7thSemester

PMT7J003 ALTERNATIVE ROUTES OF IRON MAKING 3-0-0

Module I (12 Hours)

Characteristics of raw materials and their preparation. Thermodynamics and Kinetics aspects. Direct Reduction Processes:

Reduction of Iron bearing materials in shaft furnace, rotary kiln, retort and fluidized bed with special reference to reductant, energy consumption and operational problems.

Module II (14 Hours)

Commercially available processes: like SL/RN, ACCAR, Krup-CODIR, Kinglon Meter, MIDREX, HyL, Purofer, Iron Carbide, etc.
Uses of DRI in steel making, iron making and foundries; effect on DRI on EAF performance and product characteristics.

Module III (12 Hours)
Smelting Reduction Processes:
COREX, ROMELT, Fluidized bed reactors, Hismelt etc. Present status of alternative methods of iron making in India.

Books for reference:

1. Alternative Routes to Iron Making by A.Sarangi and B.Sarangi, PHI-2016
2. Beyond the Blast Furnace by Amit Chatterjee.
3. Direct Reduction of Iron, Editiors: Jerome Feinman& Donald R.Mac Rae, Allied Publishers Ltd.