



Production Planning

Lesson 9 : Repetitive Manufacturing

Lesson Objectives



Objectives -On successful completion of this training module, you should have:

Understood the basics of Repetitive Manufacturing

Master data required for Repetitive Manufacturing

Process flow diagram

Basic terminology of repetitive manufacturing & their definitions

Training Agenda



What is Repetitive Manufacturing?

master data required for Repetitive Manufacturing

Process flow diagram

Repetitive manufacturing Profile

Basic terminology of repetitive manufacturing & their definitions

Training Agenda



Price release-CK24

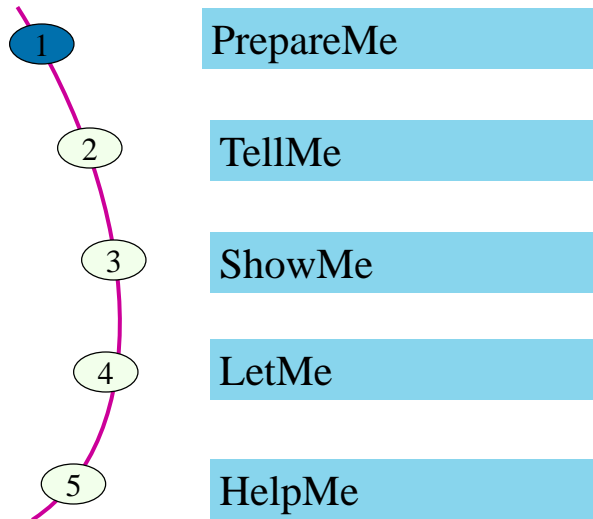
Single Item-Multi Level MRP Run – MD02

Repetitive manufacturing Back flush

Stock Overview – MMBE

Frequently Used Transactions for REM

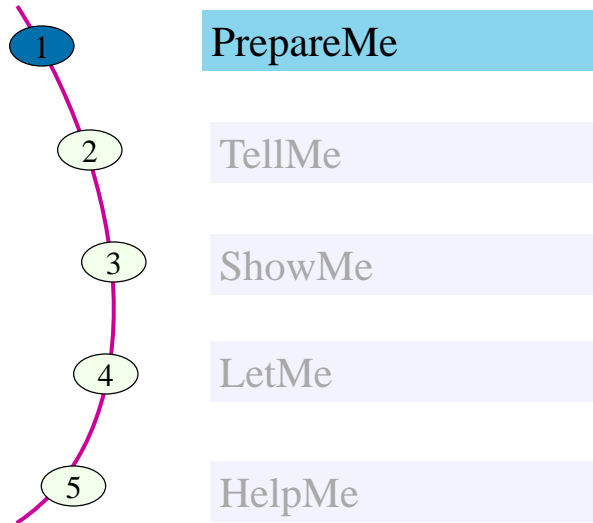
Repetitive Manufacturing



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Repetitive Manufacturing



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Introduction



- Repetitive Manufacturing is commonly used when a production process meets the following criteria:
 - The same or similar products are produced over a lengthy period of time.
 - The products produced are not manufactured in individually defined lots. Instead, a total quantity is produced over a certain period at a certain rate per part-period.
 - The products produced always follow the same sequence through the machines and work centers in production.
 - Routings tend to be simple and do not vary much

Master Data



The following master data is required for REM:

REM Profile

Production Version

Rate Routing/Routing

Product Cost Collector

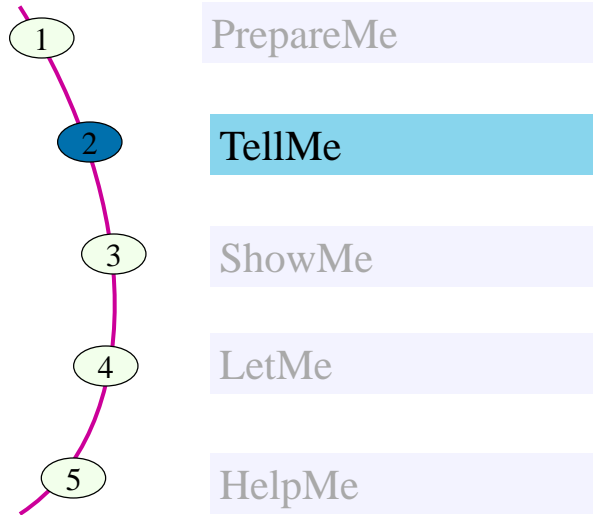
Standard Cost Estimate

Key Process Steps



- Creating Planned Independent Requirements
- Material Requirements Planning at Plant Level
- In-House Production
- Confirming Assembly Activities

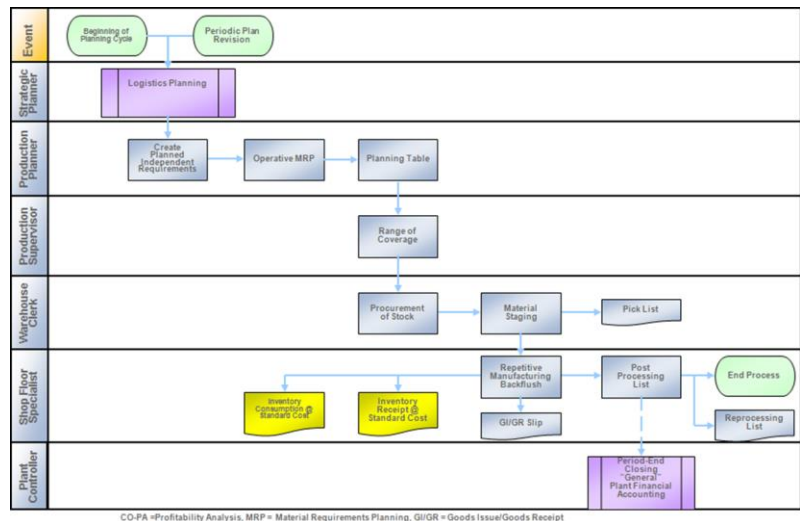
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Process Flow Diagram

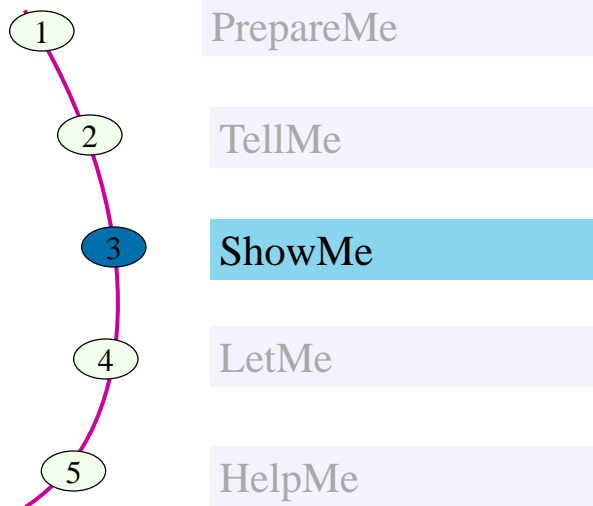


Process flow



1. First, you must make certain settings in the material master data and Configuration.
2. Create Planned Independent Requirement.
3. Carry out MRP run.
4. Production will start and when the product is finished, you carry out the back flush. Back flushing includes posting the goods receipt for the product, the goods issue for the components.
5. At the end of a settlement period, you carry out a period-end closing

Repetitive Manufacturing



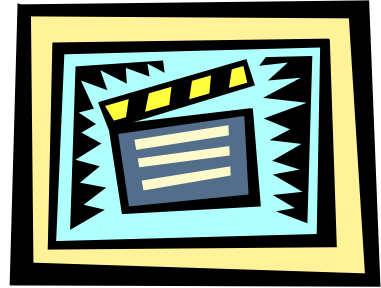
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Show Me....



- Environment
- Prerequisites of REM
- Basic Terminologies used in REM & their Definitions
- Master Data and Customizing
- Process



Show Me....



Environment

The Environment in which REM runs is SAP R/3 under PP module.



Prerequisites of REM

Prerequisites of REM

- System Configuration
- Master data like
 - a. REM Profile
 - b. Product Cost Collector
 - c. Material With production Version

Basic Terminology used in REM & their Definitions



Basic Terminology used in
REM & their Definitions

- Planning table
- Sequencing
- Pull list
- Back flushing
- Cost Object Controlling





Planning table

Planning table

Within the framework of repetitive manufacturing, planning and control is carried out on the basis of time buckets. Starting from the existing requirements situation, you can plan production quantities based on periods. The scheduling data for products and product groups is thus broken down into a series of time buckets, the user being presented with period views for the purposes of checking and revision.

Sequencing



Sequencing

You can use Sequencing to carry out task-based scheduling which determines the sequence in which planned orders are produced on the production line. Sequencing simplifies the dispatching process, especially for high order volumes, and enables you to display them in a graphic.

Pull List



Pull List

You can use the pull list to control in-house material flow, supplying production with materials. The pull list checks the stock situation at the production line, calculates the missing parts for the components and triggers replenishment for these missing parts.

Back Flushing & Cost object controlling



Back flushing:

Production completion confirmations are simplified and are made with reference to the material being produced. The completion confirmation usually includes the back flushing of components and the posting of production costs.

Cost Object Controlling

In REM, you usually determine costs per material or per production version via a product cost collector (product cost per period).

Master Data & Configuration



Master Data and Configuration

- 1.REM Profile (Configuration)
- 2.Material Master
- 3.Production Version
- 4.Product Cost Collector

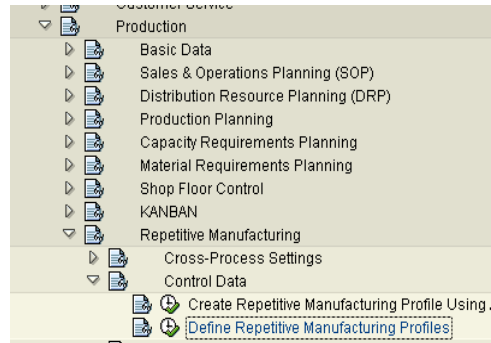
REM profile



REM Profile

T Code- OSP2

Menu Path: Logistics → Production → Repetitive Manufacturing →
Control Data → Define Repetitive Manufacturing Profile



Show Me....



REM profile	Z001	Desc.REM profile	REM Profile
Production type	PKMN		
Control data 1 Control data 2 Movement types			
General			
<input checked="" type="checkbox"/> GI backflush at GR posting			
<input type="checkbox"/> RP backflush			
<input type="radio"/> Mandatory <input type="radio"/> Optional			
<input type="checkbox"/> Automatic GR posting at last RP when backflushing			
Process control <input type="text"/>			
Error Correction for Backflushing			
<input checked="" type="checkbox"/> Create cumulated postprocessing records			
<input type="checkbox"/> Also create individual postprocessing records			
<input checked="" type="checkbox"/> Execute correction in dialog mode			
<input type="radio"/> Mandatory <input checked="" type="radio"/> Optional			
Cost Accounting			
<input checked="" type="checkbox"/> Post activities			
<input checked="" type="radio"/> Backflush using standard cost estimate for material			
<input type="radio"/> Using data from prelim. costing f. prod. cost collector			
Batch Where-Used List			
<input type="checkbox"/> Update Batch Where-Used List			

REM profile	Z001	Desc.REM profile	REM Profile
Production type	PKMN		
Control data 1 Control data 2 Movement types			
Planned Orders			
Planned Order Reduction			
<input checked="" type="checkbox"/> Reduce planned orders assigned to version			
<input type="checkbox"/> Plus planned orders not yet assigned			
<input type="checkbox"/> Plus planned orders assigned to other versions			
Reduction period <input type="text" value="3"/> Days			
Firming Logic			
<input type="radio"/> Do not firm <input checked="" type="radio"/> Always firm <input type="radio"/> Firm within			
Creating Planned Orders when Reversing			
<input checked="" type="checkbox"/> Create planned orders when reversing			
<input checked="" type="radio"/> For the GR amount of the current day			
<input type="radio"/> By requirement (asynchronous MRP run)			
Material Requirements			
Stock determination rule <input type="text"/>			
Batch search procedure <input type="text"/>			
<input type="checkbox"/> Aggregate reqmts			
<input checked="" type="checkbox"/> Create reqmts for phantom assemblies			

Show Me....



REM profile	2001	Desc.REM profile	REM Profile
Production type	PKMN		
<div>Control data 1Control data 2Movement types</div>			
Movement types			
Goods issue	261	Goods issue/reversal	262
Goods receipt	131	Goods receipt/reversal	132
Scrap	551	Scrap/reversal	552
By-product	531	By-product/reversal	532
Additional movement types relevant for make-to-order scenario			
GR indiv.sales order	571	GR ind.sales ord./reverse	572
GI ind.stck/salesOrd	572	GI ind.stck/salesOrd/rev.	571
GI plntstk/salesOrd.	291	GI plntStck/salesOrd/rev.	292

Material Master – MM01



Material Master

T. Code- MM01

Menu Path: Logistics → Production → Repetitive Manufacturing
→ Master Data → Material → Create (General)

MRP 3 MRP 4 Forecasting Work scheduling

Material A-1000 Final Assembly
Plant 1000 Werk Hamburg
Stor. Loc. 0001 Materiallager

BOM explosion/dependencies 2
Selection method
Individual/coll.
☒ Version Indicator ☒ ProdVersions
Component scrap
Requirements group
MRP dep.require

Discontinued parts
Discontin. ind. Eff.-out Follow-up matl

Repetitive manufacturing / assembly / deployment strategy
☒ Repetitive mfg REM profile Z001
Fair share rule Push distribution

Production Version- MM02



Production Version

T. Code- MM02

Menu Path: Logistics → Production → Repetitive Manufacturing → Master Data → Material → Change

Change Material A-1000 (Finished goods)

Production Version Details

Material: A-1000, Plant: 0001, Stor. Loc.: 0001

Production Version: 2002, Version-2: [REM]

Click on the push button and create version

Basic data: Prod vers locked: Not locked, From lot size: 1,000, Valid from: 2006, To lot size: 99,999,999, Valid to: 31.12.9999

Planning data: Task List Type: Routing, Group: 50001264, Group Counter: 1, Check stat: [OK]

Repetitive manufacturing / assembly / deploy: Repetitive mfg: [checked], REM profile: [empty], Fair share rule: [empty], Push distrib: [empty]

Repetitive manufacturing: [checked], REM allowed: [checked], Production line: [empty], Planning ID: [empty]

Product cost collector-KKF6N



Product Cost Collector

T. Code- KKF6N

Menu Path: Logistics → Production → Repetitive Manufacturing → Master Data → Product Cost Collector

Display Product Cost Collector

Selection

Material: A-1000

Plant: 1000 Werk-Hamburg

Data | Header | Production Process

Profit Center

Business Area

Cstg variant planned

Cstg variant actual

Costing Sheet

Overhead key

Results analysis key

Variance Key

0 Product cost collectors selected

Show Me....



Product Cost Collectors

1000

Create Product Cost Collector

Material: A-1000 Final Assembly

Plant: 1000 Werk Hamburg

Order Type: RM01

Controlling level for material

- ☒ Production version
- ☐ BOM/routing
- ☐ Production plant/planning plan

Characteristics for production process

Planning plant: 1000 Werk Hamburg

Production Version: 2002

Confirm Cancel

Show Me....



Create Product Cost Collector

Product Cost Collectors

1000

A-1000

Version-2 [REM]

Selection

Material A-1000

Plant 1000

Data Header Production Process

0001 Tee's

ed PREM Repetitive Mf

PPP3 Product Cost

Costing Sheet C06M Cost of Gc

Overhead key

Create product cost collector

Create a preliminary cost estimate for the product cost collector?

Yes No Cancel



Create Preliminary Cost Estimate – CK11N

Process

Create Preliminary Cost Estimate – CK11N

Create Material Cost Estimate with Quantity Structure

Costing Structure On | Detail List On | Hold

Material: A-1000
Plant: 1000

Costing Data | Dates | Qty Struct.

Costing Variant: PPC1
Costing Version: 1
Costing Lot Size: 1
Transfer Control: PC01

Enter required values and click on create

Show Me....



Create Material Cost Estimate with Quantity Structure

Costing Structure Off Detail List Off Hold

Material: A-1000 Plant: 1000 Final Assembly

Costing structure: Final Assembly

Costing Data Dates Qty Struct Valuation History Costs

Costs Based On: Costing Lot Size 1 EA

Cost Component View	Total Costs	Fixed Costs	Variable	Currency
Cost of goods manufactured	19.75	0.00	19.75	EUR
Sales & Distribution Cost	0.00	0.00	0.00	EUR
Cost of Sales	19.75	0.00	19.75	EUR
Material Cost	0.00	0.00	0.00	EUR

Cost of goods manufactured

Itemization for material A-1000 in plant 1000

ItemNo	Resource	Cost Eleme	Total Value	Fixed Value	Curr...	Quantity	Un
1	M 1000 A-1000	400000	19.00	0.00	EUR	1	EA
2	M 1000 A1-1000	400000	0.25	0.00	EUR	1	EA
3	M 1000 A2-1000	400000	0.50	0.00	EUR	2	EA

Price Release-CK24



Price Release – CK24

Price Update: Mark Standard Price

Release Other Prices Log

Posting Period/Fiscal Year: 12 2006 Marking Allowance

Company Code: 1000 to

Plant: 1000 to

Material: a-1000 to

Processing Options

- ☒ Test Run
- ☒ With List Output
- ☐ Parallel Processing
- ☐ Background Processing

Display stock/Requirement list-MD04



Display Stock/Requirement List – MD04

Stock/Requirements List as of 14:11 Hrs

Show Overview Tree

Material

A-1000

Final Assembly

MRP area

1000

Hamburg

Plant

1000

MRP type

PD

Material Type

CF6

Unit

EA

A. Date	MRP ...	MRP element data	Reschedul...	E...	Rec./reqd.qty	Available qty
06.12.2006	Stock					0
06.12.2006	IndReq	LSF			25-	25-

Single item-Multi level MRP run-MD02



Single Item-Multi Level MRP Run – MD02

Single-Item, Multi-Level

Material: A-1000
MRP area: 1000
Plant: 1000

Scope of planning
☐ Product group

MRP control parameters
Processing key: NETCH
Create purchase req.: 3
Delivery schedules: 3
Create MRP list: 1
Planning mode: 3
Scheduling: 1

Process control parameters
☒ Also plan unchanged components
☒ Display results before they are saved
☒ Display material list
☒ Simulation mode

Stock Req. List after MRP Run, Planned order have been created by system with relevant Prod Version

Stock/Requirements List as of 16:27 Hrs

Material	MRP area	Plant	MRP type	Material Type	Unit	EA
A-1000	1000	1000	PD	SFG	EA	1

A. Date	MRP element data	Reschedul.	Rec. head qty	Available qty	Pro. Sto.
17.12.2006	Stock			25	
16.12.2006	IndReq			25	
17.12.2006	Prod.	0000043880/R6	6.1	25	6.12.2006

Back flush



REM Back flush – MFBF

REM Backflush - Transaction Variant: None

Post with correction | Details | Scrap | Documents | Doc-specific reversal | Doc.-Neutral Reversal

Backflush type
☒ Assembly backflush ☐ Component backflush ☐ Activity backflush

Yield Backflush
Backflush qty:

Posting header
Posting Date: 07.12.2006
Document Date: 07.12.2006
Doc.Header Text:

Make-to-stock | **Make-to-order** | **Production by lot**

Material
Plant **Prod. Version**
Planning plant **Production Date** **Coll. entry**
To location **To batch** **ShLife Exp.Date**
☐ **RP backflush** **Reporting Point** **RP stocks**

Selection data
Planned order 43860 **Revision Level**
Production line **Planning ID**

Show Me....



REM Backflush....

REM Backflush - Transaction Variant: None

Post with correction | Details | Scrap | Documents | Doc-specific reversal | Doc-Neutral Rev

Backflush type
☒ Assembly backflush ☐ Component backflush ☐ Activity backflush

Yield Backflush
Backflush qty: 25 EA

Posting header
Posting Date: 07.12.2006
Document Date: 07.12.2006
Doc. Header Text:

Make-to-stock | Make-to-order | Production by lot

Material: A-1000
Plant: 1000
Planning plant: 1000
To location: 0001

Final Assembly
Prod. Version: Z002
Production Date:
To batch:

☐ RP backflush
Reporting Point:

Coll. entry
ShLife Exp. Date:
RP stocks

Selection data
Planned order: 43860
Production line:

Rest of the values will come Automatically, select "Assembly B/F" and click on "Post with correction"

Show Me....



REM Backflush

REM Backflush - Transaction Variant: None

Actual activities

Quantity of Goods Re: 25 EA Yield Backflush
Material: A-1000 Final Assembly

Material	De.	Qu.	U.	Plant	Sto.	Supply Area	Bat.	Item	O.	O.	P.	C.	M.	S	Sales Ord.	Sales...	V
A1-1000	Sub	25	EA	1000	0001			0010	0					H261		0	
A2-1000	Sub	50	EA	1000	0001			0020	0					H261		0	

BOM components and Final GR qty of assly will appear in goods mov. screen

GR and GI with document 4900032859 and activities posted

After Saving message will appear with mat. Doc.

Stock overview



Stock Overview - MMBE

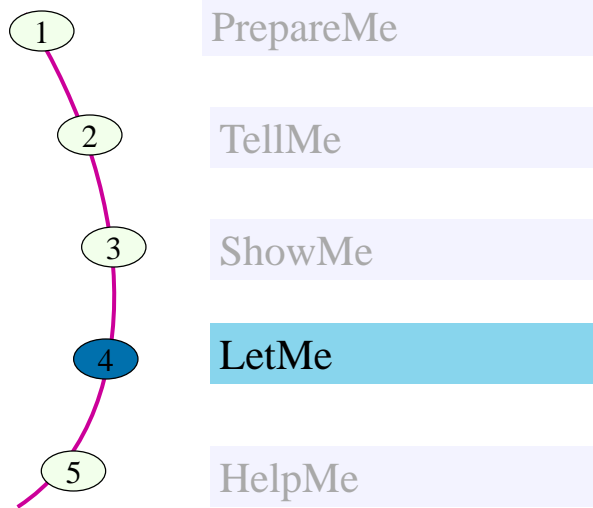
Stock Overview: Company Code/Plant/Storage Location

Material: A-1000 Final Assembly
Material type: CF6 Finished goods
Unit of measure: EA Base unit of mea

CT/CC/Plant/SLoc/Batch D	Unrestricted use	Qual. inspection
Total	25.000	0.000
1000 IDES A6	25.000	0.000
1000 Werk Hamburg	25.000	0.000
0001 Materiallager	25.000	0.000
0000000030	25.000	0.000

GR qty transfer posted
to un-restricted stock

Repetitive Manufacturing



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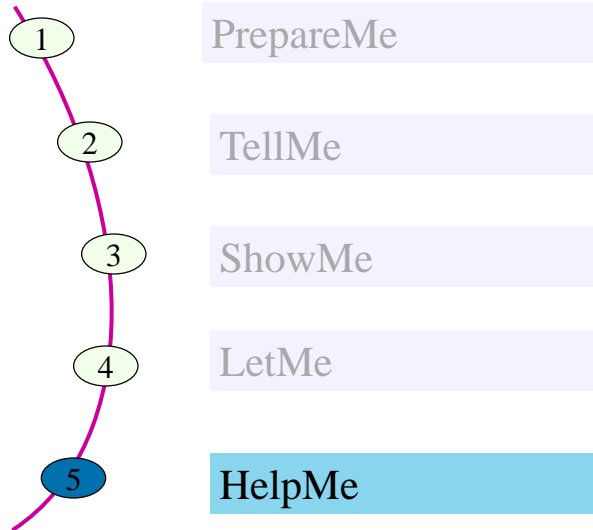
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Let Me....



- Understand the Basic Business scenario of REM
- Understand the Process of REM





Frequently Used Transactions for REM



Practice the following transactions generally used for REM

- MM01/MM02 -Create/Change Material Master
- CS01/ CS02- Create/ Change Bill Of Material
- CR01- Create Work center
- CA21- Create Rate routing
- KKF6N- Create Product Cost Collector
- MF50/MF52- Change /Display Planning Table
- MF60- Pull List
- MFBF- REM Confirmation
- MD61- Create PIR
- MD04- Stock Requirement List
- MD02- Single item Multilevel Planning Run
- KK87- Settlement

Add instructor notes here.

Summary



Repetitive Manufacturing is commonly used when the same or similar products are produced over a lengthy period of time

Planning table

Within the framework of repetitive manufacturing, planning and control is carried out on the basis of time buckets. Starting from the existing requirements situation, you can plan production quantities based on periods. The scheduling data for products and product groups is thus broken down into a series of time buckets, the user being presented with period views for the purposes of checking and revision.

You can use Sequencing to carry out task-based scheduling which determines the sequence in which planned orders are produced on the production line. Sequencing simplifies the dispatching process, especially for high order volumes, and enables you to display them in a graphic.

Cost Object Controlling

In REM, you usually determine costs per material or per production version via a product cost collector (product cost per period).

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Add the notes here.

Add instructor notes here.

Review Questions



1. REM suitable for products produced always follow the same sequence through the machines and work centers in production.

- a. True
- b. False

2. You can use the pull list to control in-house material flow

Check whether the statement is true or false

- a. True
- b. False

3. In REM, you usually determine costs per material or per production version via a product cost collector (product cost per period).

- a. True
- b. False

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