

LITERATURE TEST

Production flow management (TEK435)

Thursday 14 March 2013, 14-18 in the M-house (Hörsalsvägen)

Pen, eraser and English - Any language dictionary allowed..

Write name and number on every sheet.

Only one answer on every sheet.

Remember that your handwriting must be possible to read in order to grade your answers.

Please write maximum 1 page per question

Maximum result is 50 points.

30 points are needed for grade 4.

40 points are needed for grade 5.

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You must answer in English.

Examiner: Lars Medbo

Teacher (questions): Lars Medbo, 772 13 47 or 070 30 88 347

GOOD LUCK!

HOW TO FILL IN THE HEAD OF THE ANSWER SHEET

CHALMERS TEKNISKA HÖGSKOLA	ID No.	Don't care about this one.	Page No.
	Name		Question No.

Page No.

Page the sheets in running order. Preferable just before you hand in the exam.

Maximum 1 page per question

Question 1 (9 points)

You consider implementing kitting in your assembly plant.

- a) What different conditions (context) will you take into consideration when deciding what to do? Motivate why you will consider these conditions? (Suppose that “the conditions (context)” are factors that are given prerequisites in the situation you are)
- b) What different reasons (driving forces) do you see as motives to implement kitting? Discuss and explain when the different reasons are important and when not.
- c) Assume that you decide to implement a kitting system. Give examples how the conditions (context) and driving forces have effect on the design of the kitting system. Discuss and motivate.

Question 2 (12 points) Maximum 2 pages allowed for this question

You are responsible for operating a mixed model assembly system. It is a serial product flow with 10 work stations where the product is moved manually between the work stations. The takt time is 1 minute. There are two assemblers at each work station performing manual assembly at a product, WIP = 10.

- a) What problems, related to the product flow performance, will you probably experience? Please explain the reasons and possible relations between the problems.
- b) You want to get rid of the problems. What changes will you implement to improve the performance of your assembly system? Please motivate and explain how your changes will improve the performance.
- c) What is takt time? In what way is takt time important? How will you operationalize (implement) the takt time in your assembly system, i.e. make the assembly system operate according to the takt time?

Question 3 (8 points)

In the Case study project you described a material supply system.

- a) It is not obvious how the performance of a material supply system should be decided (measured). How do you suggest that the performance could be measured? Does the situation (context) have an influence? Are there contradictions between the measures? Please suggest, discuss and motivate.
- b) To improve a material supply system, for example the one you described in the case study project, what methodology (model, structure, different steps, actions, etc.) would you suggest? Discuss and motivate.

Question 4 (3 points)

In order picking, what is zoning and batching? What are the disadvantages and the advantages of zoning and batching? In what situations would you prefer which? Discuss and motivate.

Maximum 1 page per question

Question 5 (4 points)

The two visual material planning methods Kanban and Conwip are related in the sense that they both use cards to convey messages to start manufacturing.

- a) What are the main differences between them?
- b) If pull is defined as a system where decisions regarding inventory replenishments is taken locally, which of the two do you consider as most pull?

Question 6 (6 points)

When scheduling operations to finite capacity there are two basic options available. One is forward scheduling and the other backward scheduling.

- a) What problem might occur if you use forward scheduling?
- b) What problem might occur if you use backward scheduling?
- c) What is the reason that backward scheduling is preferred when scheduling operations ahead of the bottle neck when you apply the theory of constraint concept?

Question 7 (8 points)

Automatic identification (Auto-ID) is widely used in warehouse and manufacturing operations and supports various activities.

- a) Two different methods/technologies have been discussed for automatic identification during the course. Describe these technologies, compare and discuss the impacts they have compared to manual identification.
- b) Voice picking is a method used for picking and packing operations. Describe the method/technology, compare to other common technologies and make an evaluation of situations where the method can be more useful compared to other traditional situations.

Maximum 1 page per question

THE END !