INDIAN INSTITUTE OF TECHNOLOGY PALAKKAD

CE3040 Basic Design of Steel Structures

Tutorial-4 | Due Date: 10-04-2025 | Time: 12PM | 30 Marks

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1. Find out the maximum value of factored load P that the eccentric bolted connection can carry as shown in Fig.1.Use M20 Bolts of grade 4.6

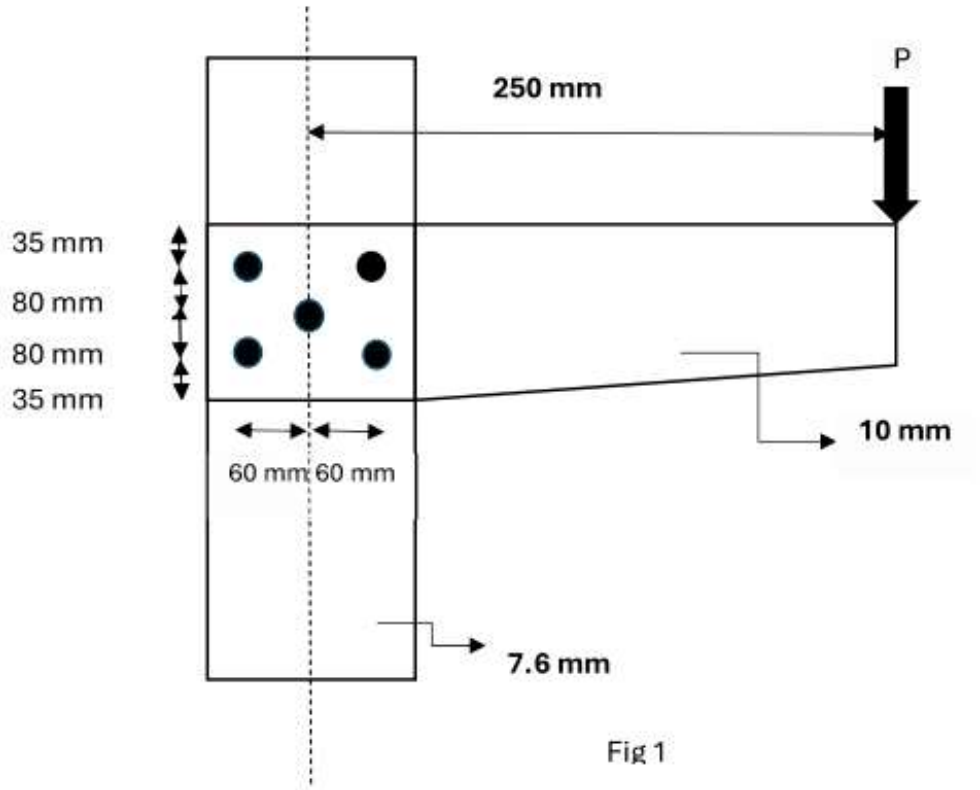

Fig 1

2. Design a bracket connection to transfer an end reaction of 200 kN due to factored load as shown in Fig.2.The end reaction from the girder acts at an eccentricity of 250 mm from the face of the column flange. Design the bolted joint connecting the Tee-flange with the column flange. Steel is of grade 410 and bolts of grade 4.6

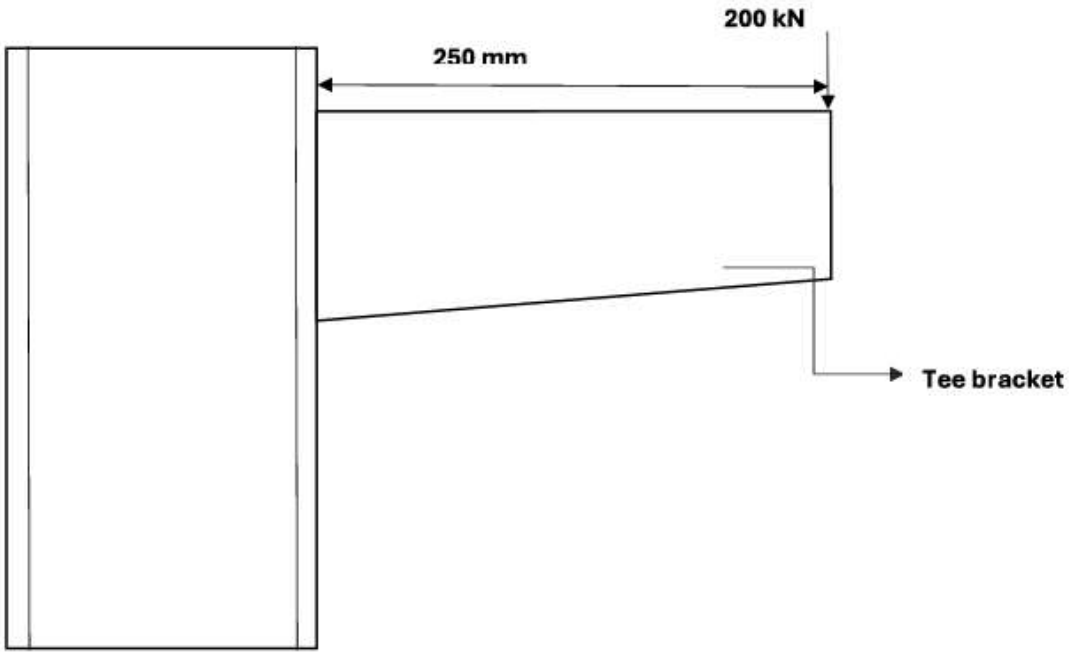

Fig 2

3. Design a bolted end plate connection between an ISMB 300 beam and an ISHB 200 column, to transfer a vertical factored shear of 120kN and a factored hogging bending moment of 120kNm.Use HSFG bolts of diameter 20 mm. The connection is as shown in Figure given below.