

**PRODUCT LIFE CYCLE MANAGEMENT**  
**B.E, VIII Semester, Mechanical Engineering**  
**[As per Choice Based Credit System (CBCS) scheme]**

Course Code	17ME835	CIE Marks	40
Number of Lecture Hours/Week	03	SEE Marks	60
Total Number of Lecture Hours	40( 8 Hours per Module)	Exam Hours	03

Credits – 03

**Course Objectives:**

- Familiarize with various strategies of PLM
- Understand the concept of product design and simulation.
- Develop New product development, product structure and supporting systems
- Interpret the technology forecasting and product innovation and development in business processes.
- Understand product building and Product Configuration.

**Module - 1**

**INTRODUCTION TO PLM AND PDM**

Introduction to PLM, Need for PLM, opportunities and benefits of PLM, different views of PLM, components of PLM, phases of PLM, PLM feasibility study. PLM Strategies, strategy elements, its identification, selection and implementation. Product Data Management, implementation of PDM systems.

**Module - 2**

**PRODUCT DESIGN**

Engineering design, organization and decomposition in product design, product design process, methodical evolution in product design, concurrent engineering, design for 'X' and design central development model. Strategies for recovery at end of life, recycling, human factors in product design. Modelling and simulation in product

**Module - 3**

**PRODUCT DEVELOPMENT**

New Product Development, Structuring new product development, building decision support system, Estimating market opportunities for new product, new product financial control, implementing new product development, market entry decision, launching and tracking new product program. Concept of redesign of product.

**Module - 4**

**TECHNOLOGY FORECASTING**

Technological change, methods of technology forecasting, relevance trees, morphological methods, flow diagram and combining forecast of technologies Integration of technological product innovation and product development in business processes within enterprises, methods and tools in the innovation process according to the situation, methods and tools in the innovation process according to the situation

## Module - 5

### PRODUCT BUILDING AND STRUCTURES

Virtual product development tools for components, machines, and manufacturing plants: 3D CAD systems, digital mock-up, model building, model analysis, production (process) planning, and product data technology, Product structures: Variant management, product configuration, material master data, product description data, Data models, Life cycles of individual items, status of items.

#### Scheme of Examination:

Two question to be set from each module. Students have to answer five full questions, choosing at least one full question from each module. Motivation, Process Monitoring System, Applying Sensor Flows in Decision Making: Automated Monitoring, Case Study.

#### Concluding Remarks and Observations about the Future

Introduction, Evolution of Manufacturing, Leveraging Manufacturing, Energy of Labor.

#### Course outcomes:

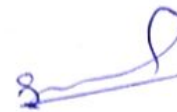
- Explain the various strategies of PLM and Product Data Management
- Describe decomposition of product design and model simulation
- Apply the concept of New Product Development and its structuring.
- Analyze the technological forecasting and the tools in the innovation.
- Apply the virtual product development and model analysis

#### Text Books:

1. Stark, John. *Product Lifecycle Management: Paradigm for 21st Century Product Realisation*, Springer-Verlag, 2004. ISBN 1852338105
2. Fabio Giudice, Guido La Rosa, *Product Design for the environment-A life cycle approach*, Taylor & Francis 2006

#### Reference Books:

- 1.. SaaksvuoriAntti / ImmonenAnselmie, *product Life Cycle Management* Springer, Dreamtech, 3-540-25731-4
2. *Product Lifecycle Management*, Michael Grieves, Tata McGraw Hill



H. O. D.

Dept. Of Mechanical Engineering  
Alva's Institute of Engg. & Technology  
Mijar, MOODBIDRI - 574 228