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### UNACADEMY CIVIL ENGINEERING SOM BY-VIVEK GUPTA SIR

- Theory
- Explanation
- Derivation
- Example
- Shortcuts
- Previous Years Question With Solution

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**CIVIL ENGINEERING**

**CLASS NOTES**  
**Strength of Materials**  
(For all Competitive Exams in INDIA)

**VIVEK GUPTA**



## VIVEK GUPTA

ESE (AIR-10)  
GATE (AIR-17)  
M. Tech (IIT Delhi, Structure)

This is the class notes of course taught on UNACADEMY PLUS during 22.06.2022 to 18.08.2022 in 80 hours. This course will be very helpful for all students who are preparing for any competitive examination in India.

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**(Please don't call without taking time to call)**

A

very special thanks

to all those students who attended this course and suggested well to make this class notes a perfect piece.

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**(All names mentioned here are with consent of Individuals)**

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# CHAPTER - 1

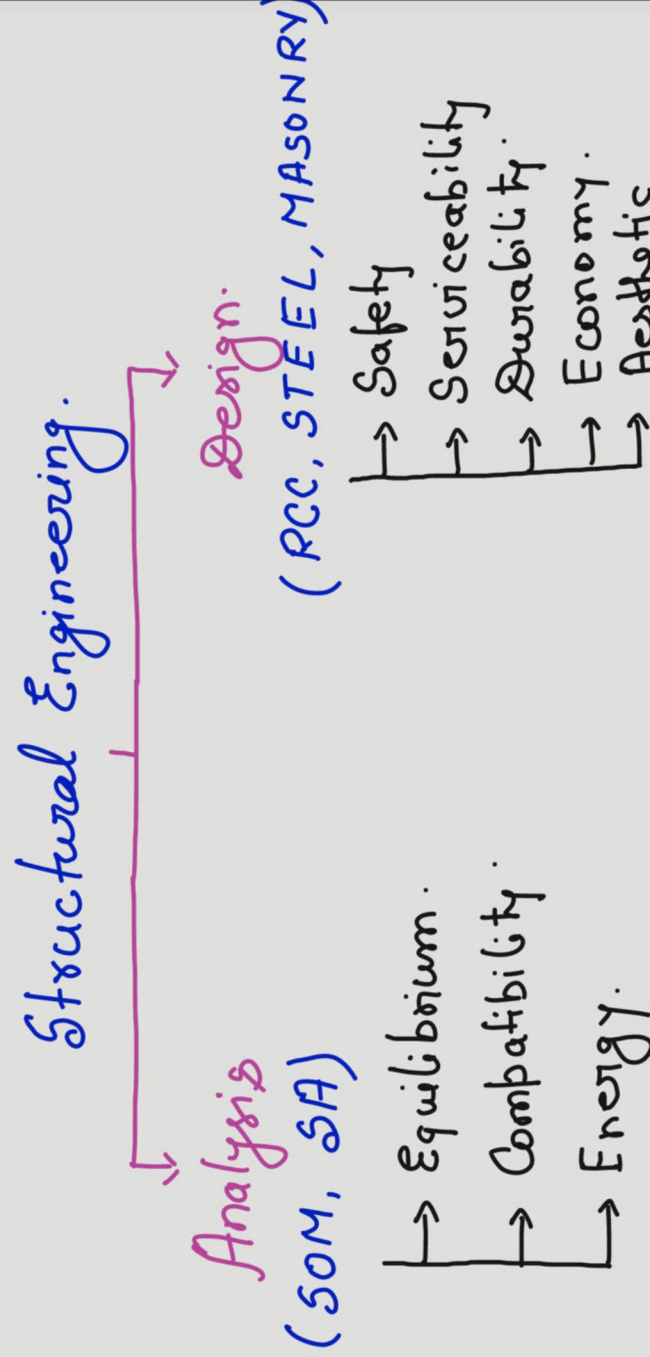
## BASIC CONCEPTS

Strength of Materials.  
Mechanics of Solid.  
Mechanics of Materials.  
Mechanics of deformable body.

## Recommended Literature.

- Gere and Goodno, 9th Edition.
- R.C. Hibbeler, 10th Edition (SI unit).
- My Class Notes.
- My Workbook.
- PYQ papers of GATE and ESE.
- Test Series.

## 1.1. Introduction:



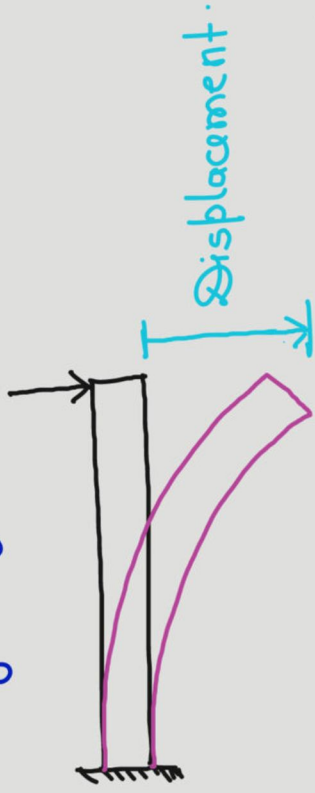


## 1.4. Difference b/w Some Terms.

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### 1.4.1. Deformation Vs Displacement.

- Change of shape is deformation.
- Change of position is displacement.



Straight member  $\rightarrow$  Curved Member = Deformation.

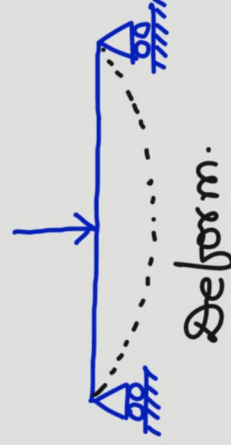
elastic body.



Displacement.  
but no deformation.

This is called rigid body movement, even body is elastic. (Because no deformation).

### 1.4.2. Movement Vs Deformation.



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Deform + Move.

### 1.4.3. Translation Vs Rotation.

- Straight line movement in any direction is translation.



Translation. movement.