

# Detailed Design Drawings Question Bank

Spring Semester

15 weeks/ one semester/ 1 lecture per week

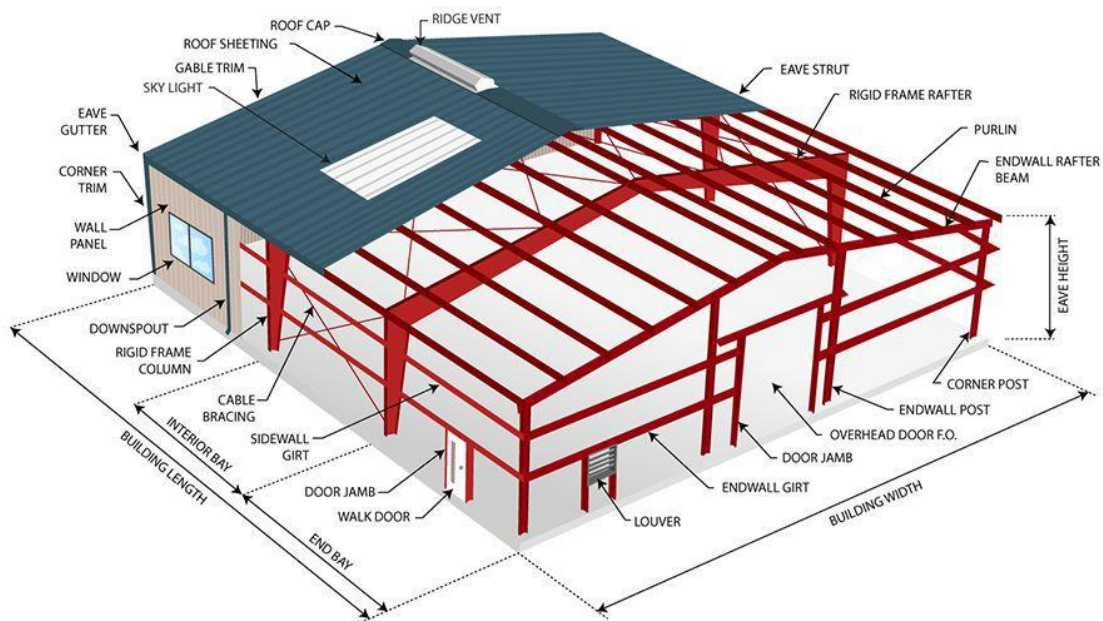
4 hrs. in lectures (1 theory + 3 practical) – Sunday 11:00 -15:00

Project: Gymnasium Hall

**Course responsible:** Assist. Lect. Sakar Yousif Abdullah

**Staff:** Assist. Lect. Chra Hunar

MSc. Zenab Kassim



**Q1.** Design a Gymnasium hall on a plot which its area is (25\*40) m, one part of the project is two story. All the project should be built with steel structure (column, beam, intermediate floor, roof, stair, ....), Project consisting of (gym hall, accountant room, trainer room, manager room, changing room with lockers, shower, toilets, store, small shop).

**Requirements:**

1. Foundation plan within all dimensions..... (scale 1:50)
2. Table and details of foundation clarifying the type of foundation, its dimensions, and layers.
3. Detail of connection between concrete foundation with steel column.....(scale 1:20)
4. Column and beam distribution plan.....(scale 1:50)
5. Ground floor plan, dimensional plan.....(scale 1:50)
6. Ground floor plan, floor finishing plan.....(scale 1:50)
7. Ground floor plan, door & window plan.....(scale 1:50)
8. Ground floor plan, Wall finishing (interior & exterior) plan.....(scale 1:50)
9. Ground floor plan, furniture plan.....(scale 1:50)
10. Ground floor plan, water supply plan.....(scale 1:50)
11. Ground floor plan, sanitary distribution plan.....(scale 1:50)
12. Ground floor plan, electricity distribution plan.....(scale 1:50)
13. Table of activities for ground floor showing name, number, dimensions, area and shape of activities within the ground floor level.
14. Drawing all levels, axes, directions and dimensions on the plans.
15. Draw table of doors clarifying their specifications, dimensions, materials, openings, leafs, numbers, and colors.
16. Draw table of windows clarifying their specifications, dimensions, materials, openings, leafs, numbers and colors.
17. Draw table of electricity fixtures clarifying their specifications, materials, types, numbers, and colors.
18. Draw details of water supply appliances.....(scale 1:20)
19. Draw details of sanitary appliances.....(scale 1:20)
20. First floor plan, dimensional plan.....(scale 1:50)
21. First floor plan, floor finishing plan.....(scale 1:50)
22. First floor plan, door & window plan.....(scale 1:50)
23. First floor plan, Wall finishing (interior & exterior) plan.....(scale 1:50)
24. First floor plan, furniture plan.....(scale 1:50)
25. First floor plan, electricity distribution plan.....(scale 1:50)
26. Table of activities for First floor showing name, number, dimensions, area and shape of activities within the First floor level.
27. Draw a longitudinal section with full details; clarifying heights, levels, with axes and dimensions.....(scale 1:50)
28. Draw a section passing through the stair with full details; clarifying heights, levels, with axes and dimensions.....(scale 1:50)
29. Draw stair details clarifying its dimensions, type, landing, tread, raiser, and handrail....(scale 1:20)
30. Draw a partial section clarifying connection between column and base, wall layers, connection between beam and mezzanine, and connection between roof and column.....(scale 1:20)
31. Draw 4 elevations with full detail including height, window and door location and size, axes, levels and materials.
32. Draw details and layers of mezzanine floor.....(scale 1:20)
33. Draw the detail of mezzanine connection with column and beam.....(scale 1:20)
34. Draw connection of sandwich panel of the wall with the base.....(scale 1:20)
35. Draw connection of sandwich panel of the wall at the corners.....(scale 1:20)
36. Draw connection of sandwich panel of the wall with window frame.....(scale 1:20)
37. Draw connection of sandwich panel of the wall with the door frame.....(scale 1:20)
38. Draw connection of sandwich panels of the wall with each other.....(scale 1:20)
39. Draw connection of sandwich panel of the roof with the membranes.....(scale 1:20)
40. Draw connection of sandwich panel of the roof with each other.....(scale 1:20)
41. Draw detail of sandwich panel clarifying its skin type.....(scale 1:20)
42. Draw the detail of sandwich panel clarifying its materials, layers, dimensions and thickness.

43. Finishing table for (wall, floor, ceiling).
44. Design roof with truss structure.....(scale 1:50)
45. Draw roof membrane skeleton clarifying main beams, secondary beams and bracings...(scale 1:50)
46. Roof plan with layers clarifying main beams, secondary beams, bracings, and covering of the roof.....(scale1:50)
47. Draw details of the roof connections with the beam.....(scale 1:20)
48. Draw details of gutter connected to the roof.....(scale 1:20)

**Q2.** Answer the following:

49. What are the benefits of steel structure?
50. Mention the applications of steel structure.
51. Why we use steel structure?
52. Mention types of steel structure.
53. Mention types of steel structure construction methods.
54. What we mean by primary beam and secondary beam?
55. Mention the most relevant types of steel columns.
56. Mention types of steel structure roof systems.
57. Mention types of space frame roof in terms of its grid type.
58. Mention the type of space frame in term of their layers.
59. What are the applications of space frame?
60. What are the characteristics of space frame structure?
61. What are the types of mezzanine flooring?
62. Define the Concrete Deck for mezzanine flooring.
63. What we mean by a sandwich structured composite?
64. Why we use sandwich panel?
65. Mention the advantages of sandwich panel?
66. Mention the applications of sandwich panel.
67. What are the types of sandwich panel?
68. What we mean by structural insulated panels?
69. What is the difference between service pipe and supply pipe?

**Q3.** Draw the following; (scale 1:50):

70. Draw different types of steel section connections in truss.
71. Draw three different types of bracing connections in the frame using angle section.
72. Draw connections between column parts.
73. Draw five different types of truss roof.
74. Draw five different types of portal frame with their allowable span.
75. Draw layers of standard mezzanine decking for mezzanine flooring.
76. Draw the main layers of sandwich panel.
77. Draw types of external surfaces of sandwich panel.
78. Draw the connection between I shaped column and sandwich panel.
79. Draw different connections between two wall sandwich panels.
80. Draw the types of sandwich panel interlocking.

**Good luck**