



VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA

Department of Metallurgical & Materials Engineering

Lesson Plan- Iron Making

Subject Name	:	Iron Making
Credits	:	3-1-0
Department	:	Metallurgical & Materials Engineering
Session	:	2017-18 (Even Semester)
Level	:	Undergraduate (VI-Semester)
Course Coordinator	:	Mr. Gautam Behera
Category of	:	Compulsory course for all B.Tech VI Semester students of MME Department.
Total class per week	:	4

Marks Distribution		
End Term	Mid Term	Assignments + Class Test + attendance
70	20	10
Total -100 Marks		

Reference book :

1. Modern iron making –DR. R.H TUPKARY
2. Principles of blast furnace iron making –Dr A K Biswas
3. Iron & Steel making theory and practice Ahindra Ghosh Amit Chatterjee

Lesson plan

Period	Module/number	Topic to be covered	Remark
1	I	Introduction to iron making , types, major steel producing companies, and country	-
2	I	Iron making history , route, blast furnace different section and layout	-
3	I	B/F section –raw materials handling and B/f proper	-
4	I	B/f from top to bottom, update, charging system	-
5	I	B/F structure over view, temp profile , heat utilization	-
6	I	B/f refractories, failure , cooling system, gas cleaning	-
7	I	Hot blast generation	-
8	I	Metallurgical coal properties and coke making	-
9	I	Class test -1	
10	II	B/f plant operation , blowing in and out, banking	-
11	II	Irregularities in B/f operation and remedies	-
12	II	B/f products , quality control, disposal ,coke rate, blast furnace efficiency	-
13	II	Quiz	
14	II	Modern trends in B/f practice , auxiliary fuel injection	-
15	II	High temperature blast, humidified , and oxygen generated blast	-
16	II	High top pressure	-
17	II	Desulphurization , different zones inside the B/f during working	-
18	II	Thermodynamics of B/f , process, free energy, and equilibrium consideration	-
19	II	Agglomeration of iron ore	-
20	II	Sintering	-
21	II	Sintering	-
22	II	Sintering	-

23	II	Pelletatisation	-
24	II	Pelletatisation	-
25	II	Pelletatisation	-
26	II	Class test -2	
27	III	Evaluation of properties of B/f burden material	-
28	III	Evaluation of properties of B/f burden material	-
29	III	Raw material for production of one THM , mineral characteristic	-
30	III	Quiz	
31	III	Valuation of iron ore , reservoir of coke , and function of coke	-
32	III	Classification of cooking coal in India and other countries	-
33	III	Beneficiation of iron ore	-
34	III	Class test -3	
35	IV	Alternative fuel for iron making	-
36	IV	Alternative routes of iron making , sponge iron making	-
37	IV	Uses of sponge iron, limitation of dri process	-
38	IV	Sponge iron making uses and limitations	-
39	IV	Charcoal B/f and shaft furnace , limitation and advantages	-
40	IV	Electro thermal process of iron making	-
41	IV	Presentation by students	-
42	IV	Revision on gate questions	-
43	IV	Intro to production of Ferro alloy	-
44	IV	Use of Ferro alloy in iron and steel industries	-
45	IV	Class test -4	-