

SYLLABUS :-

Prerequisite - Nil Significance of powder technique compared to other metal forming techniques. Production of powders; mechanical attrition, atomization, chemical reduction processes, electro chemical processes. Production of ceramic powders and whiskers, production of high purity oxides, carbides, nitrides and borides. Characterization of powders- Sampling of powders, physical, chemical and technological characteristics of powders. Powder conditioning and treatment. Compaction and shaping: Compaction in rigid dies, cold isostatic compaction, powder injection molding. Sintering: Theory of sintering of single component powders, sintering of mixed powders and composites, liquid phase sintering, reactive sintering, sintering furnaces and atmospheres.

Applications: Refractory metals, cemented carbides, porous parts, structural parts, aerospace applications, magnetic applications. Text Books: 1. R. M. German: Powder Metallurgy Science, 2nd Edition, MPIF, 1994. 2. F. Thummler and R. Oberacker: An Introduction to Powder Metallurgy, The Institute of Materials, London, 1993.