Fundamentals of Structures

Questions about Tuesdays lectures in the 2nd test

A) Definitions

1. Characterize linear structural members!
2. Characterize planar structural members!
3. Define the role of the client and the general contractor in the process of erection of buildings!
4. Definition of working drawings (aim, content, scales)

B) Laws

1. Explain the *law of equilibrium* on the example of planar loadbearing structures!
2. Explain and show, what do we understand under *material law* of a planar *steel* loadbearing structure!
3. Explain and show, what do we understand under *low of continuity* of planar loadbearing structures! (You can consider as an example any static model with minimum 1 internal joint.)

C) Requirements

1.Who are the mostly interested participants having connection to the project in fulfilment of the fundamental design requirements listed below?

requirement	*the mostly interested participants*
functional requirements	
safety requirements	
aesthetics	
economic requirements of the erection and demolishment	
economic requirement of operation	

D) Important quantitative data

E) Why-s, reasoning, explanations

F) Listings, classifications

1. Steps of structural design
2. Responses of loadbearing structures
3. Main characteristics of loadbearing structures
4. Components of the static model of structures
5. Different kinds of structural members
6. Different kinds of external joints of planar structures consisting of linear members (name, graphical presentation)
7. Different kinds of internal joints of planar structures consisting of linear members (name, graphical presentation)
8. Different possibilities of classification of loadbearing structures
9. Fundamental laws of structural analysis
10. Means of environment protection of the natural environment
11. Means of environment protection of the built environment
12. Phases of ,,life,, of a building
13. Phases of architectural design
14. Content of the general development project (GDP) concerning the construction site and the buildings, which can be erected.

15. Functions of the general manager or general manager company in the process of erection of buildings
16. What kind of projects are to be elaborated during different phases of design, construction and demolishment of buildings?
17. List some of the subcontractors which are contracted for the construction of loadbearing structures!
18. Reasons of demolishment of buildings
19. Tasks of the building manager (or project manager) and of the technical supervisor during the construction of a building

G) Graphical presentations

1. Static model of simple supported beams with indication of the support reaction components
2. Static model cantilevers with indication of the support reaction components
3. Static model of continuous beams
4. Static model and name of different kinds of arches
5. Draw and name the static model of different kinds of portal frames!
6. Draw the static model of a three-bay multi-storey rigid planar frame with indication of the support reaction components!
7. Draw the simplified stress (σ) – strain (ε) relationship of steel!
8. Draw the simplified stress (σ) – strain (ε) relationship of concrete!
9. Draw a bilinear, linear elastic, completely plastic stress-strain diagram!

H) Examples

1. Examples of pollution of the natural environment
2. Examples of pollution of the built environment