

CONTACT MECHANICS

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Class: Wednesdays 15:00-18:00

Office Hours:

Textbook: NO Textbook

Recommended Reading:

Barber, J.R., 2002. Elasticity. Dordrecht: Kluwer academic publishers.

Sadd, M.H., 2009. Elasticity: theory, applications, and numerics. Academic Press.

Barber, J.R., 2018. Contact mechanics. Berlin: Springer International Publishing.

Popov, V.L., 2010. Contact mechanics and friction (pp. 231-253). Berlin: Springer Berlin Heidelberg.

Johnson, K.L., 1987. Contact mechanics. Cambridge university press.

Fischer-Cripps, A.C., 2007. Introduction to contact mechanics (Vol. 101). New York: Springer.

Sackfield, A., Hills, D.A. and Nowell, D., 2013. Mechanics of elastic contacts. Elsevier.

Galini, L.A., 2008. Contact problems: the legacy of LA Galini (Vol. 155). Springer Science & Business Media.

CONTENTS

1. Introduction

1.1 Fourier transforms of functions of one variable

1.2 Relations between Fourier transforms

1.3 Applications of the two dimensional Fourier transform

2. Line loading of an elastic half-plane

2.1 Concentrated normal force on the surface of a half-plane

2.2 Concentrated tangential force on the surface of a half-plane

2.3 Distributed normal and tangential tractions on the surface of a half-plane

2.4 Uniform distribution of tractions on the surface of a half-plane

2.5 Displacements specified in the loaded region

2.6 Indentation of a half-plane by a rigid flat punch

2.7 Integral equations with Cauchy kernels

3. Normal Contact of Elastic Solids – Hertz Theory

3.1 Geometry of smooth non-conforming surfaces in contact

3.2 Indentation by a rigid cylindrical punch

3.3 Hertz theory of elastic contact

3.4 Elastic foundation model

4. Non-Hertzian normal contact of elastic bodies

4.1 Blunt wedges and cones

4.2 Conforming surfaces

4.3 Adhesion between elastic bodies