

WHITE BACKGROUND NOTES

**RCC and PSC
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Thanku

Shashwat Choubey (Bhopal)

**for converting black background to White Background for
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CIVIL ENGINEERING

CLASS NOTES RCC and PSC

(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 22.02.2022 to 26.04.2022 in 110 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

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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-rcc-and-psc-for-gate-and-ese/YKU3R0DE>
- For RCC and PSC FREE WorkBook, follow this Link:
- <https://drive.google.com/file/d/1zmNoRtw9dUuAGau8OScjrZe6kPBrPCIA/view?usp=sharing>
- For FREE Video Solution of WorkBook, follow this Link of YouTube:
- <https://www.unacademy.com/a/Solution-of-complete-RCC-workbook.html>
- For all relevant contents related to me, follow this Link:
https://docs.google.com/document/d/1MnZmY5cS6QtBrT1Mfm_I0UMKVXpbdBX1rF1t7MNSv0/edit?usp=sharing

Recommended Literature.

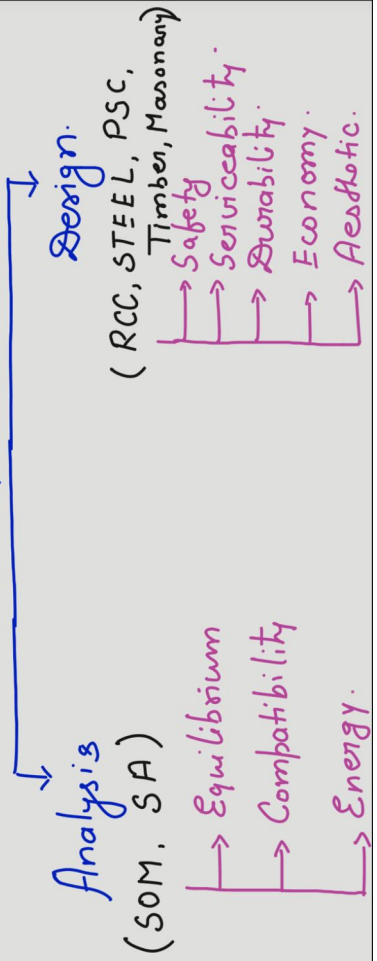
- Pillai & Menon, 4th Edition.
- My Class Notes.
- Previous Year Questions of GATE & ESE.
- My Workbook.

CHAPTER - 1

BASIC CONCEPTS

1.1. Introduction.

Structural Engineering



1. Safety - A Structure must be safe with appropriate factors of safety (FOS) for loading that may come on it during its intended life.

2. Serviceability - A Structure should provide the service for which it is constructed.

3. Durability - A structure should sustain loading for which it was designed and should perform well with safety and serviceability upto its whole life.

Durability without serviceability or with less margin of safety (FOS) has no meaning.

Economy - Design and Construction of any structure should be economical without affecting safety, serviceability and durability.

Aesthetic - If huge investment is involved in design and construction then only Aesthetic comes into picture.

For Example - Considering a beam.

Safety - Reinforcement is provided.

Serviceability - Doubly R/F Section is provided to reduce depth of beam and increase clear height.

Durability - Nominal cover, selection of material.

Economy - Monolithic casting of beam and slab and designed as T-beam.

Aesthetic - Half round section instead of rectangular section.

1.2. Cement Concrete.

It is a mixture of binding material (Cement), fine aggregate (FA), Coarse aggregate (CA), water and admixture in proper proportion to achieve concrete of desired properties at fresh state and hardened state.

Admixture — It is added to concrete to enhance properties of concrete.

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1.2.1. Concrete Mix.

(A) Nominal Mix.

1. Based on experience.
2. Mixing may be by weight or by volume. By weight is preferable.
3. Quantity of water is not fixed. It is provided as per site requirement.
4. Nominal Mix is allowed for M5 to M20.

Mix → M20 ← strength in N/mm^2 .

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	C	FA	CA
M10	1	3	6
M15	1	2	4
M20	1	1.5	3

(B) Design Mix.

1. Based on calculation as per IS 10262.
2. Proportioning must be by weight.
3. Quantity of water is also fixed.
4. Design Mix is allowed for M10 to M100.