BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, Pilani
Pilani Campus

INSTRUCTION DIVISION
FIRST SEMESTER 2013-14
Course Handout (Part II)

Date: 02/08/2013

In addition to Part I (General Handout for all courses appended to the time table) this portion gives further specific details regarding the course.

Course No.	**: ME F211**
Course Name	**: Mechanics of Solids**
Instructor-in-charge	**: Jitendra S Rathore**
Tutorial Instructor	: Arun Kumar Jalan, Murli Palla, Sharad Shrivastava

1. Course Description:

Fundamental principles of mechanics; Introduction to the mechanics of deformable bodies; Forces and Moments transmitted by slender members; Stress- Strain; Stress-Strain Temperature relations; Torsion; stresses and deflections due to bending; Stability of equilibrium; Static failure criteria, ductile and brittle material; Dynamic failure criteria.

2. Scope and Objective:

The subject of mechanics of solids deals with determination of strength, deformation and stability of structural and machine elements. The methods are based on Laws of Newtonian mechanics, applied to bodies in static equilibrium, geometry and experimentation. These laws are applied to simple situations with engineering judgment to arrive at results of significance to the designer.

At the end of the course the student will be in a position to design and analyze simple structural elements, which involve calculation of stress, strain and deformation. This is an essential feature in any design process.

3. Text Book:

1. Crandall, Dahl and Lardner, An Introduction to Mechanics of Solids, McGraw-Hill International edition, 1978.

4. Reference Books:

1. Mechanics of Materials; F. P. Beer, E. R. Johnston and J. T. DeWolf, Third Edition, 2002, McGraw-Hill International Edition.
2. Introduction to Solid Mechanics by I. H. Shames, 2nd Edition, 1980, Prentice Hall of India Private Ltd. New Delhi.
3. Engineering Mechanics of Solids by E. P. Popov, 2nd Edition, PHI, New Delhi.

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