Key learning:
- Fundamental Production Planning module knowledge
- Basic knowledge about the most important master data objects
- Overview on the integration of the PP module with other modules

What will happen:
This slide based training begins with general information on the SAP Production Planning module, covering functionality and processes, followed by a detailed introduction to the most important master data objects. Finally, it ends with an overview describing the relation and dependencies of the PP module with other modules.

Duration of this lesson : 20 min
SAP PP Module Overview

Table of content

- Objective of the PP Module
- PP Process
- Master Data
- PP module integration
SAP Production Planning
Objective of the PP module

The objective of the SAP Production Planning Module is to:

- Help manage the full range of manufacturing activities, from planning to execution and analysis, in a single, end-to-end system.

- Help deliver all elements of a customer-oriented manufacturing management system and is fully compatible with Just-in-Time (JIT) and KANBAN methodologies.

- Combine information from a variety of business processes including planning, cost accounting, materials management, and warehouse management to support the development and execution of efficient production plans.
SAP Production Planning
Production planning - Overview

- PP Module creates critical links between sales, production planning and the factory floor.

- PP Module integrates with the supply chain processes to make the enterprise as competitive as possible.

- SAP offers full integration between its project planning, material requirements planning (MRP), and shop floor control system modules.
SAP Production Planning
Production Planning - Overview

- Sales & Distribution & Projects
- Sales and Operations Planning
- Demand Management
- Long term planning
- Master Data
  - Material Master
  - Bill of Materials
  - Work Centers
  - Routings
- Materials Management
- MPS
- MRP
- MRP results
- Capacity Planning
- Costing
- Production Order Cycle
Production Planning is generally divided into several steps. These steps may be executed independent of each other, or they may be integrated.

- Sales and Operations Planning (SOP) generates sales plans and production plans using forecast values and requirements from the Sales.
- In Demand Management forecasting, functionality is connected with production scheduling.
- Master Production Scheduling (MPS) allows for critical resources or top-level items to be planned with extra attention.
- Material Requirements Planning (MRP) is the detailed planning of replenishment schedules for required components.
- The production order is the central data object in shop floor control and manufacturing execution. The production order contains all data relevant to production objectives, material components, required resources, and costs.
SAP Production Planning
Production process overview

- The production order is the central data object in shop floor control and manufacturing execution.
- The production order contains all data relevant to production objectives, material components, required resources, and costs.
- The complete process includes several steps:
  - Creation and release of a production order
  - Goods issues of components
  - Confirmation of production activity
  - Goods receipts of the finished goods
SAP Production Planning
Production Planning Master Data

Master data in the production planning module are:

- **Material Masters**
  (MRP data, Scheduling data)
  MRP Planner code, Lot size, Procurement data, Lead time, MRP types (Deterministic or Re-order level), Availability check, Planning strategy

- **Bills of Materials**
  Material BOM for standard Products – MTS
  Sale-order BOM for customer specific Products – MTO
  WBS BOM for Project specific Products – ETO

- **Work Centres**
  No of individual Capacities, Efficiency, Shift timings
  Capacity & Scheduling Parameters
  Linkage to appropriate cost center

- **Routing for In-house Manufactured items**
  List of operations with appropriate work centers, Operation time (Machine hrs, labor hrs), Interoperation times.
SAP Production Planning
Production Planning Master Data

Material Master

Division of Data into Views

Material master PUMP

<table>
<thead>
<tr>
<th>Basic data</th>
<th>S&amp;D</th>
<th>Purch.</th>
<th>MRP</th>
<th>Accounting</th>
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<td>Price</td>
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<td>...</td>
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</tbody>
</table>

- All information relating to procurement, manufacturing, storage or sales
- Settings for Supply chain planning
Material Master

Settings for Supply Chain Planning

<table>
<thead>
<tr>
<th>Material master PUMP</th>
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</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td>MRP 1</td>
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<tr>
<td>---------------------</td>
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<td>Safety stock</td>
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<td>Strategy group</td>
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<tr>
<td>Availability check group</td>
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<tr>
<td>Production versions</td>
</tr>
</tbody>
</table>

→ What MRP is to occur?
→ How much is to be procured?
→ Will the material be produced in-house or procured externally?
→ Should safety stocks be planned?

→ What forecasting is to occur?
→ How is the ATP check executed?
→ Which manufacturing process is to be used?
**Bills of Materials**

- The bill of material contains the assemblies or components that are involved in the production of a material. BOMs are used in material requirements planning, production, procurement and for product costing.

- A BOM consists of a BOM header and BOM items. The base quantity in the BOM header specifies the amount of the finished product referred to by the item quantities.

- Bills of material are single-level. An item of a BOM may itself also contain components. In this way, multilevel production is described using the single-level BOMs of the finished product, of the assemblies and, where required, of the assemblies and so on.

- A BOM may also contain documents or text items in addition to stock items that are required for the finished product.
**Bills of Materials**

- The BOM header contains the setting that apply for the whole BOM. BOM usage determines the business application for which a BOM can be used. The status of the BOM controls whether the BOM is active for particular applications (MRP, for example).

- Multiple BOMs, which consist of multiple alternative BOMs, can also exist in addition to simple BOMs. The different alternative BOMs can then be valid for each of the different lot-size areas, for example.

- The components required to produce the finished product are entered as items in the BOM. The item category specifies the kind of item you are dealing with: stock items are executed in the warehouse and are use in production. In contrast, non stock items are directly assigned to a manufacturing order (and not via the warehouse).
Work Centre

- A work center is where an operation or activity is carried out in a plant. It therefore specifies where production ultimately takes place. Work centers are used in routings, networks, inspection plans or in maintenance routings.

- A work center is generally a specific geographical location in the plant, for example, a specific machine or department in a plant.

- The data of the work center is assigned according to thematic views. In particular, the available capacity of the particular work center and the data needed to calculate the costing of work completed is stored in the work center. The default values define data that has to be transferred into the operation of the routing or used as a reference.
SAP Production Planning
Production Planning Master Data

Work Centre

- The capacities that are available to a work center are explicitly specified in the work center. In this case, you may certainly use more than one capacity per work center. For example, you can assign both machine capacity and labor capacity to a work center.

- The capacities contain the available working time and formulas are used for calculating how long the capacities will be loaded by a certain operation.

- In addition to standard available capacity, intervals of available capacity and shift schedules can also be stored. This specifies exactly when a particular machine is available.
Routings

- A routing contains the work steps required to carry out production. These include the relevant operations, the sequence in which they occur and the work centers at which these operations are to be executed.

- Routings can be defined using the routing group and the group counter. Moreover, the routing contains reference to the material whose production it describes. A routing can contain parallel or alternative sequences in addition to the standard sequence.

- Alongside the standard values, the routing also contains the time elements that are relevant for scheduling operations. Note that each operation in the routing may contain its own base quantity, to which these time elements may refer.
Routings - scheduling

- A work center is assigned to an operation. The work center uses its standard value key to specify which time elements (standard values) can be taken into consideration during the planning process (for example: set up time, machine time, personnel time).

- The scheduling formulas stored in the work center define the duration from the allowed time elements in the routings.

- The setup, processing and tear down time of an operation are all displayed using a corresponding formula. The steps for which a formula is defined are executed (for example, tear down may not be necessary)

- If multiple capacities are stored in a work center, the scheduling basis is used to determine which of these capacities is relevant for the scheduling process.
**Routings – component assignment**

- Production is described by a routing and a bill of material. In this case, the BOM components can be assigned to a specific operation. The procurement of these components is then planned at the beginning of the particular operation.

- The component assignment is performed in the routing. BOM components that are not explicitly assigned are regarded as being assigned to the first operation.

- Along with the BOM components, you can also assign production resources/tools in the routing. Production resources/tools are operating facilities that are not location-bound, but are necessary for production, such as a measuring instrument or a support.
SAP Production Planning
Integration of the PP module
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