



GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering

Subject Code: 3170213

Semester – VII

Subject Name: Product Lifecycle Management

Type of course: Professional Elective

Prerequisite: Nil

Rationale:

Product lifecycle Management is an essential tool for coping with the challenges of more demanding global competition and ever-shortening product and component lifecycles and growing customer needs. New, better and more flexible products must be introduced into markets more quickly, with more profit and less labor, and the lifecycle of each product must be better controlled. In order to perform well financially, companies must be able to make informed decisions concerning the lifecycle of each product in their portfolio. To do this well, the subject is designed for students to understand each aspect of product and lifecycle of product.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
3	0	2	4	70	30	30	20	150

Content:

Sr. No.	Content	Total Hrs
1	Fundamental of Product Life Cycle Management(PLM): Definition, Product Lifecycle model, Threads of PLM, Need for PLM, Opportunities and benefits of PLM, Views, Components and Phases of PLM, PLM feasibility study, PLM visioning.	06
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.	06
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.	06
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.	06



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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.	06
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.	06
7	Digital Manufacturing – PLM: Digital manufacturing, benefits manufacturing, manufacturing the first-one, Ramp up, virtual learning curve, manufacturing the rest, production planning.	04
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
	Total Hours	45

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
20	20	25	20	10	05

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

1. Antti Saaksvuori, Anselmie Immonen, Product Life Cycle Management Springer,
2. Product Lifecycle Management, Michael Grieves, Tata McGraw Hill
3. Product Life Cycle Management/ John Stark/ Springer –Verlag/ UK
4. Product Lifecycle Management/ Michael Grives/ McGraw Hill

Course Outcomes:

Sr. No.	CO statement	Marks % weightage
CO-1	Describe Product Life cycle management concept, processes and workflow	20



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CO-2	Explain the various strategies of PLM and Product Data Management and work flow	25
CO-3	Describe collaborative product development and tools .	25
CO-4	Demonstrate knowledge and optimization of design product.	20
CO-5	Apply the virtual product development and model analysis.	10

List of Experiments:

Experiments based on above contents and should include below mentioned topics.

- 1) Product concept development process
- 2) Product design and development process for different common industry products
- 3) Life cycle analysis of product
- 4) Product data management process and workflow
- 5) Collaborative product development process and different tools
- 6) Product optimization
- 7) Demonstration of digital manufacturing
- 8) Product lifecycle management and assessments