

Bulte, C. H. F. 1992. The differential equation of the deflection curve. *International Journal of Mathematical Education in Science and Technology*. 23(1): 5-63.

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Article Abstract: This paper presents the derivation and the physical meaning of the general fourth-order linear differential equation (with sectionally continuous derivatives) of the deflection curve and its general formulation and solution as a multipoint boundary value problem. An algorithm is presented in which shearing forces, bending moments, deflections, critical load and natural frequency are calculated for (non)-uniform beams and columns, with arbitrary lateral and axial (dis)continuous distributed load functions and concentrated load, on (intermediate) (elastic) supports.

The paper offers a very thorough illustration of modeling building of a physical phenomena with very helpful diagrams and explanations. The diagrams are particularly well done and very helpful.