

**D.N.R COLLEGE OF ENGINEERING & TECHNOLOGY**  
**Department of Electronics and Communication Engineering**  
**Academic Year: 2021- 2022 (ODD Semester)**  
**Innovative Teaching Method**

**B-Tech, Semester& Branch:** III/ I Semester ECE

**Title:** Linear I C Applications

**Name of the Faculty member:** Y.Srinivas

**Name of the Topic:** Concept On Filter

**Name of the Innovative Practice:** Exit Slip

**Date& Duration:** 27.07.2021& 45 Minutes

**Exit slip:**

The Exit slip is a very commonly used classroom assessment technique. It really does take about a minute and, while usually used at the end of class, it can be used at the end of any topic discussion.

**Justification for choosing the Exit slips Activity:**

I conducted a slip test to design a filters to know whether the student understand the concept or not. It is an important concept to design a filter.

**Time duration:**

Normally exit slip takes time duration of 45 minute.

**Challenges and Benefits:**

After conducting the particular topic students asked some time to prepare. So I gave few minutes to prepare. Its major advantage is that it provides rapid feedback on whether the professor's main idea and what the students perceived as the main idea are the same. Additionally, by asking students to add a question at the end, this assessment becomes an integrative task. Students must first organize their thinking to rank the major points and then decide upon a significant question. Sometimes, instead of asking for the main point, a professor may wish to probe for the most disturbing or most surprising item. It is thus a very adaptable tool

## Innovative Teaching Method Execution

Concept On Filter:-

Exit slip

equations & draw its operation.

2. Design a second order LPF with cut-off frequency 2KHZ.

3. Design a WBRF having  $f_L = 1\text{KHZ}$ ,  $f_H = 200\text{KHZ}$ , draw the circuit.

Design first order HPF & calculate its phase angle & transfer function.

**Band Pass Filter (BPF):-**  
It allows only certain range of frequencies and rejects all other frequencies. Band Pass filters are of two types. They are:-  
→ Wide Band pass filter  
→ Narrow Band pass filter

**Wide Band Pass Filter:-**  
The name itself contains it has higher bandwidth. If the quality factor is less than 10. Then, it is a wide band pass filter. It contains one pass band and two stop bands.

when while we decreasing  $R_0$ , we change bandwidth  $f_c$ .

Given that,  
 $f_H = 2\text{KHZ}$   
We know that,  
 $f_H = \frac{1}{2\pi RC}$   
(for 1st order)  
for 2nd order LPF,  
 $f_H = \frac{1}{2\pi\sqrt{R_1 R_2} C}$   
Let,  $R_1 = R_2 = R$   
 $C_1 = C_2 = C$

$f_H = \frac{1}{2\pi(R^2)(C^2)}$   
 $f_H = \frac{1}{2\pi RC}$   
 $\therefore R = \frac{1}{2\pi f_H C}$   
Let,  $C = 1\mu\text{F}$

$R = \frac{1}{2\pi(2\text{K})(1\mu)}$   
 $R = \frac{1}{3.14 \times 10^{-4}} \Omega$   
 $R = 79.57 \Omega$

### Learning Outcomes:

- Students will be able to reflect on their understandings and attitudes after completing the learning experiences from a unit or focus area.
- Students will be able to explain the ideal characteristics of op-amp

### References:

1. Linear Integrated Circuits – D. Roy Choudhury, New Age International (p) Ltd, 2nd Edition, 2003.
2. Op-Amps & Linear ICs - Ramakanth A. Gayakwad, PHI, 1987.
3. Operational Amplifiers – C.G. Clayton, Butterworth & Company Publ. Ltd./Elsevier, 1971

**D.N.R COLLEGE OF ENGINEERING & TECHNOLOGY**  
**Department of Electronics and Communication Engineering**  
**Academic Year: 2021- 2022 (Even Semester)**  
**Innovative Teaching Method**

**B-Tech, Semester& Branch:** IV/ II Semester ECE

**Title:** Satellite Communications

**Name of the Faculty member:** Y.Srinivas

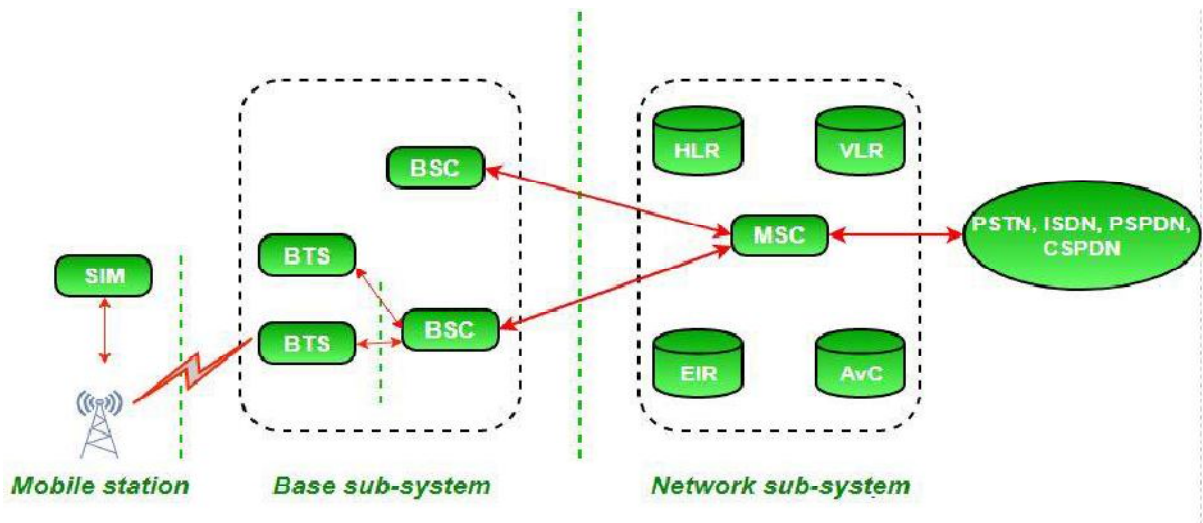
**Name of the Topic:** Global System for Mobile Communication (GSM)

**Name of the Innovative Practice:** Animated video

**Date& Duration:** 27.07.2021&50 Minutes

**Description:**

Animated video is an engaging instrument that can help you tell your story more comprehensively. 65% of people are visual learners, and 90% of the information transmitted to the brain is visual. Animation evokes emotions that resonate with the viewers. It sparks conversations and makes your audience want to follow the story.



GSM stands for Global System for Mobile communication. Today, GSM is used by more than 800 million end users spread across 190 countries which represent around 70 percent of today's digital wireless market. GSM is combination of TDMA (Time Division Multiple Access), FDMA (Frequency Division Multiple Access) and Frequency hopping.

The Animated video of GSM explains its architecture and clearly explains about how the mobile communications happens between the transmitter and receiver. The animated video incorporates to understand the information in a faster way. The way of explaining with short video lectures allows them to understand the topic effectively.

**References:**

1. Satellite Communications : Design Principles – M. Richharia, BS Publications, 2nd Edition, 2003.
2. Satellite Communication - D.C Agarwal, Khanna Publications, 5th Ed.
3. Fundamentals of Satellite Communications – K.N. Raja Rao, PHI, 2004
4. Satellite Communications – Dennis Roddy, McGraw Hill, 2nd Edition, 1996.