LESSON PLAN

Subject Name- Theory of Metal Forming	Branch- Production Engineering
Subject Code- BPE 2603	Semester- 6th

S/N	Module	Topic(s)	Period/ Hours
1	I	Review of 2-D stress and strain	1
2	I	State of stress in 3-D,Stress tensor, Invariants	2-3
3	I	Mohr's circle for 3-D State of Stress, Strain at a point-Mohr's circle for strain	4-5
4	I	Hydrostatic & Deviatory components of Stress	6
5	I	Elastic stress-strain relations	7
6	I	Tutorial	8
7	II	Elements of theory of plasticity: Flow curve, True stress & true strain, Yield criteria for ductile metal,Von Misses & Tresca yield criteria, Combined stress tests	9-12
8	II	The yield locus, Anisotropy in yielding, Yield surface	13-14
9	II	Levy-Misses,Prandtl-Reuss Stress-Strain relation	15-16
10	II	Classification of forming processes variables in metal forming and their optimization	17
11	II	Tutorial	18
12	III	Analysis of deformation processes-Method based on homogeneous compression slip line field theory	19-20
13	III	Upper bounds & lower bounds	21
14	III	Slab method analysis	22-23
15	III	Tutorial	24
16	III	Flow stress determination	25

S/N	Module	Topic(s)	Period/ Hours
17	III	Hot working, Cold working, Strain rate effect	26
18	III	Friction and lubrication, Deformation zone geometry,	27-28
19	III	Workability, Residual stress.	29
20	III	Tutorial	30
21	IV	Analysis of metal forming processes, Forging: Load calculation in plane strain forging	31
22	IV	Rolling: Forces & geometrical relationship in rolling, Rolling load and torque in cold rolling,	32-33
23	IV	Von-Karman work equation	34-35
25	IV	Tutorial	36
24	IV	Extrusion: Analysis of extrusion process, extrusion pressure	37
25	IV	Drawing: Drawing load	38-39
26	IV	Tutorial	40