to the communication skills of the students



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

**Name of Faculty:** Shubhangi Mangesh Verulkar

**Sub:** Microcontroller

**Class:** S.E.EXTC SEM:IV

**Methodology followed:** Google Meet, Google classroom, ppt and classroom teaching Offline

**Difficulty faced:** Students faced difficulty sometimes with internet issues, presentation of models.

**New method identified :** Screen Casting or Video making

**Activity report:** Screencasts can provide learners a student-centered and engaging learning experience in both distance and traditional learning settings. Screencasts enable teachers to create a digital recording of any instructional activity performed on a computer screen, and they can be used as learning resources, learning tasks, and learning support.

A major benefit of screen casting is that **the viewer can watch the screencast at a time when it's best for them** because learning doesn't always take place in an academic setting. Additionally, the viewer can absorb the information at their own pace by pausing and rewatching portions.

Students can use Screen casting to explain what they know in their own words. The students can record a video on explaining the steps of difficult numerical or summarizing a concept.

There are many ways we can use screencasting in our teaching.

- Answer a question
- Record a lecture
- Demo how to use an application

**SAMPLE VIDEO LINKS:**

Link 1:

<https://drive.google.com/drive/folders/1S-FZkydqmxYvVwpOsyRSzAw-Q5luJcq5?usp=sharing>

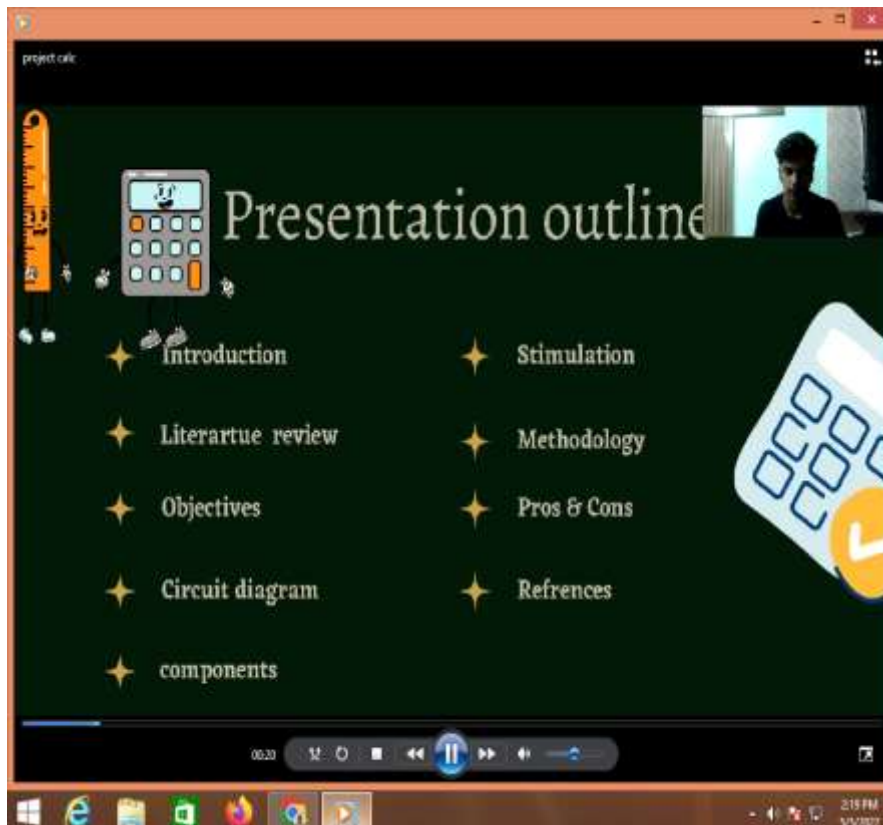
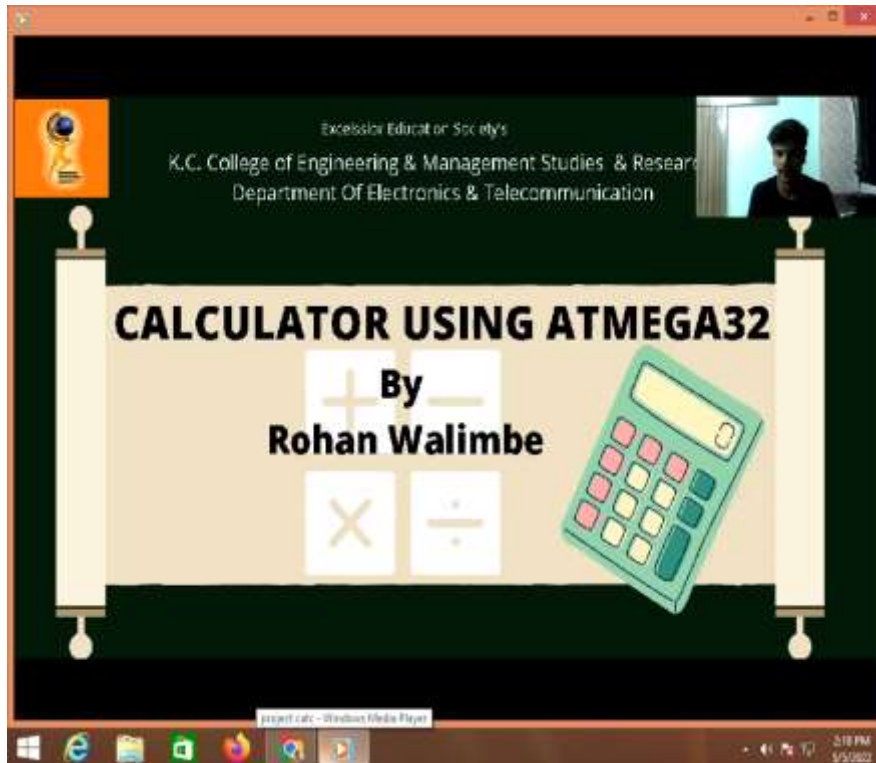
**Outcome:** This video can be uploaded on youtube or on drive links or on website so that other students can watch it any time and learn the concept. In this subject students made video on presentation and demonstration for mini-projection of MCA .

Video is an efficient and memorable way to deliver information to students of all ages. But having students create video projects themselves is also a great way to help them actively engage with subject matter learn from one another. This is best option for peer-to-peer learning.



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication





## Department of Electronics and Telecommunication

The image displays two screenshots from a video presentation. The top screenshot is titled "METHODOLOGY" and outlines four steps of the project. The bottom screenshot is titled "CONCLUSION" and summarizes the project's findings.

### METHODOLOGY

Step 1: Initial stage of the project began from the literature review along with the assembly of the components followed by block diagram, studying its circuit, etc.

Step 2: Writing and running the code in the Microchip software

Step 3: Building the circuit on the proteus Software and running the program in it.

Step 4: Actually making the project on a breadboard.

### CONCLUSION

This study designed and implemented a Microcontroller based calculator for easy and speedy calculation.

Digital Calculator is yet another simple device which can be used to calculate simple 2 digit algebraic calculations.

Results of the calculator were found to agree with the other calculators.





Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

**Name of Faculty:** Rahul Naware

**Sub:** LIC

**Class:** S.E.EXTC SEM:IV

**Methodology followed:** Google Meet, Google classroom, ppt and classroom teaching Offline

**Difficulty faced:** Student faced difficulty sometimes with internet issues, presentation of models.

**New method identified:** Screen Casting or Video making

**Activity report:** Screen casts can provide learners a student-centered and engaging learning experience in both distance and traditional learning settings. Screen casts enable teachers to create a digital recording of any instructional activity performed on a computer screen, and they can be used as learning resources, learning tasks, and learning support.

A major benefit of screen casting is that **the viewer can watch the screen cast at a time when it's best for them** because learning doesn't always take place in an academic setting. Additionally, the viewer can absorb the information at their own pace by pausing and rewatching portions.

Students can use Screen casting to explain what they know in their own words. The students can record a video on explaining the steps of difficult numerical or summarizing a concept.

There are many ways we can use screen casting in our teaching.

- Answer a question
- Record a lecture
- Demo how to use an application

**SAMPLE VIDEO LINKS:**

Link 1: [https://www.youtube.com/watch?v=i0SNb\\_dkYI](https://www.youtube.com/watch?v=i0SNb_dkYI)

**Outcome:** This video is uploaded on you tube so students can watch it any time and learn the concept.

Video is an efficient and memorable way to deliver information to students of all ages. But having students create video projects themselves is also a great way to help them actively engage with subject matter learning from one another. This is best option for peer-to-peer learning.

### **Innovative Part**

IC 555 as astable multivibrator with 50% duty cycle with output taken across sinking load & sourcing load is a circuit that can drive two loads ( for eg. LED ) alternately is a Single Pole Double Throw ( SPDT) switching



## Department of Electronics and Telecommunication

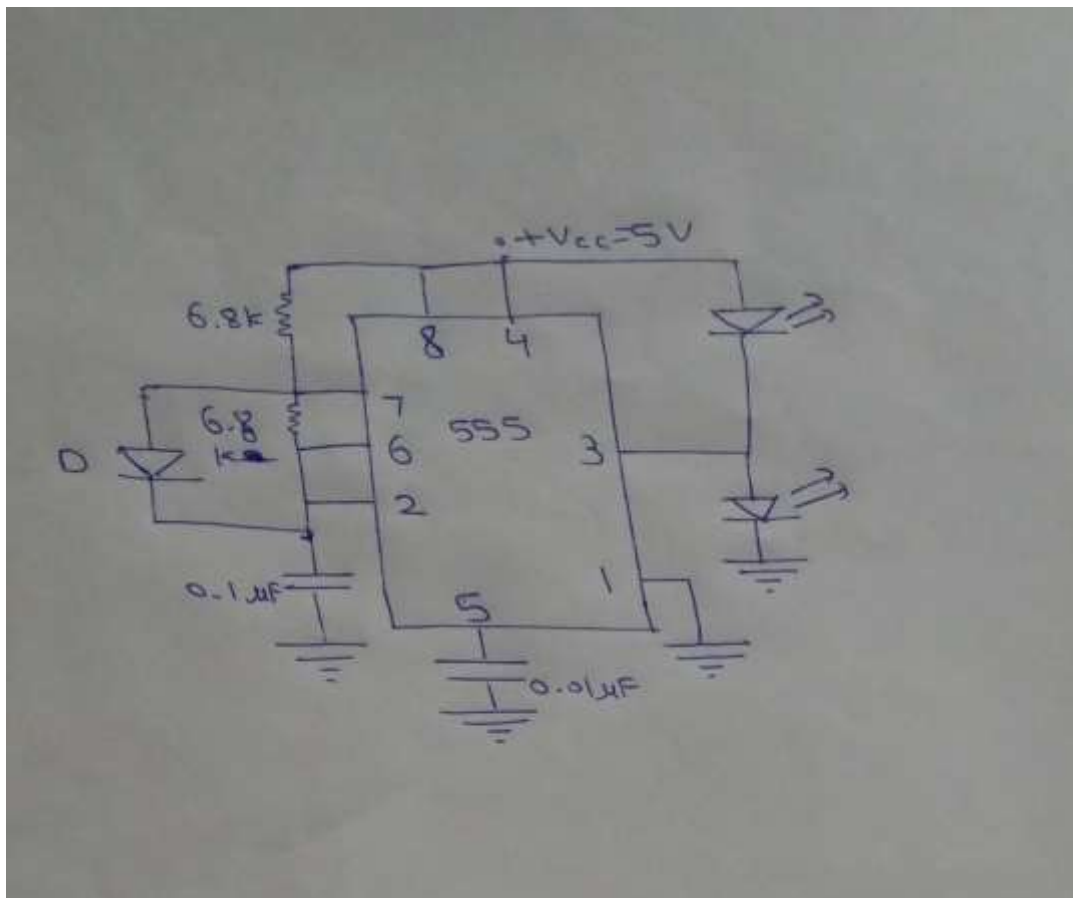
circuit. With this circuit two loads can be driven which is the advantage over astable multivibrator using BJT that requires more components & using opamp not possible in a perfect manner as an ideal SPDT switch.

**Advantage:-** Ideal SPDT switch can be realised using this circuit with 200mA current sourcing & sinking capability .

**Disadvantage:-** Current carrying capacity of output loads is limited up to 200mA only .

**Innovative part** is realization of SPDT switch using IC 555 as Astable multivibrator with 50% duty cycle.

Circuit diagram

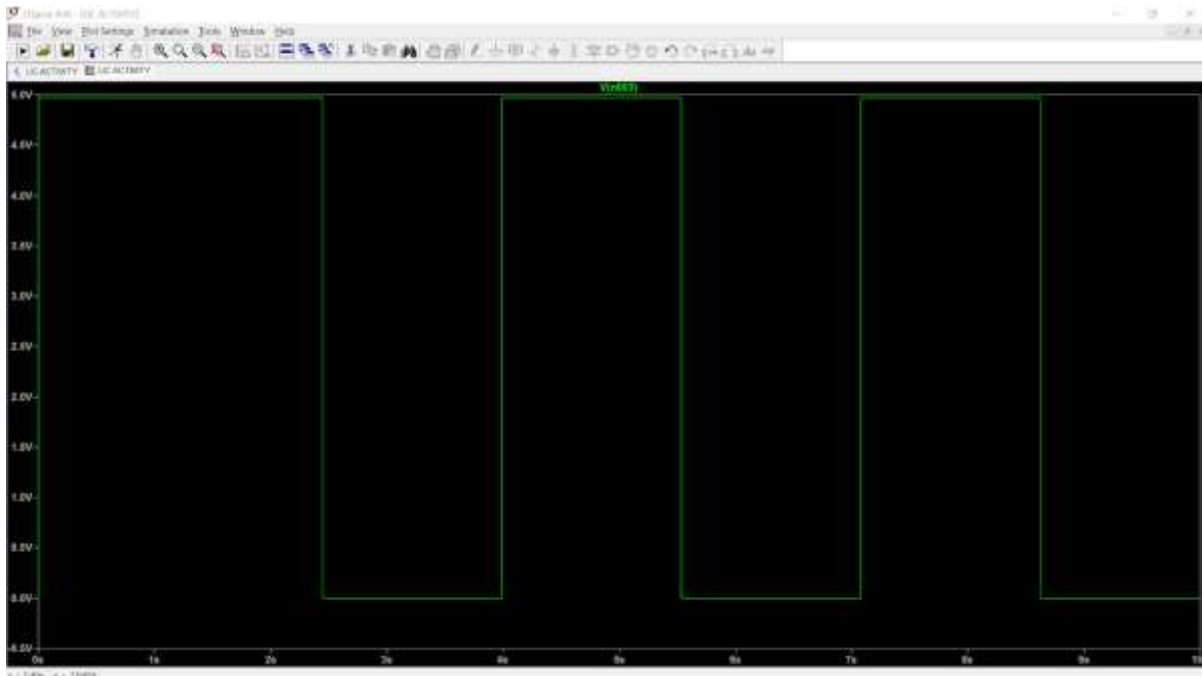
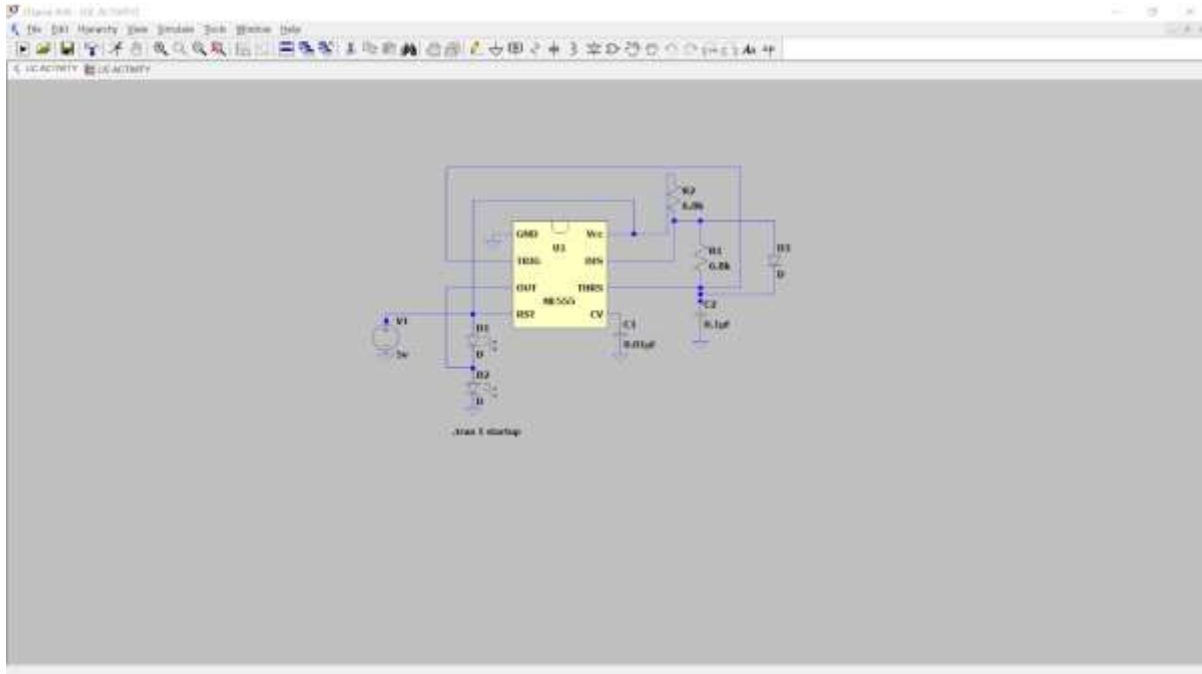






Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication





Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

**Class:** SE (EXTC)

**SEM:** IV

**Subject:** SS

Subject In charge: Christina Bage

**Methodology followed:** Google classroom, PPT, Written Notes, Classroom teaching Python IDLE

**Difficulty faced:** Students were not able to understand the applications of Signals & systems in modern technology or in practical application, so this Experiment based learning helped them to understand the right application of SS concept in various methods and ways.

**New method identified:** Experiment based Learning

**Activity report:**

**Activity Report:** An activity on SS was given to have an overall understanding and knowledge of SS on python programming. On how the Python codes and SS concepts are interrelated to each other there by making the students clear about the right approach of SS

**Outcome:** The activity gave the students the opportunity to understand the concept of S with python codes and programming



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

**Class:** TE (EXTC)      **Academic year (2021-22)**      **SEM:** V

**Subject:** DTSP

Subject Incharge: Christina Bage

**Activity:** Future Aspect of DSP

**Methodology followed:** Google meet, Google classroom, ppt.

**Difficulty faced:** Student faced difficulty understanding the practical aspects of DTSP in future.

**New method identified :** PPT on Future Aspects of DTSP was given

**Activity Report:** An activity on DTSP was given to have an overall understanding and knowledge about the future aspects of DTSP in the files of medical, RADAR and many more. The students came up with advance version of application on DTSP and gave an insight about the same through PPTs.

**Outcome:** The activity gave the students the opportunity to understand the concept and the future aspects in more broader way with PPTs and explanations.



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

The screenshot shows a presentation slide titled "Applications" with the following content:

- Hearing aid
- Brain signals – electroencephalogram
- The acquisition of a blood pressure signal

The slide includes a diagram of a hearing aid, a photograph of a person wearing a hearing aid, and two graphs showing signal waveforms. The presentation is viewed in a browser window with the address bar showing a Google Mail link. The Windows taskbar at the bottom shows the time as 3:23 PM on 5/28/2022.



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

The image shows a screenshot of a Google Slides presentation. The browser window at the top displays several tabs, including 'DTSP BRIG...', '2021-22 OC...', 'SAMPLE RE...', 'CHRISTINA...', 'JETE 2021-2...', and 'New Tab...'. The address bar shows a mail.google.com link. The slide itself is titled 'dsp activity.pptx' and is being viewed in a 'Open with Google Slides' window. The slide content is as follows:

**DTSP ACTIVITY**

BY  
Asolkar Gopal  
DSA 02

FUTURE ASPECT OF DTSP-HEARING AID

At the bottom of the slide, there is a navigation bar showing 'Page 1 / 10' and search icons. The Windows taskbar at the very bottom shows the time as 3:22 PM on 5/10/2022.



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

## Department of Electronics and Telecommunication

**Class:** TE (EXTC)

**Academic year (2021-22)**

**SEM:** V

**Subject:** Data Structure and Algorithm

**Subject Incharge:** Aarti Bakshi

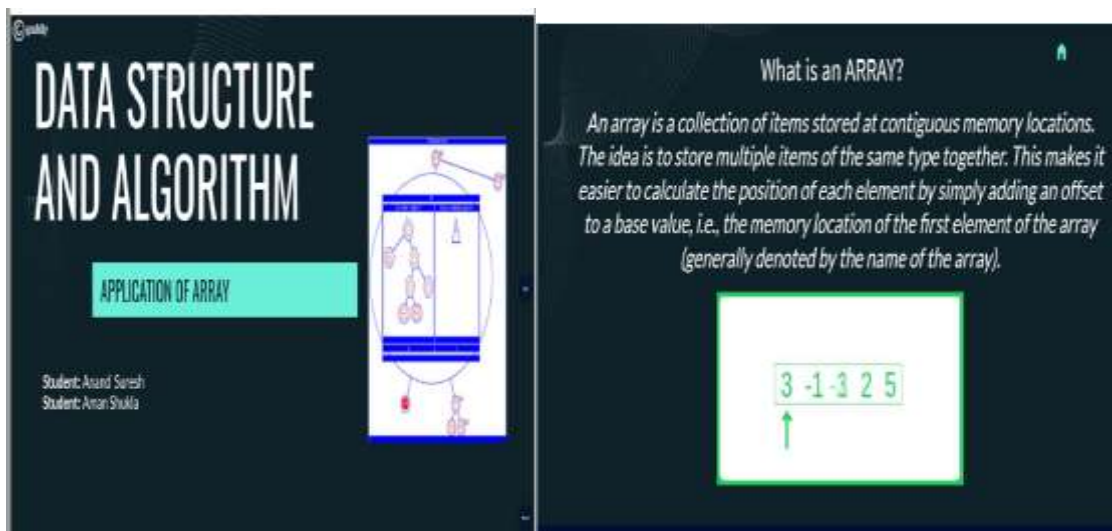
**Methodology followed:** Google Meet, Google classroom, ppt and classroom teaching Offline

**Difficulty faced:** Students do not have exposure for application of digital communication subject.

**New method identified :** Power Point Presentation

**Activity Report:** This Power point presentation allows students to present advanced topics- content beyond the syllabus by applying the concept of pointer, array, structures, link list. Also the students will be able to explore the application of the topics they have studied.

**Outcome:** This provided student with the knowledge of the current advanced domain for the subject learned and gave the vision to think in that domain.





Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

Class: TE (EXTC)

Academic year (2021-22)

SEM: V

Subject: Digital Communication

Subject Incharge: Aarti Bakshi

Methodology followed: Google Meet, Google classroom, ppt and classroom teaching Offline

Difficulty faced: Students do not have exposure for application of digital communication subject.

New method identified : Case Study

Activity Report: A case study is an appropriate design to gain in-depth knowledge about a specific real-world subject. It allows a student to explore the key characteristics, meanings, and implications of the case. In this case study, students explored modulation techniques used in television.

Outcome: The case study helps students do an intensive, systematic investigation of a particular topic.





Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

**Class :** TE  
(EXTC)

**SEM:** VI

**Subject:** E AND A

**Methodology followed:** Google meet, Google classroom, ppt.

**Difficulty faced:** Student faced difficulty sometime internet issues, presentation of models.

**Activity:** Poster making

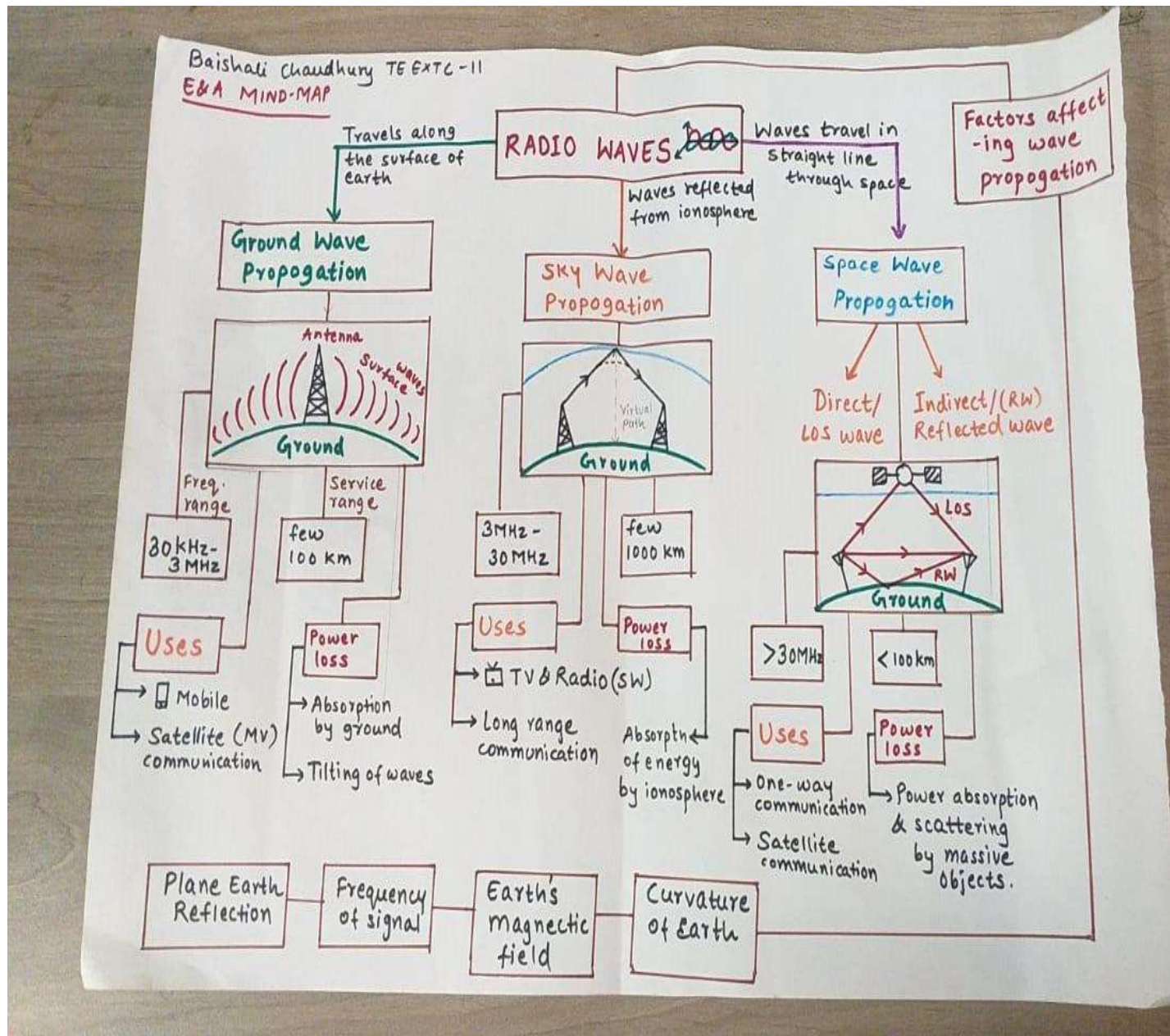
**Subject Incharge:** Shubhangi Mangesh Verulkar

**Activity Report:** Posters can **motivate students to learn a specific topic**. They can help learners to focus on a certain idea, fact, event or process. They are convenient both for pupils and teachers as they help students to absorb the material faster. In these activity students has given prior intimation for topic which they have to read. Students discussed about the questions given by instructor with their partner. Then they discussed their points with other classmates and instructor.

**Outcome:** Students can develop **creative thinking and extensive research and reading**. It provides students with an opportunity to learn by doing, in turn strengthening the learning.



## Department of Electronics and Telecommunication





## Department of Electronics and Telecommunication

### CIRCULAR MICROSTRIP PATCH ANTEENNA

#### Introduction

- In the last few years, the mobile electronic devices such as mobile telephones, pagers, smart phones are wide spread to use.
- A design of a dual frequency resonant circular patch antenna operates at 2.45 GHz (industrial, scientific) band.
- Microstrip patch antenna has been widely used in various wireless communication systems. The antenna is capable of transmitting signals with a low return loss, high directivity, high directivity and bandwidth.

#### Problem Statement

- The main limitation of microstrip patch antenna is the lower bandwidth, which affects wireless communication applications.
- Bandwidth of microstrip antenna can be improved by increasing the height of substrate by using the transmission line model.
- At the same time, increasing height of the substrate will also increase the surface waves, which propagate and travel around the substrate and spread at the corners of the radiating patch, which depletes part of energy of the signal, thus declining the antenna's performance.

#### Block Diagram

#### Working

- A microstrip or patch antenna operates in a way that when current through a feed line reaches the strip of the antenna, free electromagnetic waves are generated. The waves from the patch start getting radiated from the width side. But as the thickness of the strip is extremely small.
- The waves that are produced within the substrate get reflected by the edge of the strip. The continuous structure of the strip along the length does not permit the emission of radiation.
- As discontinuous structure favors reflections, thus the patch antenna radiates only a small fraction of supplied incident energy. This makes the antenna inefficient; but rather displaying the characteristics of a good radiator, it somewhat acts as a cavity.

#### Results

- In telecommunication application, resonant antenna operates at 2.45 GHz.
- Bluetooth and wireless local area network (WLAN) have designed Bluetooth in a short range technology and a new line of eight (IEEE 802.11) type of wireless communication operating at frequency of 2.45 GHz.
- In global positioning system (GPS) systems, satellite position transmitting antennas are used.
- RFID (radio frequency identification) works communication and hardware. Basically, an RFID system consists of tag and a reader.

#### Formulae

$$R_{in} = \frac{1}{2} \left( \frac{1}{\epsilon_r} + \frac{1}{\epsilon_r + 1} \right) \frac{1}{\epsilon_r}$$
$$R_{in} = \frac{1}{2} \left( \frac{1}{\epsilon_r} + \frac{1}{\epsilon_r + 1} \right) \frac{1}{\epsilon_r}$$

Reference: [1] Balmain, K. W. (1981). "Microstrip Antennas". In: "Antennas for All Seasons". Ed. by R. C. Hansen, pp. 1-10. Wiley, New York, NY, USA. [2] Balmain, K. W. (1981). "Microstrip Antennas". In: "Antennas for All Seasons". Ed. by R. C. Hansen, pp. 1-10. Wiley, New York, NY, USA. [3] Balmain, K. W. (1981). "Microstrip Antennas". In: "Antennas for All Seasons". Ed. by R. C. Hansen, pp. 1-10. Wiley, New York, NY, USA. [4] Balmain, K. W. (1981). "Microstrip Antennas". In: "Antennas for All Seasons". Ed. by R. C. Hansen, pp. 1-10. Wiley, New York, NY, USA. [5] Balmain, K. W. (1981). "Microstrip Antennas". In: "Antennas for All Seasons". Ed. by R. C. Hansen, pp. 1-10. Wiley, New York, NY, USA. [6] Balmain, K. W. (1981). "Microstrip Antennas". In: "Antennas for All Seasons". Ed. by R. C. Hansen, pp. 1-10. Wiley, New York, NY, USA. [7] Balmain, K. W. (1981). "Microstrip Antennas". In: "Antennas for All Seasons". Ed. by R. C. Hansen, pp. 1-10. Wiley, New York, NY, USA. [8] Balmain, K. W. (1981). "Microstrip Antennas". In: "Antennas for All Seasons". Ed. by R. C. Hansen, pp. 1-10. Wiley, New York, NY, USA. [9] Balmain, K. W. (1981). "Microstrip Antennas". In: "Antennas for All Seasons". Ed. by R. C. Hansen, pp. 1-10. Wiley, New York, NY, USA. [10] Balmain, K. W. (1981). "Microstrip Antennas". In: "Antennas for All Seasons". Ed. by R. C. Hansen, pp. 1-10. Wiley, New York, NY, USA.



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

**Class:** TE (EXTC)

**Academic year (2021-22)**

**SEM:** VI

**Subject:** Artificial Neural Network & Fuzzy Logic

Subject Incharge: Aarti Bakshi

**Methodology followed:** Black Board, Google classroom, ppt.

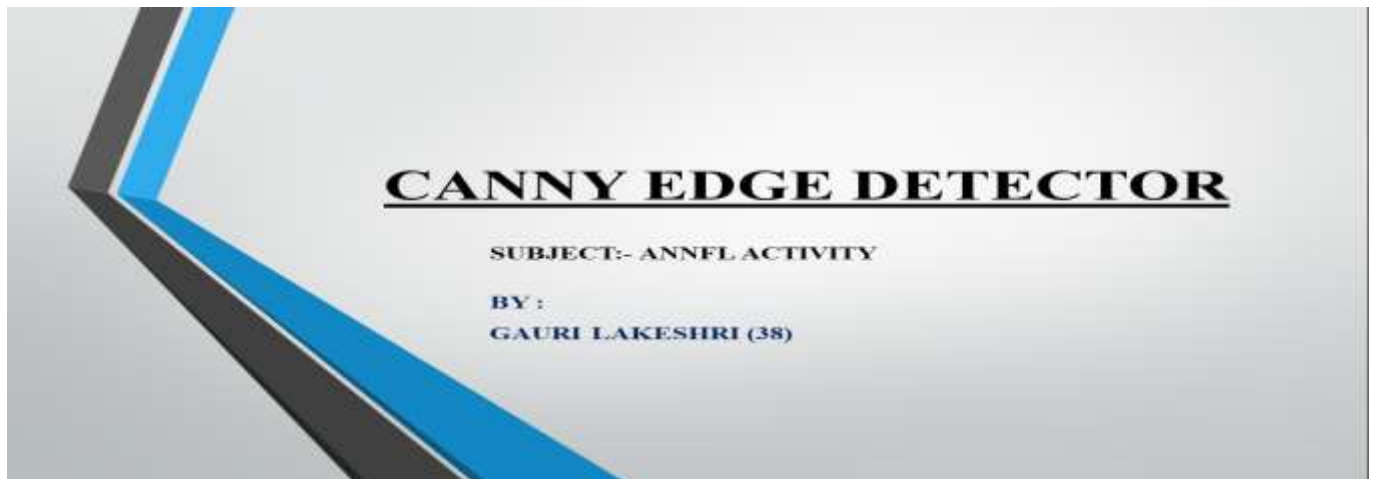
**Difficulty faced:** Students should know use of artificial neural network in real time application.

**New method identified :** Power Point Presentation

**Activity:** Power Point Presentation

**Activity Report:** This PowerPoint presentation allows students to present advanced topics- content beyond the syllabus by applying the concept of image processing and machine learning. It helps a student to learn applications of subjects in Machine learning domain.

**Outcome:** This provided student with the knowledge of the current advanced domain for the subject learned and gave the vision to think in that domain.







Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

**Name of Faculty:** Mrs. Anupama Chaurasia

**Sub: Microwave Engineering**

**Class:** B.E.EXTC SEM: VII

**Methodology followed:** Google Class Room Teaching, Written Assignments, Remedial lectures

**Difficulty faced:** Students do not get the exact understanding of the topic through regular online or offline classroom teachings and basic written subject assignments.

**New method identified:** Video making, quiz making

### Video making

**Activity report:** Video making can provide learners a student-centered and engaging learning experience in both distance and traditional learning settings. Video making enable teachers to create a digital recording of any instructional activity performed on a computer screen, and they can be used as learning resources, learning tasks, and learning support.

A major benefit of video making is that the viewer can watch the screencast at a time when it's best for them because learning doesn't always take place in an academic setting. Additionally, the viewer can absorb the information at their own pace.

The students can record a video on explaining the steps of difficult numerical or summarizing a concept.

**Outcome:** This video can be uploaded on YouTube or on drive links or on website so that other students can watch it any time and learn the concept.

Video is an efficient and memorable way to deliver information to students of all ages. But having students create video projects themselves is also a great way to help them actively engage with subject matter learning from one another. This is best option for peer-to-peer learning.

### Quiz Making

**Activity Report:** Quiz Making is technique to brainstorm and come with the correct answer identification in a fun way.

**Outcome:** This activity helped Students to remember key words and their definition



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

The screenshot shows a Google Classroom interface. The main content is a video player titled "Video\_Tunnel diode\_MWE.mkv". The video content displays a slide with the following text:

At equilibrium, the rate of electron tunneling through the depletion layer is the same in both directions.  
When tunnel diode is forward biased, the electron tunneling from n region to the p region increases because there are empty allowed energy states in the valence band of the p region.  
When the forward bias is increased considerably, the difference in the energies of the electrons.  
In the region between A and B, the current through the tunnel diode decreases with the applied voltage. It means the Tunnel diode has negative resistance in this region the resistance of the tunnel diode decreases with applied voltage. Due to this fact, tunnel diode has many applications in electronics.

The slide also includes a diagram of a tunnel diode's energy band structure. The right-hand sidebar shows the file "MWE\_Tunnel diode" and a grade of 5/5.

The screenshot shows a quiz question titled "MWE\_Tunnel diode". The question is: "Tunnel diode has a very fast operation in \_\_\_\_\_". There are four radio button options:

- gamma frequency region
- ultraviolet frequency region
- microwave frequency region
- radio frequency region

A "Next" button is located at the bottom right. A progress bar at the bottom shows 10 questions, with the first question selected.



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

1. Tunnel diode has a very fast operation in

**Ans: microwave region**

2. The Tunnel diode is best suited for

**Ans: Amplifiers**

3. The tunnel diode is mainly used

**Ans: For very high speed of switching**

4. The tunnelling phenomenon is also known as

**Ans: Auto electronic phenomenon**

5. From the following statements pick the correct statement about tunnel diode

Statement 1: It uses the property of negative conductance

Statement 2: In forward bias the fermi level of p side becomes higher than the n side It operates at high frequency

**Ans: 1 and 3**

6. Which among the following is the reason for the depletion layer of the tunnel diode to be very small?

**Ans: Dopants are high and it is abrupt**

7. The tunnelling involves movement of electrons from the n-side of the conduction band to the p-side of the valance band.

**Ans: True**

8. What are the materials used to make the Tunnel diode?

**Ans: Silicon and germanium materials**

9. In the construction of tunnel diode, why is the pellet soldered to anode contact and a tiny dot to the cathode contact via a mesh screen?

**Ans: For heat dissipation and reduce induction respectively**

10. For a tunnel diode, when  $p$  is the probability that the carrier crosses the barrier ' $W$ ' is the width ' $e$ ' is energy

**Ans:  $p \propto e^{(-A^*e^*W)}$**





Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

**Name of Faculty:** Shubhangi Mangesh Verulkar

**Sub:** Mobile Communication System

**Class:** B.E.EXTC SEM:VII

**Methodology followed:** Google meet, Google classroom, ppt.

**Difficulty faced:** Student faced difficulty sometime internet issues, presentation of models.

**New method identified :** Screen Casting or Video making

**Activity report:** Screencasts can provide learners a student-centered and engaging learning experience in both distance and traditional learning settings. Screencasts enable teachers to create a digital recording of any instructional activity performed on a computer screen, and they can be used as learning resources, learning tasks, and learning support.

A major benefit of screen casting is that **the viewer can watch the screencast at a time when it's best for them** because learning doesn't always take place in an academic setting. Additionally, the viewer can absorb the information at their own pace by pausing and rewatching portions.

Students can use Screen casting to explain what they know in their own words. The students can record a video on explaining the steps of difficult numerical or summarizing a concept.

There are many ways we can use screen-casting in our teaching.

- Answer a question
- Record a lecture
- Demo how to use an application

SAMPLE VIDEO LINKS:

Link1: [https://drive.google.com/file/d/1Itku\\_rKPeybHHRj7XG9ug\\_Y\\_ne92B70f/view?usp=sharing](https://drive.google.com/file/d/1Itku_rKPeybHHRj7XG9ug_Y_ne92B70f/view?usp=sharing)

Link2:

<https://drive.google.com/file/d/11-SwFHEVmyOsgdglE4EOar60sORqIxx/view?usp=sharing>



## Department of Electronics and Telecommunication

Saif 5G Creative (1).mp4

Press **Esc** to exit full screen



### 5G TECHNOLOGY

Presented by Mohammad Saif  
K.C. College of Engineering, Thane(E)  
BE Electronics and Telecommunications

Mohammad Saif

0:04 / 6:44

CC Settings Full Screen

---

Saif 5G Creative (1).mp4

Press **Esc** to exit full screen

**WHAT IS 5G AND WHAT IS OFFERS ?**  
5G is the fifth generation of mobile networks, following on from previous generations, 2G, 3G and 4G. 5G is set to offer much faster connection speeds than previous networks. Also, being more reliable with lower response times and greater capacity.

**IT OFFERS :**

- Enhanced mobile broadband
- Higher data rates, which will enable new technology options over 5G networks, such as 4K streaming or near-real-time streaming of virtual reality (VR), and
- The potential to have a 5G mobile network made up of low-band, midband and MM wave frequencies.



### WHAT IS 5G AND WHAT IT OFFERS?

Mohammad Saif

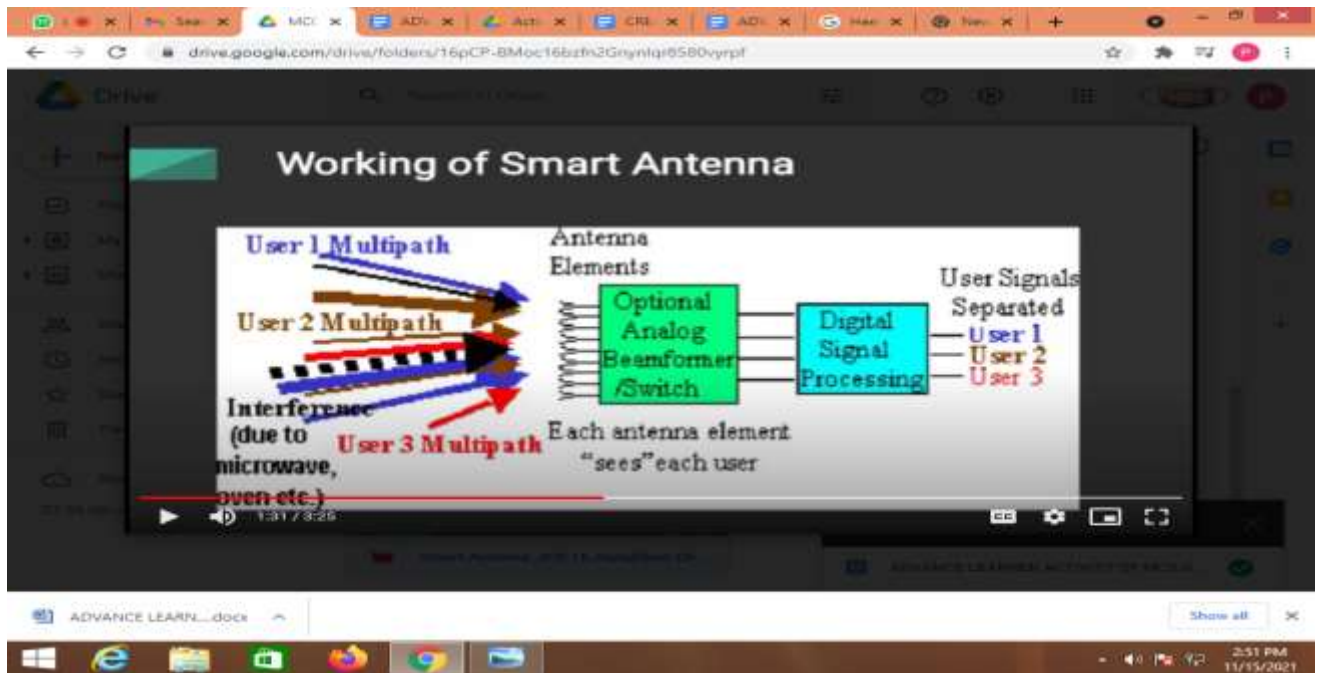
0:57 / 6:44

CC Settings Full Screen



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication



**Outcome:** Video is an efficient and memorable way to deliver information to students of all ages. But having students create video projects themselves is also a great way to help them actively engage with subject matter and learn from one another. This is best option for peer to peer learning.



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

**Name of Faculty:** Dr. Baban U. Rindhe

**Sub.: - Optical Communication**

**Class:** B.E., Sem: VII, EXTC

**Methodology followed:** Google Meet, Google Classroom, PPT and Classroom Teaching in Online Mode.

**Difficulty faced:** Student faced difficulty sometimes with internet issues, presentation of models.

**New method identified:** Screen Casting or Video making,

**Activity report:** Screencasts can provide learners a student-centered and engaging learning experience in both distance and traditional learning settings. Screencasts enable teachers to create a digital recording of any instructional activity performed on a computer screen, and they can be used as learning resources, learning tasks, and learning support.

A major benefit of screen casting is that **the viewer can watch the screencast at a time when it's best for them** because learning doesn't always take place in an academic setting. Additionally, the viewer can absorb the information at their own pace by pausing and re watching portions.

Students can use Screen casting to explain what they know in their own words. The students can record a video on explaining the steps of difficult numerical or summarizing a concept.

There are many ways we can use screen casting in our teaching.

- Answer a question
- Record a lecture
- Demo how to use an application

SAMPLE VIDEO LINKS:

Link 1:

<https://docs.google.com/presentation/d/1TaHBs-Ot80QXu1nN1RZddvkyKs1CGe3t/edit#slide=id.p1>

**Outcome:** This video can be uploaded on YouTube or on drive links or on website so that other students can watch it any time and learn the concept. In this subject students made video on presentation and demonstration for mini-project of Optical Communication.

Video is an efficient and memorable way to deliver information to students of all ages. But having students create video projects themselves is also a great way to help them actively engage with subject matter learning from one another. This is best option for peer-to-peer learning.



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

The screenshot shows a Google Slides presentation titled "Latest trend in photonic crystal fiber". The slide features the college logo and name at the top. The main title is "Latest trend in photonic crystal fiber". Below the title, it lists the student's name as "Name of Student: BD - 11: Siddhi Ghosalkar" and the guide as "Guided by: Dr. Baban U. Rinhde". The slide is part of a presentation with 6 slides visible in the left sidebar.

The screenshot shows a Google Slides presentation titled "CONTENTS". The slide lists the following topics:

- Introduction
- What is photonic crystal
- Structure of photonic crystal
- Classification
- Guiding Mechanism and Different Mechanism
- Illustration
- Characterization of pcf
- Application of pcf

The slide is part of a presentation with 6 slides visible in the left sidebar.





## Department of Electronics and Telecommunication

**WHAT IS PHOTONIC CRYSTAL FIBER?**

- ❑ The first fiber with photonic crystal structure was reported by Russell and his colleagues in 1993.
- ❑ PCFs are optical fibers that employ a microstructured arrangement of material in a background material of different refractive index.
- ❑ The background material (often undoped silica) and a low index region is typically provided by air voids running along the length of the fiber.

**Applications of PCF**

- ❑ Better lenses
- ❑ Optical isolators
- ❑ Perfect dielectric mirrors
- ❑ Better LEDs
- ❑ Polarizers
- ❑ Better optical filters
- ❑ Micron size optical benches
- ❑ Photonic diodes and transistors
- ❑ Jewellery
- ❑ Negative refractive index Superlensing

The diagram illustrates a cross-section of a photonic crystal structure. It features a central core with a periodic lattice of holes. Labels include: 'Metal Contacts' on the top surface, 'Extraction of waveguided light' with arrows pointing upwards from the core, 'Photonic Crystal' for the lattice structure, and 'QW active region' at the bottom. The substrate is labeled 'Sapphire (n = 1.7)'.



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

**Name of Faculty:** Sowmya Kini M

**Sub:** Big Data Analytics

**Class:** B.E. EXTC SEM: VII

**Methodology followed:** Google meet, Google classroom, PPT.

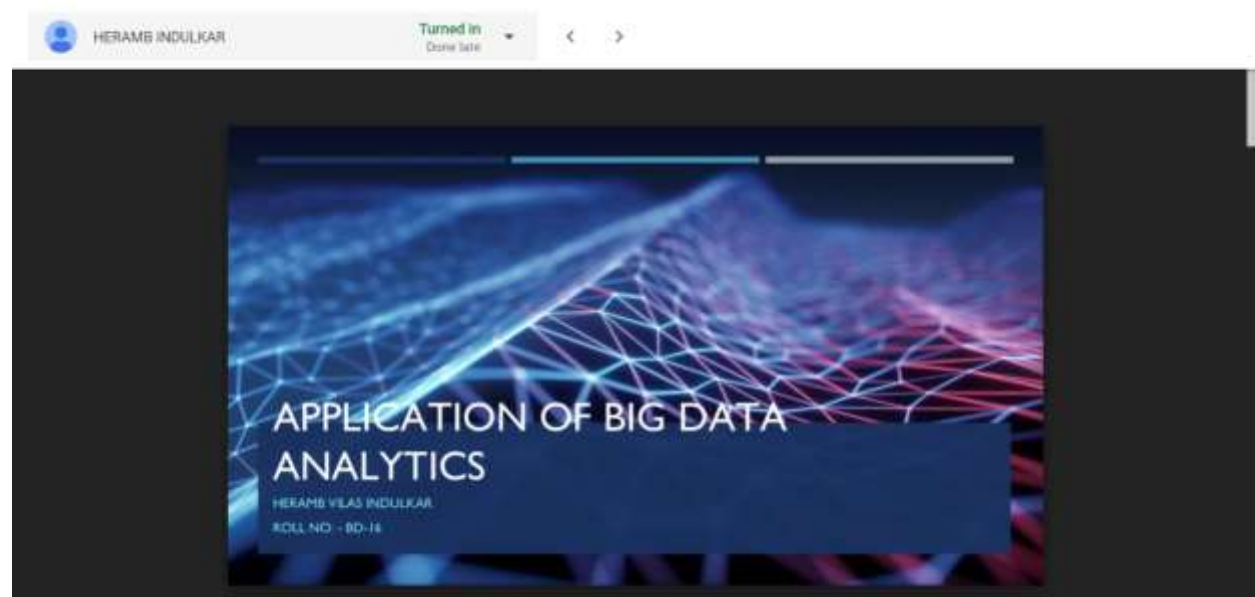
**Difficulty faced:** Student faced difficulty due to internet issues

**New method identified:** Self Mind Mapping activity

**Activity report:** A **visual representation of information** — is a versatile tool that can assist students with many aspects of their learning. It can help them map out new ideas, explore concepts in more detail and facilitate a better understanding of relationships and connections.

1. Create a curriculum overview or lesson plan. ...
2. Organize and manage class projects. ...
3. Create engaging presentations in less than three minutes.

Mind Mapping Activity







Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

Mind Mapping Activity

ABHISHEK INGALE Turned in

Mind Mapping Activity\_Hadoop Ecosystem.docx Open with Google Docs

The diagram illustrates the Hadoop Ecosystem. At the top level, there are four components: Spark SQL + Data Frames, Streaming, MLlib Machine Learning, and GraphX Graph Computation. Below these is the SPARK CORE API, which is supported by five languages: R, SQL, Python, Scala, and Java.

Mind Mapping Activity

KALP MOTA Turned in

Applications of Big Data Analytics.pptx Open with Google Slides

The slide is titled "Applications of Big Data Analytics" and lists three key areas:

- Healthcare:** The average amount of data per hospital will increase from 1.7TB in 2013 to 2.5TB in 2015, driven by the growing growth of medical images and electronic medical records. With Big Data, medical professionals can improve patient care and reduce costs by analyzing relevant clinical information from past records of data to better understand the past and predict future scenarios.
- Insurance:** Insurers, companies, and government agencies can gather broad data related to their own individual policies. But the vast, quality and volume of data complex areas today. With Big Data, an insurance or other service provider can apply advanced analytics to drive and direct their quality, better health and add-on.
- Customer Service:** Today, 80% of consumers seek information with companies because it is their number one priority, up from 67% four years ago. With Big Data, service representatives can use data to gain a much better view of their customers, understanding their likes and dislikes to meet them in order to foster a positive or experience on their online tools.

Page 1 / 1

**Outcome:** Mind Mapping is a useful technique that supports learning, improves information recording, shows how different facts and ideas are related, and enhances creative problem solving.



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

**Name of Faculty:** Ms Riya Pal

**Sub:** NMT

**Class:** B.E/ EXTC/ SEM:VIII

**Methodology followed:** Offline

**Difficulty faced:** Students faced difficulty sometimes with internet issues.

**New method identified :** Screen Casting or Video making

**Activity report:** A screencast is a digital recording of computer screen output, also known as a video screen capture or a screen recording, often containing audio narration. Screencasts can help demonstrate and teach the use of software features. Creating a screencast helps software developers show off their work. Educators may also use screencasts as another means of integrating technology into the curriculum. Students can record video and audio as they demonstrate the proper procedure to solve a problem on an interactive whiteboard. In classrooms, teachers and students can use this tool to create videos to explain content, vocabulary, etc. Videos can make class time more productive for both teachers and students. Screencasts may increase student engagement and achievement and also provide more time in which students can work collaboratively in groups, so screencasts help them to think through cooperative learning.

### **Application of screen casting :**

Common examples of screencasts are:

- Tutorials • Training videos • Video lessons • Recorded presentations

### **Brief Summary of the Screen-Casting :**

In this subject of NMT (Network Management in Telecommunication) , a student named Mohammad Saif has made a screen-casting on OSI Model and demonstrated its features and working/role in the field of telecommunication.

- The Open Systems Interconnection model (OSI model) is a conceptual model that describes the universal standard of communication functions of a telecommunication system or computing system, without any regard to the system's underlying internal technology and specific protocol suites. Therefore, the objective is the interoperability of all diverse communication systems containing standard communication protocols, through the encapsulation and de-encapsulation of data, for all networked communication.
- The model partitions the flow of data in a communication system into seven abstraction layers, to describe networked communication from the physical implementation of transmitting bits across a communications medium to the highest-level representation of data



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

of a distributed application. Each intermediate layer serves a class of functionality to the layer above it and is served by the layer below it. Classes of functionality are realized in all software development through all and any standardized communication protocols.

- Each layer in the OSI model has its own well-defined functions, and the functions of each layer communicate and interact with the layers immediately above and below it, unless the layer does not have layers below or above.

Sample Screenshots of videos –





Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication



**Outcome:** Students learned about OSI model and its layers. This video can be uploaded on YouTube or on drive links or on any websites so that other students can watch it any time and thus can learn the concept. When conducting distance learning, screencast videos become a great resource for asynchronous whole group or small group instruction.



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

**Name of Faculty:** Anupama Chaurasia

**Subject:** RF Design

**Class:** B.E.EXTC SEM: VIII

**Methodology followed:** Google classroom, PowerPoint Presentation, Written Notes,

**Difficulty faced:** Student faced difficulty in understanding the practical aspects of the topics in EMI EMC.

**New method identified:** Industrial Visit at EMI EMC Division Kharghar, Navi Mumbai

### **Activity report:**

Industrial visit has its own importance in a career of a student who is pursuing a professional degree. Main aim of industrial visit is to provide an exposure to students about practical working environment. They also provide students a good opportunity to gain full awareness about industrial practices. Through industrial visit students get awareness about new technologies.

**Place of Visit:** Society of Applied Microwave Electronics Engineering and Research (SAMEER), EMI/EMC Division, Kharghar

### **Date of Visit: 21 st April 2022 (One day visit)**

The EMI/EMC division has expertise in the field of EMC testing for commercial electronic products as well as electronics required for defense and space applications (MIL STD products). It provides Test, Measurement and Design Consultancy services to customers for their satisfaction in achieving Electromagnetic Compatibility in electronic products to comply with National/International EMC Standards. It has ISO/IEC 17025:2005 and ISO 9001:2008. The NABL accredited EMI/EMC Test facility is located at CBD Belapur, Navi Mumbai. EMC testing is done as per various civilian and military standards like CISPR 11, CISPR 22, CISPR 24, IEC 61000-4, MIL-STD-461C/D/E. Design Consultancy and solutions are also offered to customers for making their products compliant with various EMC standards. The test and consultancy service is routinely made available to customers desirous of obtaining CE marking and exporting their products. Details for the EMC services are available in the Services Offered section of the site. The division undertakes both research and test, design consultancy activities. in the area of Electromagnetic Interference and Compatibility.

**Outcome:** Industrial visit provided students an insight into the real working environment, workstations, plants, assembly lines, machines, systems, and a good interaction with highly trained and experienced personnel. Students got to learn a lot of things that will help in their development and also for the future.





Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication







Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

**Name of Faculty:** Dr. Baban U. Rindhe

**Sub.: Wireless Networks**

**Class:** B.E., Sem: VIII, EXTC

**Methodology followed:** Google Meet, Google Classroom, PPT and Classroom Teaching Offline

**Difficulty faced:** Student faced difficulty sometimes with internet issues, presentation of models.

**New method identified:** Screen Casting or Video making,

**Activity report:** Screencasts can provide learners a student-centered and engaging learning experience in both distance and traditional learning settings. Screencasts enable teachers to create a digital recording of any instructional activity performed on a computer screen, and they can be used as learning resources, learning tasks, and learning support.

A major benefit of screen casting is that **the viewer can watch the screencast at a time when it's best for them** because learning doesn't always take place in an academic setting. Additionally, the viewer can absorb the information at their own pace by pausing and re watching portions.

Students can use Screen casting to explain what they know in their own words. The students can record a video on explaining the steps of difficult numerical or summarizing a concept.

There are many ways we can use screen casting in our teaching.

- Answer a question
- Record a lecture
- Demo how to use an application

**SAMPLE VIDEO LINKS:**

Link 1:

<https://docs.google.com/presentation/d/1WbjXQJ3P6FdhtyLY48ujgaAnpHxLrJA-/edit#slide=id.p1>

**Outcome:** This video can be uploaded on YouTube or on drive links or on website so that other students can watch it any time and learn the concept. In this subject students made video on presentation and demonstration for mini-project of WN.

Video is an efficient and memorable way to deliver information to students of all ages. But having students create video projects themselves is also a great way to help them actively engage with subject matter learning from one another. This is best option for peer-to-peer learning.



Excelssior Education Society's  
**K. C. College of Engineering and Management Studies and Research**  
(Affiliated to the University of Mumbai)  
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

## Department of Electronics and Telecommunication

The screenshot shows a Google Slides presentation titled "Issues related to Wireless Networks". The main slide has a title "Issues related to Wireless Networks" and a subtitle "Wireless Networks". The slide is presented in a gallery view with a navigation pane on the left. The right sidebar shows the "Files" section with a date of "Turned in on Apr 18, 1:05 AM" and a "Grade" of "/100".

The screenshot shows a Google Slides presentation slide titled "Issue #1: Physical Object Interference/Design". The slide content includes:

- Walls, ceilings, and other large objects can reduce the reach of your wireless signal. Even things like metal filing cabinets can affect your Wi-Fi performance.
- Therefore, making your hardware to the right place can be just as important as ensuring the right hardware.

There is a diagram showing a signal path being blocked by a wall. Below the text, there is a photograph of a server rack.

**Overcoming the issue**  
Physical object interference is one of the most common issues that can be diagnosed with the naked eye, but another type of interference which is invisible is a huge PITA to IT pros that we work with: RF interference.

The right sidebar shows the "Files" section with a date of "Turned in on Apr 18, 1:05 AM" and a "Grade" of "/100".



## Department of Electronics and Telecommunication

**Issue #3 : Incorrect Antenna Wave Propagation**

If your WLAN router has antennas, the positioning of them can make a huge difference when it comes to the strength and reliability of your wireless signal within your network. Some wireless AP manufacturers will suggest a preferred way to position your antennas, but we typically have encountered the following types of configurations during wireless audits:

- I. Upright** - all antennas are pointed upright, perpendicular to the router
- ii. 45 degrees** - all antennas are angled at 45 degrees to the router
- iii. Flat** - all antennas are positioned on the same plane as the router (0 degrees)
- iv. Perpendicular** - antenna position is mixed, with some upright and some flat, overall making the antennas perpendicular to each other

The slide includes four diagrams: 'Upright antenna' (a parabolic dish pointing up), '45° antenna' (a parabolic dish angled at 45 degrees), 'Flat antenna' (a parabolic dish lying flat on a surface), and 'Perpendicular antenna' (a tower with a vertical antenna pointing up).

**Quick Solutions for the temporary wireless signal problems**

Larger complex networks often need much more than simple tweaks to increase wireless performance, reliability, and security. If you do not have the resources internally to run a full wireless audit, then we recommend experimenting with the following things until you can fully diagnose and fix the cause of your WLAN issues:

- **Move your WLAN hardware around** to reduce the effects of physical and RF interference.
- Experiment with the power level, channel configuration, and antenna configuration of your wireless APs.
- **Upgrade either your WLAN hardware or software** to make sure you are taking up-to-date with the latest standards.
- **Implement complementary WLAN solutions like a network firewall.**