List 11

Task 1

According to the dimensions shown in the drawing below, a frame model should be prepared, which is supported on four feet anchored to the ground. It is assumed that the structure is made of structural steel (Young's modulus E = 200 GPa; Poisson's ratio v = 0,3). Based on a modal analysis, determine the first 10 natural frequencies and corresponding mode shapes of the frame. How will the values of the natural resonant frequencies and mode shapes change if the geometric characterristics of the frame or the material from which it is made are altered?



Isometric view Scale 1:50



Notes:

1. Parts in positions 1, 2, 3 are made from the same profile: square tube 80x80x5

4	Flat profile closure 80x80x5	4
3	Square pipe 80x80x840x5	6
2	Square pipe 80x80x1420x5	4
1	Square pipe 80x80x1200x5	4
PART NO.	NAME OF PART	QTY.