Gautam Buddha University; Greater Noida

School of Engineering (Mechanical Engineering)

Degree	Course Name	Course Code	Marks:100
M. Tech.	Press Tool Design	MEM 603	SM+MT+ET 25+25+50
Semester	**Credits**	**L-T-P**	**Exam.**
III	3	3-0-0	3 Hours

Unit I

Principles of Blanking and Piercing: Basic blanking or piercing operation; Shearing theory; Calculation of cutting force; Importance of cutting force; Calculation of stripping force; Calculation of cutting clearance; Importance of cutting clearance; Cost analysis with a view on the quantity of production.

(07 Hours)

Unit II

Introduction to various parts of Blanking and Piercing Dies: Function of punch plate; Top plate; Shank; Stripper plate; Die plate; Guide pillar and guide bushes; Gages ; Stopper; Stock material utilization and strip layouts; Materials used for above referred parts; Fine blanking process techniques and application; Selection of presses. **(10 Hours)**

Unit III

Bending and Drawing: Basic of bending; Bending stress; Bend allowance curve; Estimating flat blank lengths; Introduction to bending dies to produce bend components; Cost analysis with a view on the quantity of production; Selection of Presses, Theory of deep drawing and important parameters in drawing. **(10 Hours)**

Unit IV

Designing of Press Tools: Design of blanking; Piercing, Drawing and bending dies. **(06 Hours)**

Unit V

Compound Dies & Progressive Dies: Definition of compound dies; Introduction to compound dies; Function of various parts of compound dies; Definition of progressive dies; Introduction to the progressive dies; Calculation of centre of pressure; Strip layouts. **(08 Hours)**

Unit VI

Failures; Cost Analysis and Safety: Analysis and remedies; Cost analysis with a view on the quantity of production; Reconditioning and repair of tools; Importance of safety. **(04 Hours)**

Recommended Books:

1. Press Tool Design and Construction; P.H. Joshi; Wheeler Publishing; Delhi; 2000.
2. Tool Design; Donaldson; McGraw Hills.
3. Technique of Press Working Sheet Metal; Eary Reed; Prentice Hall; 1974.
4. Machine Tools Handbook: Design and Operation; Joshi; McGraw Hill; 2008.
5. Basic Die Making; Ostergaard; McGraw Hill; New York; 1993.
6. Hydraulic Presses; Oehler; Arnold Press; 1968.
7. Mechanical Presses; Makelt; Arnold Press; 1968.