

WHITE BACKGROUND NOTES
STRUCTURAL ANALYSIS
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Shashwat Choubey (Bhopal)
for converting black background to White Background for
common Interest



CIVIL ENGINEERING

CLASS NOTES
STRUCTURAL ANALYSIS

(For all Competitive Exams in INDIA)

VIVEK GUPTA



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

This is the class notes of course taught on UNACADEMY PLUS during 05.01.2022 to 25.02.2022 in 80 hours. This course will be very helpful for all students who are preparing for any competitive examination in India.

WhatsApp: 9650681684 (Reply frequency 24 Hours)
(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.

Few lovable students who contributed are

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(All names mentioned here are with consent of Individuals)

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- For attending the PAID video lectures of this course, follow this Link of UNACADEMY PLUS:
<https://unacademy.com/course/complete-course-on-structural-analysis-for-gate-ese/HF46OE7K>
- For Structural Analysis FREE WorkBook, follow this Link:
https://drive.google.com/file/d/1R1pQ3hl7OPiBHpW0GTf4_XMfxY3dSdVO/view?usp=sharing
- For FREE Video Solution of WorkBook, follow this Link of YouTube:
https://youtube.com/playlist?list=PLZmv_MNQ_CMBiX2m9CScKUbi7z2XrkdTpt
- For all relevant contents related to me, follow this Link:
https://docs.google.com/document/d/1MnZmY5cS6QtBrTIMfm_I0UMKVXPbdBXIIrF1t7MNSy0/edit?usp=sharing

CHAPTER - 1

BASIC CONCEPTS

Recommended Literatures.

- ① My Class Notes.
- ② R.C. Hibbeler, 9th Edition, SI Unit.
- ③ My Workbook.
- ④ PYQs of GATE & ESE

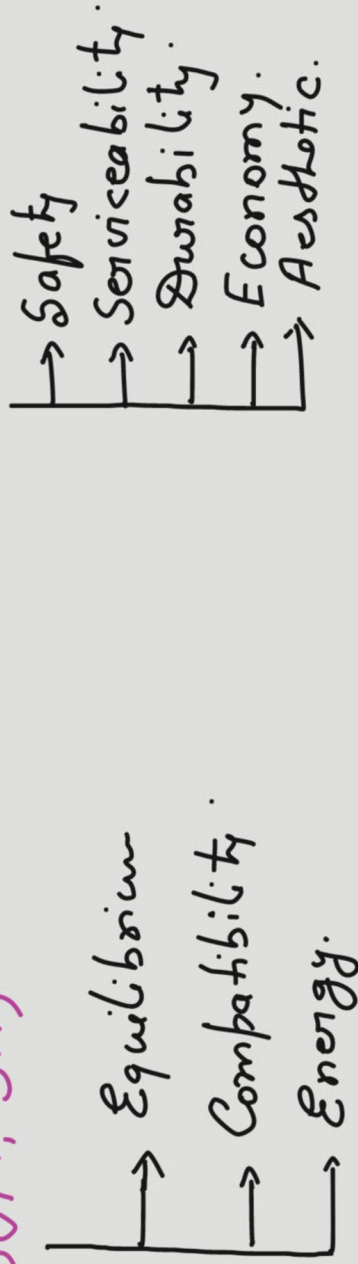
1.1. Introduction.

Structural Engineering.

Design.

Analysis
(SOM, SA)

(RCC, STEEL, PSC)

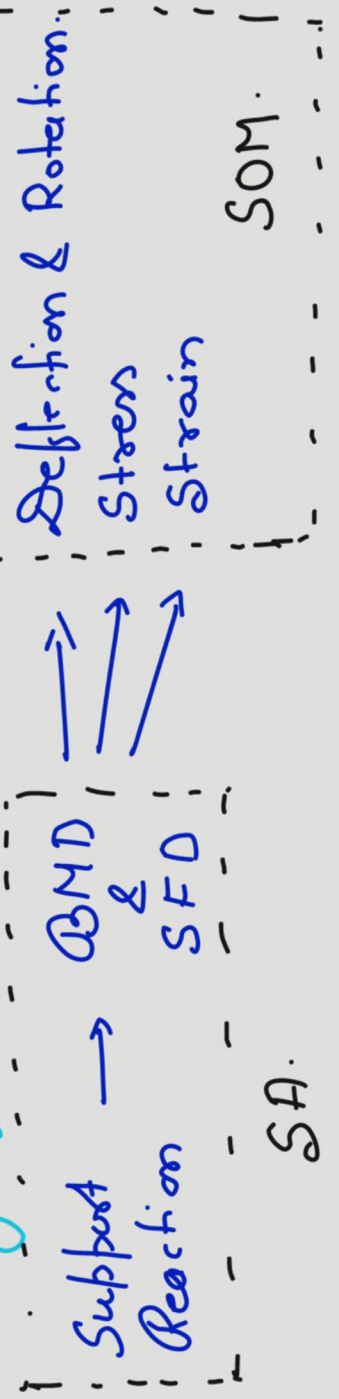


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1.2. What is Structure?

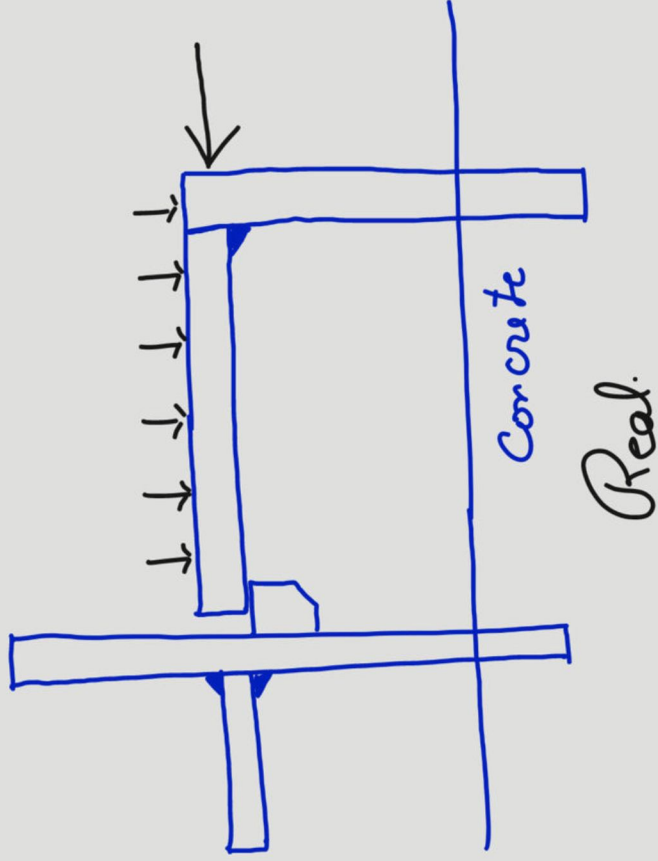
Any arrangement of members that can transfer load acting upon it to the supports safely can be termed as structure.

1.3. Meaning of Structural Analysis

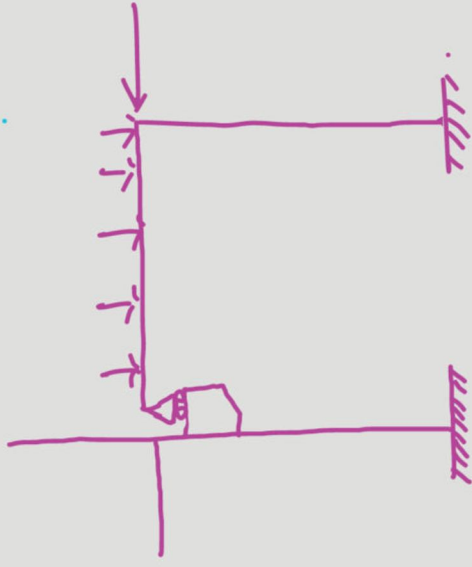


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1.4. Idealisation of Structure.



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Idealised.

R.C. Hibbeler

Page No — 40.

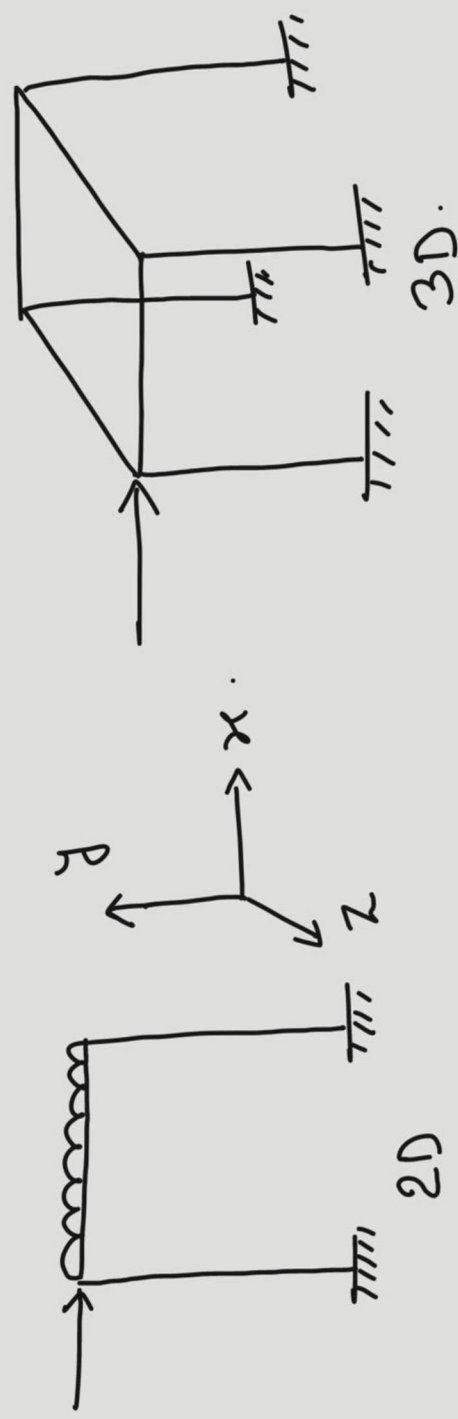
Fig - 2.5.

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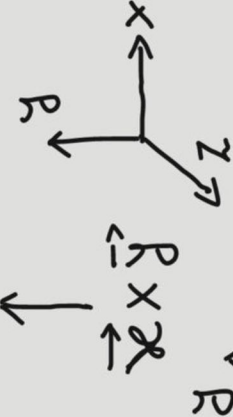

1.5 2D & 3D Structure.

If 2-axes are sufficient to define geometry and loading of structure then that type of structure is called 2D structure.

If 3-axes are required to define geometry and loading of structure then that type of structure is called 3D structure.



1.6 Sign Convention:

Items.	(+ve) Sign.
x-axis	
y-axis	
z-axis	
Slope ($\frac{dy}{dx}$)	
Rotation	anticlockwise.
Force	clockwise.
Moment	along axis. Clockwise.