SUBJECT NO-MT31009, SUBJECT NAME- MECHANICAL WORKING OF MATERIALS

LTP- 3-0-0,CRD- 3

SYLLABUS :-

Prerequisite Ã¢ÂÂ NilFundamentals of metal working: Classification of forming processes, mechanics of metal working, temperature and strain rate effects, instability and flow localization, shear banding, workability, microstructure and texture evolution, friction and lubrication, residual stress. Forging: Closed-die and open-die forging, forging equipment, mechanics. Rolling: Terminology of rolled products, different kinds of rolling mills, forces and geometric relationships, variables affecting roll pressure, power and friction hill, theories of cold and hot rolling, roll pass design.Extrusion: Direct and indirect extrusion, impact extrusion, hydrostatic extrusion, equipment, extrusion variables, extrusion pressure. Wire and Tube drawing: Processes and equipments, hydrodynamic lubrication, draw stress, factors affecting draw stress and reduction.Sheet metal forming: Different forming methods, forming limit criteriaNon-conventional methods: Powder performs forging, superplastic forming, high energy rate forming, mushy state forming, forming of plastics. Analysis of defects in products of all metal forming processes.Text Books: 1.G.E. Dieter: Mechanical metallurgy, McGraw Hill Book Company, New Delhi, 1986.2.J.N. Harris: Mechanical Working of Metals- Theory and Practice, Pergamon Press, Oxford, 1