PLANNING MASTERY: FROM FUNDAMENTALS TO EXPERTISE SYLLABUS

Level: 1 **Duration:** 22.50

Course Name	Lessons

Before Planning Begins — 3

1. Prepac® Systems Methodology (Preparation & Packaging)
   - Explain how Prepac® Systems Methodology (PSM) assists planning services before planning begins
   - Identify key aspects of PSM.
   - Recognize how PSM helps planning services control key deliverables to enhance its customers' safety and performance.
   - Explain how Scope of Work and Order creation are used as a pre-requisite to planning.
   - Explain scope-of-scope versus scope of work and how it's defined.
   - Recall the key areas in which field visits can contribute value to planning.

2. Basic Job Package Design and Quality Control
   - Describe the elements of basic job package design and the minimum standards required to assemble it.
   - Assemble a quality job package to add measurable value to planning service's customers, in a consistent, controlled, and timely manner.
   - Recall the quality control method of job package assembly, review, approval, distribution, and follow up during post execution.

3. Building Safety into the Plan
   - Evaluate safety principles and related loss management and risk mitigation for job planning and package assembly for heavy industry maintenance and projects.
   - Apply safety planning and risk mitigation using a formal Job Hazard Assessments (JHA) for an incident- and injury-free (IIF) workplace.
   - Implement Hierarchy of Controls as a method of identifying and ranking safeguards to protect workers from hazards.

Field Walks – The First Step to Step-Out Plans — 1

- Evaluate the importance of field walks as the foundational step in the planning process
- Apply proper field walk techniques to gather critical information needed for developing accurate job packages
- Identify key equipment, components, and site conditions that must be documented during field walks
- Utilize field observations to anticipate potential challenges, hazards, and resource requirements for maintenance tasks

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○ Document findings from field walks in a systematic way that supports the development of comprehensive step-out plans	
Understanding Engineering Documentations for Effective Work Planning	1
○ Identify and locate the appropriate engineering documentation required for effective work planning ○ Interpret various types of technical drawings and specifications used in heavy industry maintenance ○ Apply engineering documentation content to inform decision-making during job package development ○ Integrate relevant engineering standards and requirements into maintenance work plans ○ Utilize engineering documentation to ensure technical accuracy and compliance in work execution	
Reading and Interpreting P&IDs and PFDs	1
○ Recognize and interpret common symbols, notations, and conventions used in P&IDs and PFDs ○ Trace process flows, equipment connections, and system boundaries using diagram information ○ Identify isolation points, critical equipment, and safety systems on process diagrams ○ Apply P&ID and PFD information to develop accurate maintenance step-out plans and procedures ○ Correlate field conditions with diagram representations to ensure comprehensive work planning	
Photos as Planning and Execution References	1
○ Capture clear, purposeful photographs that document critical equipment conditions and installation details ○ Implement proper techniques for industrial photography including lighting, angles, and safety considerations ○ Organize and label photographic documentation to enhance work package clarity and usability ○ Integrate photographic references effectively within maintenance procedures and step-out plans ○ Utilize photographic documentation to identify potential hazards, access challenges, and special tooling requirements	
Redline and Markups	1
○ Apply standard redlining techniques and conventions to accurately document as-found field conditions	

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- Create clear, legible markups that effectively communicate modifications, discrepancies, or special instructions
- Utilize appropriate symbols, color coding, and annotation methods for different types of technical drawings
- Document field changes that differ from original engineering documentation for future reference
- Integrate redlined drawings into job packages to enhance communication between planning and execution teams

Job Planning Fundamentals - Detailed Planning — 3

1. Detailed Planning with Prepac® Systems Methodology (PSM)
   - Understand Estimating Basis & Standards
   - Learn What to Estimate to support Planning
   - Learn to Estimate Cost, Duration, Time, Bill of Materials, Resources

2. Creating Effective Step-out Plans
   - Recall the fundamentals of creating effective step-out plans for heavy industry maintenance and projects to support workface customers with safety, quality, and efficiency target performance deliverables.
   - Recognize how standards, templates, tools, and technology are used to create effective, consistent step-out plans: field-to-office methodology.
   - Discuss the value of continuous improvement for enhanced detailed planning and estimating of formal step-out plans.

3. Estimating Fundamentals and Standards
   - Apply estimating fundamentals to maintenance and capital projects using rules, guidelines, and best practices
   - Understand how estimating standards determine resource requirements for executing step-out plans that meet customer expectations
   - Distinguish between productivity factors (PF) and performance evaluation (Pf)
   - Identify Target Performance Deliverables (TPD) of workface customers

Basic Materials Management for Planners — 1

- Conduct effective field walks and work scope validation, translating observations into accurate job task breakdowns and Bills of Materials (BoMs).
- Identify and manage long-lead items, developing strategies to mitigate their impact on project schedules and costs.
- Navigate the requisition process for goods and services, creating accurate and complete requisitions while effectively tracking their progress.
- Utilize the materials reservation processes to ensure timely allocation of resources and minimizing conflicts.

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Course Name	Lessons

- Apply best practices in materials receiving, kitting, and preservation techniques to maintain quality, prevent degradation, and enhance overall project efficiency.

Fundamentals and Plant Specifics of Bill of Materials — 1

- Define what a Bill of Materials (BOM) is and describe its primary purposes in process plants.
- Identify and differentiate between the various types of BOMs.
- Explain the hierarchical structure of a BOM
- Recognize the unique considerations for BOM management specific to chemical, mining, and refinery operations.
- Describe the impact of industry standards and regulatory requirements on BOM management in process plants.
- Identify software and systems commonly used for BOM management in process plants.

Bill of Materials - Choose Your Area of Interest (*45 min per topic*). Options available to choose from include: — 1/Area of Interest

- BOM for Routine Maintenance
  - Define the role of Bill of Materials (BOM) in routine maintenance activities within process plants.
  - Explain the significance of aligning BOMs with preventive maintenance strategies.
  - Identify and categorize critical spare parts necessary for maintaining plant reliability.
  - Demonstrate effective inventory management techniques to optimize parts availability and minimize carrying costs.
  - Apply best practices for managing BOMs to enhance maintenance efficiency and reduce downtime.
- BOM for Turnarounds
  - Identify the goals and extent of work necessary for aligning BOM creation with the turnaround work breakdown structure.
  - Differentiate between major and minor turnarounds and adjust BOM detail and scope accordingly.
  - Manage long-lead items early in the process by reviewing historical data and mitigating associated risks.
  - Incorporate long-lead items into project schedules and BOMs to ensure timely procurement and availability.
  - Recognize the need to develop comprehensive turnaround BOMs that integrate lessons learned and vendor requirements.
  - Establish change control processes for BOM modifications and effectively communicate changes to relevant stakeholders.
  - Track and document BOM revisions to reconcile planned versus actual material usage for future improvements

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- BOM for Capital Projects
  - Explain the nuances of Bill of Materials (BOM) and their significance for project success and cost control.
  - Integrate BOMs effectively into capital project workflows to enhance project execution.
  - Manage changes to BOMs during project execution to maintain project integrity.
  - Implement lifecycle BOM management strategies to improve project execution and cost control.
  - Facilitate the transition from project BOMs to operational BOMs for seamless operational phases.

BOM Intergration with Other Systems and Best Practices

- Define the integration BOMs with enterprise systems and explain its significance for operational optimization.
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- Analyze the impact of effective BOM management on operational efficiency, cost reduction, and strategic planning.
- Evaluate best practices for BOM management, including standardized naming conventions and data quality metrics.
- Discuss the advantages of adopting emerging technologies in BOM management to meet evolving operational needs.

Job Planning Fundamentals – Job Package Management 4

1. Job Package Management
   - Follow a job package management workflow to ensure timely and measurable deliverables
   - Engage and collaborate with stakeholders to gather necessary content for job packages
   - Identify job package orders that require a management of change (MOC)
   - Identify the four key aspects of job package management

2. Management of Change
   - Explain the purpose of Management of Change (MOC) in relation to job package management
   - Determine when MOC requirements apply to job packages
   - Define the four key aspects of the MOC process
   - Explain MOC initiation procedures, required contents, and deliverables

3. Job Package Contributors and Content
   - Determine the key contributors and necessary materials needed to create high-quality job plans and effective job packages
   - Create or revise a controlled table of contents as an essential component of the job package

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○ Explain the role of the Field Walk Survey Assessment in job package creation ○ Identify secondary contributors who may need to provide additional content based on the table of contents and Field Walk Survey Assessment 4. Job Package Distribution and Controls ○ Track job package assembly prior to distribution ○ Identify what content should be distributed, when, how, and to whom ○ Control job package content after distribution ○ Identify opportunities for improving job packages and job package management	
Job Planning & Package Assembly – LAB 1. Learn to Build a Basic Work Package (exercise) ○ Evaluate, approve, and initiate appropriate maintenance documentation; review completeness and navigate job package libraries; track work through maintenance systems ○ Create standardized job packages with required documentation; develop step-out plans, BOMs, and JHAs; build field-ready distribution packages ○ Conduct field surveys to identify equipment and resource needs; evaluate technical requirements and specifications; determine MOC requirements ○ Coordinate with departments for information gathering; manage end-user review and approval processes; incorporate team feedback into planning ○ Identify hazards and develop control measures; ensure regulatory compliance; integrate HSE requirements ○ Organize and maintain technical documentation; update standard job packages; manage document control systems ○ Distribute packages and support maintenance teams; monitor execution and document deviations; implement process improvements based on field experience	1