

College of Engineering and Computing
Department of Civil and Environmental Engineering
CGN 2420 - Computer Tools for Civil Engineers

1.- The equations that follows are material balances for CO₂, SO₂, and N₂ around a gas absorber. F is treated as a known variable, but it depends on the case of study.

Solve the material balances for the unknown flow rates S_1, S_2, S_3 using matrices in Excel and use the procedure to find the solution for three different cases of study:

- a) $F = 0.0444$
- b) $F = 0.105$
- c) $F = 0.1422$

$$0.78938 S_1 - 0.15 S_2 - 0.79255 S_3 = 0$$

$$-0.78938 S_1 + 0 S_2 + 0.79255 S_3 = -0.1187F$$

$$0.20983 S_1 - 0.85 S_2 - 0.20665 S_3 = 0$$