DEPARTMENT OF CIVIL ENGINEERING

ITER, SoA University

Reinforced Concrete Design (CVL4121)
Minor Assignment 9
Deadline - 14 April 2017 9PM

Question 1

Determine the reinforcement to be provided in a 3 meter long circular column hinged on both sides subjected to uniaxial bending and compression for given data: Diameter of column: 600mm, Material to be used: M25 and Fe415, Axial load = 1200kN and Applied moment = 100kN.m. Provide helical lateral reinforcement. Assume effective cover to be 60mm. *Refer Example 13.12 and 13.13 of book, clause 39-IS456 and Example 7 given in compression chapter of SP16 for guidance.*

Question 2

Determine the reinforcement to be provided in a 4 meter long rectangular column hinged on both sides subjected to biaxial bending and compression for given data: Dimensions of column: $400mm \times 400mm$, Material to be used: M25 and Fe415, Axial load = 1200kN,Applied moment about minor axis = 60kN.m and Applied moment about major axis = 100kN.m. Provide tie lateral reinforcement. Assume effective cover to be 60mm. *Refer Example 13.15 and 13.16 of book, clause 39-IS456 and Example 8 given in compression chapter of SP16 for guidance.*

Question 3

Design a simply supported slab to cover a room with internal dimensions $5.0m \times 7.0m$, mild exposure conditions and 250 mm thick brick walls all around. Applied with a live load of $4kN/m^2$ and a finish load of $0.75kN/m^2$. Use M25 concrete and Fe 415 steel. Assume that the slab corners are restrained against lifting up. *Refer Example 11.1 and 11.2 of book and Annex.D-IS456 for guidance.*

Submission Link