UTM
UNIVERSITI TEKNOLOGI MALAYSIA

CIVIL ENGINEERING DEPRTMENT
UNIT PENGURUSAN MAKMAL UNIVERSITI

REACTIONS OF A CONTINUOUS BEAM

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1.		
2.		
3.		
Section / Group		
Lecturer's Name		

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Total	**100**	**100**	

REACTIONS OF A CONTINUOUS BEAM

1.0 OBJECTIVE

To determine the reactions of a two-span continuous beam.

2.0 INTRODUCTION

Several methods had been used to solve the reactions of statically indeterminate beam. For theory, students are advised to use Virtual Work Method, Slope deflection Method or Moment Distribution Method to find reactions of a continuous beam.

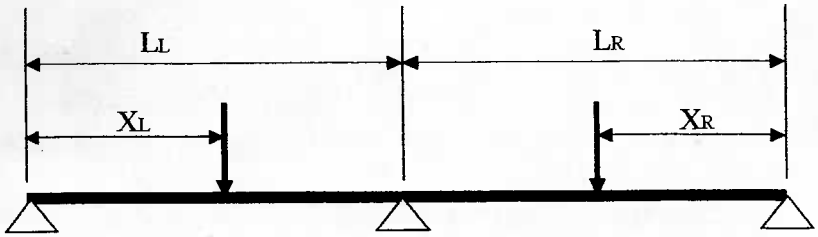
3.0 APPARATUS

The apparatus comprise of :

1. A support frame
2. 3 nos. reaction support pier
3. 2 nos. load hangers
4. Beam specimen
5. A meter ruler to measure the span of the beam
6. A set of weight

4.0 PROCEDURE

1. Switch on the display unit to warm up the unit.
2. Clamped the reaction piers to the support frame using the place and bolt supplied with the apparatus and at predetermine distant between the supports.
3. Place the beam specimen between the two cylindrical pieces of each support. Tightened the two screws at the top of each support with your finger.
4. Fix the load hanger at the position where the beam is to be loaded.
5. Connect the load cell from the support pier to the display unit each load cell occupying one terminal on the display.
6. Beginning with channel 1 record the initial reading for each channel.
7. Place a suitable load on the hanger and note the reading of each load cell. This represents the reaction at each pier.
8. Increase the load on the load hanger at suitable increments and for each increment record the pier reaction.



5.0 RESULTS

Left-hand span of beam, L_L = ...mm

Right-hand span of beam, L_R = ...mm

Distance of load from left-hand support, X_L = ...mm

Distance of load from right-hand support, X_R = ...mm

Table 1 : Reaction at the support

Load on L_L (N)	Load on L_R(N)	Support reaction			Theory		
		Right (N)	Middle (N)	Left (N)	Right (N)	Middle (N)	Left (N)
15	15						
20	20						
25	25						
30	30						
35	35						

6.0 CALCULATION AND RESULTS

1. Draw the beam and indicate the positions and direction of load. Give all important dimensions.
2. Derive the reactions at the supports.
3. Using the tabulated data :
   i. Plot the graph of reaction against load for each support.
   ii. Draw the best fit curve through the plotted points.
   iii. Using the slope of the graph, calculate the percentage error between the experimental the theoretical reaction.