

We recommend to use the browsers Internet Explorer or Firefox for working on the demo test. Please deactivate the pop-up blockers and active Java-script in your browser settings. Print this concept paper and work on the exercises under real-life conditions as far as possible (e.g. switch off your phone and other disturbing sources). Afterwards, you can repeat the demo test as often as you want so that you can concentrate on those exercises you had difficulties with during the first round.

## **Welcome to the Test for Master's Programmes in Business Administration, Social Sciences and Economics (TM-WISO)!**

In the following you will go through four exercise groups. There is a maximum processing time for each exercise group. The maximum overall processing time is 3:50 hrs.

An exercise group is ended when the allotted time has expired or when you click on "Exit". You may end an exercise group before the allotted time has expired and begin the next exercise group. However, when you end an exercise group, it will not be possible to call up this exercise group again!

When an exercise group is ended, you may call up the next exercise group yourself. If you do not do so, the next exercise group will start automatically after 5 minutes. The test instructions per exercise group will only be shown for 1 minute.

We have provided this brochure to you for your notes. Please fill in your family name, first name, and user name. This brochure will be collected at the end of the test and may not be taken away by you. No other paper for taking notes is available.

On the next few pages you will also find the required information and planning help for the scenarios of the exercise group "Planning and Organising Projects".

### The following is also to be noted in processing the online test:

- For some exercises there may be attachments with information required for the solution. These attachments are opened by clicking on the corresponding tab. If you click on "Attachments" in the menu bar, the attachment can also be opened in a new window.
- Choose an answer option for each exercise (no points deduction for wrong answers)!
- In addition to buttons for browsing backwards and forwards, there are buttons to help you navigate through not yet processed exercises.
- The "Mark" button allows you to highlight exercises that you wish to note for later processing.
- Opening other programs or parallel surfing of the internet shall be viewed as serious cases of cheating and will lead to immediate exclusion from the test. We must further warn you that any attempt to photocopy, copy or steal test exercises or parts thereof in any way or form will be legally prosecuted.



### In the unlikely event of problems with the online test:

If individual exercises take a longer time to load, this does not mean a loss of time for you. If you have the impression the program has "got stuck", please press the F5 key. If these problems occur frequently or if you accidentally close the browser, please call the supervisory person. The supervisory person can enable you to login again. You can then continue the test at the place you last stopped. If the entire Test Centre experiences internet disruptions, the test will be continued using test booklets.

You may take the TM-WISO once per calendar year.

**We wish you every success with this TM-WISO test and your Master's programmes applications!**

**Information on exercises 1 to 6 (freight forwarding company: transport fleet management)**

At the beginning of March, the freight forwarding company Nonstop Ltd. schedules several jobs for the month of April.

The transport fleet is currently comprised of five vehicles (all vehicles are lorries, see 1<sup>st</sup> table). Certain goods can only be transported by certain vehicles: liquids not yet bottled have to be transported by the tanker, and (non-liquid) fresh food (e.g. fruit and vegetables) has to be transported by refrigerated lorry.

The vehicles are not continuously available during April as each vehicle has to go into the **workshop** for two days:

<b>Vehicles (lorries)</b>	<b>Workshop visit</b>
40 tonne lorry I	05 – 06 April
40 tonne lorry II	24 – 25 April
7.5 tonne lorry	24 – 25 April
Refrigerated lorry	19 – 20 April
Tanker	13 – 14 April

Furthermore, lorries are not allowed to be driven on Sundays (**Sunday driving ban**). Only the refrigerated lorry is exempt from this ban and can also be driven on Sundays.

The vehicles are only offered and/or used in connection with one of the **four drivers** currently employed by Nonstop Ltd. The following table shows the days on which the drivers are available as well as their corresponding driving licences entitling them to drive certain vehicles:

<b>Driver</b>	<b>Availability</b>	<b>Driving licence</b>
Paul Miller	Monday to Sunday	all lorries
Howard Cooper	Monday to Saturday	all lorries except for tanker
Robert Thompson	Monday to Wednesday	7.5 tonne lorry, refrigerated lorry and tanker
George Brown	Wednesday to Saturday	7.5 tonne lorry and refrigerated lorry

The following **jobs** have already been bindingly agreed:

<b>Company</b>	<b>Period</b>	<b>Required vehicles</b>
A. Tobee	25 and 26 April	40 tonne lorry, tanker (both vehicles on both days)
H. Lodry & sons	2, 26 and 27 April	7.5 tonne lorry, refrigerated lorry, tanker (each vehicle only on one of the three days, random order)

**If individual exercises mention additional orders or order changes, these only apply respectively to the corresponding exercise.**

**For your notes** (if needed):

<b>April</b>		
Sat	01	
Sun	02	
Mon	03	
Tue	04	
Wed	05	
Thu	06	
Fri	07	
Sat	08	
Sun	09	
Mon	10	
Tue	11	
Wed	12	
Thu	13	
Fri	14	
Sat	15	
Sun	16	
Mon	17	
Tue	18	
Wed	19	
Thu	20	
Fri	21	
Sat	22	
Sun	23	
Mon	24	
Tue	25	
Wed	26	
Thu	27	
Fri	28	
Sat	29	
Sun	30	

### **Information on exercises 7 to 12 (Young Professionals Consulting)**

Six students in the Master's degree course of Economics have founded the students' business consulting company "Young Professionals Consulting" (YPC). Now it is a question of deciding which consulting capacities should be made available for each day.

The six consultants want to work for YPC at the following times:

- Emily either Tuesday mornings and Thursday afternoons, or Friday mornings and afternoons
- Tom Wednesday mornings and afternoons
- Jacob one and a half consecutive days per week
- Lara only in the morning, either Mondays and Tuesdays or Thursdays and Fridays
- Ben two afternoons per week, but not on consecutive days
- Sara Monday afternoons and Thursday mornings

These capacities are to be fully utilised.

Each of the six consultants provides all services, except for two services: only Tom and Lara offer cost cutting consulting, and only Emily and Ben offer personnel consulting.

If the following exercises mention "week", this always refers to a working week from Mondays to Fridays.

**For your planning (if needed):**

	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>
<b>Morning</b>			
<b>Afternoon</b>			

	<b>Thursday</b>	<b>Friday</b>
<b>Morning</b>		
<b>Afternoon</b>		

**Information on exercises 13 to 18 (renovation of workroom)**

A workroom at the Institute for Company Management is to be renovated.

The following table lists the work processes required for the renovation. Furthermore, the table states the time needed for the individual processes and the processes that have to be completed beforehand.

Craftsman	Process (ID letter)	Process (name)	Time needed (hours)	Processes to be completed before
Cabinet maker	A	transport of old furniture to adjacent room	1 hr	–
	B	disassembly and disposal of old furniture; assembly of new furniture in adjacent room	6 hrs	A
	C	transport of new furniture to workroom	1 hr	B, G, J
Carpenter	D	removal of old window and installation of new window	4 hrs	A
Painter and decorator	E	removal of wallpaper	3 hrs	A
	F	plastering of window recesses and cable ducts; drying of plaster	10 hrs	D, H
	G	painting of ceiling and hanging of new wallpaper; drying of ceiling and walls	15 hrs	F
Electrician	H	creating cable ducts and installing electric cabling	9 hrs	E
Parquet layer	J	removal of old laminate and installation of parquet	16 hrs	G

**Renovation starts on Monday, 1 September**, and is to be completed as soon as possible. Hence as many processes as possible are to be performed simultaneously – provided this meets the requirements stated in the table. Working time is from Mondays to Fridays (working week), 8 hours per day.

**In the following exercises it is to be assumed that the renovation must be finished as soon as possible, considering the given framework conditions. Breaks between consecutive processes are unproblematic unless this extends the overall renovation time.**

**For your notes** (if needed):

**Information on exercises 19 to 24 (reunion)**

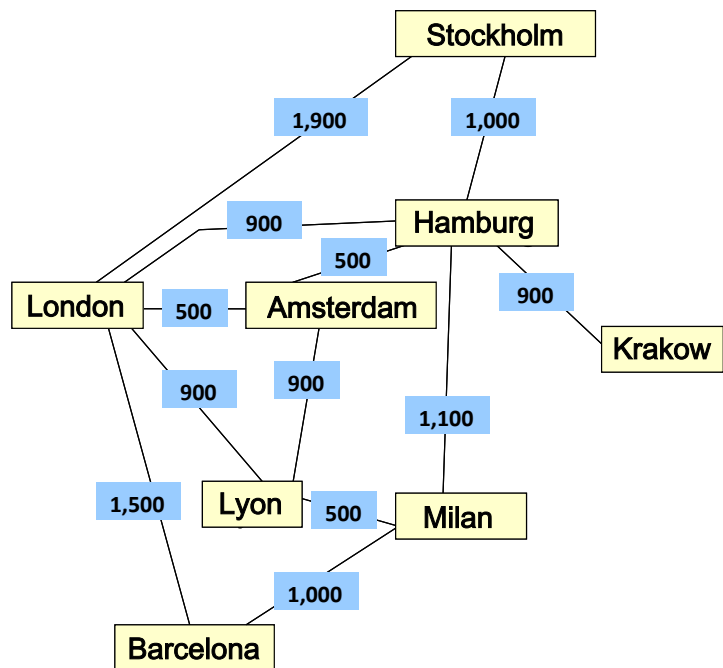
Last summer, Jens attended a language course in London. There he made friends from various countries; he now wants to invite six of these friends to a reunion this coming summer.

Please create an **optimal schedule** for this reunion, i.e. plan **time** and **place** so that **as many people as possible** can attend.

The four **weekends of August** (1<sup>st</sup> to 4<sup>th</sup> weekend) are available. The possible **cities** are listed in the small table. Another table shows the **requirements of the individual people** that must be considered. Furthermore, there is an overview of the potential **flight routes** (direct flights) and **distances** (in km) from the corresponding cities. Please assume that the **air travel costs amount to €1 per 10 kilometres flown**.

**Possible cities:**

<b>1<sup>st</sup> weekend:</b>	- Lyon - Milan - London
<b>2<sup>nd</sup> weekend:</b>	- Lyon - Stockholm
<b>3<sup>rd</sup> weekend:</b>	- Krakow - Barcelona - Hamburg
<b>4<sup>th</sup> weekend:</b>	- Amsterdam - Stockholm - London





**Individual requirements:**

<b>Eline</b> (Amsterdam)	- Not available on 3 <sup>rd</sup> weekend (see table on next page). - Will only attend if there are direct flights to the city of the reunion.
<b>Francesca</b> (Milan)	- Only available on 3 <sup>rd</sup> weekend (see table on next page). - Unable to travel to Krakow. - Will only attend if Eline and/or Tomasz also attend.
<b>Inga</b> (Stockholm)	- Only available on 2 <sup>nd</sup> and 4 <sup>th</sup> weekend (see table on next page). - Will only attend if Pablo does not attend. - Will not spend more than €400 in total on flights.
<b>Jens</b> (Hamburg)	- Is available on all four weekends.
<b>Pablo</b> (Barcelona)	- Only available on 2 <sup>nd</sup> and 3 <sup>rd</sup> weekend (see table on next page). - Will not travel to Stockholm or Krakow.
<b>Romain</b> (Lyon)	- Is available on all four weekends. - Will only attend if there are direct flights to the city of the reunion.
<b>Tomasz</b> (Krakow)	- Is available on all four weekends. - Will not spend more than €300 in total on flights.



For your notes (if needed):

<b>Person</b> (city)	<b>Notes</b>	<b>1<sup>st</sup> weekend</b> (Lyon, Milan, London)	<b>2<sup>nd</sup> weekend</b> (Lyon, Stockholm)	<b>3<sup>rd</sup> weekend</b> (Krakow, Barcelona, Hamburg)	<b>4<sup>th</sup> weekend</b> (Amsterdam, Stockholm, London)
<b>Eline</b> (Amsterdam)					
<b>Francesca</b> (Milan)					
<b>Inga</b> (Stockholm)					
<b>Jens</b> (Hamburg)					
<b>Pablo</b> (Barcelona)					
<b>Romain</b> (Lyon)					
<b>Tomasz</b> (Krakow)					











