

SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE

B E (Mechanical) Part II (2012 Course)

402049 OPEN ELECTIVE

PRODUCT LIFECYCLE MANAGEMENT

Teaching Scheme

Lectures 4 hrs/week

Examination Scheme

Insem 30Marks & Endsem 70 Marks

SECTION – I

UNIT I

INTRODUCTION TO PRODUCT LIFE CYCLE MANAGEMENT

Product life cycle – Introduction, growth, maturity & decline, Product Lifecycle Management- Definition & Overview, Background for PLM-corporate challenges, Need of PLM, Components/Elements of PLM, Emergence of PLM, Significance of PLM - life cycle problems to be resolved, product development problems to be resolved, Customer Involvement. **06**

UNIT II

CONSTRUCTING PRODUCT LIFE CYCLE MANAGEMENT & DRIVING ENVIRONMENT

PLM Life cycle model- plan, design, build, support & dispose. Threads of PLM- computer aided design (CAD), engineering data management (EDM), Product data management (PDM), computer integrated manufacturing (CIM). Weaving the threads into PLM, comparison of PLM to Engineering resource planning (ERP). PLM characteristics - singularity, cohesion, traceability, reflectiveness, Information Mirroring Model. External drivers- scale, complexity, cycle times, globalization & regulation. Internal drivers - productivity, innovation, collaboration & quality. Board room drivers – income, revenues & costs. **08**

UNIT III

DIGITAL LIFE CYCLE

Collaborative Product Development, Mapping Requirements to specifications. Part Numbering, Engineering Vaulting, Product reuse, Engineering Change Management, Bill of Material and Process Consistency. Digital Mock up and Prototype development. Virtual testing and collateral. Introduction to Digital Manufacturing. **06**

SECTION - II

UNIT IV

PRODUCT LIFE CYCLE MANAGEMENT SYSTEM

Product life cycle management system- system architecture, Information models and product structure, Information model, the product information data model, the product model, functioning of the system. Reasons for the deployment of PLM systems **06**

UNIT V

PRODUCT LIFE CYCLE ENVIRONMENT

Product Data issues – Access, applications, Archiving, Availability, Change, Confidentiality. Product Workflow, The Link between Product Data and Product Workflow, Key Management Issues around Product Data and Product Workflow, Company's PLM vision, The PLM Strategy, Principles for PLM strategy, Preparing for the PLM strategy, Developing a PLM strategy, Strategy identification and selection, Change Management for PLM. **06**

UNIT VI

COMPONENTS OF PRODUCT LIFE CYCLE MANAGEMENT

Different phases of product lifecycle and corresponding technologies, Foundation technologies and standards e.g. visualization, collaboration and enterprise application integration, Core functions e.g., data vaults, document and content management, workflow and program management, Functional applications e.g., configuration management. Human resources in product lifecycle. PLM Case Study. **08**

REFERENCE BOOKS

- 1. Grieves Michael**, Product Lifecycle Management- Driving the Next Generation of Lean Thinking, McGraw-Hill, 2006. ISBN 0071452303
- 2. Antti Saaksvuori, Anselmi Immonen**, Product Life Cycle Management - Springer, 1st Edition (Nov.5, 2003)
- 3. Stark, John**. Product Lifecycle Management: 21st Century Paradigm for Product Realization, Springer-Verlag, 2004. ISBN 1852338105.