

962-J1-280

Robert J Lopez* (r.lopez@rose-hulman.edu), Department of Mathematics, Rose-Hulman Institute of Technology, 5500 Wabash Ave, Terre Haute 47803. *Advanced Engineering Math - A New Apprenticeship*.

Advanced Engineering Mathematics, containing materials from courses in ordinary differential equations, boundary value problems, vector calculus, matrix algebra, complex variables, numerical analysis, and even some calculus of variations, can be effectively and efficiently taught, learned, and implemented with a computer algebra system. The author's newly published Advanced Engineering Mathematics text shows how a computer algebra system (Maple) can be used as the working tool of first recourse in a new apprenticeship in classical applied mathematics. Specific examples include the construction of a Bezier curve, a study of the plucked string, and an analysis of the longitudinal vibrations in an elastic rod. (Received September 07, 2000)