

Scheduling Network exercise





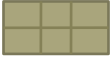




Construction management 2.

Lepel – BME Department of Construction Technology and Management

01-04-2015

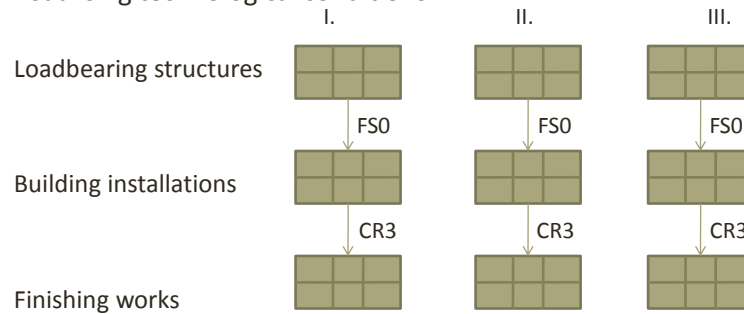
Composing an MPM network

- Placing the shields

	I.	II.	III.
Loadbearing structures			
Building installations			
Finishing works			

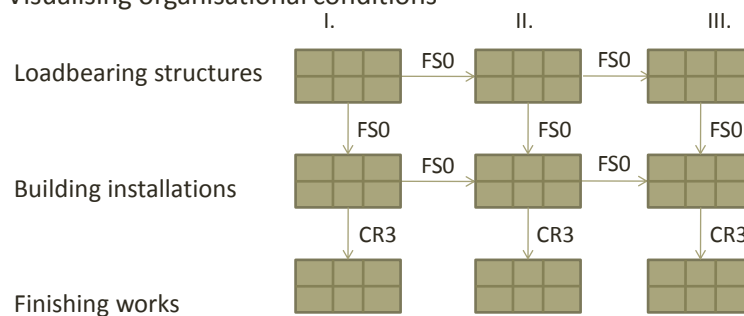
Composing an MPM network

- Visualising technological conditions



Composing an MPM network

- Visualising organisational conditions



Composing an MPM network

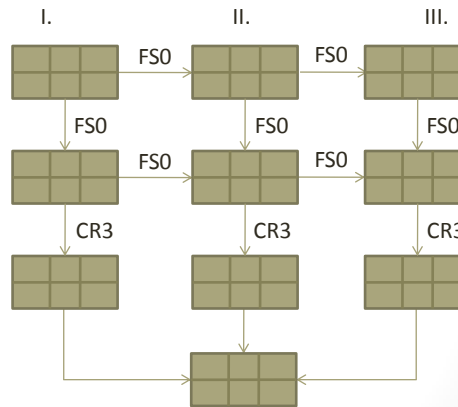
- Checking network

Loadbearing structures

Building installations

Finishing works

End



Composing an MPM network

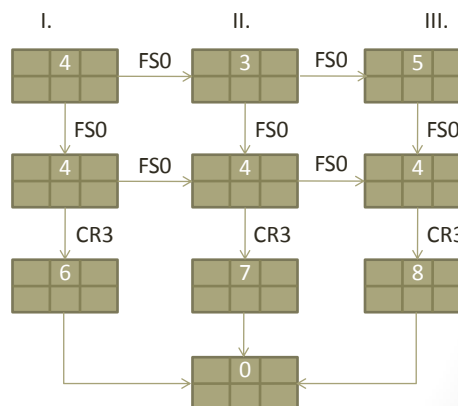
- Adding durations

Loadbearing structures

Building installations

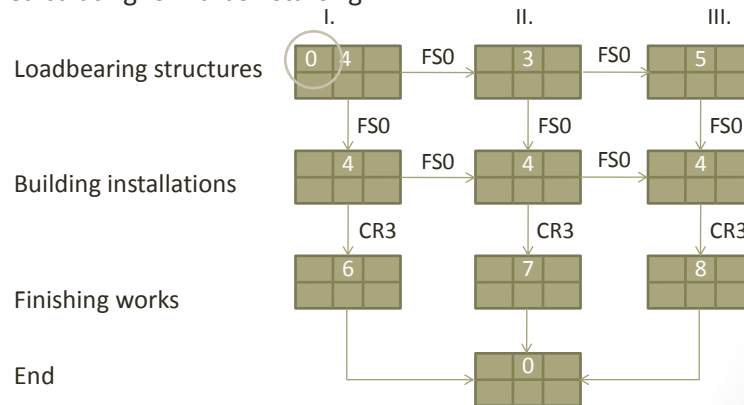
Finishing works

End



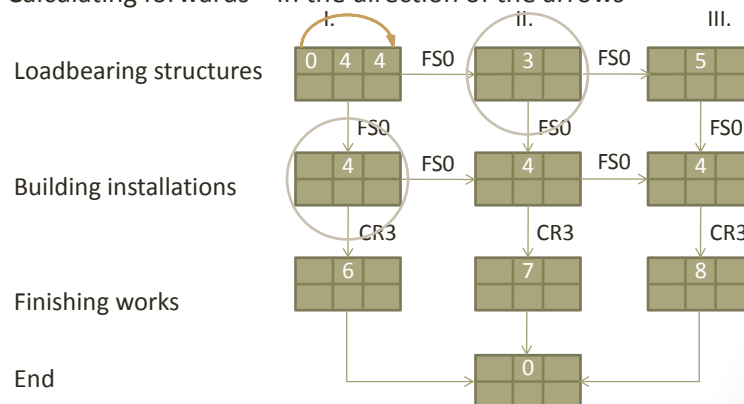
Time analysis

- Calculating forwards - starting



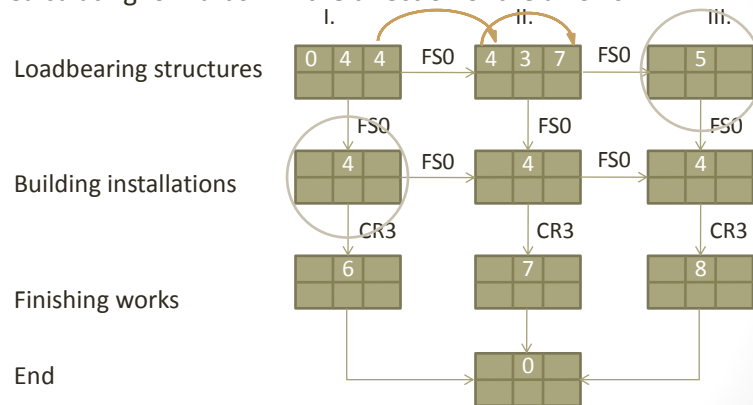
Time analysis

- Calculating forwards – in the direction of the arrows



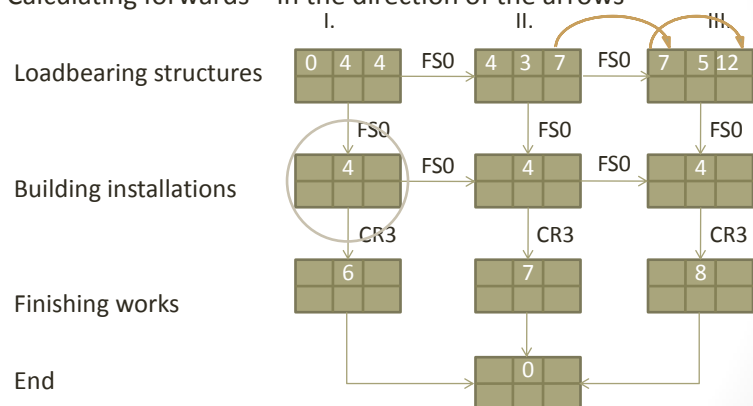
Time analysis

- Calculating forwards – in the direction of the arrows



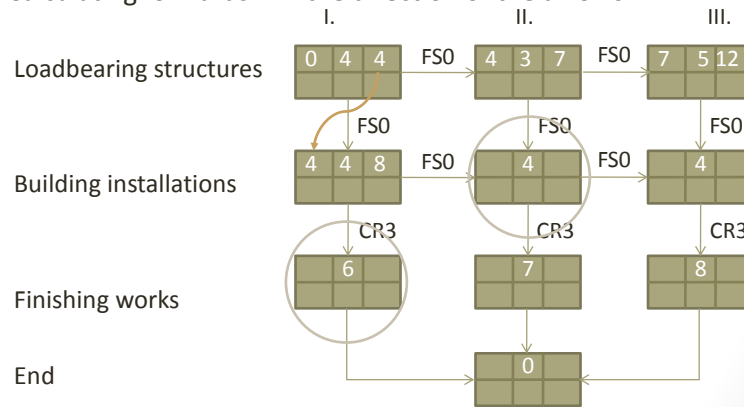
Time analysis

- Calculating forwards – in the direction of the arrows



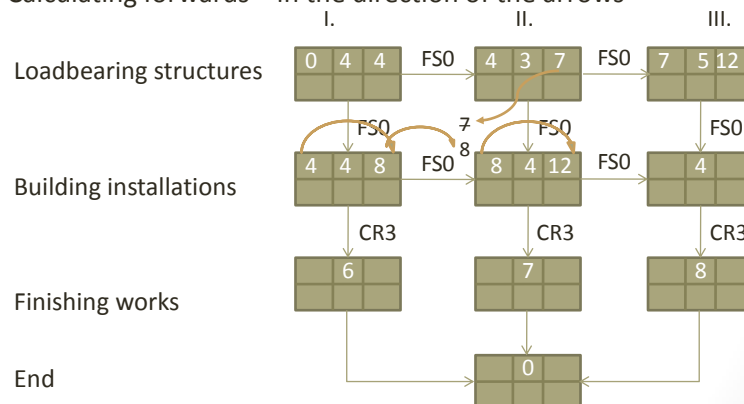
Time analysis

- Calculating forwards – in the direction of the arrows



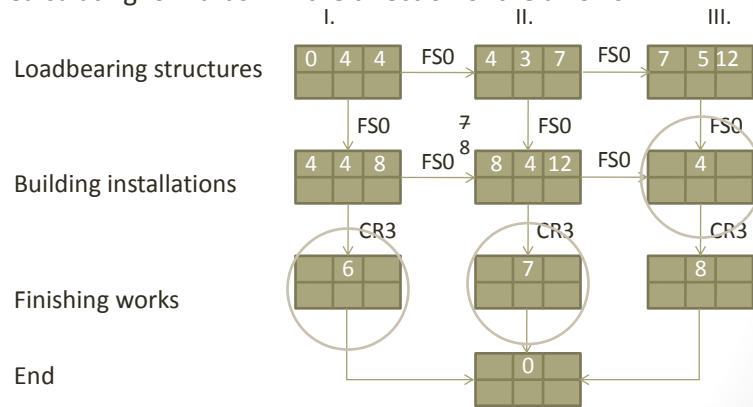
Time analysis

- Calculating forwards – in the direction of the arrows



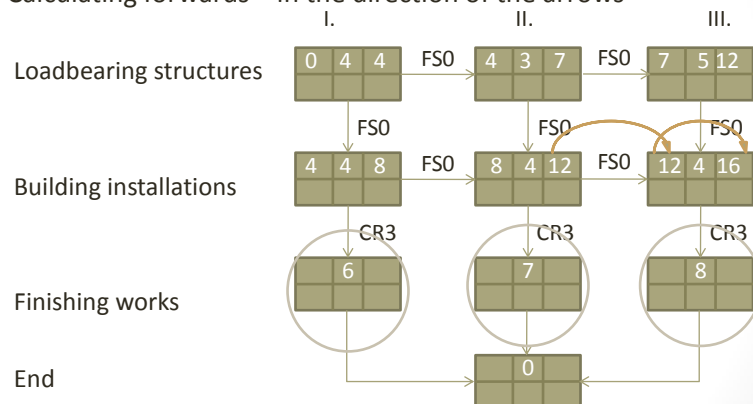
Time analysis

- Calculating forwards – in the direction of the arrows



Time analysis

- Calculating forwards – in the direction of the arrows



Time analysis

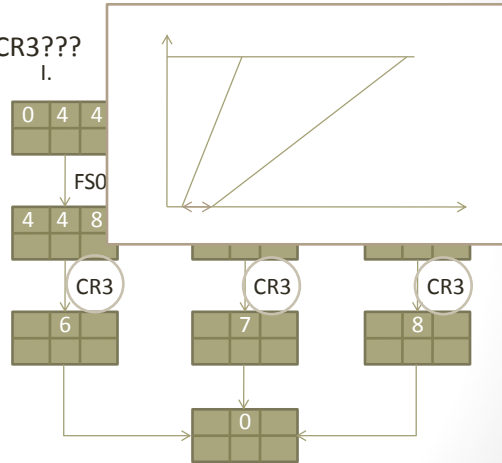
- Calculating forwards – CR3???

Loadbearing structures

Building installations

Finishing works

End



Time analysis

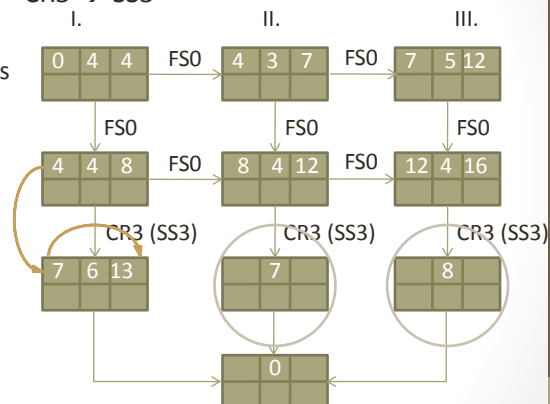
- Calculating forwards – CR3 → SS3

Loadbearing structures

Building installations

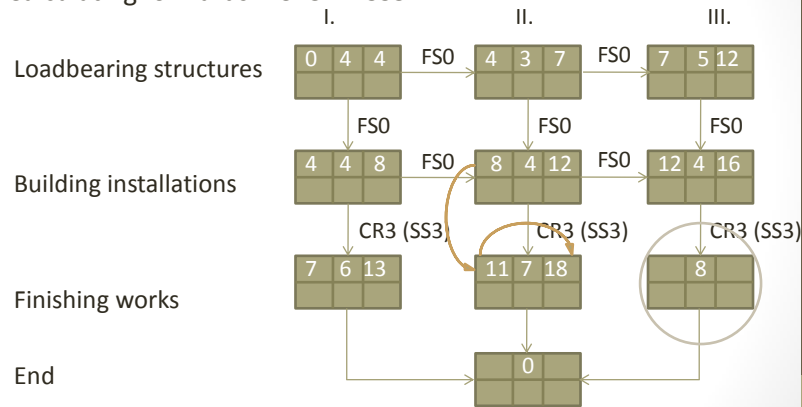
Finishing works

End



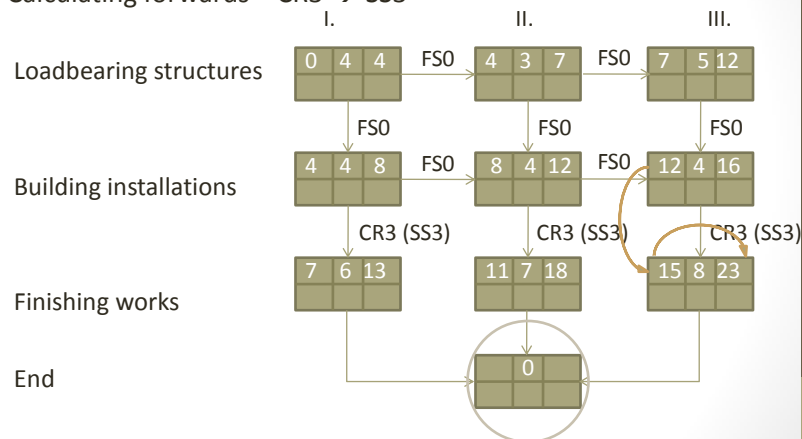
Time analysis

- Calculating forwards – CR3 → SS3



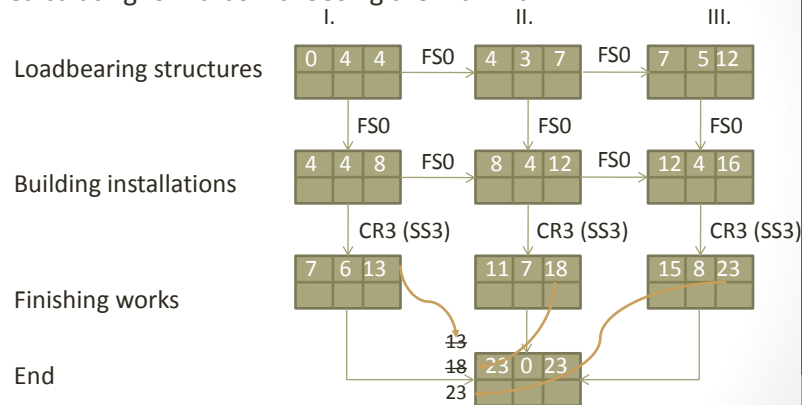
Time analysis

- Calculating forwards – CR3 → SS3



Time analysis

- Calculating forwards – choosing the maximum



Time analysis

Calculating forwards

- Early dates
- Appointed starting date
- Proceeding in the direction of the arrows
- Maximal values

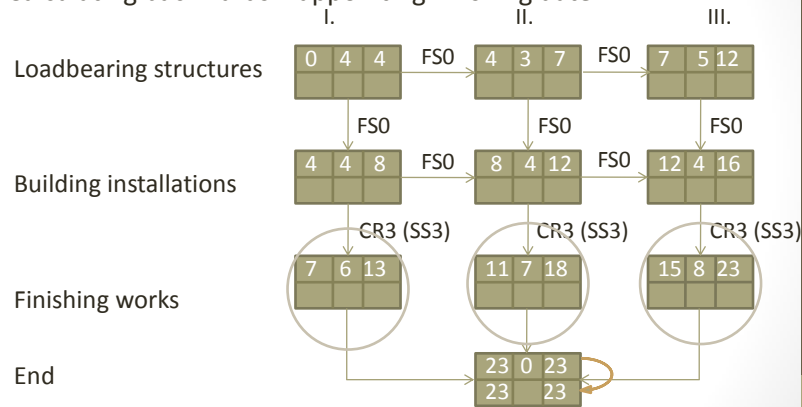
Calculating backwards

- Late dates
- Appointed finishing date
- Proceeding against the arrows
- Minimal values

SAME ORDER OF STEPS!

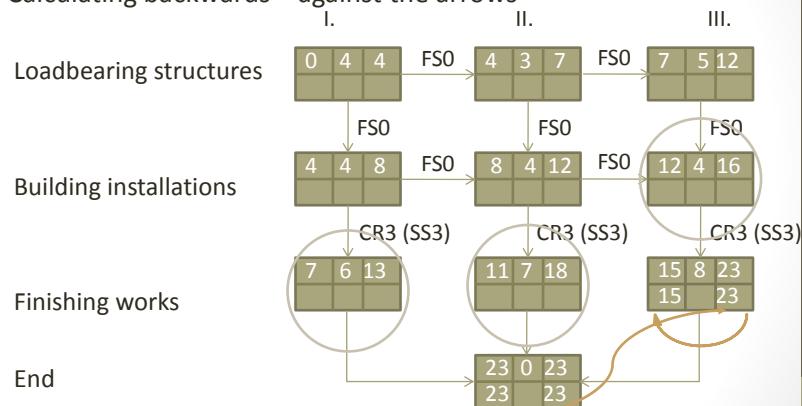
Time analysis

- Calculating backwards – appointing finishing date



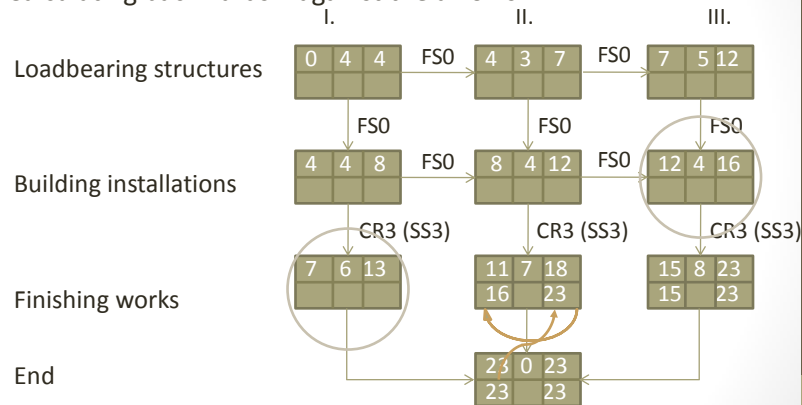
Time analysis

- Calculating backwards – against the arrows



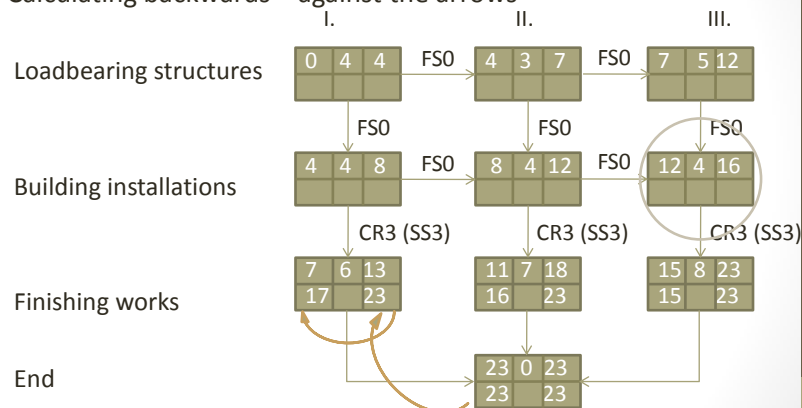
Time analysis

- Calculating backwards – against the arrows



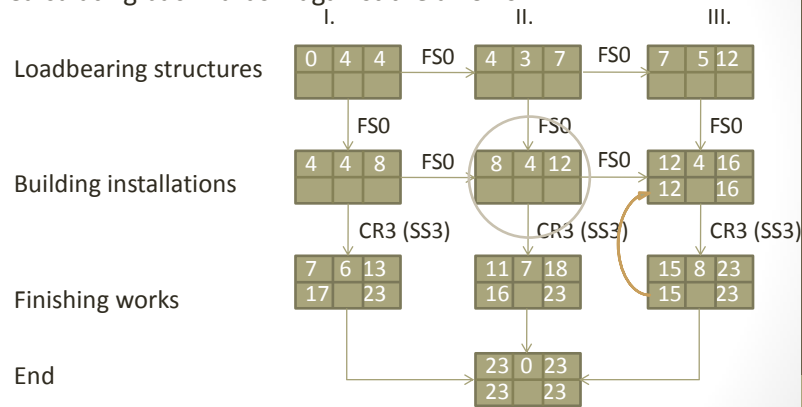
Time analysis

- Calculating backwards – against the arrows



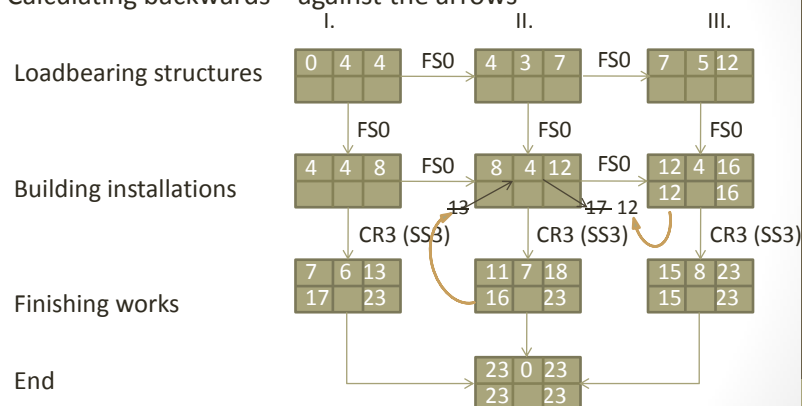
Time analysis

- Calculating backwards – against the arrows



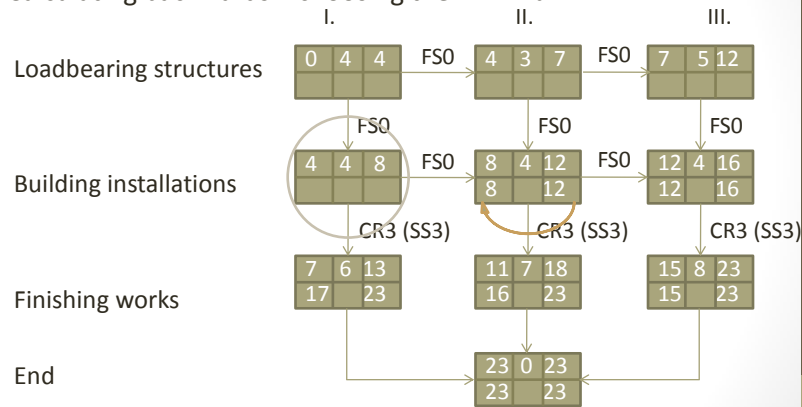
Time analysis

- Calculating backwards – against the arrows



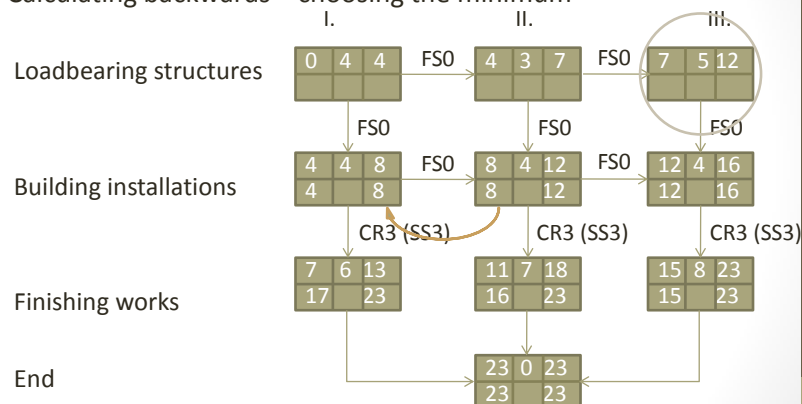
Time analysis

- Calculating backwards – choosing the minimum



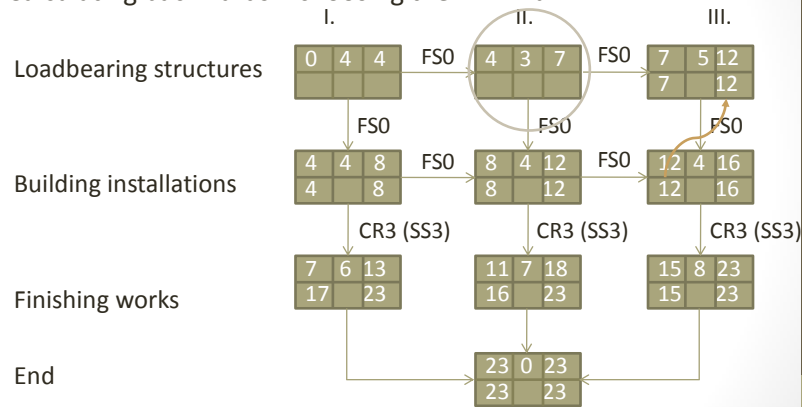
Time analysis

- Calculating backwards – choosing the minimum



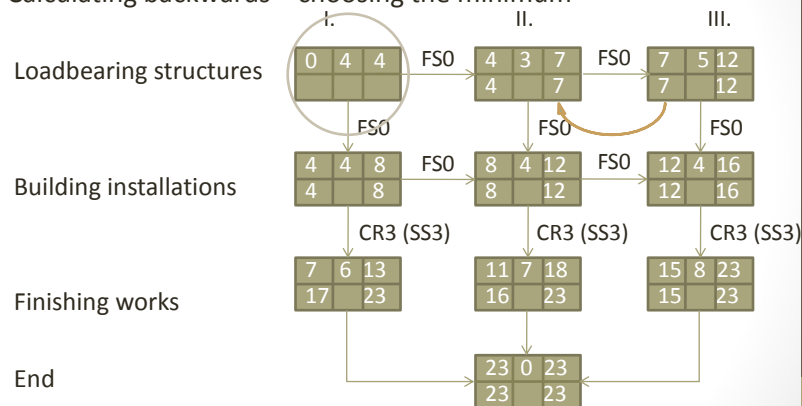
Time analysis

- Calculating backwards – choosing the minimum



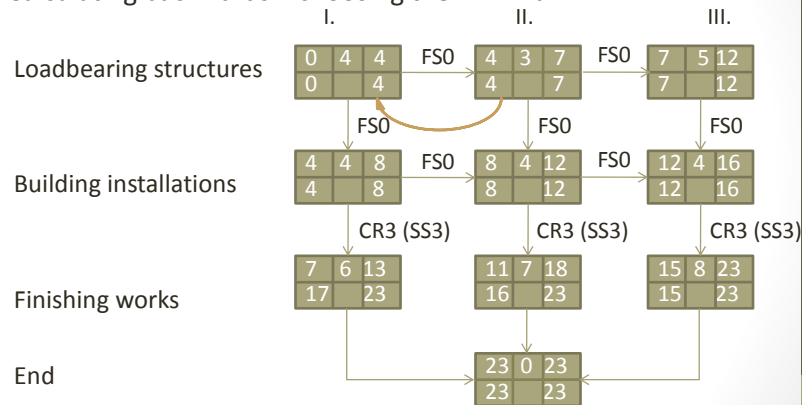
Time analysis

- Calculating backwards – choosing the minimum



Time analysis

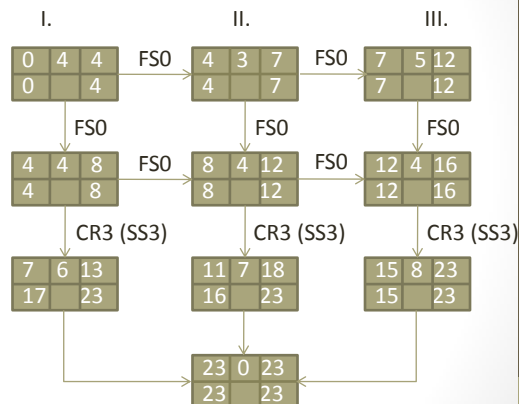
- Calculating backwards – choosing the minimum



Time analysis

- Checking the network

- Getting back 0 as the starting date
- Late date \geq early date



Analysing the network

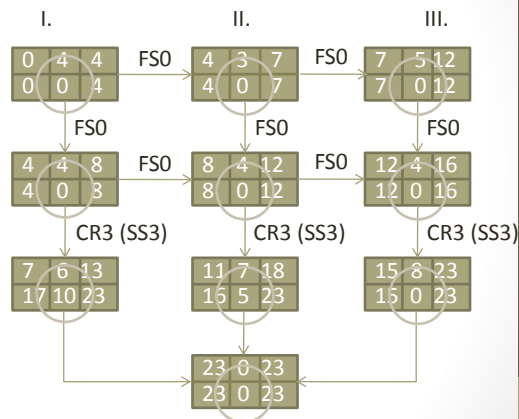
- Float – total float

Loadbearing structures

Building installations

Finishing works

End



Analysing the network

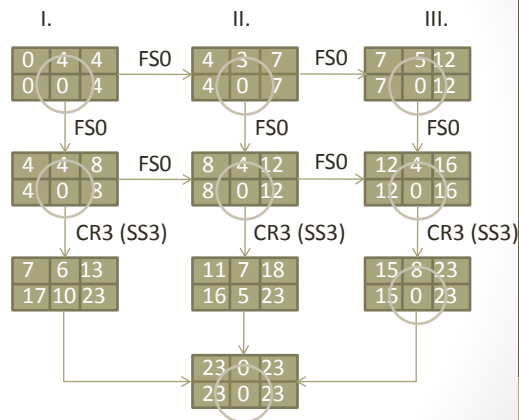
- Critical nodes

Loadbearing structures

Building installations

Finishing works

End



Analysing the network

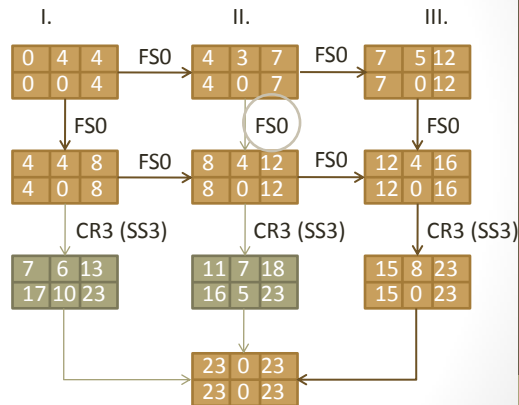
- Critical edges

Loadbearing structures

Building installations

Finishing works

End



Analysing the network

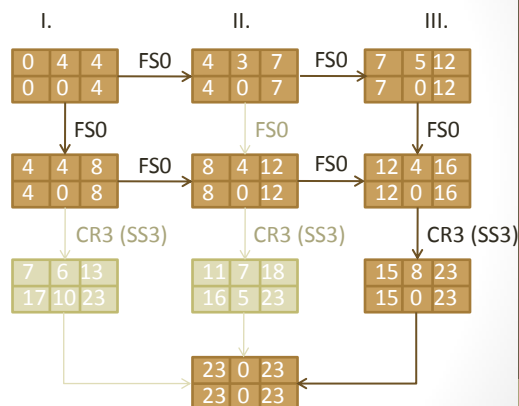
- Critical path

Loadbearing structures

Building installations

Finishing works

End

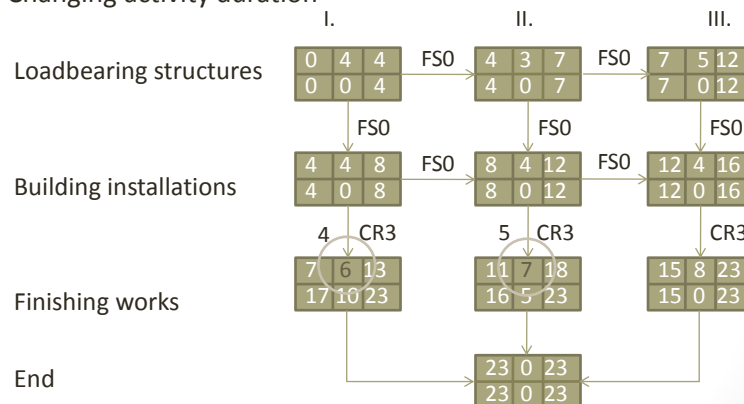


Analysing the network

- Modifying the network
 - When?
 - During the planning phase
 - During the construction – according to actual data
 - Why?
 - To reduce the total duration
 - Delay in the preceding activities → keeping end deadline
 - How?
 - Changing activity durations in the critical path
 - Changing relations in the critical path
 - Allowing greater overlapping
 - Using more resources (e.g. labour) → eliminating relations

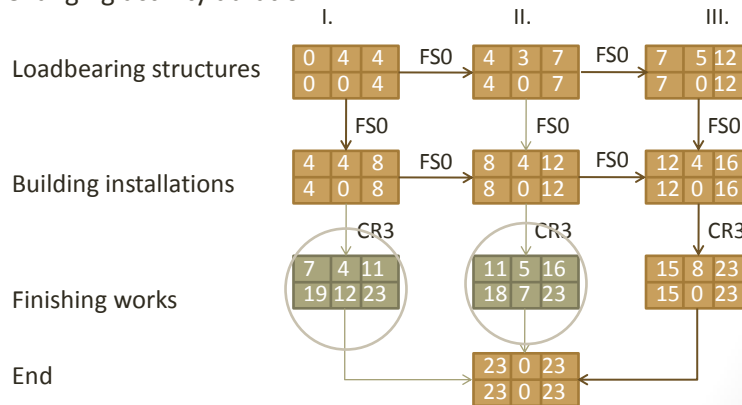
Modifying the network

- Changing activity duration



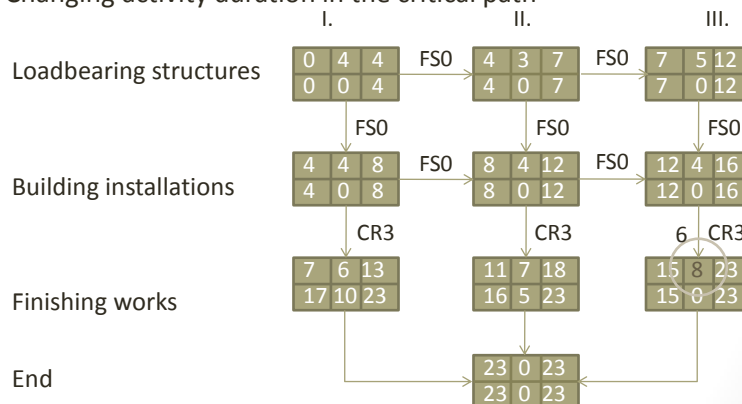
Modifying the network

- Changing activity duration



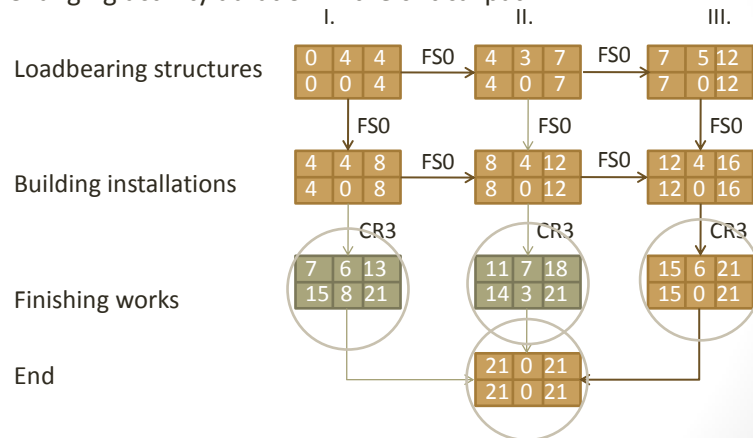
Modifying the network

- Changing activity duration in the critical path



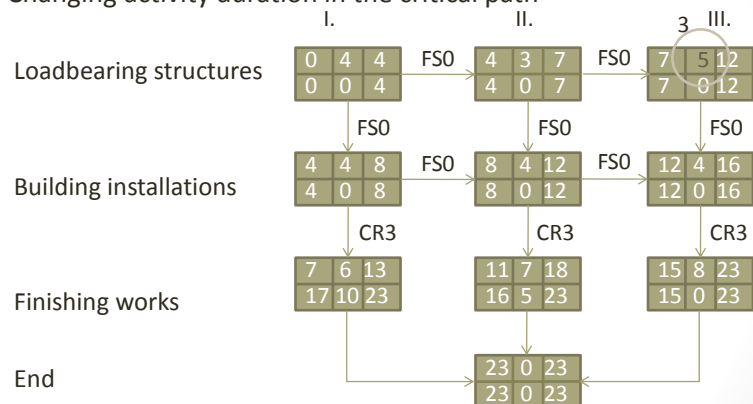
Modifying the network

- Changing activity duration in the critical path



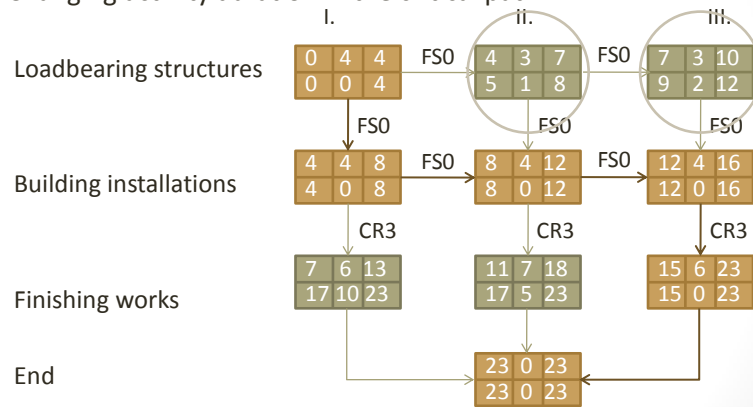
Modifying the network

- Changing activity duration in the critical path



Modifying the network

- Changing activity duration in the critical path



MPM network → bar chart

