Computational Method Summer Semester 2015

All students those who want to make the lecture „Rechnergestützte Modellierung“ as computational method need to do the following task. The model should be sent to bing.bai@uni-due.de together with the completed scan form (or directly submit the printed form in SK 222) before **Sep. 30th 2015**.

The name of zip-file should be:

[Your Name, Your Student ID Number].

Form:

You need to complete all information such as your name, Enrollment number, Email address and so on. Please don’t fill in the note in the form.

Attention:

a. If you have failed the exam, then hands-on project of computational method is invalid.

b. If you want to change your score in the following semester (winter semester for supplementary examination), please finish the following hands-on project. This hands-on project is offered once a year for the corresponding subject.

A factory processes two certain products in two different working areas. After processing, these finished products will be transported to a storage by one transporter. These two products will be transported through pallets. At the end, all of the products will be sent out of the factory.

Product 1 and product 2 are sent to the factory with fixed distribution every 60 seconds. The Frequency should be 1:1. All of the products will be loaded on to pallets before transportation and processing. The pallets are generated with fixed distribution every 60 seconds. There is just one transporter sending product 1 and product 2 to their corresponding working area. The processing strategy is as following table:

Processing Sequence	1st Processing	2nd Processing	Storage
Product 1	Working Area 1	Working Area 2	Storage
Product 2	Working Area 2	Working Area 1	Storage

The processing sequence must strictly follow the above Table. If the product 1 is sent to working area 2 or the product 2 is sent to working area 1 then processing is wrong; and if the products are processed without undergoing second process then whole process is failed.

Only one worker should be assigned for the processing. The processing time should be:

Processing Time for Product 1	Working Area 1	Working Area 2
Product 1	10 seconds	110 seconds
Processing Time for Product 2	**Working Area 2**	**Working Area 1**
Product 2	20 seconds	120 seconds

After the whole processing, the pallets of the two products will be disassembled. The two kinds of products will be sent to storage for storing. The capacity of the storage is 1000. (Single Cycle: 0 seconds and Double Cycle: 50 seconds) The storage time is 1000 seconds. At last all of the products will be going out of the storage.

Other conditions:

1. The setting of worker in processing machines: min. 1 / max. 1 / Qual. 1 / unt. 0.

2. All of the accumulation conveyor (ACC) should be:Length of segment: 1 m; Conveying Speed: 1 m/s; Capacity: 5.

3. Simulation time: 1 hour.

4. The processing probability: 100% for the two working areas.

Instructions:

1.Please use “global control” (Decision Table) with “Quicktable” to control the processing time (based on the Processing Sequence/Processing Time) in the corresponding working area.

2. Please use “global control” (Decision Table) with “Destparam” to control the destination of the transportation.

3.Please follow the diagram in last page to build a complete processing model.

Question:

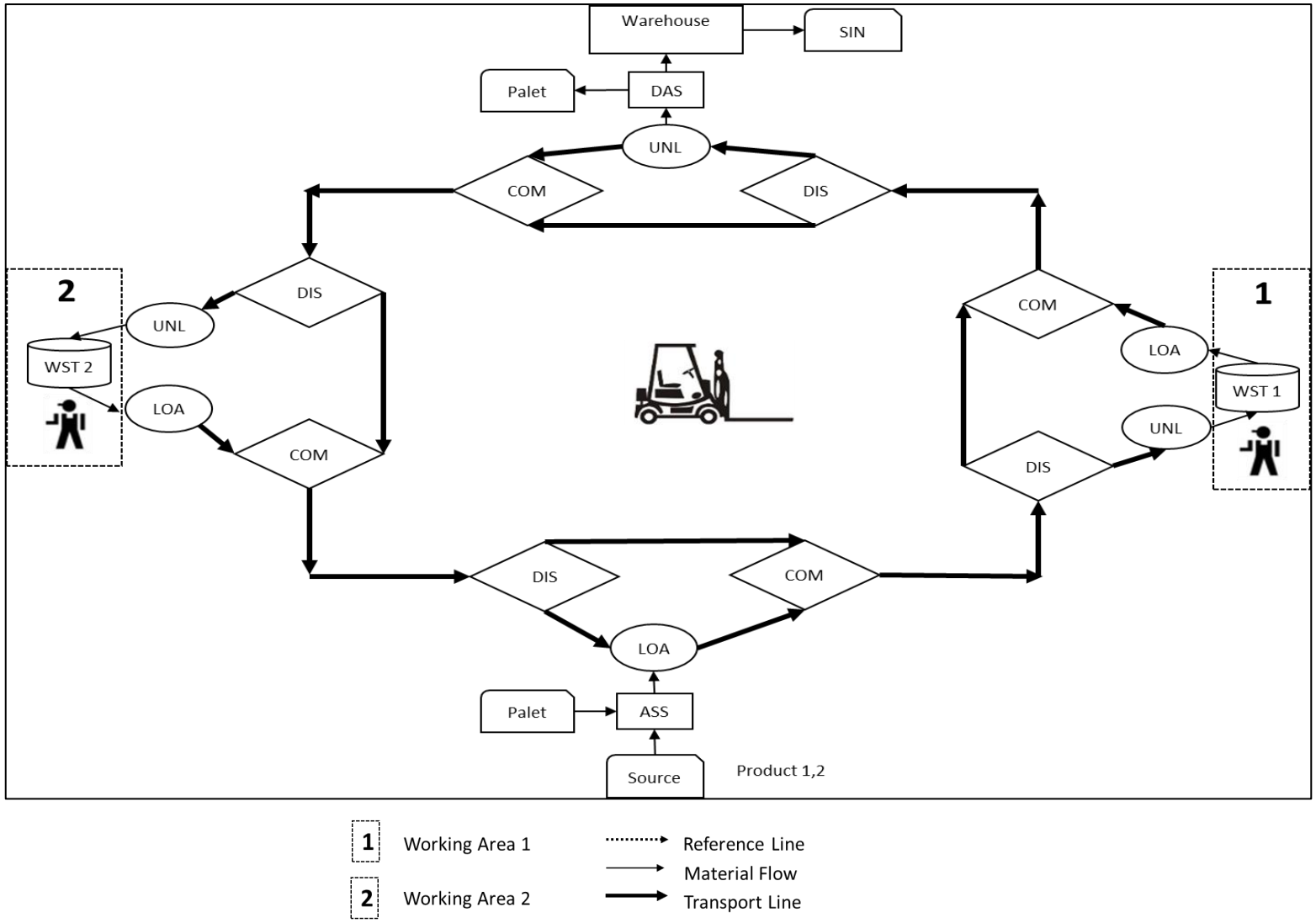
1. Please compare the “Module Histogram” of the two working stations. Which one has a higher working time and which one has a higher blocked time? How large it is?

2. Please compare the “Utilization” of the two working stations. Please explain the tendency of the two working stations. Which one has a higher utilization?

3. Please check the quantity of products in storage. How many products are stored in storage?

4. If there are two workers for processing products. How many products will be stored in storage?

5. If there two workers for processing products in two working stations. Please check the “Module Histogram” of the two working stations. What will be changed and how large are the “working time” and “blocked time”?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