FACULTY OF ENGINEERING	Project				Job Ref.	
Learning Tool for Reinforced Concrete Design	Section				Sheet no./rev. 1	
	Calc.by	Date	Chk'd by	Date	App'd by	Date

FLEXURAL REINFORCEMENT CALCULATION (BS8110:PART1:1997)

(FLANGE BEAM)

$b_f = b_w + \dfrac{l_z}{5} =$

$K = \dfrac{M}{b_w d^2 f_{cu}} =$

$Z = d\left\{0.5 + \sqrt{0.25 - \dfrac{K}{0.9}}\right\}$

$Z =$

$x = \dfrac{(d-z)}{0.45} =$

Check

$0.9x =$

$h_f =$

$0.9x > h_f$

Therefore, $\beta_f = 0.45 \times \dfrac{h_f}{d}\left(1 - \dfrac{b_w}{b}\right)\left(1 - \dfrac{h_f}{2d}\right) + 0.15\dfrac{b_w}{b}$

$\qquad \beta_f =$

$\beta_f f_{cu} bd^2 =$

Therefore, $M < \beta_f f_{cu} bd^2$

$A_S = \dfrac{M + 0.1 f_{cu} b_w d(0.45d - h_f)}{0.95 f_y (d - 0.5h_f)}$

$A_S =$

$f_{cu} = \qquad Mpa$

$f_y = \qquad Mpa$

$L = \qquad m$

$M = \qquad kN/m$

$d = \qquad mm$

$h_f = \qquad mm$

$b_w = \qquad mm$