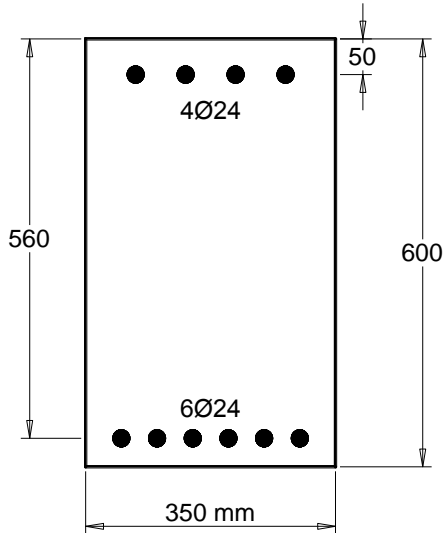


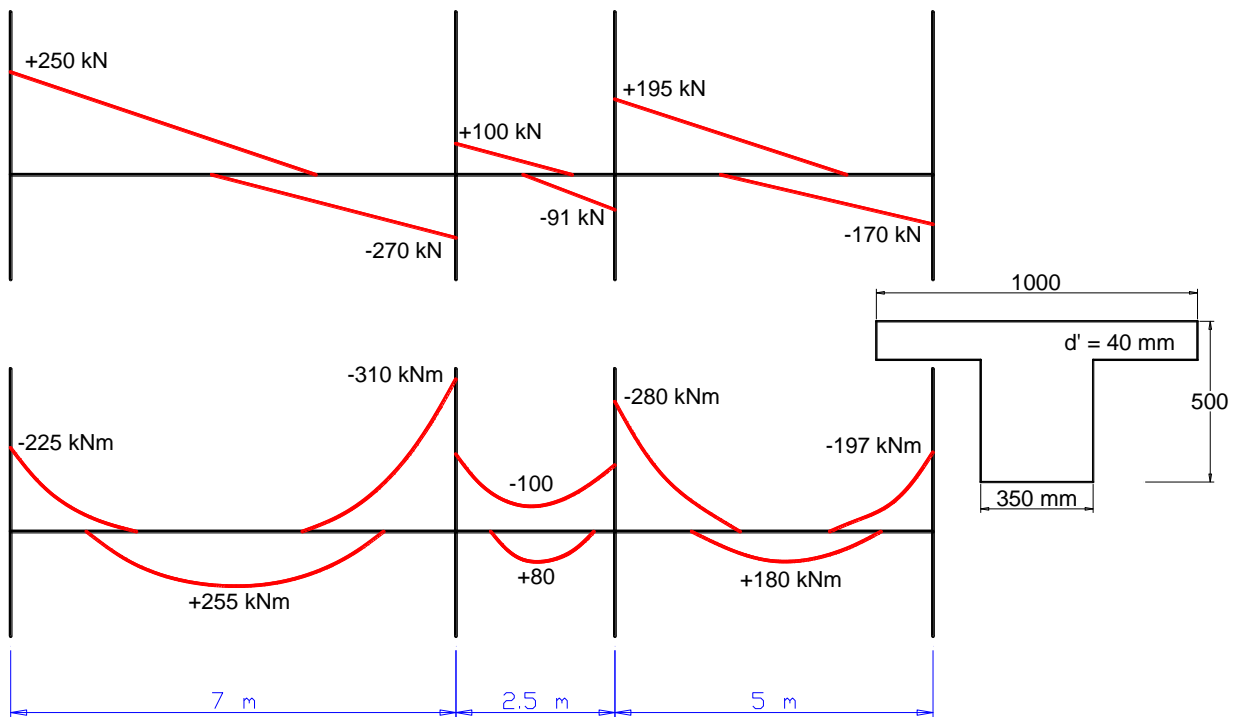
CE 382 HOMEWORK 3

Due Date & Time: April 20, 2015 @ 17.00

Q1. Calculate the design moment capacity, M_r , of the beam given below. Materials are C25 and S420.



Q2. The envelope shear and moment diagram of a three span continuous beam is given below. Calculate the required flexural reinforcement area at all critical sections. All columns are 400×400 mm. Materials are C20 and S420. Detail the reinforcement and show it on a neat sketch.



Q3. Draw the moment-axial load interaction diagram of the column given below for design purpose. Materials are C20 and S420 (use material factors). Draw the curve by calculating only the seven points asked below.

- a. Uniaxial compression, N_{or}
- b. Uniaxial tension
- c. Balanced case
- d. $N = 0$, beam case
- e. $N = 0.85N_{or}$
- f. $N = 0.45N_{or}$
- g. $N = 0.15N_{or}$

