

PD5251 INTEGRATED PRODUCT DESIGN AND PROCESS

DETAILED SYLLABUS

UNIT I INTRODUCTION

Need for IPPD-Strategic importance of Product development - integration of customer, designer, material supplier and process planner, Competitor and customer - behavior analysis. Understanding customer- promoting customer understanding- involve customer in development and managing requirements - Organization process management and improvement

UNIT II CONCEPT GENERATION, SELECTION AND TESTING

Plan and establish product specifications. Task - Structured approaches - clarification - search externally and internally-Explore systematically - reflect on the solutions and processes – concept selection - methodology - benefits. Implications - Product change - variety – component standardization - product performance - manufacturability – Concept Testing Methodologies.

UNIT III PRODUCT ARCHITECTURE

Product development management - establishing the architecture - creation - clustering - geometric layout development - Fundamental and incidental interactions - related system level design issues - secondary systems -architecture of the chunks - creating detailed interface specifications- Portfolio Architecture.

UNIT IV INDUSTRIAL DESIGN

Integrate process design - Managing costs - Robust design - Integrating CAE, CAD, CAM tools– Simulating product performance and manufacturing processes electronically - Need for industrial design-impact – design process - investigation of customer needs - conceptualization – refinement - management of the industrial design process - technology driven products - user – driven products - assessing the quality of industrial design.

For Syllabus, Question Papers, Notes & many More

UNIT V DESIGN FOR MANUFACTURING AND PRODUCT DEVELOPMENT 11

Definition - Estimation of Manufacturing cost-reducing the component costs and assembly costs – Minimize system complexity - Prototype basics - Principles of prototyping - Planning for prototypes- Economic Analysis - Understanding and representing tasks-baseline project planning- accelerating the project-project execution.

REFERENCES:

1. Concurrent Engg./Integrated Product Development. Kemneth Crow, DRM Associates, 6/3, ViaOlivera, Palos Verdes, CA 90274(310) 377-569, Workshop Book
2. Effective Product Design and Development, Stephen Rosenthal, Business One Orwin, Homewood, 1992, ISBN, 1-55623-603-4.
3. Product Design and Development, Karl T.Ulrich and Steven D.Eppinger, McGraw – Hill International Edns.1999.
4. Tool Design – Integrated Methods for successful Product Engineering, Stuart Pugh, Addison Wesley Publishing, Neyourk, NY,1991, ISBN 0-202-41639-5.
5. www.me.mit/2.7444

OBJECTIVE

The course aims at providing the basic concepts of product design, product features and its architecture so that student can have a basic knowledge in the common features a product has and how to incorporate them suitably in product.