

Comprehensive Course on Electromagnetic Field Theory

# Vector Algebra

Lesson 1 • Oct 3, 2020 • Vishal Soni

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EMFT Schedule on PLUS →  
(PROBLEM SOLVING APPROACH)

Start : 1<sup>st</sup> October End : 31<sup>st</sup> October

Topic	Hours
Basics of EMFT	12 Hours → ×
EM WAVE	24 Hours
Transmission Line	18 Hours
Waveguide	14 Hours
Antenna	22 Hours

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Vector Calculus

IIT-B :  $\boxed{12} + \boxed{4}$

" = 16 Marks."

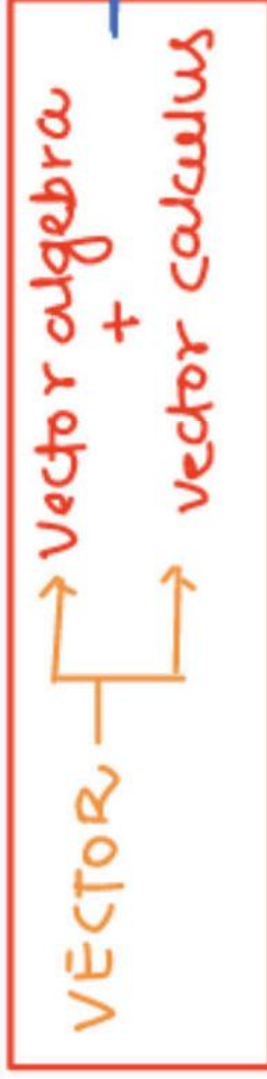
# Year Wise Weightage of Subjects

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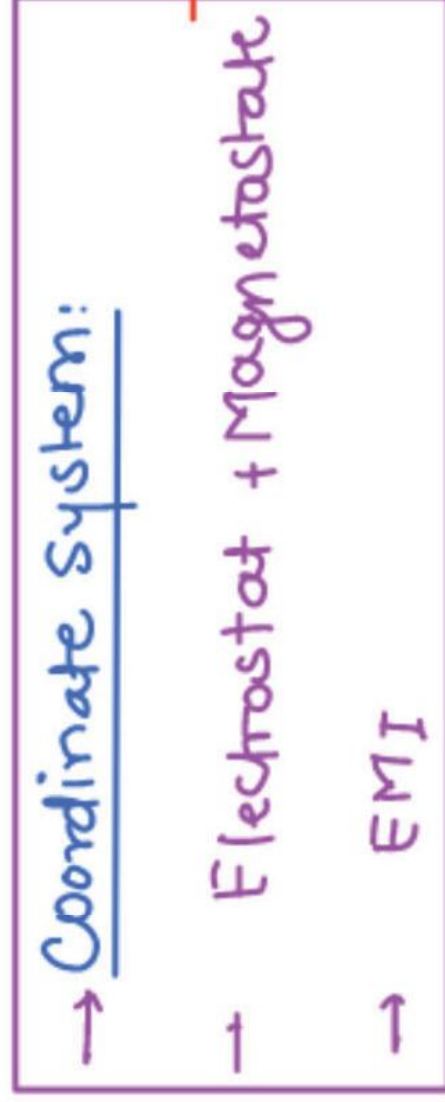
$10\% \rightarrow 11\%$

SUBJECTS	GATE 2012	GATE 2013	GATE 2014	GATE 2015	GATE 2016	GATE 2017	GATE 2018	GATE 2019	GATE 2020
Engineering Mathematics*	14%	10%	11%	13%	12%	14%	14%	13%	13%
Network Theory*	11%	15%	11%	9%	8.3%	5.5%	7%	5%	5%
Electronics Devices & Circuits	11%	3%	9%	10%	9.5%	11%	12%	13%	10%
Analog Electronics*	9%	15%	9%	8%	9%	9%	8%	11%	13%
Digital Circuits	4%	6%	9%	9%	8.3%	10%	11%	6%	9%
Signals & Systems*	8%	11%	11%	9%	9%	9.5%	7%	8%	8%
Control Systems*	7%	11%	8%	10%	8%	9%	7%	10%	10%
Communication	9%	9%	10%	8%	9%	9%	11%	10%	9%
Electromagnetic Theory	12%	5%	7%	9%	11.3%	8%	8%	9%	8%
General Aptitude*	15%	15%	15%	15%	15%	15%	15%	15%	15%

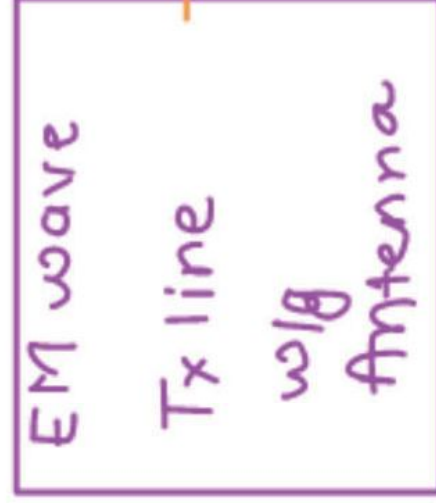
## RESOURCES:



→ "Mathematics:"  
Lectures  
unacademy.



→ Class Notes.



→ Class Notes.

## Books:

1) SADIKU + SHEVGAONKAR:

2) BALANIS: Antenna

Problem Solving: 1) PYQ  $\rightarrow$  GATE + 5 YEAR ESE objective

2) Shaum Series

3) Kanodiya

4) Solved examples of std Books.

## VECTOR ALGEBRA

### PHYSICAL QTY:

i) SCALAR QTY

ii) vector  $Q+y$ .

iii) Tensor  $Q+y$

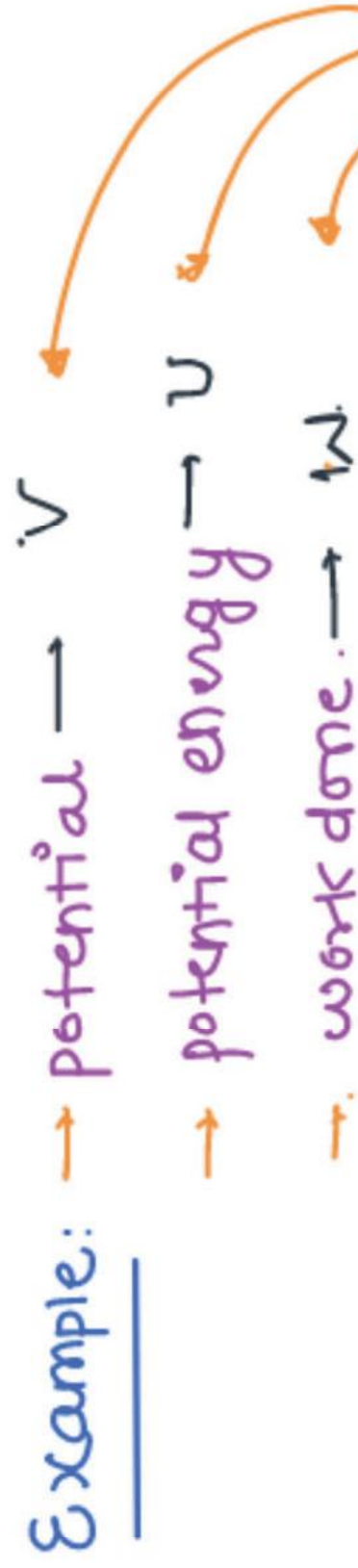


i) Scalar Qty: Any Qty which has

i) magnitude

ii) No association with orientation or direction.

Example: → potential →  $V$   
→ potential energy →  $U$   
→ work done →  $W$



Mathematical Rep.: Capital English Alphabet.

ii) Vector Qty: For a Qty to qualify as a vector qty it must

i) have magnitude

ii) have direction

iii) It must follow **VECTOR LAW OF ADDITION.**

Ex: Force ( $\vec{F}$ )

Electric Field Intensity ( $\vec{E}$ )

Magnetic Field Intensity ( $\vec{H}$ )