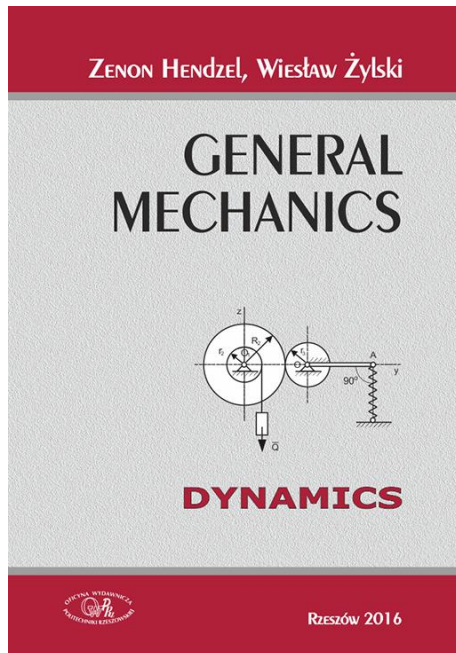


General Mechanics

DYNAMICS

Zenon Hendzel, Wiesław Żyjski



skrypt

słowa kluczowe: *dynamics of a particle, dynamics of a system of particles, dynamics of a solid, energy methods, analytical mechanics*

© Copyright by Oficyna Wydawnicza Politechniki Rzeszowskiej, Rzeszów 2016

ISBN 978-83-7934-167-5

184 strony

format B5

oprawa miękka

cena 22,00 zł

CONTENTS

INTRODUCTION

1. DYNAMICS OF A PARTICLE

- 1.1. Forces acting at a particle, 1.2. Differential equations of motion of a particle, 1.3. Inverse dynamics, 1.4. Forward dynamics, 1.5. Differential equations of motion in curvilinear coordinates
1.6. D'Alembert's principle, 1.7. Relative motion, 1.8. Relative equilibrium

2. DYNAMICS OF A SYSTEM OF PARTICLES

- 2.1. Introductory remarks, 2.2. Center of mass of a system, 2.3. Linear momentum vector of the center of mass, 2.4. Equation of motion for the center of mass, 2.5. Impulse of force (impulse momentum), 2.6. Angular momentum of a system of material particles, 2.7. Geometric of mass

3. DYNAMICS OF A SOLID

- 3.1. Translational motion of a solid, 3.2. Rotational motion of a solid, 3.3. Plane motion of a solid, 3.4. Dynamics of a system of solids, 3.5. Rotational motion of a solid about a fixed point (spherical motion), 3.6. General motion of a solid (arbitrary motion)

4. ENERGY METHODS FOR DESCRIBING THE PHENOMENON OF MOTION

- 4.1. Kinetic energy, 4.2. Work done by the force system

5. ANALYTICAL MECHANICS

- 5.1. Principle of virtual work, 5.2. Principle of dynamic force analysis equilibrium, 5.3. General equation of dynamics, 5.4. Lagrange's equations

BIBLIOGRAPHY