

Gautam Buddha University, Greater Noida

School of Engineering (Mechanical Engineering)

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

Unit - I

Introduction to Product Design: Introduction to PDD; Applications; Relevance; Scope; Terminology; Design definitions; the role and nature of design; Old and new design methods; Design by evolution; Product development process; Product development organizations; Identifying the customer needs; Establishing the product specifications; Concept generation; Concept selection.

(08 Hours)

Unit - II

Product Architecture: Product architecture; Implication of the architecture; Establishing the architecture; Related system level design issues.

(06 Hours)

Unit - III

Industrial and Manufacturing Design: Need for industrial design; Impact of industrial design; Industrial design process; Assessing the quality of industrial design; Human Engineering consideration.

(08 Hours)

Unit - IV

Prototyping and Economic Analysis: Principles of prototyping; Planning for prototypes; Elements of economic analysis; Base case financial model; Sensitivity analysis; Influence of the quantitative factors.

(08 Hours)

Unit - V

Product Appraisal: Information and literature search; Patents; standards and codes; Environment and safety considerations; Existing techniques such as work-study; SQC etc. which could be used to improve method & quality of product; Innovation versus invention; Technological forecasting. **(08 Hours)**

Unit - VI

Product Development Projects: Sequential; parallel and coupled tasks; Baseline project planning; Project budget; Project execution; Project evaluation. **(07 Hours)**

Recommended Books:

1. Product Design and Development; Karal .T. Ulrich; Steven D. Eppinger; McGraw Hill.
2. Product Design & Manufacturing; A. K. Chitab & R. C. Gupta; PHI (EEE).
3. The Technology of Creation Thinking; R. P. Crewford – Prentice Hall.