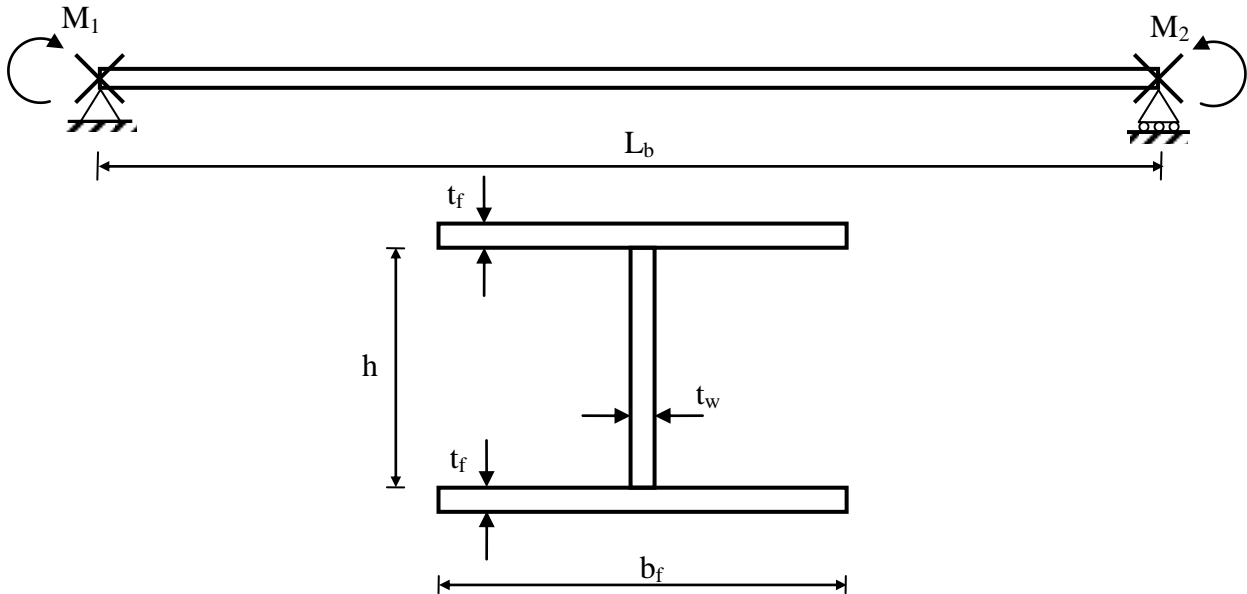


DESIGN OF STEEL STRUCTURES 2019 – 2020 Fall Semester

Homework No: 5 – Date Due: 16.12.2019

1) Determine ϕM_n for the following welded I - sections. (S235 Steel $F_y=235$ MPa)



Case 1 : $h = 1200$ mm $t_w = 6$ mm
 $b_f = 150$ mm $t_f = 8$ mm

- i. $L_b = 4500$ mm $M_1 = M$ $M_2 = M$
- ii. $L_b = 4500$ mm $M_1 = 0$ $M_2 = M$
- iii. $L_b = 3800$ mm $M_1 = -M$ $M_2 = M$

Case 2 : $h = 1200$ mm $t_w = 6$ mm
 $b_f = 200$ mm $t_f = 8$ mm

- i. $L_b = 4500$ mm $M_1 = 0$ $M_2 = M$
- ii. $L_b = 4500$ mm $M_1 = M$ $M_2 = M$

2) Determine the maximum factored uniform load (W_u) that could be applied to the beam. Beam has lateral supports at the ends. (S275 Steel $F_y=275$ MPa)

