



POWDER METALLURGY

PROF. RANJIT BAURI

Department of Metallurgical Engineering
and Materials Sciences
IIT Madras

TYPE OF COURSE : New | Core_Elective | UG/PG

COURSE DURATION : 12 weeks (20 Jul' 20 - 11 Sep' 20)

EXAM DATE : 27 Sep 2020

PRE-REQUISITES : Basics of Materials Science & Engineering

INTENDED AUDIENCE : Any Interested Learners

INDUSTRIES APPLICABLE TO : Saint Gobain, Murugappa, Ashok Leyland, BHEL, Sandvik Asia Ltd,
Avartana Metal Powders

COURSE OUTLINE :

Powder Metallurgy is a very useful manufacturing process which is being practiced in variety of industries for decades. It is a versatile process that can produce a solid, a component or a product in net shape or near net shape starting from a loose mass of powder. This course will not only provide a broad overview of the P/M process but will also deal with the relevant concepts in detail. The objective is to learn about the process and understand it in a scientific and systematic manner.

ABOUT INSTRUCTOR :

Dr. Ranjit Bauri is a Professor in the Dept. of Metallurgical and Materials Engineering, IIT Madras. He has more than a decade of experience in teaching and research. The broad areas of his expertise include Powder Metallurgy, Ceramics, Composite materials, Energy Materials, Aluminum alloys, Friction stir welding and processing, and Microscopy.

COURSE PLAN :

Week 1: Introduction to Powder Metallurgy, Definition, Why Powder Metallurgy

Week 2: Powder Fabrication

Week 3: Powder Fabrication, Powder Characterization

Week 4: Powder Characterization, Microstructure control

Week 5: Powder shaping and Consolidation

Week 6: Shaping and Compaction

Week 7: Compact characterization

Week 8: Sintering

Week 9: Sintering

Week 10: Full density processing

Week 11: Finishing operations

Week 12: Properties and Applications