

**GUJARAT TECHNOLOGICAL UNIVERSITY****Syllabus for Bachelor of Vocation (B.Voc), 5th Semester****Branch: Production Technology****Subject Name: Product Design for Manufacturing****Subject Code: 1150303****With effective
from academic
year 2018-19****Type of course:** Engineering Science**Prerequisite:** Zeal to learn the subject

Rationale: The Design for Manufacturing is challenging subject, the aim of present course is to introduce and aware students about the basic design process which based on different aspects of manufacturing as well assembly. Student will have idea about different criteria made on design such as machining and casting. They also have knowledge on Environment factors.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total
L	T	P	C	Theory Marks		Practical Marks		Marks
				ESE (E)	PA (M)	ESE (V)	PA (I)	
3	0	0	3	50	0	0	0	50

Sr. No	Topic	No. of Hours	Weightage %
01	Importance of New Product- Importance of new product for growth of enterprise, Definition of product and new product, Classification of products from new product development point of view- Need based/Market pull products, Tech. push, Platform based, Process based and customized products	3	10
02	New product development process and organization- Generic product development process for Market Pull and Market Push Products, Need Identification and Analysis, Problem Formulation, Establishing economic existence of need, Engineering Statement of Problem, Establishing Target Specification	5	15
03	Generation of Alternatives and Concept Selection- Introduction to Concept generation, Tools of creativity like brain storming, Analogy, Inversion, introduction to Concept feasibility and Concept Selection, Establishing Engineering Specification of Products	6	20
04	Preliminary and Detailed Design- Preliminary design, Identification of subsystems, Subsystem specifications, detailed design of subsystems, component design	10	30
05	Assembly drawing and review- Preparation of assembly drawings, Review of product design from point of view of Manufacturing, Ergonomics and aesthetics	7	25



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Distribution of marks weightage for cognitive level:

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10	20	20	-	-	-

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

1. Geoffrey Boothroyd, “Assembly Automation and Product Design”, Marcel Dekker Inc., NY, 1992.
2. Engineering Design – Material & Processing Approach – George E. Deiter, McGraw Hill Intl. 2nd Ed. 2000.
3. Geoffrey Boothroyd, “Hand Book of Product Design” Marcel and Dekken, N.Y. 1990.
4. A Delbainbre “Computer Aided Assembly London, 1992.

Course Outcome:

Sr. No.	CO statement	Marks % weightage
CO 1	Confidence to create new product based on mechanical design engineering	10
CO 2	Students will have ability to solve open-ended problem belongs to design engineering that meet the requirements.	15
CO 3	Students will have ability to understand contemporary issues and their impact on provided solution.	20
CO 4	Students will have knowledge of all mechanical aspects of product design by incorporating concept, creativity, structural, manufacturing, esthetic etc.	30
CO 5	Students will have ability to understand contemporary issues and their impact on design for manufacturing and assembly	25

List of Open Source Software/learning website:

<https://nptel.ac.in>,