Given Floor Plan (without partitions and claddings)

**Required**

(I) Place columns at the intersections of lines A, C, E, G with the lines 1, 3, and 5 within the floor plan area. Add columns at intersection of lines E and G with line 4. Place beams between the columns you arranged along the lines 1, 3, 5 and 4 (where it applies). Place slabs supported by the beams transferring load in one direction and show the load transfer direction, accordingly. Mark all slabs and beams which belong to one static scheme by appropriate notation as well as marks for the columns. Show the static scheme (in scale) for all structural elements. Show the load cases and combinations for a typical beam, typical slab, typical column (your choice).

(II) If Part (I) was completed, repeat all requirements listed above, however, for columns placed at all grid/axes lines with beams along lines A, B, C, D, E, F, G and slabs supported accordingly.

Note: At end of class time you must submit your sketches to the instructor (only the sketches) marked with all names of participants in the group.
1. This is a typical floor plan without partitions or cladding and without the structural elements.

2. The continuous lines indicate the outside contour of the floor. These are the only continuous lines in the sketch.

3. The lines marked as “line-dot” are just important lines on the floor and provide a grid which allow location of structural elements. These are not either structural elements or any physical parts of the floor. [These lines must be located using dimension lines (as shown) in respect to the edges of the floor].

4. Structural elements will be shown according to the following code:

   **Structural Element - Symbol & Notation**

   **Columns (or vertical elements) (square)**

   ![Diagram of a column with symbol C_x]

   **Wall (rectangle)**

   ![Diagram of a wall with symbol W_{xxx}]

   **Beams (heavy dashed lines)**

   ![Diagram of a beam with symbol B_x]

   **Slabs (double arrow lines & diagonal line - corner to corner)**

   ![Diagram of a slab with arrows indicating direction]
These symbols and notations above are mandatory and substitutes cannot be acceptable. Note that the double arrow lines indicate the main direction of load transfer in the slab and coincides with the direction of the main reinforcement.

Additional directions will be given in class sessions.

5. Static Scheme for structural elements is shown as a continuous line with supports indicating the loads coming from other elements or from their own gravity and the transfer to reactions toward other elements:

Examples:

a) Slab

$W_{B1-B2}$  $W_{B2-B3}$

S1

one direction of load transfer

b) Beam

B2

along line A for example