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| 7 th Semester | RMM7D005 | Powder Metallurgy | L-T-P 3-0-0 | 3 Credits |
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Module-I: (10hours)
 Historical perspective of Powder Metallurgy; The Future of Powder Metallurgy. Fabrication of Powders: Basic methods, Mechanical fabrication techniques; Electrolytic fabrication techniques, Chemical fabrication techniques, Atomization techniques. Production of Ferrous powders.

Module-II: (10 hours)
Powder Characterization: Experimental methods for measuring particle size, shape, distribution, surface area; Significance of true, apparent and tap densities of powders; Flow rate; compressibility and green strength; Characteristics of common ferrous powders
Mixing and Blending: Dry Mixing, wet mixing; Powder Lubrication.

Module-III: (10 hours)
Compaction: Injection Molding; Fundamentals of Compaction; Influence of Material and Powder Characteristics on compaction.
Sintering Behavior: Sintering fundamentals; Sintering Theory; Mixed Powder Sintering; Liquid Phase Sintering; Sintering Atmosphere, Sintering Furnaces; Full Density Processing

Module-IV:
Finishing Operations: Machining; Heat Treatments; Surface Treatments
Applications: Competitive Processes; Examples of Powder Metallurgy Applications and Properties.

Books:

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| [1] | Powder Metallurgy – A Upadhyaya and G S Upadhyaya. |
| [2] | Powder Metallurgy – R. M. German, 2 nd Edition, MPIF, 1994 |
| [3] | Powder Metallurgy: Principles and applications, Fritz V. Lenel, Metal Powder Industries Federation, 1980 |
| [4] | Powder Metallurgy Technology, Cambridge International Science Publishing, 2002 |

Digital Learning Resources:

Course Name: Powder Metallurgy
 Course Link: <https://nptel.ac.in/courses/113/106/113106098/>
 Course Instructor: Prof. Ranjit Bauri