**Course outline for CE 317: Structural Mechanics 2**

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**Course website:** [**http://www.civil.iitb.ac.in/~minamdar/ce317/**](http://www.civil.iitb.ac.in/~minamdar/ce317/)

The website will be regularly updated

**Hours:** Two 1 hour lectures and one 2 hour tutorial. Times of tutorial to be decided.

**Tentative Format of Lectures:**

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| --- | --- | --- | --- |
| **Sr. No.** | **Topic** | **Number of Lectures + Tutorial** | **Remarks** |
| 1 | Revision of Structural Mechanics-1 | 1 | Flexibility method for Truss and beams |
| 2 | Introduction to Displacement Method + RISA-2D | 2 | Fixed end moments etc.  Topics-1 and 2 (1 week) |
| 3 | Slope deflection method | 4 + 2 | 2 weeks |
| 4 | Moment distribution method | 4 + 2 | 2 weeks |
| 5 | Approximate Methods | 2 + 1 | 1 week |
| 6 | Introduction to matrix methods | 1 |  |
| 7 | Stiffness method for 2D Truss | 4 + 2 | 2 weeks |
| 8 | Stiffness method for Beams | 2 + 1 | 1 week |
| 9 | Stiffness method for 2D Frames | 4 + 2 | 2 weeks |
| 10 | Generalized flexibility metthod | 2 + 1 | 1 week |

**Course Text:**

Class notes will be sufficient. There are many excellent books by Indian and Foreign authors. However, with Leet et al. as my main text, I will use the following texts as basis for my lectures,

1. Kenneth Leet et al., Structural Analysis, McGraw Hill, 3rd Edition. (Rs.750 on [flipkart.com](http://flipkart.com))
2. Negi and Jangid, Structural Analysis, TMH Outline Series. (currently out-of-print)
3. R. C. Hibbeler, , Structural Analysis, Pearson Education, 6th Edition (Rs.600 on [flipkart.com](http://flipkart.com))
4. Harry H. West, Fundamentals of Structural Analysis, Wiley India, 2nd Edition (Rs.500 on [flipkart.com](http://flipkart.com))

You may purchase one or more books for improving your understanding.

**Software:**

I will extensively supplement the course material with solving the problems using **RISA-2D**. There is a free student edition with upper limit of 50 elements to solve almost all 2D problems involving trusses, beams and frames. This is available as a part of the text Leet et al., and can also be downloaded directly from the course-website. If you are already familiar with some other software, such as SAP2000, etc., feel free to use that instead.

**Evaluation Scheme:**

Quiz-1: 10% (August end)

Midsem: 30% (September)

Quiz-2: 10% (October end)

Endsem: 50% (November)

This is only a tentative scheme. There may be some modifications as the semester progresses.