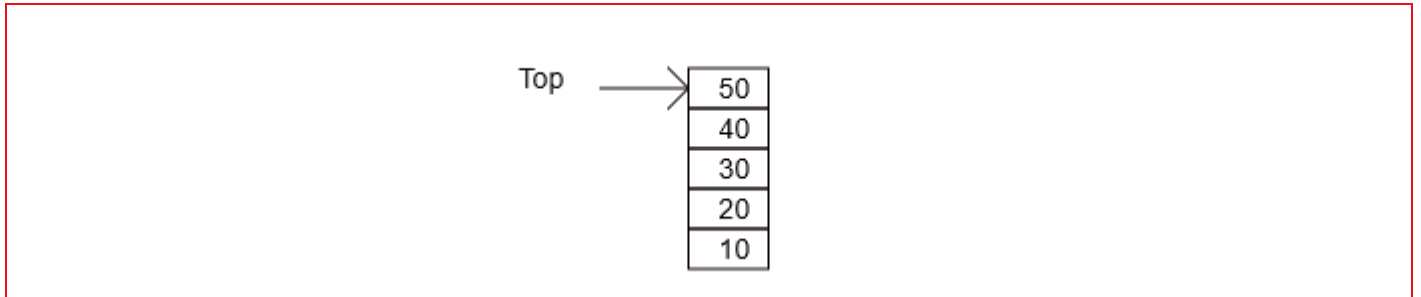


## Stack [Animation](#) by [Y. Daniel Liang](#)

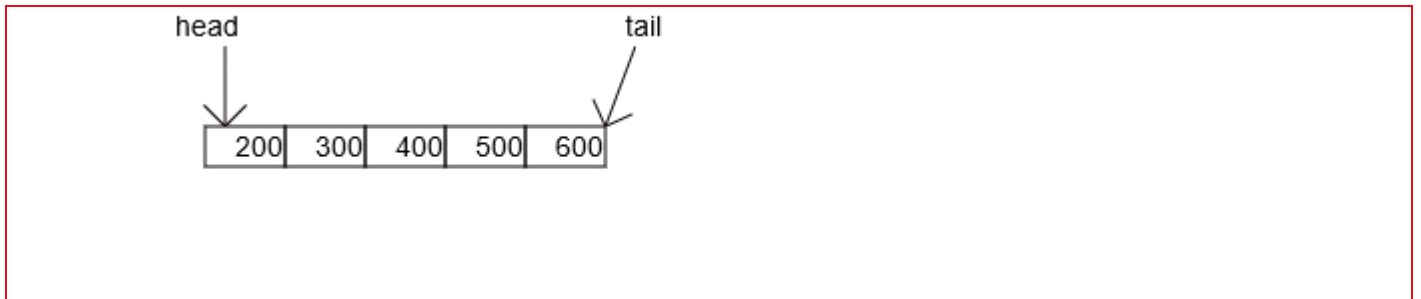
Usage: Enter a value and click the Push button to push the value into the stack. Click the Pop button to remove the top element from the stack.



Enter a value:  Push Pop Peek

## Queue [Animation](#) by [Y. Daniel Liang](#)

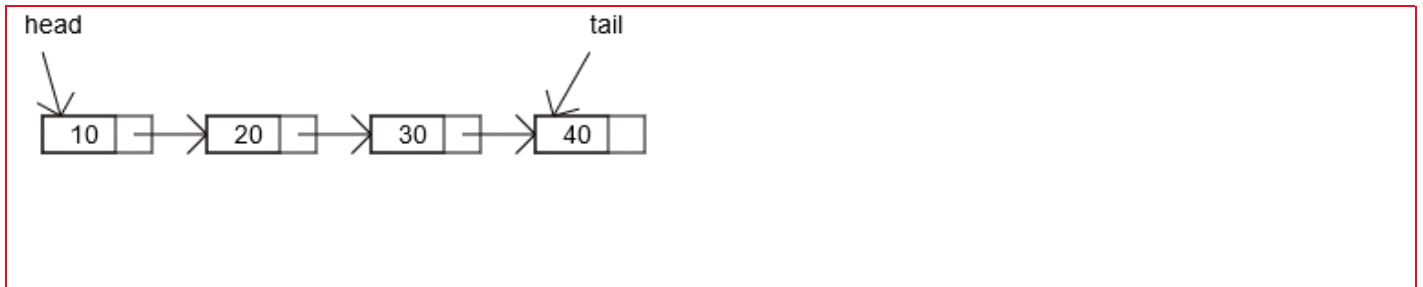
Usage: Enter a value and click the Enqueue button to append the value into the tail of the queue. Click the Dequeue button to remove the element from the head of the queue. Click the Start Over button to start over.



Enter a value:  Enqueue Dequeue Start Over

## LinkedList [Animation](#) by [Y. Daniel Liang](#)

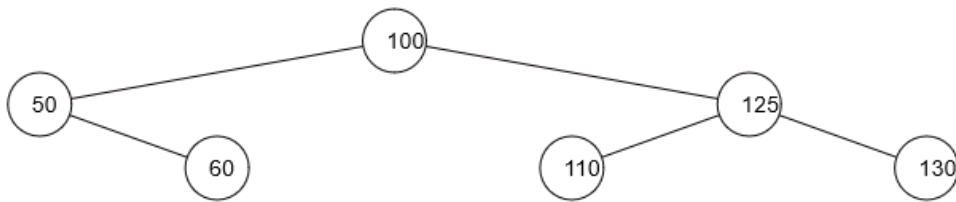
Usage: Enter a value and click the Search, Insert, or Delete button to search, insert, or delete the value from the list.  
Enter a value and an index and then click the Insert button to insert the value in the specified index. Enter an index and then click the Delete button to delete the value in the specified index.



Enter a value:  Enter an index:  Search Insert Delete

### BST [Animation](#) by [Y. Daniel Liang](#)

Usage: Enter an integer key and click the Search button to search the key in the tree. Click the Insert button to insert the key into the tree. Click the Remove button to remove the key from the tree. For the best display, use integers between 0 and 99. You can also display the elements in inorder, preorder, and postorder.



## Alert

The inorder is 50 60 100 110 125 130

OK

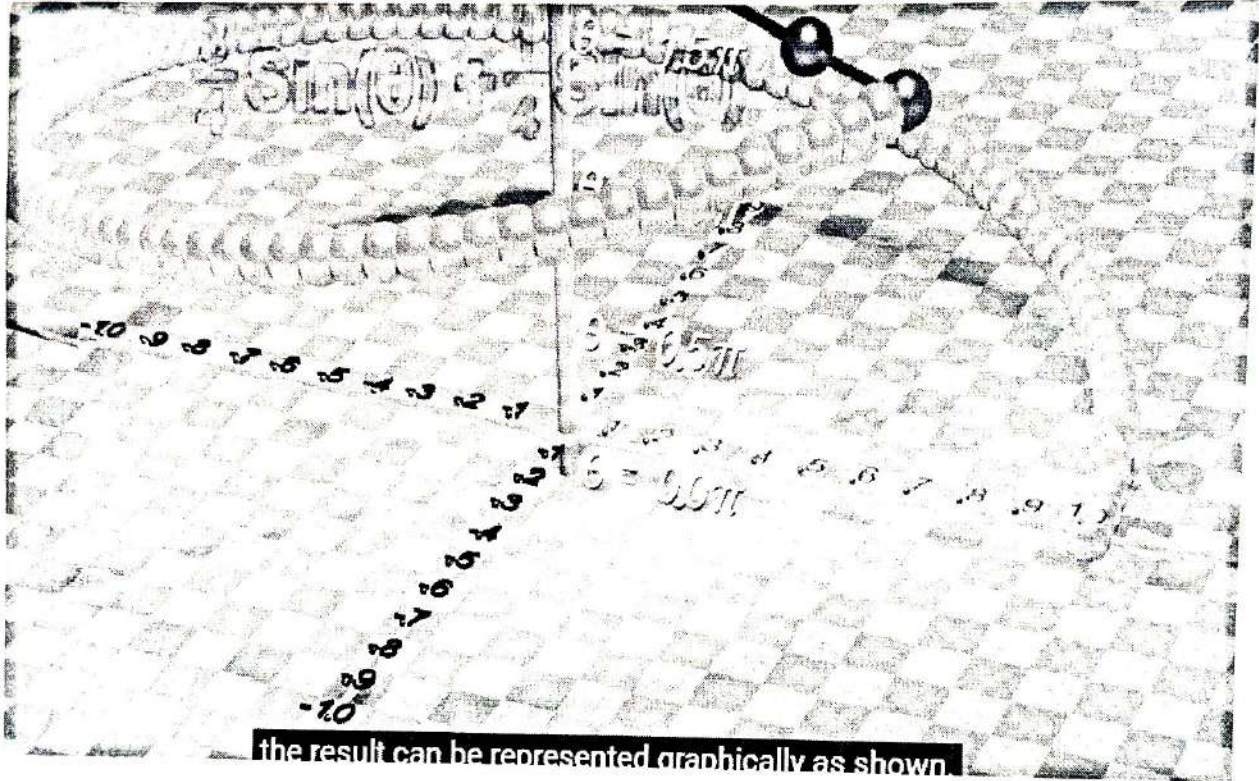
Enter a key:  Search Insert Remove

SE EC 2022-23

Signals and Systems

Animation Video screenshot

Topic: Understand Fourier Transform Concept



Source: <https://www.youtube.com/watch?v=r18Gi8lSkfM>

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Course Co-ordinator: Dr S. S. Gundal

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**Department of Electronics and Computer Engineering**

**Electronic Circuits (SE)**  
**Pedagogy: MCQ / Quiz**

Sr. No.	Questions	Correct Answer
1.	Choose the correct statement a) MOSFET is a bipolar, current controlled, three terminal device b) MOSFET is a unipolar, voltage controlled, two terminal device c) MOSFET is a unipolar, voltage controlled, three terminal device d) MOSFET is a bipolar, current controlled, two terminal device	C
2.	In the transfer characteristics of a MOSFET, the threshold voltage is the measure of the _____. a) minimum voltage to induce a n-channel/p-channel for conduction b) minimum voltage to turn off the device c) minimum voltage till which temperature is constant d) none of the above mentioned is true	A
3.	The output characteristics of a MOSFET, is a plot of a) $I_d$ as a function of $V_{gs}$ with $V_{ds}$ as a parameter b) $I_d$ as a function of $V_{ds}$ with $V_{gs}$ as a parameter c) $I_g$ as a function of $V_{gs}$ with $V_{ds}$ as a parameter d) $I_g$ as a function of $V_{ds}$ with $V_{gs}$ as a parameter	B
4.	In the saturation region of the MOSFET the saturation current is a) Independent of the voltage difference between the source and the drain b) Depends directly on the voltage difference between the source and the drain c) Depends directly on the overdriving voltage d) Depends directly on the voltage supplied to the gate terminal	A
5.	Subthreshold current is basically a drain current that flows only when _____. a) $V_{GS}$ is slightly greater than $V_T$ b) $V_{GS}$ is slightly less than $V_T$ c) $V_{GS}$ is exactly equal to $V_T$ d) None of the above	B
6.	There is a _____° phase inversion between gate and source in a source follower. a) 0 b) 90 c) 180 d) none of the above	A

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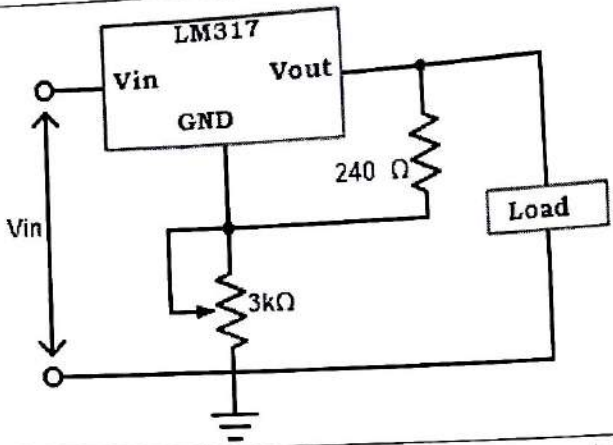
7.	Internal transistor junction capacitances affect the high-frequency response of amplifiers by a) Reducing the amplifier's gain. b) Introducing phase shift as the signal frequency increases. c) Having no effect. d) Reducing the amplifier's gain and introducing phase shift as the signal frequency increases.	D
8.	The condition for saturation is a) $V_{gs} = V_{ds}$ b) $V_{ds} \geq V_{gs} - V_t$ c) $V_{gs} = V_{ds} - V_t$ d) $V_{ds}$ lesser than $V_{gs} - V_t$	B
9.	The amplifier in which a part of output is fed back to the input of the amplifier is called-----. a) feedback ampl. b) attenuator c) oscillator d) schmitt trigger	A
10.	In-----feedback, input signal and part of output signal are in phase. a) Voltage b) current c) positive d) negative	C
11.	In-----feedback, input signal and part of output signal are out of phase a) voltage b) current c) positive d) negative	D
12.	positive feedback is used in---- a) amplifier b) oscillator c) attenuator d) all of these	B
13.	negative feedback is used in---- a) amplifier b) oscillator c) attenuator d) all of these	A

14.

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14.	In an amplifier circuit, if a voltage output is proportional to the voltage input, this amplifier is called-----amplifier. a) voltage b) current c) power d) any of these	A
15.	CMOS inverter has region of operation _____. a) 3 b) 4 c) 2 d) 5	D
16.	CMOS inverter has output Impedance of a) Low b) High c) Both of above d) None of above	A
17.	Voltage regulation requires a) only line regulation. b) only load regulation. c) a constant load. d) load and line regulation	D
18.	Switching regulators are more efficient than linear regulators and are particularly useful in _____voltage, _____current applications. a) high, high b) low, high c) high, low d) none of the above	B
19.	Which is not considered as a linear voltage regulator? a) Fixed output voltage regulator b) Adjustable output voltage regulator c) Switching regulator d) Special regulator	C
20.	Calculate the output voltage for LM317 regulator. The current I is very small in the order of $100\mu\text{A}$ . a) 17.17 V b) 34.25 V c) 89.34 V d) 23.12 V	A

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21.	Switching regulators are series type regulators, which have .....power dissipation and .....efficiency. (a) Increased, increased (b) Increased, reduced (c) Reduced, reduced (d) Reduced, increased	C
22.	SMPS is used for a) obtaining controlled ac power supply b) obtaining controlled dc power supply c) storage of dc power d) switch from one source to another	B
23.	What is the range of the voltage level of the LM317 adjusted voltage regulator? a) 0 V to 5 V b) 1.2 V to 37 V c) -5 V to -24 V d) 5 V to 24 V	B
24.	To get more output voltage from a buck switching regulator, you have to a) Decrease the duty cycle b) Decrease the input voltage c) Increase the duty cycle d) Increase the switching frequency	C
25.	An ideal operational amplifier has a) infinite output impedance b) zero input impedance c) infinite bandwidth d) All of the above	C

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26.	OPAMP is a/an_____ a) Differential amplifier b) Oscillator c) Rectifier d) None of the above	A
27.	In an OPAMP the dc level shifting occurs due to --- a) Coupling capacitor b) Bypass capacitor c) Stray capacitance d) Direct coupling	D
28.	CMRR of Ideal Op-Amp is a) Zero b) Very High c) Low d) Infinite	D
29.	CMRR signifies a) Ability to reject common mode signals such as noise & interference b) Increase the noise c) Increase the distortion d) All of the above	A
30.	Slew rate is defined as the a) Maximum rate of change of output voltage with time b) Minimum rate of change of output voltage with time c) Moderate rate of change of output voltage with time d) None of the above	A
31.	The open loop gain of 741 is 200000 and BW is 5 Hz. The GBW will be a) 2 MHz b) 1 MHz c) 10 MHz d) 5 MHz	B
32.	The output resistance of the op-amp with feedback is a) Same as that of the output resistance without feedback b) Greater than that of the output resistance without feedback c) Smaller than that of the output resistance without feedback d) None of the mentioned	C
33.	This circuit is an example of a(n)_____ a) dc voltmeter b) display driver c) instrumentation amplifier d) None of the above	C

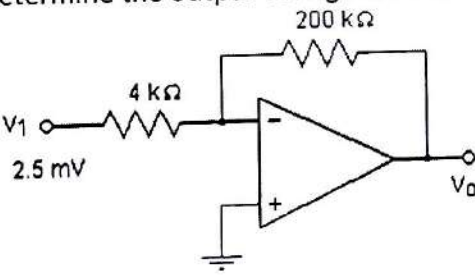
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34.	<p>Calculate <math>I_L</math> for this circuit.</p> <p>a) 3 mA  b) 4 mA  c) 5 mA  d) 6 mA</p>	C
35.	<p>With negative feedback, the returning signal:</p> <p>a) aids the input signal  b) is proportional to output current  c) opposes the input signal  d) is proportional to differential voltage gain</p>	C
36.	<p>A circuit whose output is proportional to the difference between the input signals is considered to be which type of amplifier?</p> <p>a) common-mode  b) Darlington  c) differential  d) operational</p>	C
37.	<p>An output that is proportional to the addition of two or more inputs is from which type of amplifier?</p> <p>a) differentiator  b) difference  c) summing  d) analog subtractor</p>	C

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38.	If the input to a comparator is a sine wave, the output is a: a) ramp voltage b) sine wave c) rectangular wave d) sawtooth wave	C
39.	The Schmitt trigger is a two-state device that is used for: a) pulse shaping b) peak detection c) input noise rejection d) filtering	A
40.	The major difference between ground and virtual ground is that virtual ground is only a: a) voltage reference b) current reference c) power reference d) difference reference	A
41.	How are the square wave output generated in op-amp? a) Op-amp is forced to operate in the positive saturation region b) Op-amp is forced to operate in the negative saturation region c) Op-amp is forced to operate between positive and negative saturation region d) None of the mentioned	C
42.	linear application of op amp is ----- a) multivibrator b) schmitt trigger c) precision rectifier d) V to I converter	D
43.	Voltage to current converter is also called as a) Current series positive feedback amplifier b) Voltage series negative feedback c) Current series negative feedback amplifier d) Voltage series positive feedback amplifier	C
44.	The inverted R-2R ladder can also be operated in a) Inverted mode b) Current Mode c) Voltage mode d) Non inverted mode	B
45.	Find out the integrating type analog to digital converter? a) Flash type converter b) Tracking converter c) Counter type converter d) Dual slope ADC	D

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46.	Which A/D converter is considered to be simplest, fastest and most expensive? a) Servo converter b) Counter type ADC c) Flash type ADC d) All of the mentioned	C
47.	The output voltage of phase detector is a) Phase voltage b) Free running voltage c) Error voltage d) None of the mentioned	C
48.	The PLL device is: a) Feedback system that compares output frequency and input frequency b) Feedback system that compares output phase and input phase c) Linear system that compares output resistance and input resistance d) Non Linear system that compares output current and input current	B
49.	Hysteresis prevents false triggering associated with a) A sinusoidal input b) Noise voltages c) Stray capacitances d) Trip points	B
50.	Determine the output voltage for this circuit with a sinusoidal input of 2.5 mV.  a) -0.25 V b) -0.125 V c) 0.25 V d) 0.125 V	B

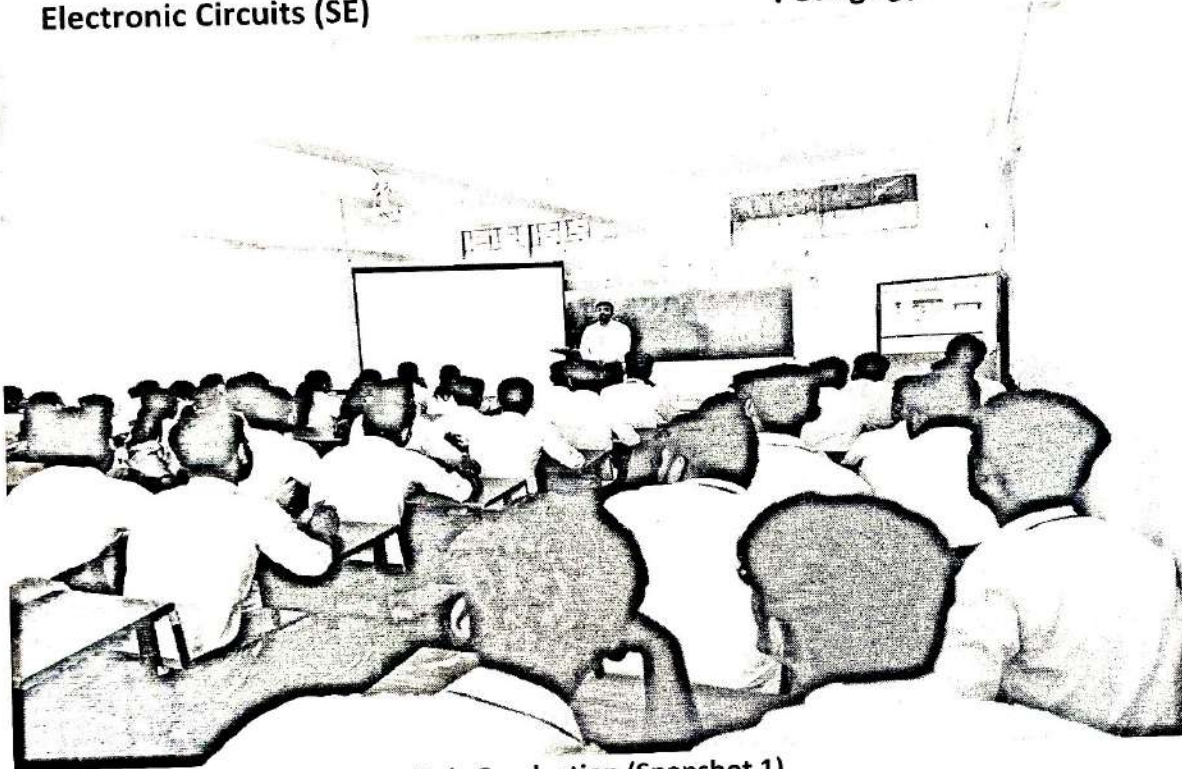
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 Mr. S. K. Choudhary  
 Subject In-charge

*Amr* 20/08/22  
 Dr. S. S. Gundal  
 HOD  
 Dept of Electronics Engg.  
 Amr OE Sangamner

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Department of Electronics and Computer Engineering

Electronic Circuits (SE)

Pedagogy: MCQ / Quiz



Quiz Conduction (Snapshot 1)



Quiz Conduction (Snapshot 2)

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Mr. S. K. Choudhary  
Subject In-charge

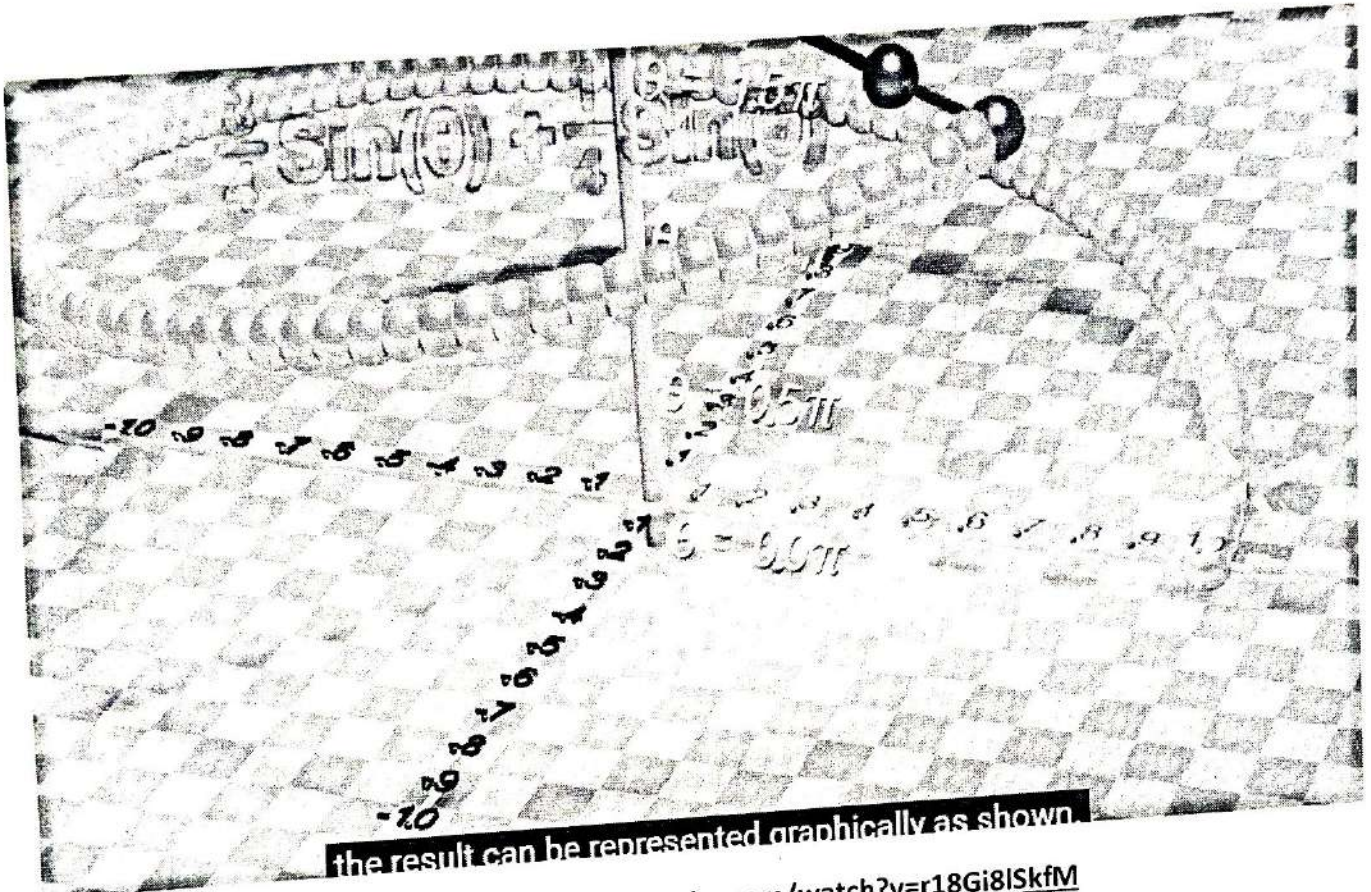
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Amrutvahini College of Engineering Sangamner

SE EC 2022-23

Signals and Systems


Animation Video screenshot

Topic: Understand Fourier Transform Concept



Source: <https://www.youtube.com/watch?v=r18Gi8ISkFM>

  
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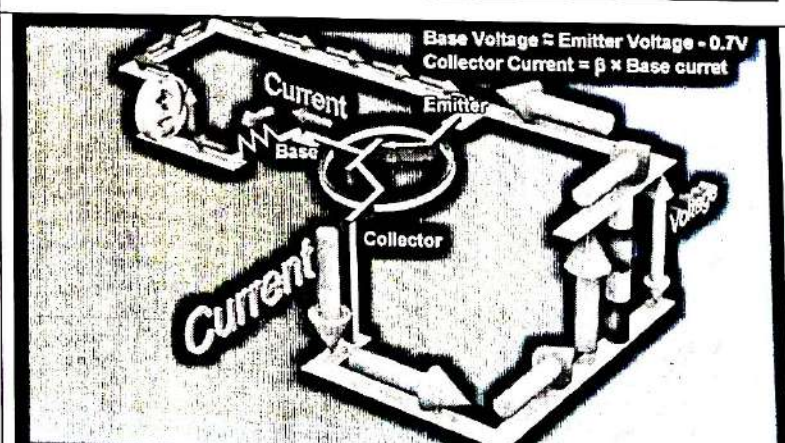
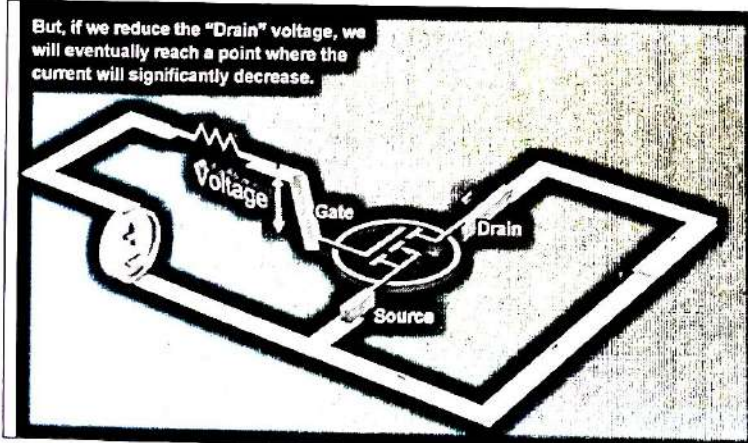
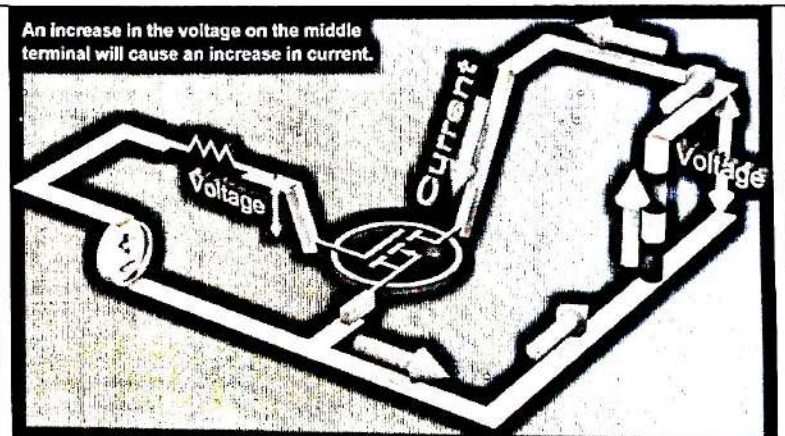
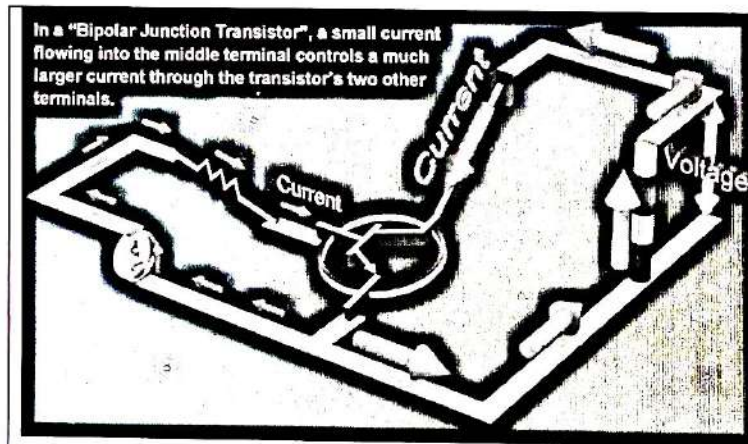
  
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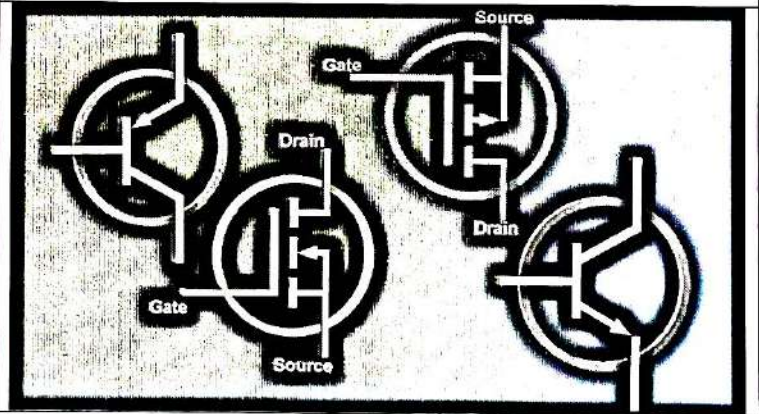
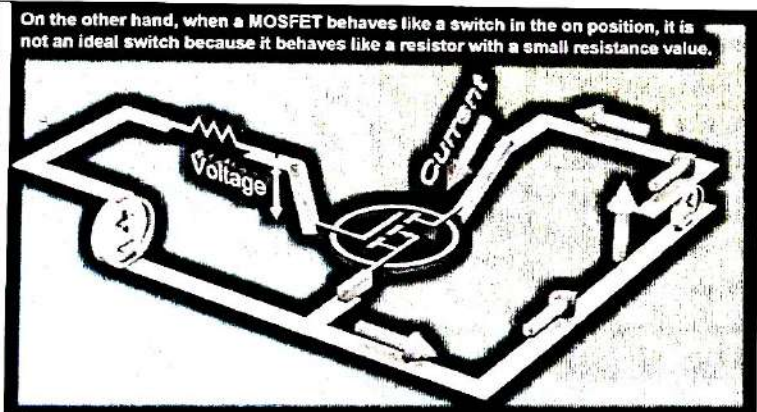
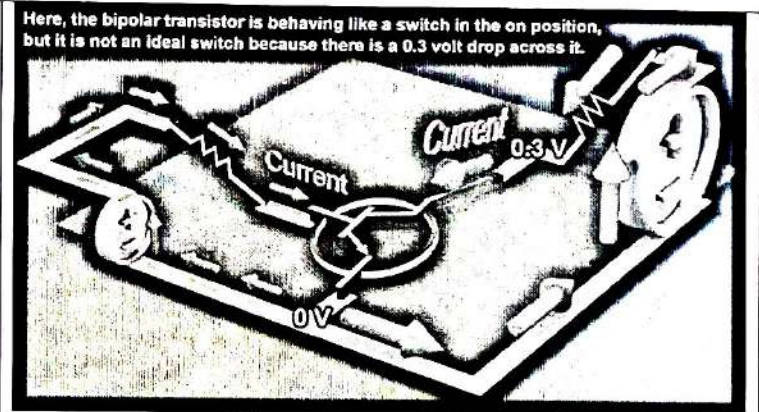
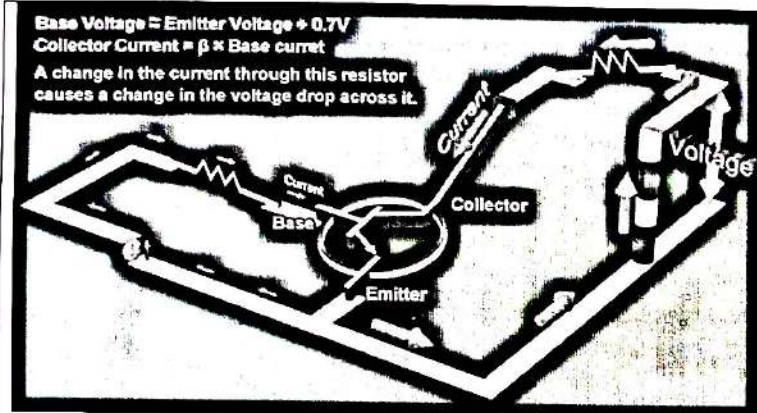
Electronic Circuits (SE)  
Pedagogy: Animation Video

Topic: Comparison of BJT and MOSFET

Video Link: [https://www.youtube.com/watch?v=Bine\\_PbvFSQ](https://www.youtube.com/watch?v=Bine_PbvFSQ)



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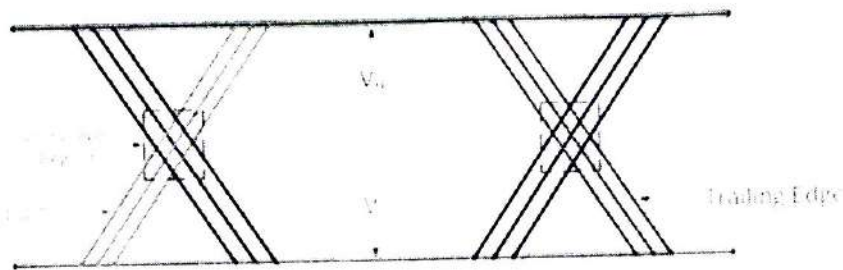
*S. K. Choudhary*  
 Mr. S. K. Choudhary  
 Subject In-charge

*HW*  
 02/08/22  
 Dr. S. S. Gundal  
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1. Shown Video.
2. Conducted short quiz.
3. Appreciation of student who answered first.
4. Winner 1: Ms. Gunjal Shraddha  
Winner 2: Mr. Chasker Sanket

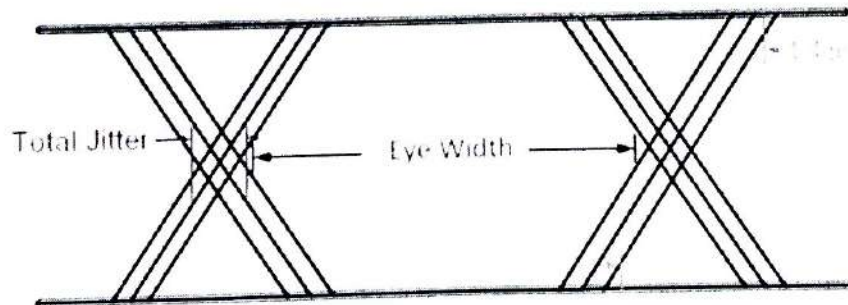
Video link: <https://www.youtube.com/watch?v=tZiKRfH2yZ4>

### Anatomy of an eye diagram



corresponding to the correct bit.

### Measuring an eye diagram



tend to have poor signal quality and a higher bit error rate

### Practical implications – system perspective



The interaction between the transmitter and the receiver

## short quiz

- Check all correct statements
  - A Eye diagrams are an electrical measurement that is not data dependent
  - B Adding high-speed signal conditioners can improve an eye diagram
  - C Eye diagrams are constructed by overlaying different bit transitions over time
  - D Eye diagrams only contain vertical measurements.
- Check all correct statements
  - A Eye diagrams contain trailing and leading edges.
  - B Eye diagrams can be verified with an eye mask.
  - C Random jitter can be measured from an eye diagram.
  - D Edge rate can be measured from an eye diagram.
- True or False.
  - A Eye diagrams can only contain two discrete DC voltage levels.

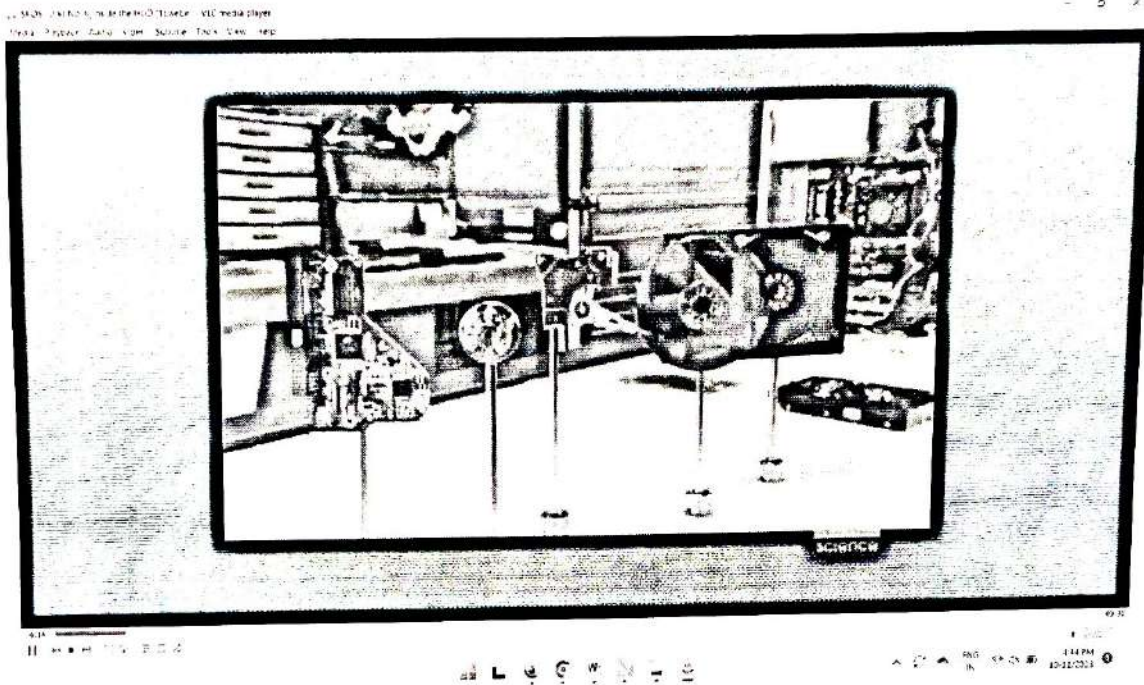
VSP  
V. S. Phatangare

09/05/23  
Dr. S. S. Gundal  
HOD  
Dept of Electronics Engg  
W. O. Sangamner

# Pedagogy's Used in SE- Electronics & Computer

## Subject :- System Programming & Operating Systems

### 1) Animation video on Unit IV:- Inside the Hard-disk



### 2) Animation video on Unit IV:- Hard Disk Track and platter



Mhadke D.A

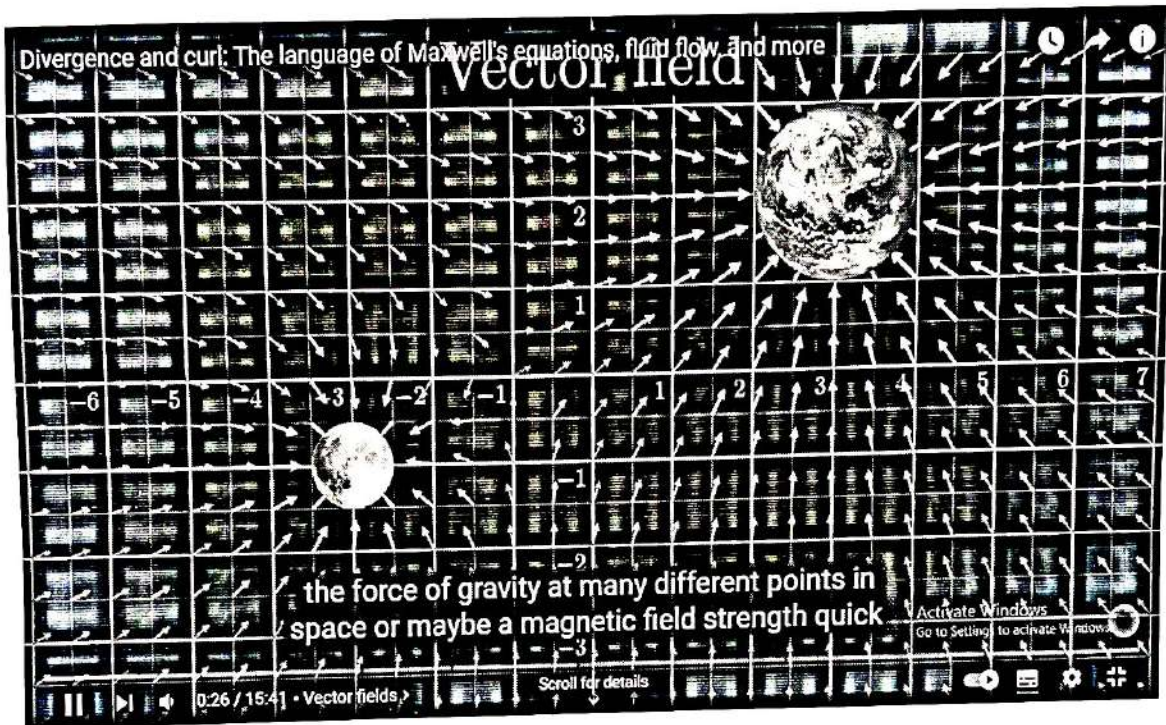
HW 04/05/23  
Dr. S.S. Gundal

Atk-C-Sangamner

Course: Electromagnetic Waves and Propagation Theory

Padagogy : Animation Video screenshot and Analogy

Topic: Divergence & Curl



### Analogy of Divergence & Curl

1. You and three friends float down a river, each marking a corner of a square.

If your square is getting bigger, the river has **positive divergence**.

If it's shrinking, **negative divergence**.

2. Next, you and your friends are rigidly connected so your square can't change shape. If the square starts rotating like a frisbee as it goes along, the river has curl. Positive curl is counterclockwise rotation. Negative curl is clockwise.

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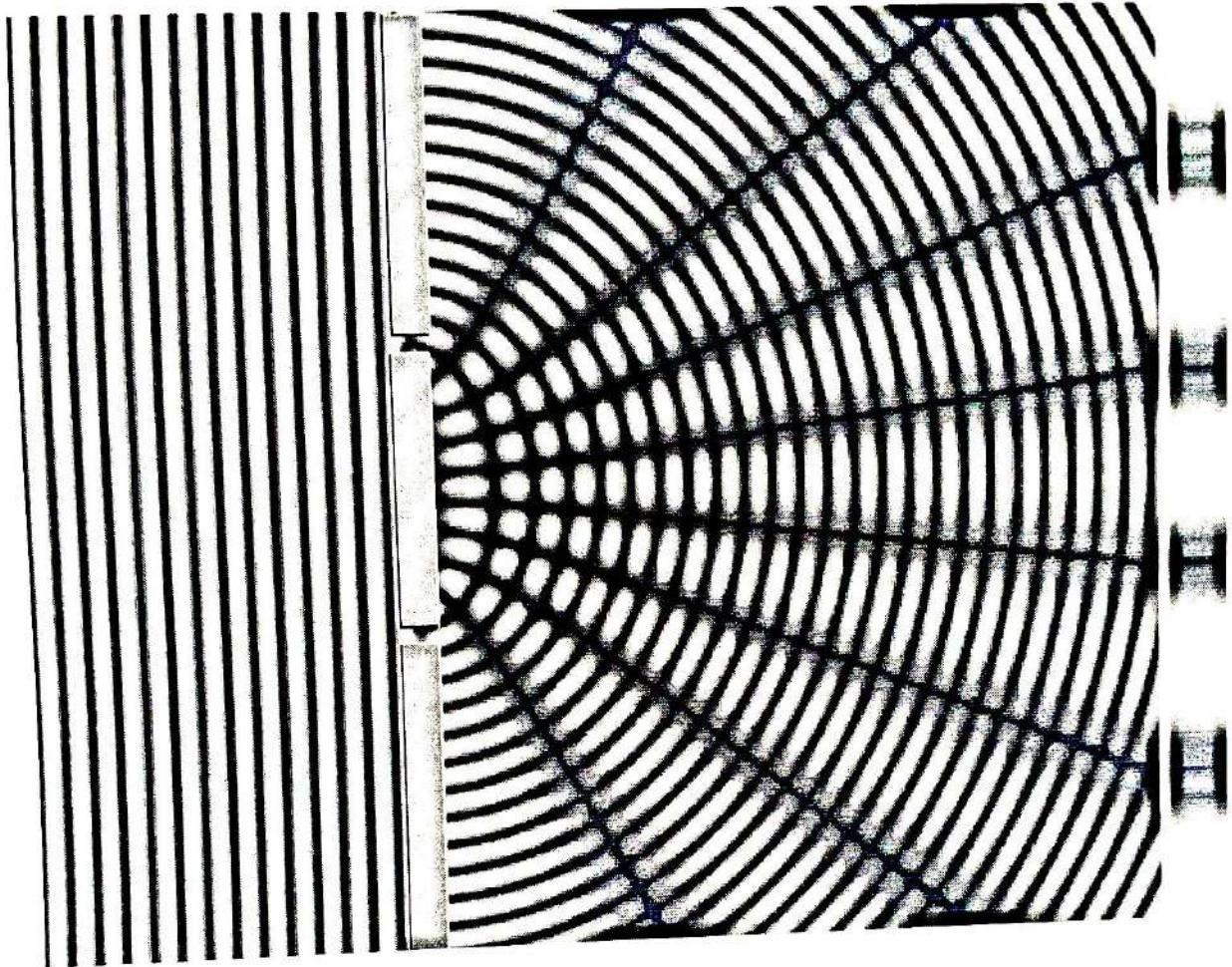
Dr. S. S. Gundal

HOD

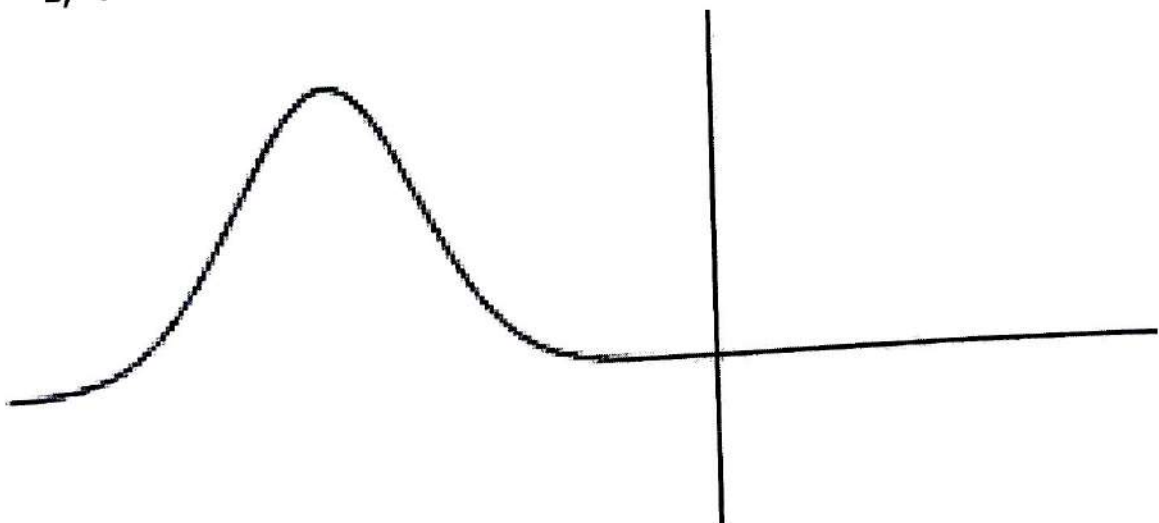
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## Pedagogy's Used in BE- Electronics Subject :- Mobile Communication

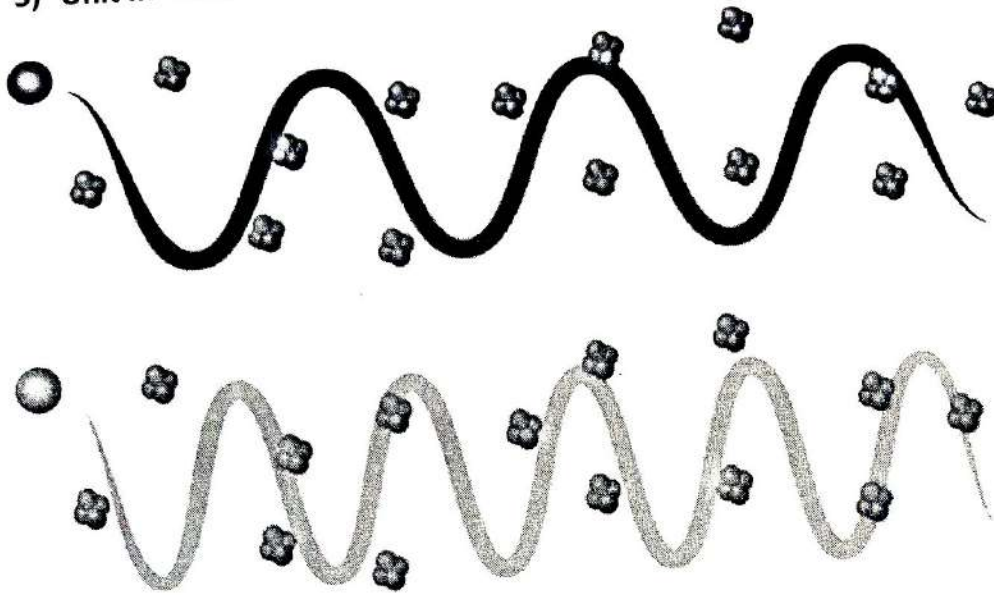
### 1) Unit II:- Animation of Diffraction



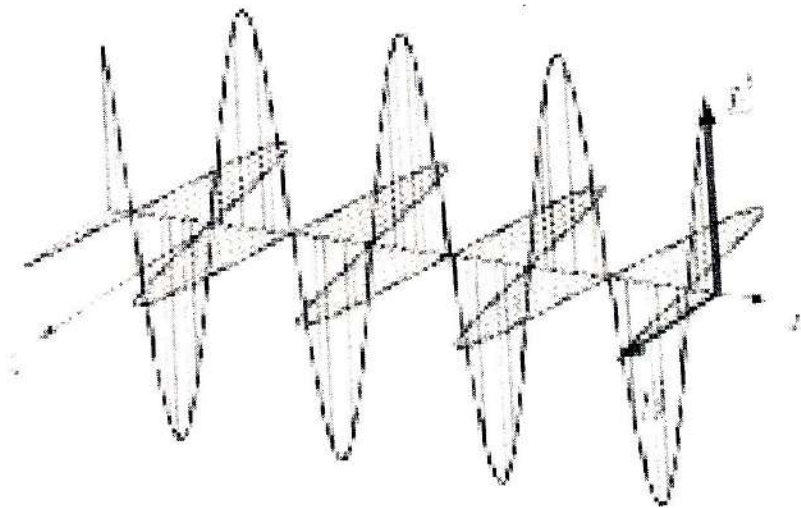
### 2) Unit II:- Animation of Reflection



3) Unit II:- Animation of Scattering



4) Unit II:- Polarization



*Mhask*  
Mhask D.A  
Course Co-ordinator

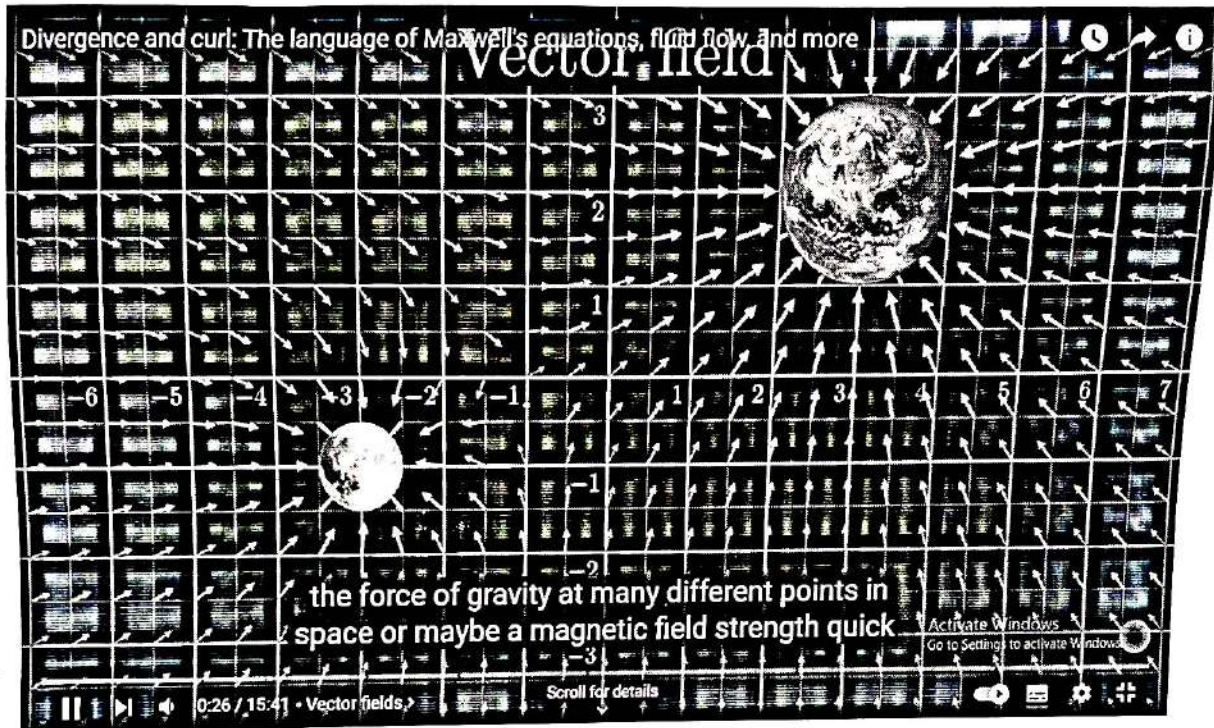
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TE Elex 2022-23

Course: Electromagnetic Waves and Propagation Theory

Padagogy : Animation Video screenshot and Analogy

Topic: Divergence & Curl



## Analogy of Divergence & Curl

1. You and three friends float down a river, each marking a corner of a square.  
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