

Preface

This collection of problems results from the demand of students for supplementary problems and support in the preparation for examinations. With the present collection 'Engineering Mechanics 2 - Formulas and Problems, Mechanics of Materials' we provide more additional exercise material.

The subject 'Mechanics of Materials' is commonly taught in the second course of Engineering Mechanics classes at universities. The problems analyzed within these courses use equilibrium conditions and kinematic relations in conjunction with constitutive relations. As we want to concentrate more on basic concepts and solution procedures the focus lies on linear elastic material behavior and the small strain regime. However, this covers a wide range of elasto-static problems with relevancy in engineering applications. Special attention is given to structural elements like bars, beams and shafts as well as plane stress and strain situations.

Following the warning in the first collection, we would like to make the reader aware that pure reading and trying to comprehend the presented solutions will not provide a deeper understanding of mechanics. Neither does it improve the problem solving skills. Using this collection wisely, one has to try to solve the problems independently. The proposed solution should only be considered when experiencing major problems in solving an exercise.

Obviously this collection cannot substitute a full-scale textbook. If not familiar with the formulae, explanations, or technical terms the reader has to consider his or her course material or additional textbooks on mechanics of materials. An incomplete list is provided on page IX.

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D. Gross
P. Wriggers
W. Ehlers
J. Schröder
R. Müller



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Gross, D.; Ehlers, W.; Wriggers, P.; Schröder, J.; Müller,
R.

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