

OBJECTIVES

"Elasticity", L3 S5, Mechanical Construction, University of M'sila
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Elasticity theory establishes a mathematical model of the deformation problem, and this requires mathematical knowledge to understand the formulation and solution procedures. Governing partial differential field equations are developed using basic principles of continuum mechanics commonly formulated in vector and tensor language. Techniques used to solve these field equations can encompass Fourier methods, variational calculus, integral transforms, complex variables, potential theory, finite differences, finite elements, etc. In order to prepare students for this subject, the text provides reviews of many mathematical topics, and additional references are given for further study. It is important that students are adequately prepared for the theoretical developments, or else they will not be able to understand necessary formulation details. Of course with emphasis on applications, we will concentrate on theory that is most useful for problem solution.