Project Management

EE-493 SENIOR PROJECT LECTURE SERIES 2016 FALL

Lecturer: Prof. Dr. MURAT EYÜBOĞLU

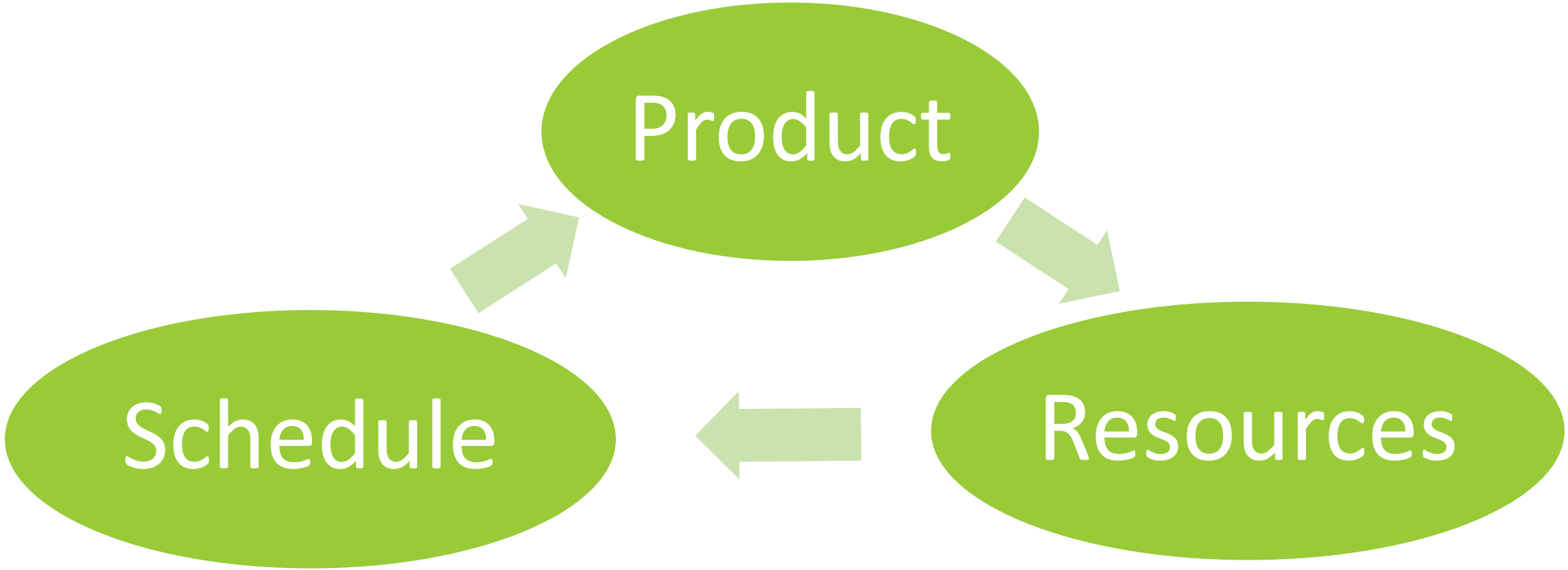
What do we mean by PROJECT?

- Collection of related or connected activities to develop a product or a service is called PROJECT.
- Projects should have a **customer** who needs the results.
- Projects should have a **schedule**, well defined start and conclusion times.
- **Resources** (may be limited) of a project should be defined.
- Usually has a limited **budget**.
- A project **name** must be specified.
- Expected **outcomes** and **results** of a project must be defined.

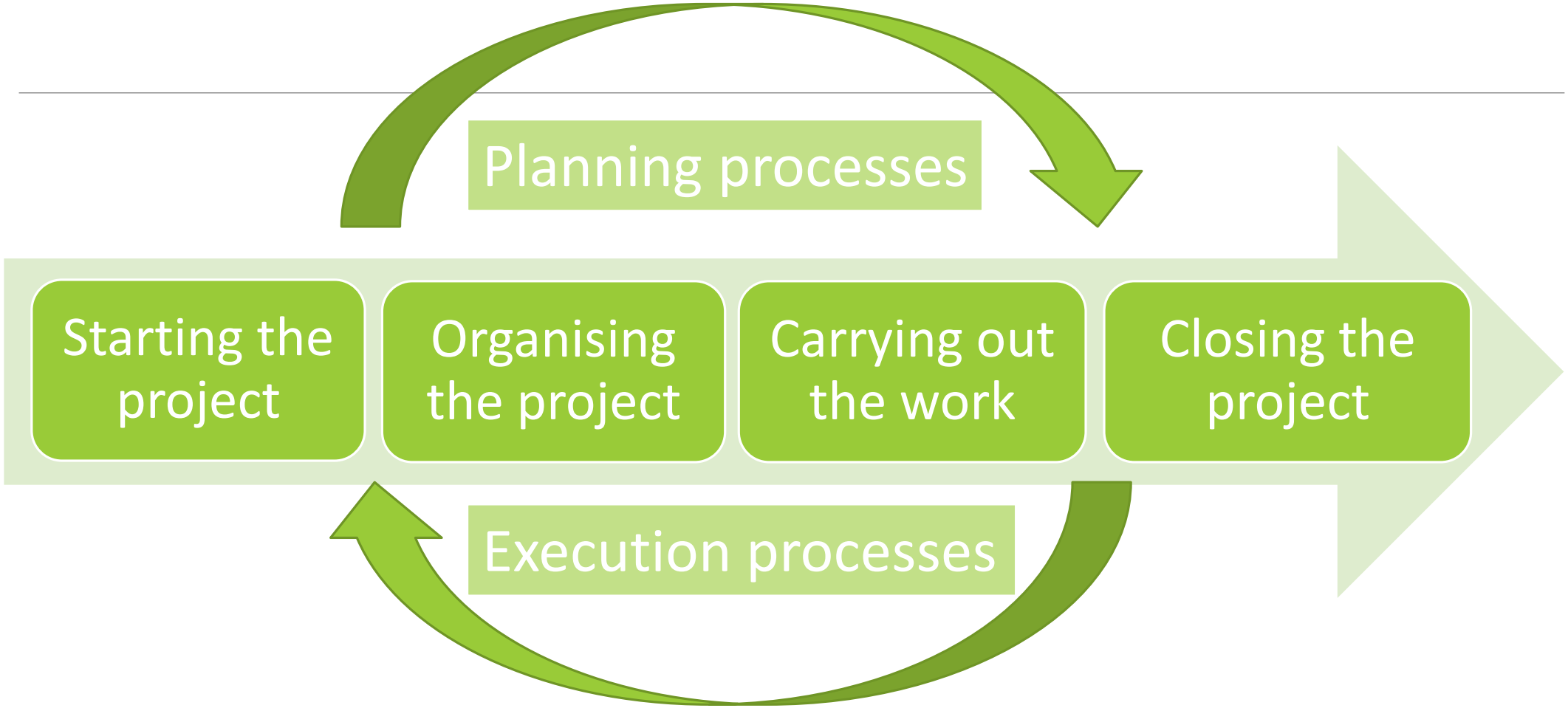
Daily routine jobs vs. Projects

Routine service jobs	Projects
Repeated without any modification	Not repeatable
Routine	A new product or a service
Continuous	Done once
Done before	Never done before
Repeated in the same way	Not repeated in a similar manner
Using experience and past knowledge	Little or no experience from the past projects
Known	Ambiguity
Example: Student registration	EE 494 projects

PROJECT



Monitoring & controlling processes



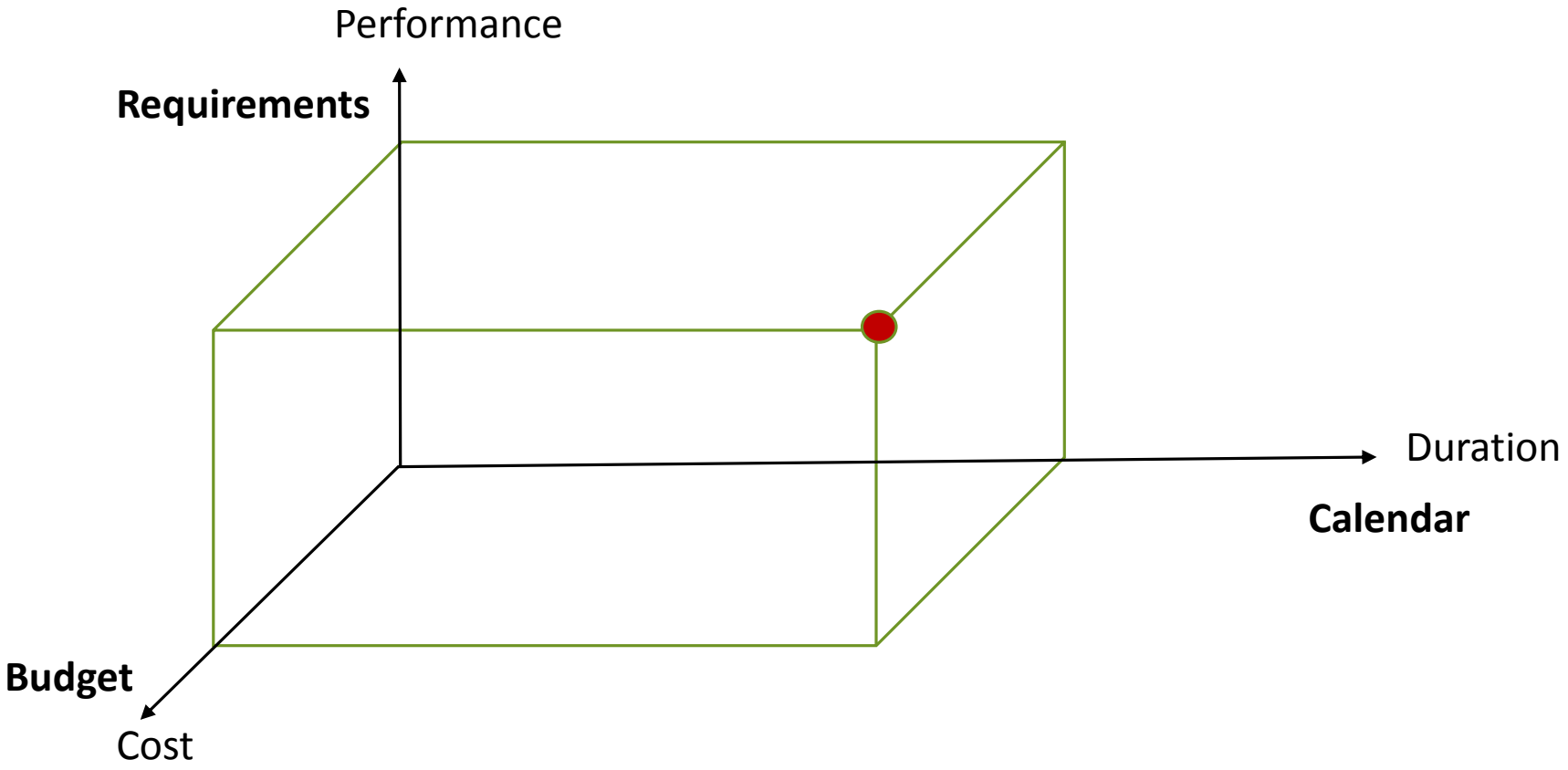
Project Management

Project management is the process of guiding a project from its beginning through its performance to its closure.

A project usually has a manager.

Project manager is responsible for coordinating all project activities for succesful completion of the project.

Project management principles – Triple limit



Four main stages of a project 1

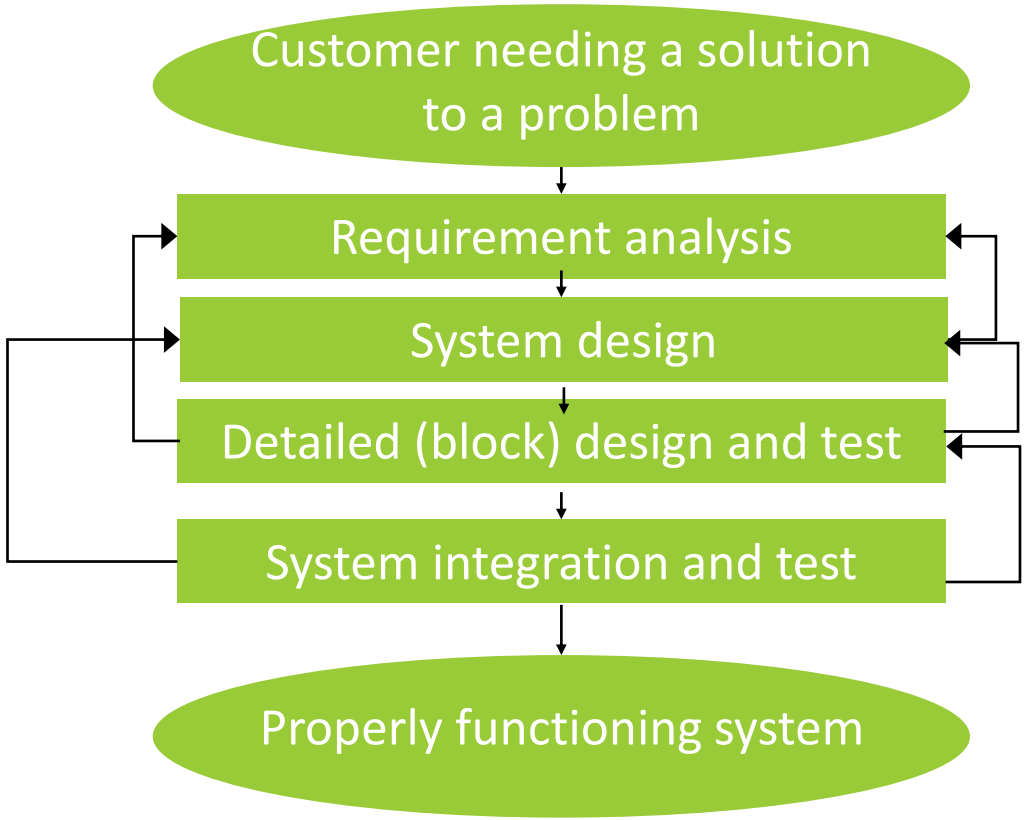
- Starting the project:
  - Project idea generation,
  - Team establishment,

- Organising and preparing:
  - Requirement analysis,
  - Defining project objectives,
  - Concept development,

Four main stages of a project 2

- Carrying out the work:
  - Start of design,
  - Implementation / production / realisation,
  - Testing,
  - Fine tunning of the product,
- Closing the project:
  - Final report,
  - Product delivery

The Design Process



Stating the project objectives

- Objectives are outcomes of a project (they may be also referred to as *deliverables*).
- Project's outcomes may be products or services being developed or the results of using these products and services.

The more clearly you define your project's objectives,

the more likely you are to achieve them. Include the following elements

in your objectives:

✓ **Statement:** A brief narrative description of what you want to achieve

✓ **Measures:** Indicators you'll use to assess your achievement

✓ **Performance targets:** The value(s) of each measure that define success

Some tips for developing clear objectives

Be brief when describing each objective.

If you take an entire page to describe a single objective, most people won't read it.

Even if they do read it, your objective probably won't be clear and may have multiple interpretations.

Don't use technical jargon or acronyms.

To reduce the chances for misunderstandings, express your objectives in language that people of all backgrounds and experiences are familiar with.

Make your objectives **SMART**

- **Specific:** Define your objectives clearly, in detail, with no room for misinterpretation.
- **Measurable:** State the measures and performance specifications you'll use to determine whether you've met your objectives.
- **Aggressive:** Set challenging objectives that encourage people to stretch beyond their comfort zones.
- **Realistic:** Set objectives the project team believes it can achieve.
- **Time sensitive:** Include the date by which you'll achieve the objectives.

Concept development

- Development of goals, specifications,
- Methods to reach goals,
- Design of test procedures,
- Determination of personnel,
- Formation of organisation,
- Cost and budget estimation (20%),
- Determination of report periods and dates.

Carrying out the work

- Detailed study on methods to reach goals,
- Evaluation of personnel and resources,
- Reviewing cost and budget estimation (10%),
- Start of design,

- Implementation / production / realisation,
- Prototyping,
- Testing,
- Design improvement,
- Reviewing cost and budget estimation,
- Fine tunning of the product,

Closing the project:

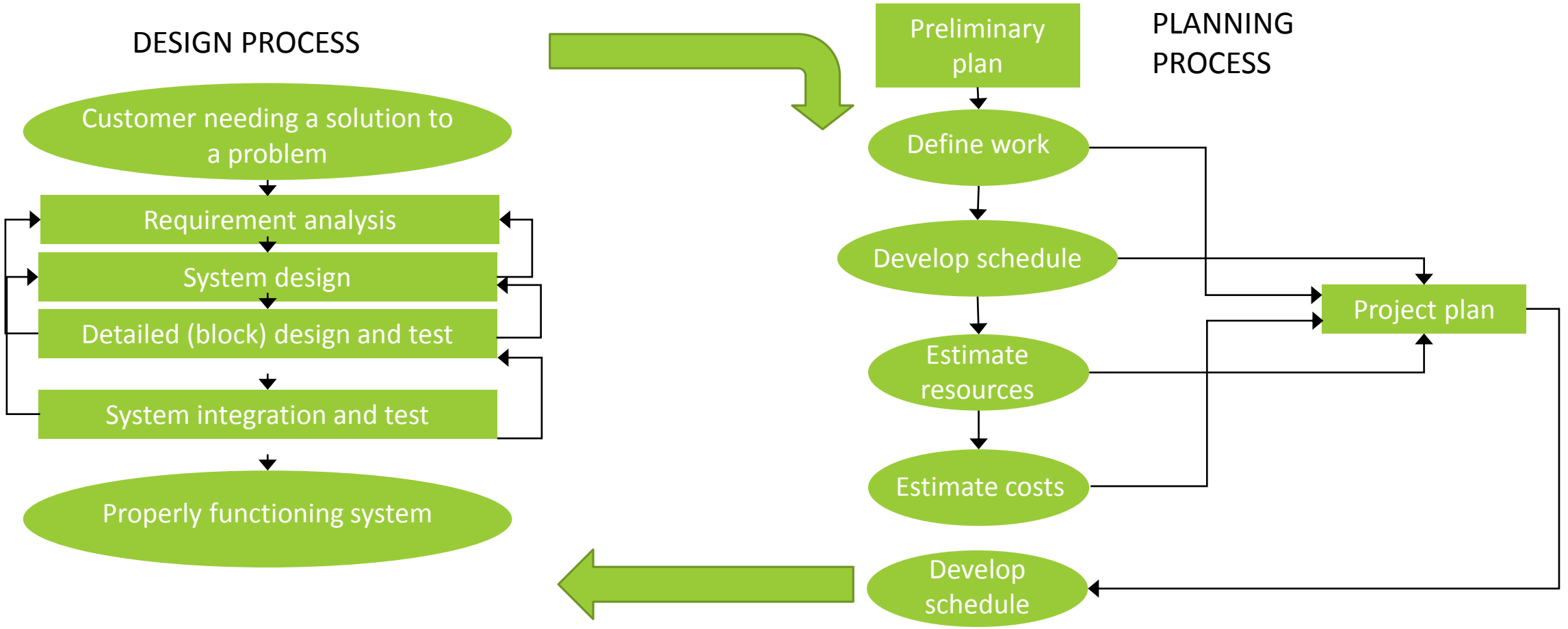
- Final report,
- Product delivery,
  - Training
- Review project and write a feedback report,
- Documentation,
- Organisation problems

Planning a project:

Project planning is a must,

- To prevent and control delays
- To complete the project in time
- To use resources efficiently

The Planning Process



Planning a project:

- All activities must be planned in detail,
- Detailing can be made in many different ways,
- A hiererchial approach:
  - Activity tree

Six levels of Activity Tree

- Organisation as a whole
  - Project
    - Activity
      - Subactivity
        - Work package
          - Jobs for each team member

Methods for project planning:

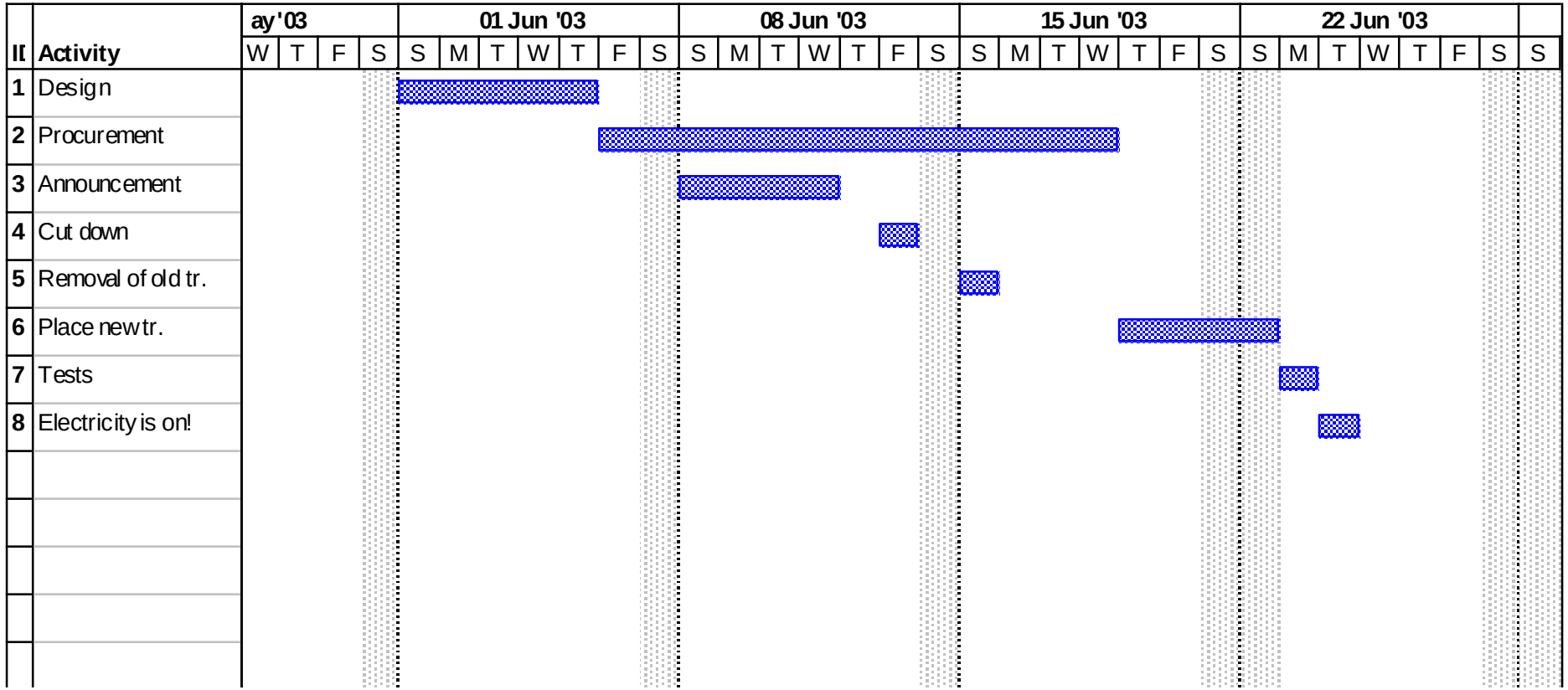
- Gantt chart / diagram
- Pert chart / diagram
  - Critical path

    - Evaluation of project goals achivement
    - Budget control
    - Milestones
    - Precautions

Example:
Replacement of a Power Transformer

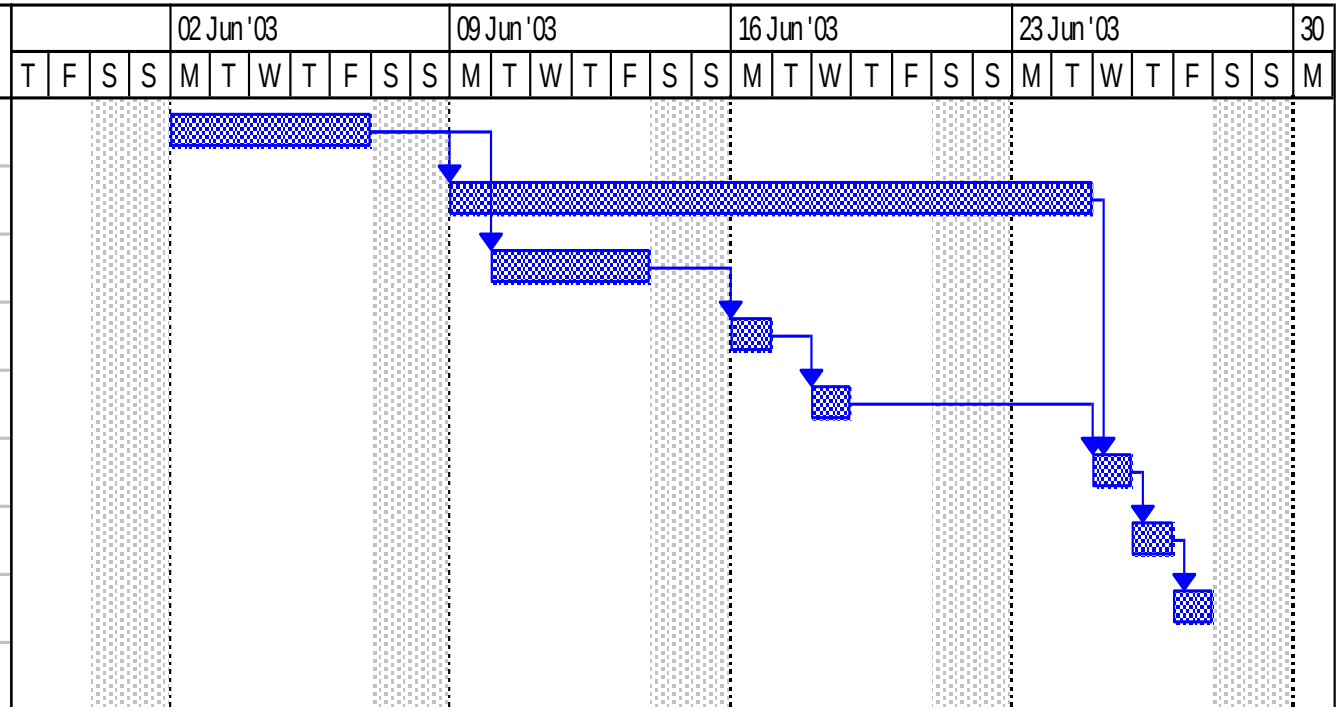
No	Activity	Start	End
1	Replacement design	1.6.03	5.6.03
2	Trans. Procurement	6.6.03	18.6.03
3	Announce Cut down	8.6.03	12.6.03
4	Electricity Cut Down	13.6.03	13.6.03
5	Remove old trans.	14.6.03	15.6.03
6	Place new trans.	19.6.03	22.6.03
7	Tests and control	23.6.03	23.6.03
8	Electricity connection	24.6.03	24.6.03

Transformer Replacement (Gantt Chart)

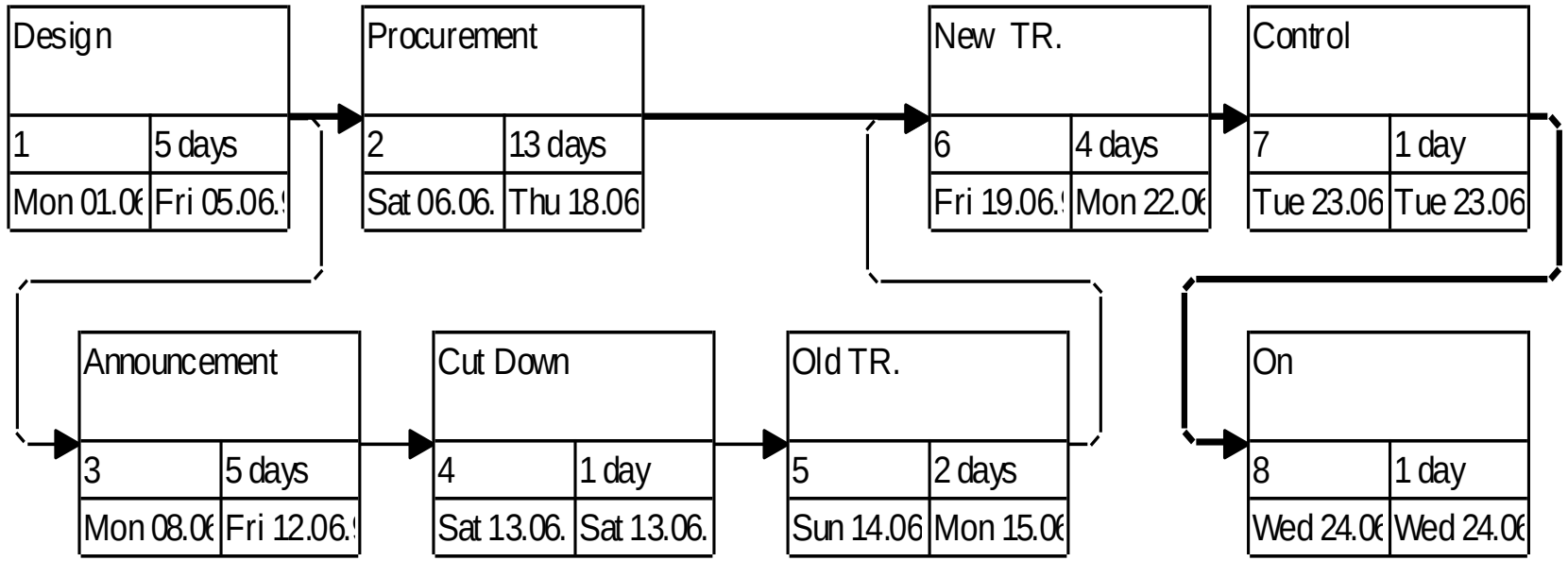


Modified Gantt Chart

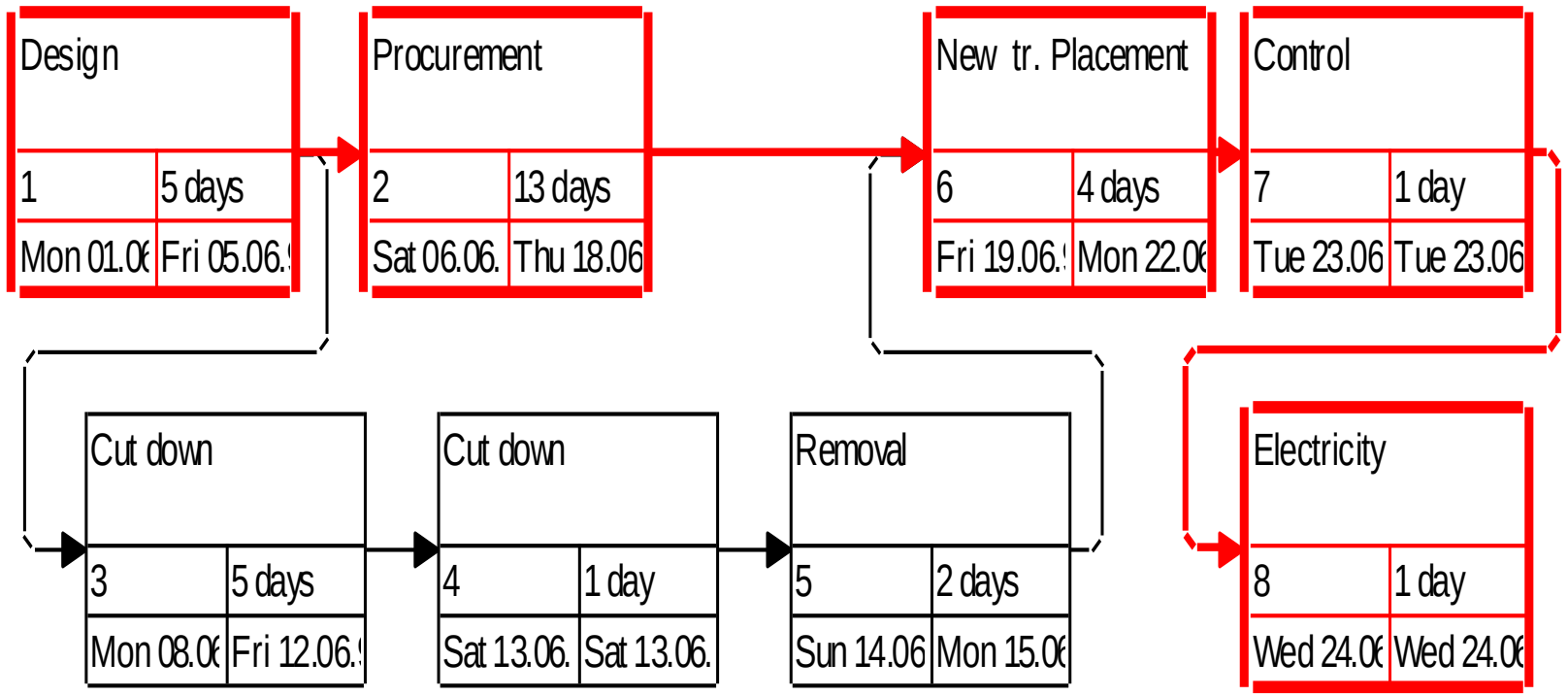
ID	Task Name	Duration
1	Replacement Design	5 days
2	Trans. Procurement	12 days
3	Announce Cut down	4 days
4	Electricity Cut Down	1 day
5	Remove old trans.	1 day
6	Place new trans.	1 day
7	Tests and control	1 day
8	Electricity connection	1 day



Pert Chart


Design
1
5 days
Mon 01.0
Fri 05.06.
Procurement
2
13 days
Sat 06.06.
Thu 18.06
New TR.
6
4 days
Fri 19.06.
Mon 22.0
Control
7
1 day
Tue 23.06
Tue 23.06
Announcement
3
5 days
Mon 08.0
Fri 12.06.
Cut Down
4
1 day
Sat 13.06.
Sat 13.06.
Old TR.
5
2 days
Sun 14.06
Mon 15.0
On
8
1 day
Wed 24.0
Wed 24.0

Critical Path



Resources

				M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T
1	**Eng Ahmet**	**208 hrs**	Work	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	16h	16h	8h	8h	8h	8h	8h	8h	8h	8h	8h	
	Design	*40 hrs*	Work	8h	8h	8h	8h	8h																				
	Procurement	*104 hrs*	Work						8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h							
	Removal	*16 hrs*	Work														8h	8h										
	New tr. Placem	*32 hrs*	Work																			8h	8h	8h	8h			
	Control	*8 hrs*	Work																							8h		
	Electricity	*8 hrs*	Work																								8h	
2	**Off Mehmet**	**144 hrs**	Work						8h	8h	16h	16h	16h	16h	16h	8h	8h	8h	8h	8h	8h							
	Procurement	*104 hrs*	Work						8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h	8h							
	Announce Cut o	*40 hrs*	Work								8h	8h	8h	8h	8h													
3	Tech Cemal	72 hrs	Work													8h	8h	8h				8h	8h	8h	8h	8h	8h	
	Cut down	*8 hrs*	Work													8h												
	Removal	*16 hrs*	Work														8h	8h										
	New tr. Placem	*32 hrs*	Work																			8h	8h	8h	8h			
	Control	*8 hrs*	Work																							8h		
	Electricity	*8 hrs*	Work																								8h	
			Work																									
			Work																									
			Work																									
			Work																									

Risk factors

Describe how each risk factor may cause you to miss your product, schedule, or resource targets.

Suppose, for example, that you plan to use a new technology in your project.

Using a new technology is a risk factor.

Possible risk factors

Product risk: The technology may not produce the desired results.

Schedule risk: Tasks using the new technology may take longer than you anticipate.

Resource risk: Existing facilities and equipment may not be adequate to support the use of the new technology.

Always have a B-plan

QUIZ