CSE 4016 Software Project Management

Resource Management

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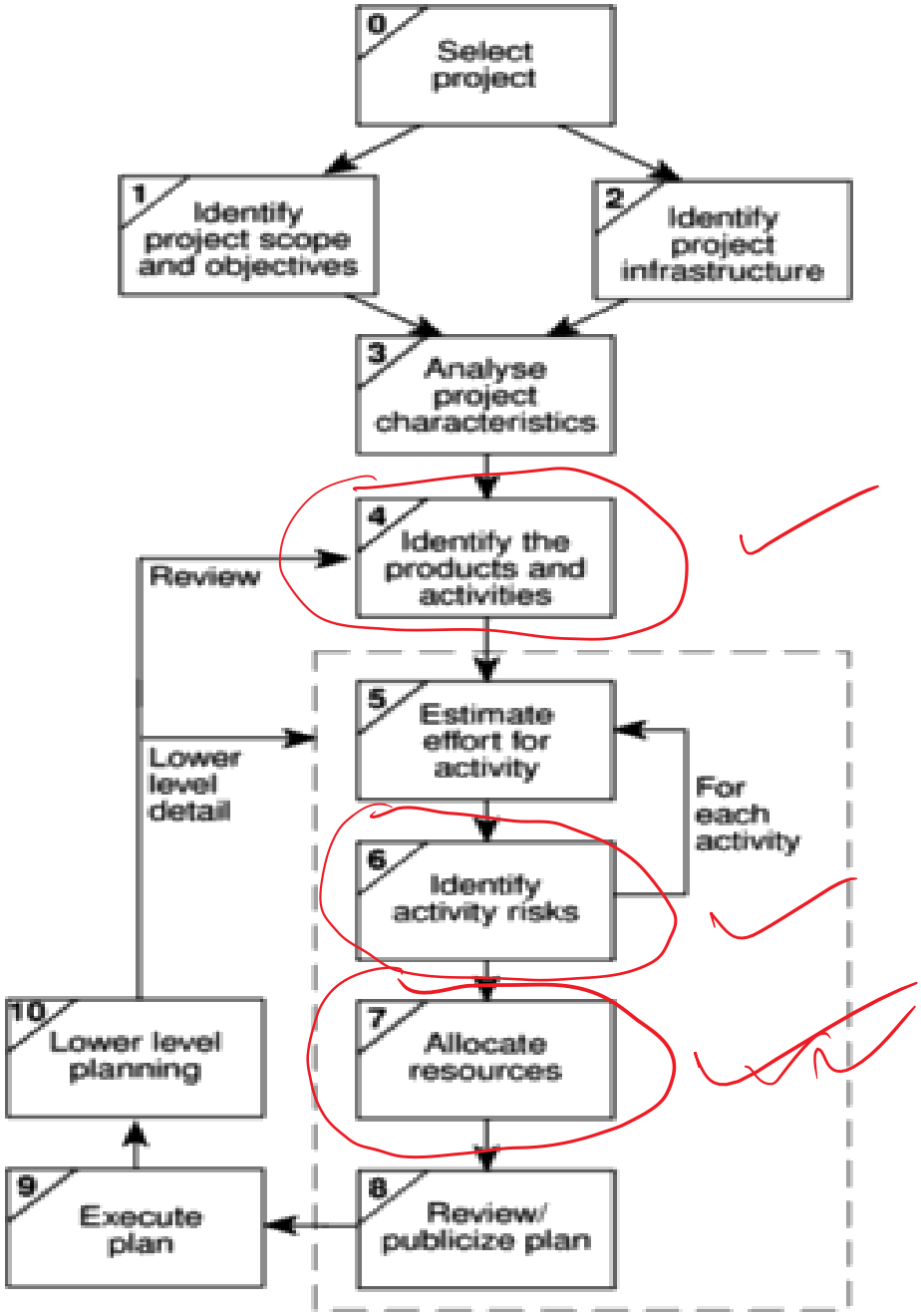
Topic to be discussed

- Identify resources
- Challenges and identify demands
- Planning
- Cost planning


0
Select project
1
Identify project scope and objectives
2
Identify project infrastructure
3
Analyse project characteristics
4
Identify the products and activities
Review
5
Estimate effort for activity
Lower level detail
For each activity
6
Identify activity risks
7
Allocate resources
8
Review/ publicize plan
9
Execute plan
10
Lower level planning

Resource allocation is the process of assigning assets in a manner that supports your team's goals.

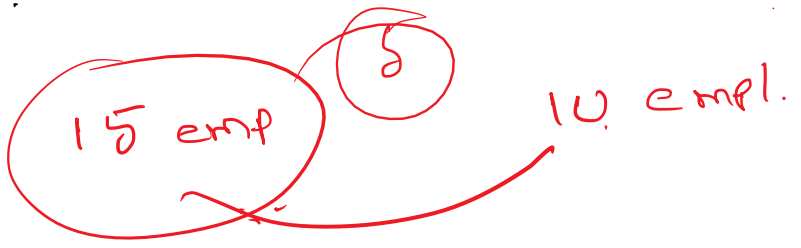
Types of Resources:

- **Labour:** (office, developer/Project Members)
- They constitute team members or employees and contingent staff with different skill sets and form the backbone of any project.
- **Equipment/Tools:**
- It includes everything from software to hardware, depending on the organization's type.
- **Facilities:**
- It comprises the environment needed for executing a project, such as a conference room or office space.
- **Materials:**
- These are the consumables required to generate outputs. For example, office stationery, raw materials to build a house.
- **Budget:**
- Finance needed to purchase any of the above resources.

Time :

What is the importance of resource allocation?

- Having the right resource at the right time is critical to project success.
- A project is made up of tasks. Often tasks depend on other tasks. This means, your entire project can be delayed if a single task misses a deadline. And often, tasks get delayed because a resource to get it done is not available.
- Not having access to the right people, tools, or materials will lead to **delayed tasks, missed deadlines, and failed projects**.
- By following a systematic resource allocation process, you **ensure the resources you need are available** when you need them. Also, an upfront resource allocation plan **avoids resource conflicts** with other teams.
- Pre-planned resource allocation also helps **identify gaps in resource availability**. That way, you can plan around the unavailability of key resources.



resource allocation challenges for managers

Changes in project scope

- Workloads can change at any moment. Scope changes will undoubtedly lead to your resource requirements changing, so you need a resource allocation plan that's flexible.
- **Solution:** Fully assess scope changes before they're approved. Then identify if the current resource allocations remain sufficient or whether changes are required.

Changes in resource availability

- Resource allocation is rarely static and there are many scenarios that bring changes. Whether that's a team member off sick or a late supplier delivery, try to factor contingency into the resource allocation process.
- Solution: When building your initial project plan, try to factor in some resource contingency. This will give you room to manage for minor changes. If the consequence is major, take immediate action to source replacements.

Task delays

- No piece of work is without its dependencies. That's why a delay in one step of your process has a cascading effect on other work. Because of this, you may lose your resource availability window.
- Solution: When building your initial project plan, identify key dependencies and plan contingency for those resources. Understanding Critical Path Analysis will help here.

Location and time zone differences

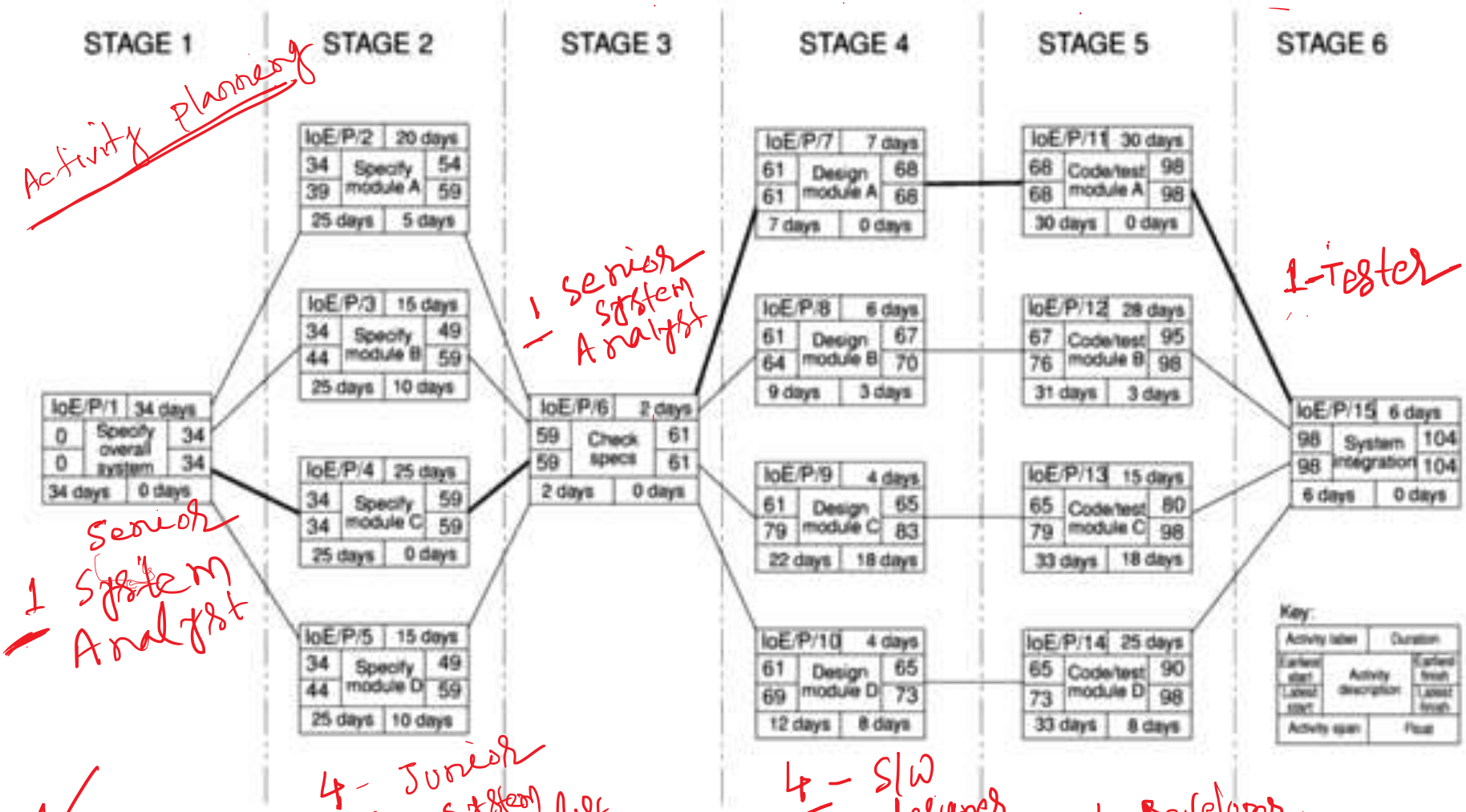
- A remote/distributed team comes with it's own set of challenges. Time zone difference is a big one. This is especially true when bringing people together for collaboration as the window of the crossover will be small and the risk of delay is higher.
- Solution: Work with your team to maximize resource crossover. For example, could team members work flexible hours to maximize their effectiveness? The greater the crossover the lower the resource allocation risk.

Case Study

Amanda

$\frac{34}{7} = 4$ wee

Activity planning



1 senior system Analyst

1-Tester

Senior 1 System Analyst

4 - Junior system Analyst

4 - S/W designer

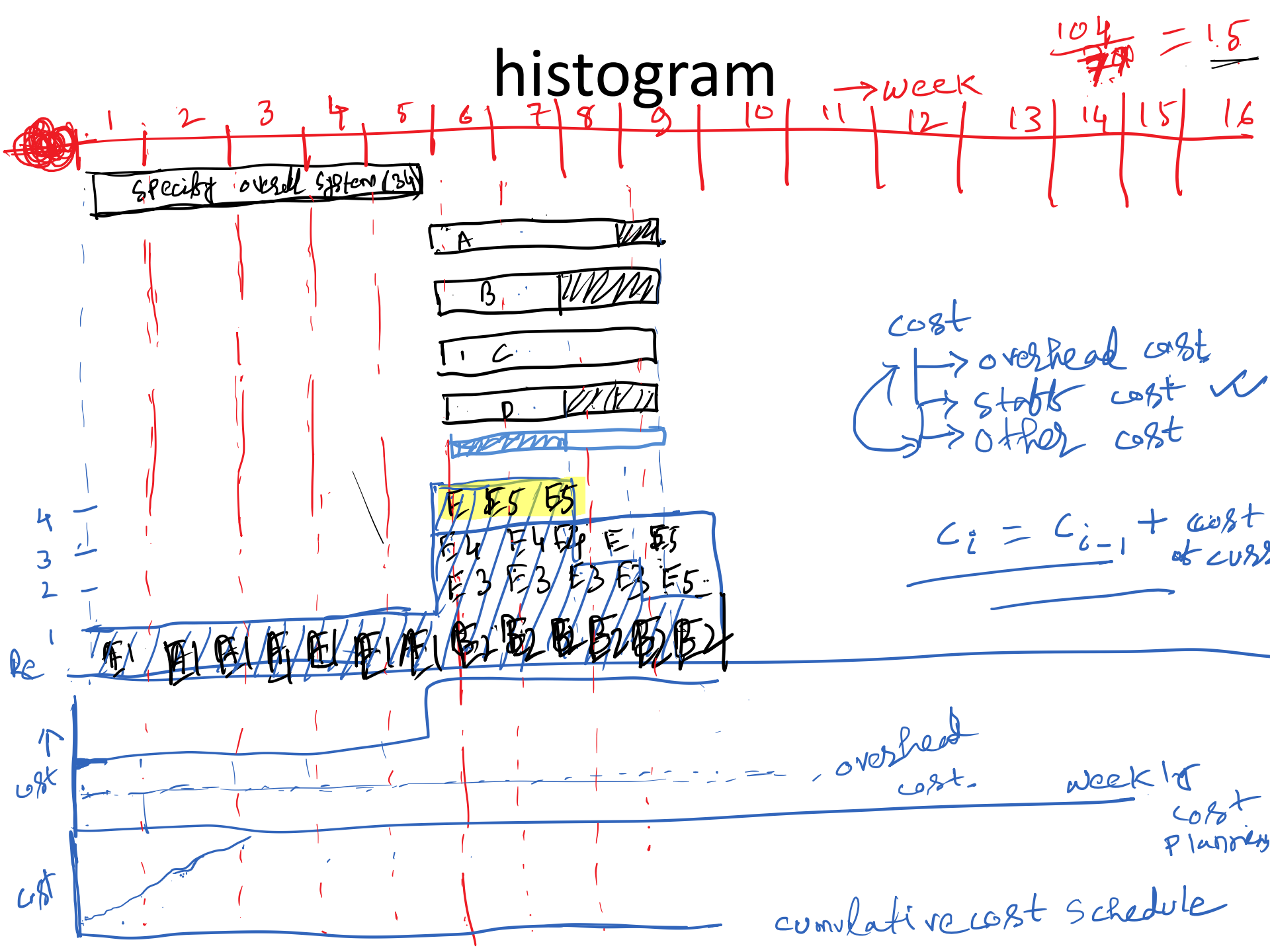
4 Developer

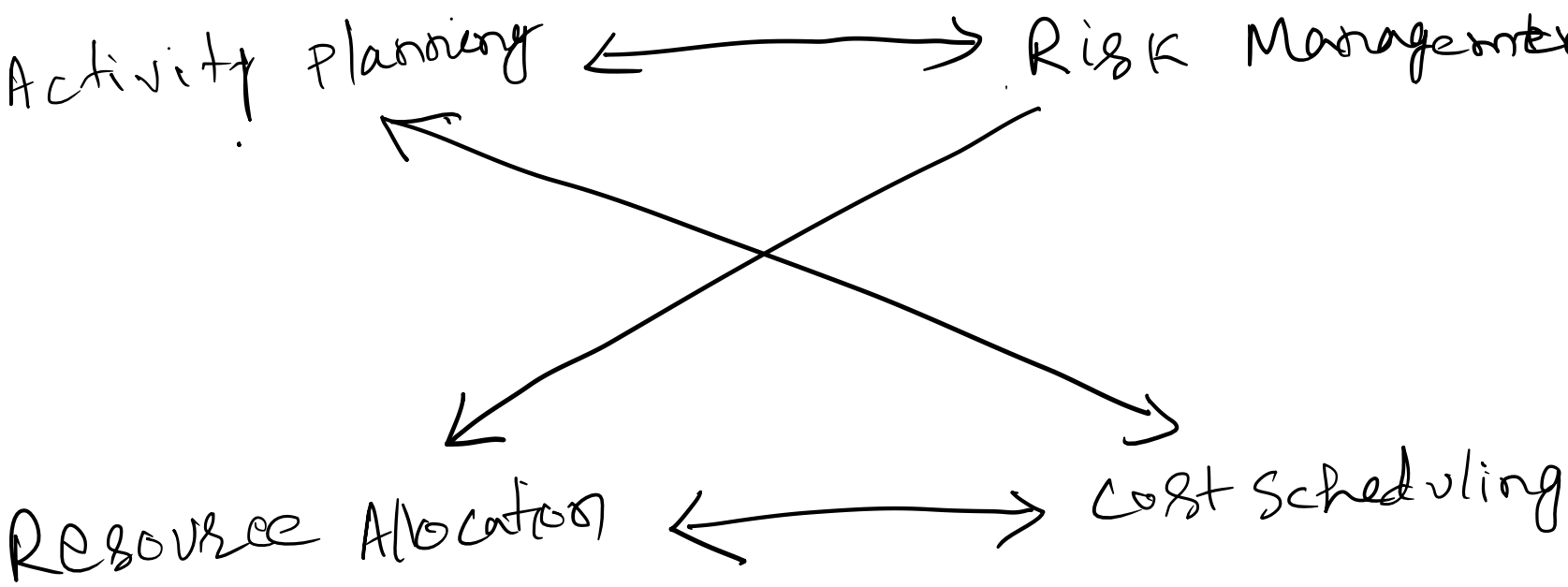
1) identify resource . 2) Demand

Table 8.1 *Part of Amanda's resource requirements list*

Stage	*Activity*	*Resource*	*Days*	*Quantity*	*Notes*
ALL		Project manager	104 F/T		
1	All	Workstation	34		Check software availability
	IoE/P/1	Senior analyst	34 F/T	1	
2	All	Workstation	—	4	1 per person would be ideal
	IoE/P/2	Analyst–designer	20 F/T		
	IoE/P/3	Analyst–designer	15 F/T		
	IoE/P/4	Analyst–designer	25 F/T		
	IoE/P/5	Analyst–designer	15 F/T		Could use analyst–programmer
3	All	Workstation	2 F/T		
	IoE/P/6	Senior analyst*	2 F/T	1	
4	All	Workstation	—	4	As stage 2
	IoE/P/7	Analyst–designer	7 F/T		
	IoE/P/8	Analyst–designer	6 F/T		
	IoE/P/9	Analyst–designer	4 F/T		
	IoE/P/10	Analyst–designer	4 F/T		
5	All	Workstation	—	4	1 per programmer
	All	Office space	—		If contract programmers used
	IoE/P/11	Programmer	30 F/T		
	IoE/P/12	Programmer	28 F/T		
	IoE/P/13	Programmer	15 F/T		
	IoE/P/14	Programmer	25 F/T		
6	All	Full machine access	—		Approx. 16 hours for full system test
	IoE/P/15	Analyst–designer	6 F/T	1	

histogram


104/70 = 1.5
week
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Specify overall system (3d)
A
B
C
D
E E5 E5
E4 E4 E E5
E3 E3 E3 E3 E5
E1 E1 E1 E1 E1 E1 B2 B2 B2 B2 B2 B2
4
3
2
1
Re
cost
overhead cost
staff cost
other cost
$C_i = C_{i-1}$ + cost of curr
cost
overhead cost.
week
cost
Planning
cost
cumulative cost schedule


Activity planning
Risk Management
Resource Allocation
cost Scheduling

3 Module