Exact first and second order theories for composite beamcolumns with partial interaction and subjected to transverse and axial loading are presnted. General closed form solutions for the displacement functions and the varios internal actions in the composite element are presented for the first and second order cases. Also, the position of the axial load to be applied, in order that no curvature of the element but only axial strain is induced, is evaluated.

For design purposes, a general approximate second order procedure is also presented. The exact and approximate second order analysis procedures are applied to simply supported beamcolumns of concrete and steel and of concrete and wood.

Finally, an evaluation of the accuracy of the approximate second order analysis results compared to the exact ones for these illustrative examples is made. In two appendices som specific subproblems are discussed.

Firtstly, the accuracy of the appoxcimate shear magnification factor is evaluated in order to determine if the inaccuracy is due to the use of simple one-dimensional composite action theory or to the differentiaton of the deflected curve. Secondly, the fact that the magnitude and position of the external end actions (axial force and end moment) do not always coincide with that of the derived internal end actions, but that the resulting force and the resulting moment always do, is shown and explained by a detailed analysis.