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

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

2. PDM : Product Data Management : Burden, Rodger, Resource Pub, 2003. ISBN 0970035225.

Suggested Software Packages :
Catia V5R19, Delmia V5R19, 3D via Composer, 3DXML player, Smarteam V5R19

REFERENCE BOOKS :

1. Fabio Guidice, Guido La Rosa, 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 21st Century Product Realization ", Springer-Verlag, 2004. ISBN 1852338105
5. Saaksvuori, Antti and Immpnen, Anselmi. " Product Lifecycle Management", Springer-Verlag, 2004. ISBN 3540403736