

Department of Applied Mechanics, IIT Delhi
First Semester, 2019-2020

Applied Plasticity (AML833) 3-0-0

Lecture Schedule : Tuesdays (12.00-01.30 pm at IV-254 and 4.00-5.30 pm at LH-614)

Course Co-ordinator : Gaurav Singh (E: gsingh@am.iitd.ac.in, O: IV-255, P: 1184)

Course Outline :

S. No.	Topic
1	Phenomena of Plastic Deformation
2	Plasticity of Soils, Rocks & Concrete
3	Fundamentals of Continuum Mechanics
4	Constitutive Relations: Elastic & Inelastic
5	Visco-plasticity
6	Rate-independent Plasticity
7	Yield Criteria, Flow Rules & Hardening Rules
8	Uniqueness & Extremum Theorems
9	Limit-Analysis & Shakedown Theorems
10	Problems in Contained Plastic Deformation: Bending
11	Slip-Line Theory
12	Crystal Plasticity

Books :

Text: Plasticity Theory by Jacob Lubliner, 2007

Reference: Materials Science & Engineering by William D. Callister, Jr., David G. Rethwisch, 2016

Evaluation :

Minor - I	: 00%
Minor - II	: 15%
Assignments	: 60%
Research Paper*	: 10%
Major	: 15%

Note :

- Minimum of 40% marks required for passing
- * Each registered student will select one “classic” research paper relevant to her own interest which includes a *substantial* application of Plasticity