

3. **Microsystems Design**, S. D. Senturia, 2001, Kluwer Academic Publishers, Boston, USA. ISBN 0-7923-7246-8.
4. **Analysis and Design Principles of MEMS Devices**, Minhang Bao, Elsevier, Amsterdam, The Netherlands, ISBN 0-444-51616-6.
5. **Design and Development Methodologies, Smart Material Systems and MEMS**, V. Varadan, K. J. Vinoy, S. Gopalakrishnan, Wiley.
6. **MEMS**- Nitaigour Premchand Mahalik, TMH 2007

### PRODUCT LIFE CYCLE MANAGEMENT

Subject Code	: 10ME769	IA Marks	: 25
Hours/Week	: 04	Exam Hours	: 03
Total Hours	: 52	Exam Marks	: 100

### PART – A

#### UNIT – 1

**Introduction to Product Life Cycle Management(PLM) :** Definition, PLM Lifecycle model, Threads of PLM, Need for PLM, Opportunities and benefits of PLM, Views, Components and Phases of PLM, PLM feasibility study, PLM visioning.

**4 Hours**

#### UNIT – 2

**PLM Concepts, Processes and Workflow:**


Characteristics of PLM, Environment driving PLM, PLM Elements, Drivers of PLM, Conceptualization, Design, Development, Validation, Production, Support of PLM.

**6 Hours**

#### UNIT – 3

**Product Data Management (PDM) Process and Workflow:** PDM systems and importance, reason for implementing a PDM system, financial justification of PDM implementation. Versioning, check-in and checkout, views, Metadata, Lifecycle, and workflow. Applied problems and solution on PDM processes and workflow.

**10 Hours**

  
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#### **UNIT – 4**

**Collaborative Product Development:** Engineering vaulting, product reuse, smart parts, engineering change management, Bill of materials and process consistency, Digital mock-up and prototype development, design for environment, virtual testing and validation, marketing collateral.

**6 Hours**

### **PART – B**

#### **UNIT – 5**

**Tools of Communication for collaborative work:** Creation of 3DXML and CAD drawing using CAD software. Creation of an animation for assembly instructions on 3D via composer, creation of an acrobat 3D document. Applied problems and solutions on tools of communication for collaborative work.

**05 Hours**

#### **UNIT – 6**

**Knowledge and optimization of design products:** Know how, best practices, parameterization of design, Applied problems and Solution on optimization of products using power copy, publication, parameters, formula, rule, check, design table, configuration, reaction.

**10 Hours**

#### **UNIT – 7**

**Digital Manufacturing – PLM:** Digital manufacturing, benefits manufacturing, manufacturing the first-one, Ramp up, virtual learning curve, manufacturing the rest, production planning.

**06 Hours**

#### **UNIT – 8**

**Developing a PLM strategy and conducting a PLM assessment:** Strategy, Impact of strategy, implementing a PLM strategy, PLM initiatives to support corporate objectives. Infrastructure assessment, assessment of current systems and applications.

**05 Hours**

#### **TEXT BOOKS:**

1. Product Lifecycle Management : Grieves, Michael, McGraw-Hil, Edition 2006.ISBN 0071452303

  
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2. PDM : Product Data Management : Burden, Rodgers, Resource Pub, 2003. ISBN 097033225.

**Suggested Software Packages :**

Catia V5R19, Delmia V5R19, 3D via Composer, 3DXML player, Smartware V5R19

**REFERENCE BOOKS :**

1. Fabio Guidice, Guido La Rota, Product Design for the environment- A life cycle approach , Taylor and Francis 2006.
2. Robert J. Thomas, " NDP : Managing and forecasting for strategic processes".
3. Hartman, " Product life cycle management with SAP", 2006
4. Stark, John, "Product Life cycle Management : Paradigm for 21<sup>st</sup> Century Product Realization ", Springer-Verlag, 2004. ISBN 1852338105
5. Sakamuri, Anil and Juppinen, Anshul. " Product Lifecycle Management", Springer-Verlag, 2004. ISBN 3540403736

  
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