

<b>6<sup>th</sup> Semester</b>		<b>Agglomeration Processes</b>	<b>L-T-P 3-0-0</b>	<b>3 CREDITS</b>
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**Module I:****(8 Hours)**

Necessity and scope of agglomeration, Different types of agglomeration techniques. Pelletization. Raw material preparation, Characteristics of raw materials for pelletization like Iron ore, additives, binders etc., Role of specific surface area, Preferred locations of Sintering and Pelletization plants.

**Module II:****(8 Hours)**

Green-ball formation: Mechanism and process parameters on size and strength of green-pellet, testing of Green-balls. Drying and firing of Green Balls, testing of indurated pellets like Tumbler-test, Reducibility, Swelling index, Compressive strength etc., Cooling of indurated pellets.

**Module III:****(8 Hours)**

Pelletization Equipment: Construction and operation of Disc and Drum-Pelletizers, Roller conveyor and screen, Different types of pellet-firing system, Shaft-furnace, Travelling Grate system and Grate Kiln System. Advantages of pellets in Iron-making.

**Module IV:****(8 Hours)**

Sintering: various raw materials used for production of sinter. Preparation of fuel and flux and its effect on the process of sintering. Mechanism of Sintering, types of Sinter and properties of Sinter, Sintering-Mineralogy and its effect on strength of sinter. Cooling, preparation of sinter before use in blast furnace.

**Module V:****(8 Hours)**

Comparison between pelletizing and sintering, Design of sintering plants and pelletization plants flowsheets. Briquetting, Overview of sintering and pelletization in India

**Books:**

- [1] Meyer K., Pelletizing of iron ores, Springer Publication, New York
- [2] Pietsch W., Agglomeration Process: Phenomena, Technologies, Equipment, Wiley-VCH
- [3] Tupkary R.H. and Tupkary V.R., An introduction to modern iron making, Khanna Publishers