

MME 407: Mechanical Processing of Materials

Mechanical working of metals: Texturing (preferred orientation) stress concentration. Hardening and Strengthening: Hardening and strengthening by point defects, including solution hardening), second phase particles and other phase structures. Work hardening. Theoretical cohesive strength. Factors affecting the initiation and propagation of cracks Principles of hot and cold working of metals. Structural and property changes during hot and cold working. Nature of Stresses, strains and metal flow in various metal working operations. Heating of Stock: Soaking pits and re-heating furnaces, de-scaling steels, precautions to be taken during re-heating of ferrous and non-ferrous metals. Rolling mills and accessories, elements of roll pass design. Manufacture of rolled products. Forging and Extrusion. Types of forging processes, forging equipments, and forging defects. Roll forging and rotary swaging. Types of and variables in extrusion. Extrusion equipment. Wire drawing: Wire drawing techniques. Tube making: seamless tubes