Structural Design II: CE 332: Group Course Requirements

Department of Civil Engineering
Indian Institute of Technology Bombay

Spring 2021

Grading

Part	Weight
Course project	40%
In-lecture quizzes	20%
Longer quizzes	20%
Group lecture	15%
Tutorial	5%
Total	100%

- 5 groups for Course Project (Groups 1, 2, 3, 4, and 5)
- 10 groups for Group Lecture/ Flipped Class (Groups 1A, 1B, 2A, . . .)
- Check **moodle** to find which group you belong to.

Group Lecture (Flipped Classes)

- 20-minute lecture + 5-minute Q&A
- Upload your slides and 2 questions and answers for **in-lecture quiz** in moodle **at least 1 day prior** to your slot
- Deliver lecture on allotted slot (Max. 2 students from group)
- Answer questions by the instructor and TAs on the topic
- Rest of the schedule and more description on the topic will be updated on **moodle**

Date	**Group**	**Topic**
25th Jan	1A	Loads and combinations
	3B	Design process
08th Feb	2A	...
	4B	...

Quizzes

- **In-Lecture quizzes** any time in the lecture slot, based on the current lecture, Time bounded **30/60/90/120s**
- **Longer quizzes** of slightly longer duration based on the last (up to) 5 lectures, at the start of a lecture, Either surprise or announced, **5-10 mins**
- Questions can be
  - Multiple choice (MCQ), Multiple select (MSQ) Matching, Short answer, Numerical

Quizzes

- Auto-evaluated, Take care of **units**
- You will see that days quiz only on moodle
- You can check your attempts from the end of the lecture to till the beginning of next lecture
- Attempting In-Lecture quizzes quiz will record the **attendance**.
- Open attempts are submitted automatically.
- Keep materials (IS 800, IS 808) calculators, scribbling papers, etc. ready.
- Best 80% of scores will be considered for grading

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Take the quiz now

Course project

Deliverables

- Presentations
- Design project report
- Structural drawings (In Report + Softcopy)
- Software structural model (Softcopy)

Course project

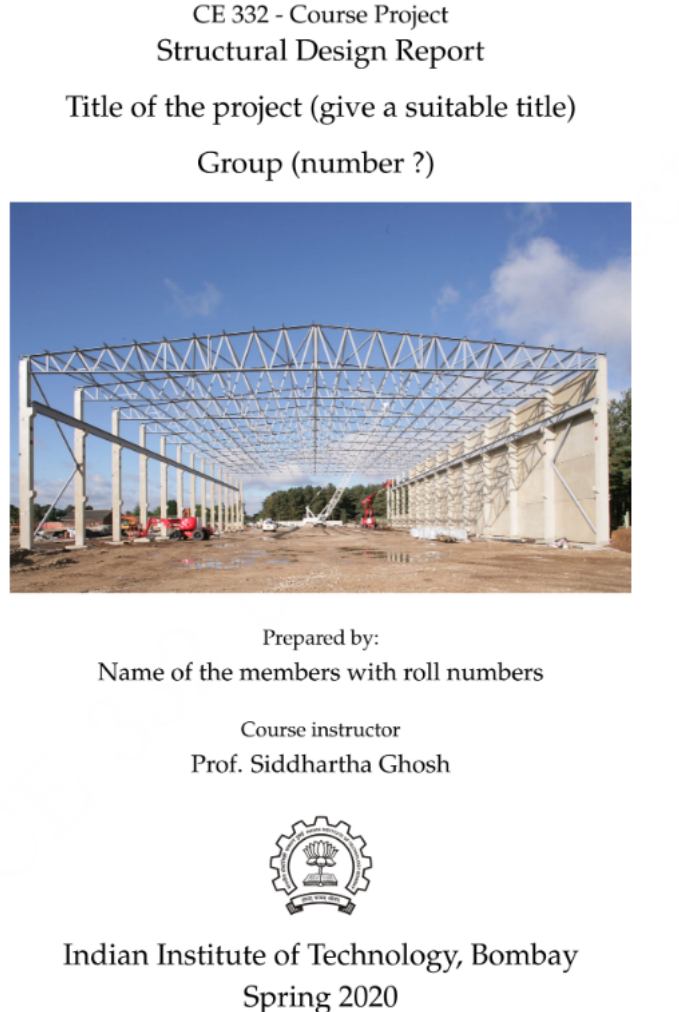
Deliverable : Presentations

- Should have
  - Present work done as per requirements of particular evaluation.
  - Presentation will be done for all three evaluations
- Evaluation requirements detail available in **moodle**

Course project

Deliverables : Design project report

- Should have
  - Project statement
  - Design Preamble
  - Loads and Forces
  - Modelling
  - Analysis and Design
  - Connection Design
  - Bill of Quantities
- Submit on Last evaluation
- Sample project report will be available in **moodle**



CE 332 - Course Project

Structural Design Report

Title of the project (give a suitable title)

Group (number ?)

Prepared by:

Name of the members with roll numbers

Course instructor

Prof. Siddhartha Ghosh

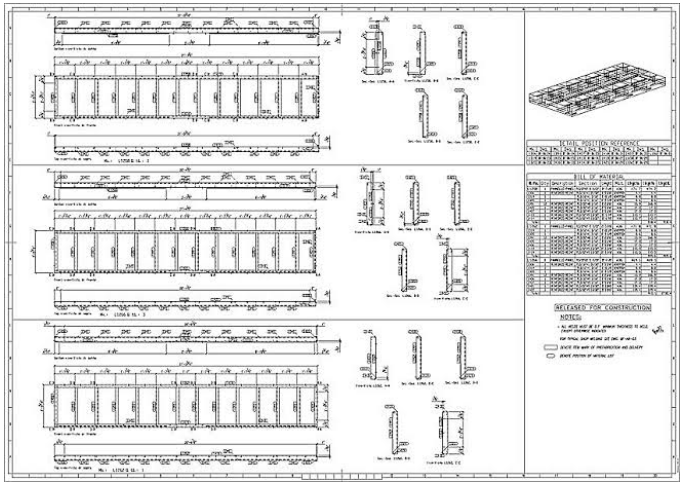
Indian Institute of Technology, Bombay

Spring 2020

Course project

Deliverables : Structural drawings

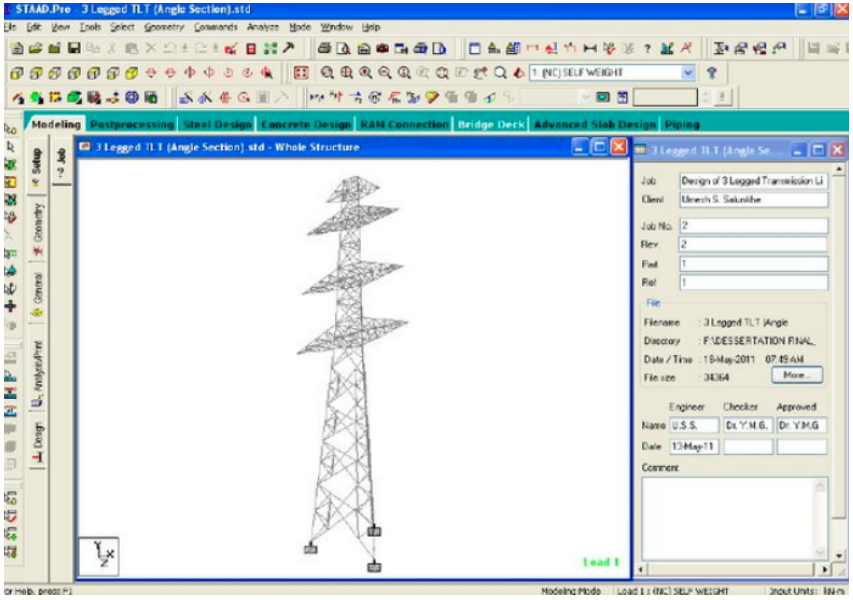
- Should have
  - General arrangement
  - Connection drawings
  - Proper dimensions and units
  - Proper labeling and member tables
- Submit on Last evaluation
- Sample structural drawings will be available in **moodle**



Course project

Deliverables : Software structural model

- Should have
  - Software files used to do analysis (.edb, .std, .dwg etc.)
- Submit on second evaluation (Analysis model)
- Submit on final evaluation (Final analysis model having designed members, connection models, autocad files etc.)



Course project

Project 1
Design of a workshop building

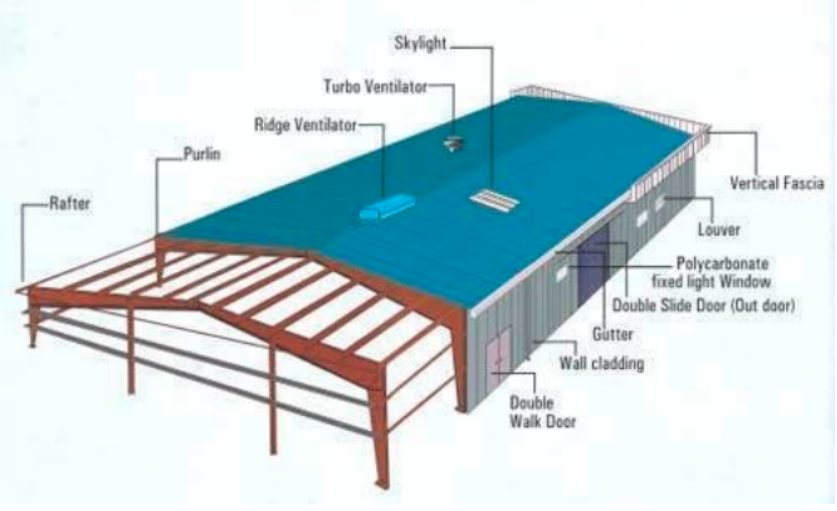
- Design and detail of factory workshop
  - Arrange truss members
  - Design truss, purlins, columns and bracings
  - Show some sample connections

Course project

Project 2

Design of PEB

- Design and detail of PEB workshop
  - Arrange frame of varying depth for columns and beams due to BM
  - Design beams, columns, bracings
  - Show some sample connections



Course project

Project 3
Design of a Pedestrian Bridge

- Design and detail of pedestrian bridge
  - Arrange supporting frame, cross girder and cables
  - Design A-frame, main girders, cross girders and cables
  - Show some sample connections

Course project

Project 4
Design of a Road Bridge

- Design and detail of a truss road bridge
  - Arrange truss members, main and cross girders
  - Design truss, main and cross girders
  - Show some sample connections

Course project

Project 5

Design of a Transmission tower

- Design and detail of a Transmission tower
  - Arrange truss members of the tower
  - Assign all loads as per relevant IS code
  - Show some sample connections

Course project

Tools

Analysis and Design software

- Staad.Pro, Etabs

Connection Design

- Osdag: Free, but limited use (being developed at **IITB**)
- Spreadsheets

Structural Drawing

- AutoCad

Project Evaluation

1. Every group will be subdivided into Analysis and Design member sub-groups
2. Evaluation will be done for the whole group and for the two analysis and design member groups

- **Jan 20** (Member allotment within group) **5%**
- **March 6** (Presentation + Brief Report + Sofware Model(Softcopy)) **15%**
- **April 7** (Presentation + [Structural Report + Report + Drawings + Model]) **20%**

What's next

- Group List uploaded on **moodle** with lecture.
- Discussions on group project will be scheduled on Wednesdays 3:30pm
- Get to know your group members, organize, manage and work together!
- Any help $\rightarrow$ Course Discussion Forum **only** in moodle