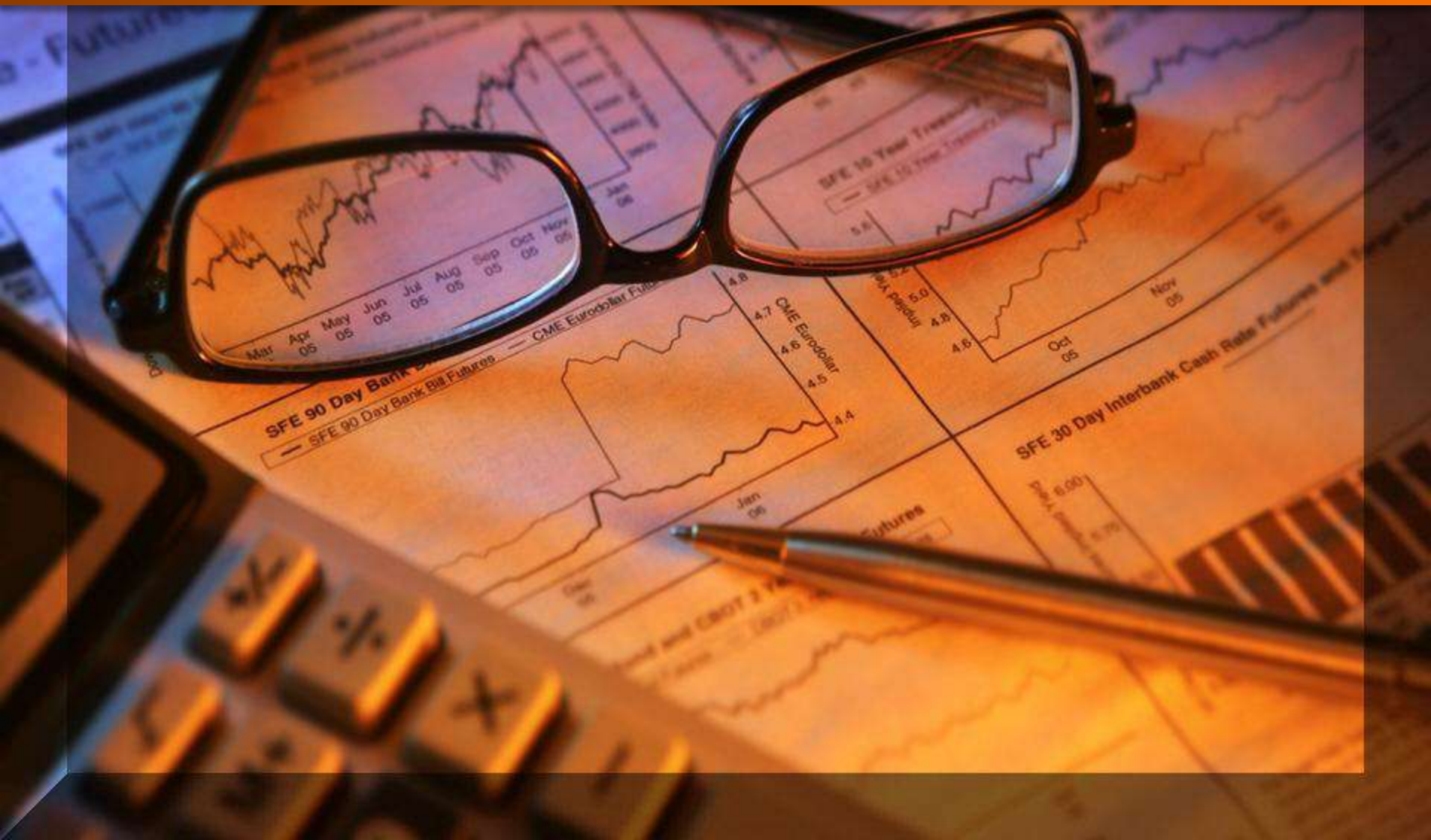
IE 314: Operations Management

Shot-Term Scheduling

Lecture 7

KAMAL

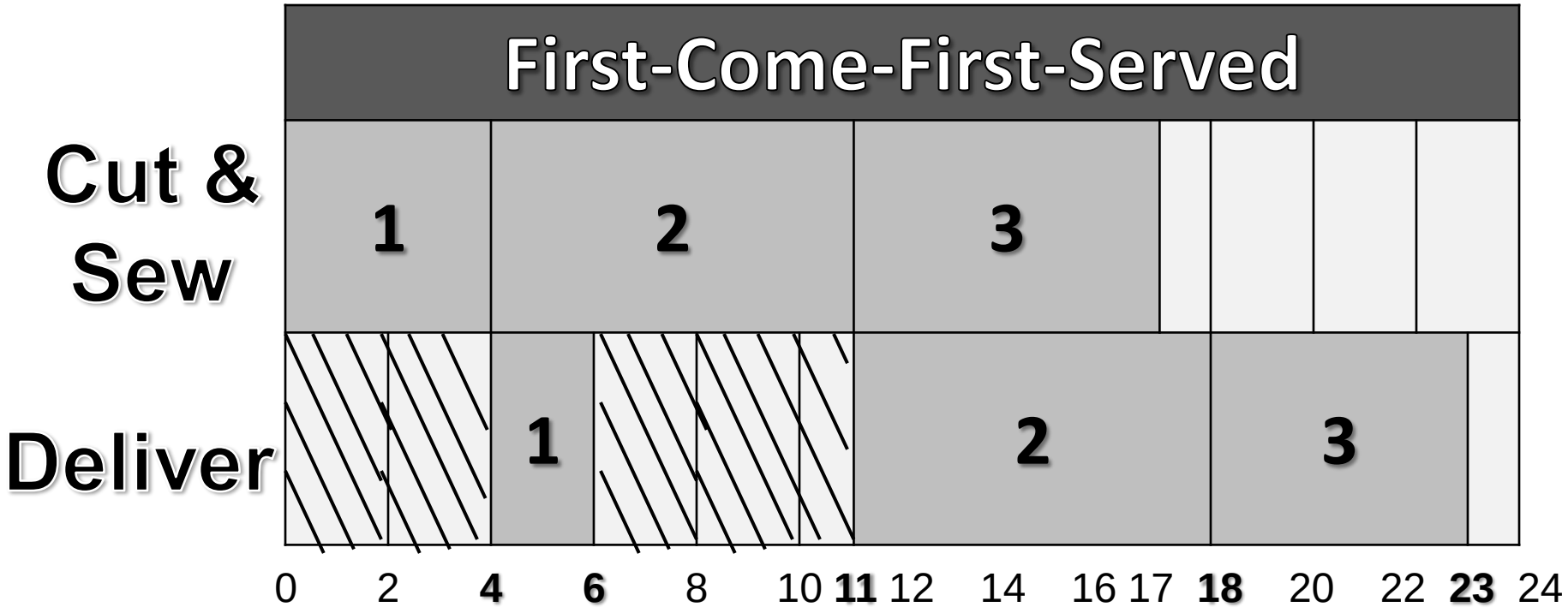


•• **15.15** Sunny Park Tailors has been asked to make three different types of wedding suits for separate customers. The table below highlights the time taken in hours for (1) cutting and sewing and (2) delivery of each of the suits. Which schedule finishes sooner: First-come, first-served (123) or a schedule using Johnson's rule?

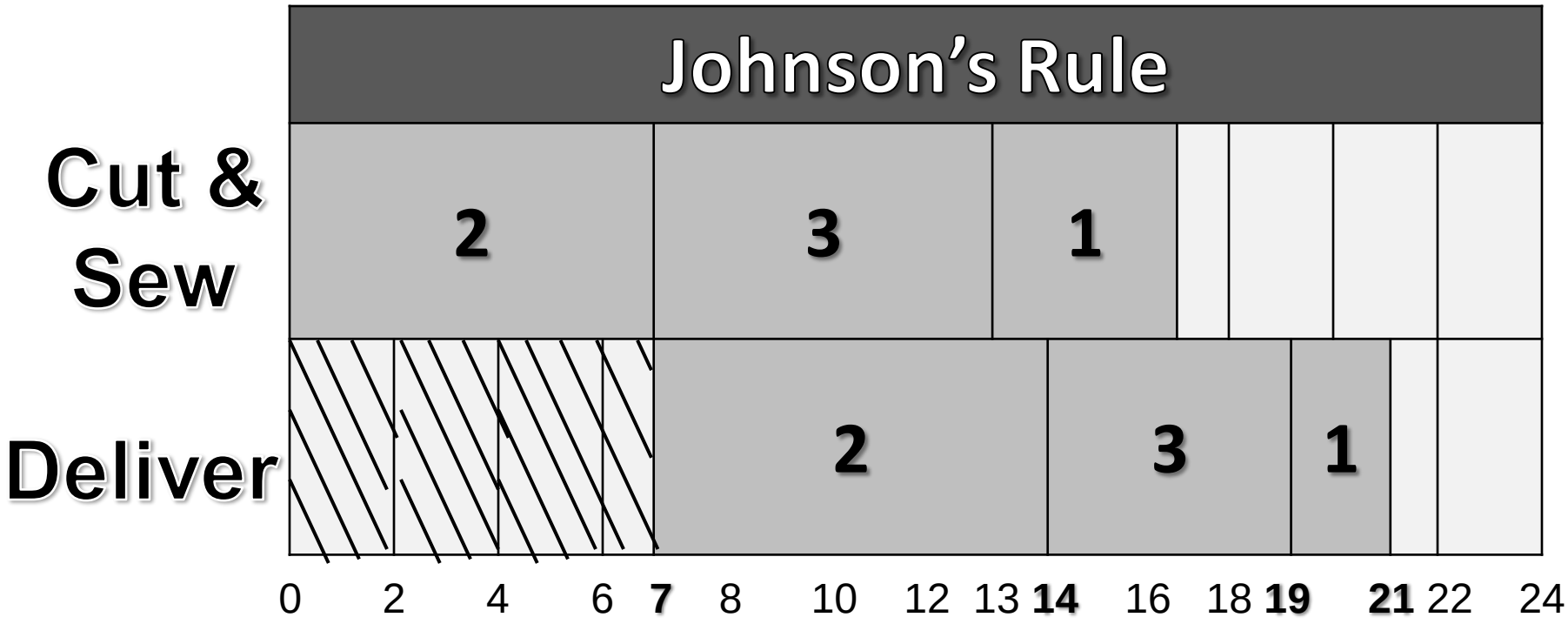
Times Taken for Different Activities (hours)

Suit	Cut and Sew	Deliver
1	4	2
2	7	7
3	6	5

EXERCISE 15.15



EXERCISE 15.15



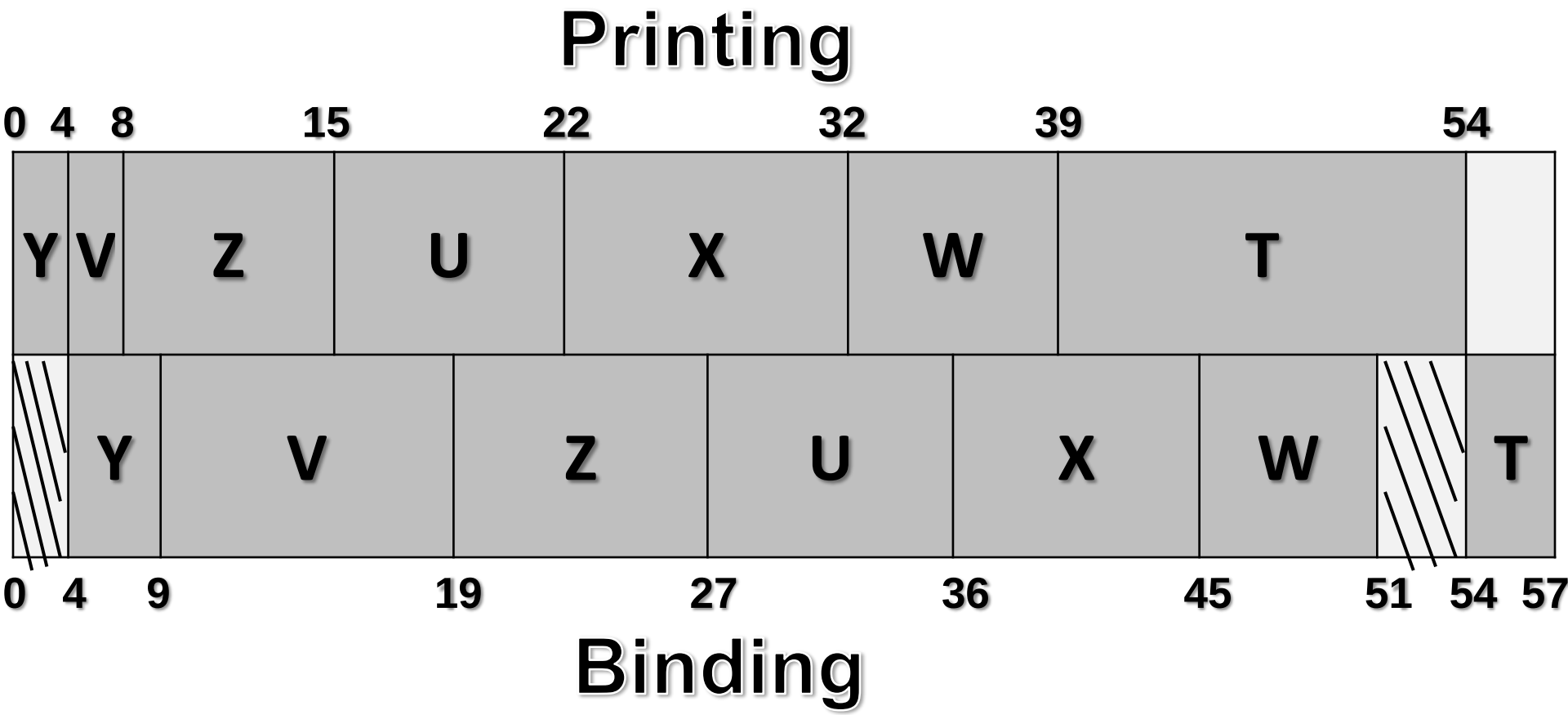
Johnson's Rule results in saving 2 hours

••••**15.17** The following set of seven jobs is to be processed through two work centers at George Heinrich's printing company. The sequence is first printing, then binding. Processing time at each of the work centers is shown in the following table:

Job	Printing (hours)	Binding (hours)
T	15	3
U	7	9
V	4	10
W	7	6
X	10	9
Y	4	5
Z	7	8

a) What is the optimal sequence for these jobs to be scheduled?
b) Chart these jobs through the two work centers.

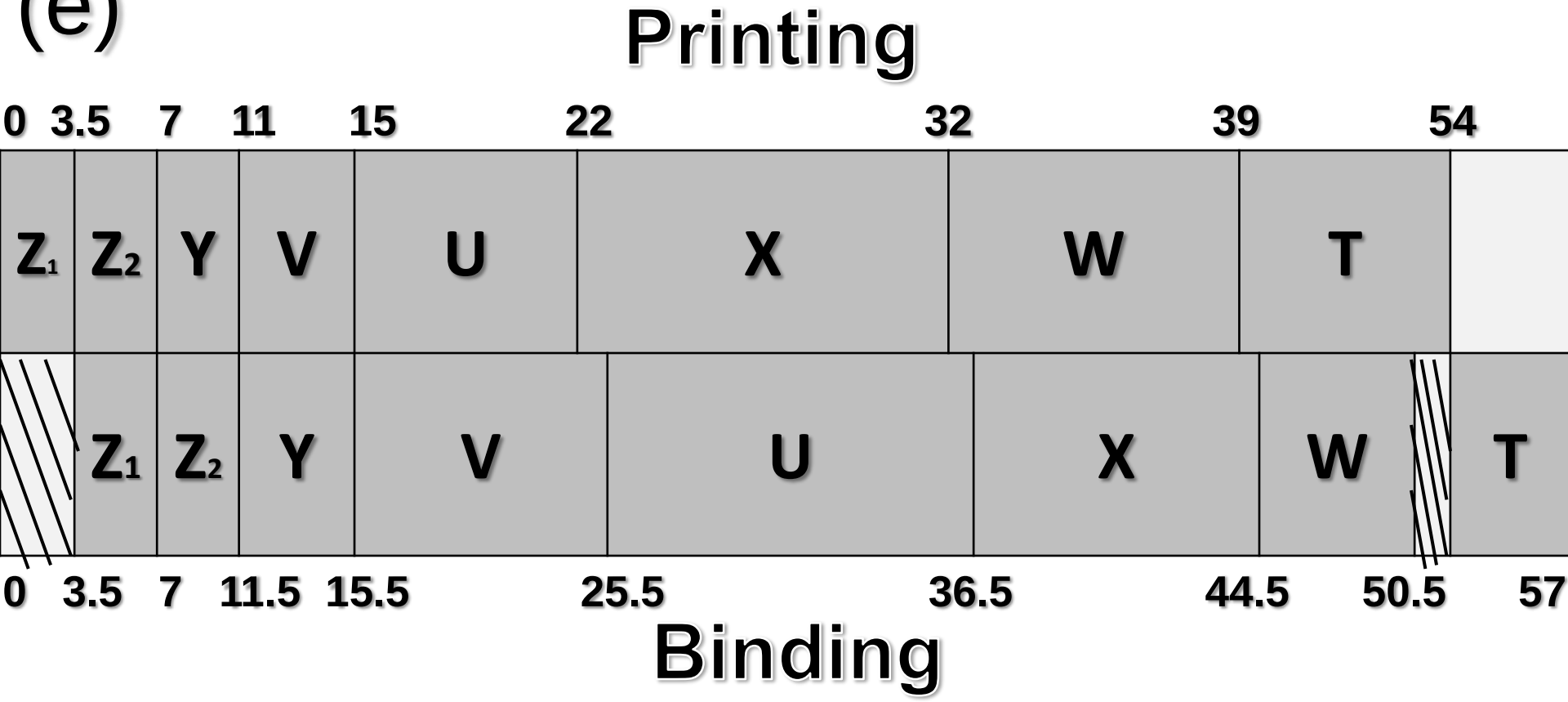
EXERCISE 15.17



Total idle time = 7 hours

EXERCISE 15.17

(e)



Total idle time is still 7 hours.
Job T completion time is the same but all other job's completion time is reduced by 0.5 hour

•• **15.19** Jesse's Barber Shop at O'Hare Airport is open 7 days a week but has fluctuating demand. Jesse is interested in treating his barbers as well as he can with steady work and preferably 5 days of work with two consecutive days off. His analysis of his staffing needs resulted in the following plan. Schedule Jesse's staff with the minimum number of barbers.

	Day						
	Mon.	**Tue.**	**Wed.**	**Thu.**	**Fri.**	**Sat.**	**Sun.**
Barbers needed	6	5	5	5	6	4	3

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Barber 1	6	5	5	5	6	4	3
Barber 2	5	4	4	4	5	4	3
Barber 3	4	3	3	3	4	4	3
Barber 4	3	2	3	3	3	3	2
Barber 5	2	1	2	2	2	3	2
Barber 6	1	1	2	1	1	2	1
Barber 7	0	0	1	1	1	1	0

7 barbers are needed, the 7th is working 4 days only.

HW

15.18

15.20

Quiz

The emergency room at a hospital estimates the following requirements for registered nurses (RNs) for the late night shift each week. Nurses work four consecutive days, then have off three days.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
3	4	2	2	3	6	4

Perform cyclical scheduling on the data. (Note that you must identify three-day patterns of minimum requirements). How many RNs are required? How much extra capacity is required?