

COURSE NAME:	Inventory Control & Optimization (Tools and Techniques)
TOTAL DURATION:	45 Hrs
MODE OF DELIVERY	PHYSICAL CLASSROOM TRAINING AT RESPECTIVE COLLEGES
TRAINER TO STUDENT RATIO:	1:50
TOTAL MARKS:	75

Table 1

OVERALL COURSE OBJECTIVE:	<ol style="list-style-type: none"> 1. Develop a comprehensive framework for inventory control and awareness applying tools like Kanban cards for practical implementation in operations. 2. Devise strategies that optimize inventory management to enhance operational efficiency and reliability. 3. Formulate methods to streamline inventory processes, ensuring effective elimination of obsolete items. 4. Design and implement Visual Control Systems tailored for efficient and seamless operational workflows. 5. Construct approaches to enhance Inventory Turn Ratio, focusing on maximizing resource utilization and financial outcomes.
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LEARNING OUTCOME:	<p>1. Implement Inventory Control Techniques:</p> <ol style="list-style-type: none"> 1a) Use tools like the 2-bin system, Kanban cards, and ERP systems to manage consumables and critical spares effectively. 1b) Apply FIFO compliance for efficient inventory handling. <p>2. Enhance Operational Efficiency:</p> <ol style="list-style-type: none"> 2a) Execute strategies to improve Overall Equipment Efficiency (OEE) and reduce Mean Time to Repair (MTTR). 2b) Identify and address hidden losses caused by inventory delays and material shortages. <p>3. Optimize Space and Resources:</p> <ol style="list-style-type: none"> 3a) Conduct red-tag campaigns to segregate and dispose of obsolete inventory. 3b) Organize workspaces to save space and ensure clean, efficient operations. <p>4. Improve Cash Flow and Inventory Metrics:</p> <ol style="list-style-type: none"> 4a) Monitor and enhance the Inventory Turn Ratio (ITR) through targeted interventions. 4b) Prepare and implement cost-saving plans, including scrap disposal and inventory reduction measures.
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	<p>5. Develop Problem-Solving Abilities:</p> <p>5a) Prioritize inventory allocation using VED analysis and critical spare parts management.</p> <p>5b) Execute Just-In-Time (JIT) practices to streamline production and minimize excess inventory.</p>
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TABLE 2: MODULE WISE COURSE CONTENT AND OUTCOME				
SL. NO	MODULE NAME	MODULE CONTENT	MODULE LEARNING OUTCOME	DURATION (HRS)
1.	Inventory Fundamentals	Introduction to inventory classification, raw materials, work-in-progress (WIP), and finished goods categorization.	Classifies inventory into categories, aligning it with operational needs to streamline production and storage.	(5 Hours)
2.	Red Inventory Management	Red-tag campaigns, rework and reuse planning, disposal methods, and cost-saving measures.	Identifies and disposes of obsolete inventory, freeing up space and reducing costs.	(6 Hours)
3.	Inventory Control Tools	Implementation of 2-bin systems, Kanban cards, ERP systems, and visual control systems (VCS).	Manages inventory efficiently using advanced tools, ensuring error-free processes and FIFO compliance.	(6 Hours)

4.	Purchase Planning and ITR	ERP-based purchase planning, setting re-order levels, and monitoring Inventory Turn Ratio (ITR).	Optimizes procurement processes, avoiding stockouts and improving financial performance.	(5 Hours)
5.	Spare Parts and JIT Practices	Critical spare parts management, VED analysis, and Just-In-Time (JIT) implementation.	Ensures inventory prioritization and reduces overstocking to streamline operations.	(6 Hours)
6.	Waste Reduction Techniques	Scrap segregation, applying waste management techniques (reduce, reuse, recycle), and red-tag elimination campaign	Reduces waste and improves operational efficiency through effective scrap and space management.	(5 Hours)
7.	Performance Metrics Analysis	KPI tracking, OEE improvement, and MTTR reduction strategies.	Enhances operational efficiency by addressing hidden losses and improving key performance metrics.	(6 Hours)
8.	Capstone Project	Real-world applications such as red-tag campaigns, 2-bin system setup, ERP	Demonstrates mastery of inventory control techniques in	(6 Hours)

		optimization, and cost-saving projects.	practical scenarios, achieving measurable improvements.	
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TABLE 3: OVERALL COURSE LEARNING OUTCOME ASSESSMENT CRITERIA AND USECASES

LEARNING OUTCOME	ASSESSMENT CRITERIA	PERFORMANCE CRITERIA	USECASES
Implement Inventory Control Techniques	Categorize inventory into raw materials, WIP, and finished goods. Implement 2-bin systems, Kanban cards, and ERP for streamlined operations.	Ensure FIFO compliance and accurate stock tracking. Align inventory levels with production requirements.	Develop a 2-bin system for consumables and integrate with existing ERP. Execute a classification exercise for a production facility.
Enhance Operational Efficiency	Analyse hidden losses due to inventory delays and material shortages. Track and improve Overall Equipment Efficiency (OEE) and Mean Time to Repair (MTTR).	Mitigate delays in material flow to reduce downtime. Achieve measurable improvements in OEE and MTTR.	Propose inventory-related improvements based on KPI analysis. Conduct MTTR reduction strategies by ensuring spares availability.
Optimize Space and Resources	Conduct red-tag campaigns for obsolete inventory segregation. Improve workspace organization through systematic methods.	Save operational space and achieve clean work environments. Ensure proper disposal or reuse of tagged materials.	Run a red-tag campaign in a storage facility and measure cost savings. Redesign inventory storage layouts to optimize space.
Implement Inventory	Categorize inventory into raw	Ensure FIFO compliance and	Develop a 2-bin system for

Control Techniques	materials, WIP, and finished goods. Implement 2-bin systems, Kanban cards, and ERP for streamlined operations.	accurate stock tracking. Align inventory levels with production requirements.	consumables and integrate with existing ERP. Execute a classification exercise for a production facility.
Enhance Operational Efficiency	Analyse hidden losses due to inventory delays and material shortages. Track and improve Overall Equipment Efficiency (OEE) and Mean Time to Repair (MTTR).	Mitigate delays in material flow to reduce downtime. Achieve measurable improvements in OEE and MTTR.	Propose inventory-related improvements based on KPI analysis. Conduct MTTR reduction strategies by ensuring spares availability.
Optimize Space and Resources	Conduct red-tag campaigns for obsolete inventory segregation. Improve workspace organization through systematic methods.	Save operational space and achieve clean work environments. Ensure proper disposal or reuse of tagged materials.	Run a red-tag campaign in a storage facility and measure cost savings. Redesign inventory storage layouts to optimize space.

TABLE 4: LIST OF FINAL PROJECTS (PROJECTS THAT COMPREHENSIVELY COVER ALL THE LEARNING OUTCOME)

SL.NO	FINAL PROJECT
1	Categorize inventory into raw materials, WIP, and finished goods. Implement 2-bin systems, Kanban cards, and ERP for streamlined operations.
2	Conduct a red-tag campaign to identify and dispose of obsolete inventory.
3	Implement a 2-bin system for consumables in a production line.
4	Optimize Inventory Turn Ratio (ITR) using ERP-based purchase

	planning.
5	Develop a critical spares list and conduct VED analysis for prioritization.
6	Set up a Kanban card system for production workflow management.
7	Design and execute a Just-In-Time (JIT) inventory system for raw materials.
8	Establish FIFO compliance using visual control systems.
9	Overall Equipment Efficiency (OEE) and propose inventory-related improvements.
10	Perform scrap segregation and propose waste reduction measures in a manufacturing unit.
11	Create a dashboard to monitor KPIs, including OEE and MTTR.
12	Optimize space utilization by redesigning storage systems for finished goods.
13	Develop a cost-saving strategy for inventory transportation and handling.
14	Implement ERP-based alerts for critical spares management.
15	Establish a system for tracking disposal frequencies and cost savings.
16	Develop plans for inventory rework and repurposing.
17	Combine Kanban, JIT, and waste management practices for process optimization.
18	Improve material traceability with an inventory classification project.
19	Execute visual management improvements across inventory sections.

20	Set up a comprehensive inventory training program for operational staff.
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TABLE 5: COURSE ASSESSMENT RUBRICS (TOTAL MARKS: 75)

ASSESSMENT CRITERIA	Learning Outcome	Fair (0–5)	Good (6–10)	Excellent (11–15)	TOTAL MARKS
Implementation of Inventory Control Techniques	Implement tools like 2-bin systems, Kanban cards, and ERP for streamlined operations.	Identifies basic inventory categories and attempts partial implementation of inventory tools.	Categorizes inventory correctly and applies inventory tools with minor errors or inconsistencies.	Successfully categorizes inventory and implements tools with FIFO compliance and high accuracy.	15
Optimization of Space and Resources	Conduct red-tag campaigns to segregate and dispose of obsolete inventory.	Identifies obsolete inventory with limited disposal actions and minor workspace organization improvements.	Successfully disposes of tagged inventory and improves workspace organization moderately.	Achieves significant cost savings through efficient disposal and optimizes space with a well-organized layout.	15
Enhancement of Operational Efficiency	Analyze and mitigate hidden losses due to inventory delays and improve metrics like OEE and	Provides a basic analysis of delays and suggests general strategies with limited measurable improvement.	Proposes practical solutions to improve OEE and MTTR, achieving moderate efficiency gains.	Delivers a comprehensive analysis with measurable improvements in OEE and MTTR through effective inventory	15

	MTTR.			managemen t.	
Use of Inventory Turn Ratio (ITR) Techniques	Optimize ITR through ERP-based purchase planning and targeted interventions.	Tracks ITR with limited understanding of ERP-based processes, achieving minimal improvements.	Implements ERP-based purchase planning effectively, leading to moderate improvements in ITR.	Achieves significant optimization of ITR through accurate ERP planning and strategic inventory reductions.	15
Critical Spare Parts Management and JIT Practices	Prioritize inventory using VED analysis and implement JIT practices.	Performs basic VED analysis with minor prioritization errors and inconsistent JIT application.	Applies VED analysis effectively, prioritizing critical spares with moderate improvement in inventory flow.	Demonstrates advanced prioritization with precise VED analysis and seamless JIT practices, minimizing overstocking.	15