



GE105

Introduction to Engineering Design

College of Engineering

King Saud University

Studio 4. *Project Planning and Literature Review*

SPRING 2016

Contents:

- **Project Planning**
- **Literature Review**

Project Planning

The background features a dark blue gradient on the left, transitioning into a series of curved, glowing blue lines on the right. These lines form a tunnel-like structure that leads towards a bright, glowing light source at the top right. A grid pattern is visible within the glowing blue sections, suggesting a digital or architectural theme.

Studies report that nearly half of all projects initiated are not completed because of:

- **Assigning** tasks to the wrong individuals
- Poor **Planning** of Tasks
- Failure To **Implement** the tasks
- Poor **Estimation** of the difficulty or risks or resources
- **Bad Management**

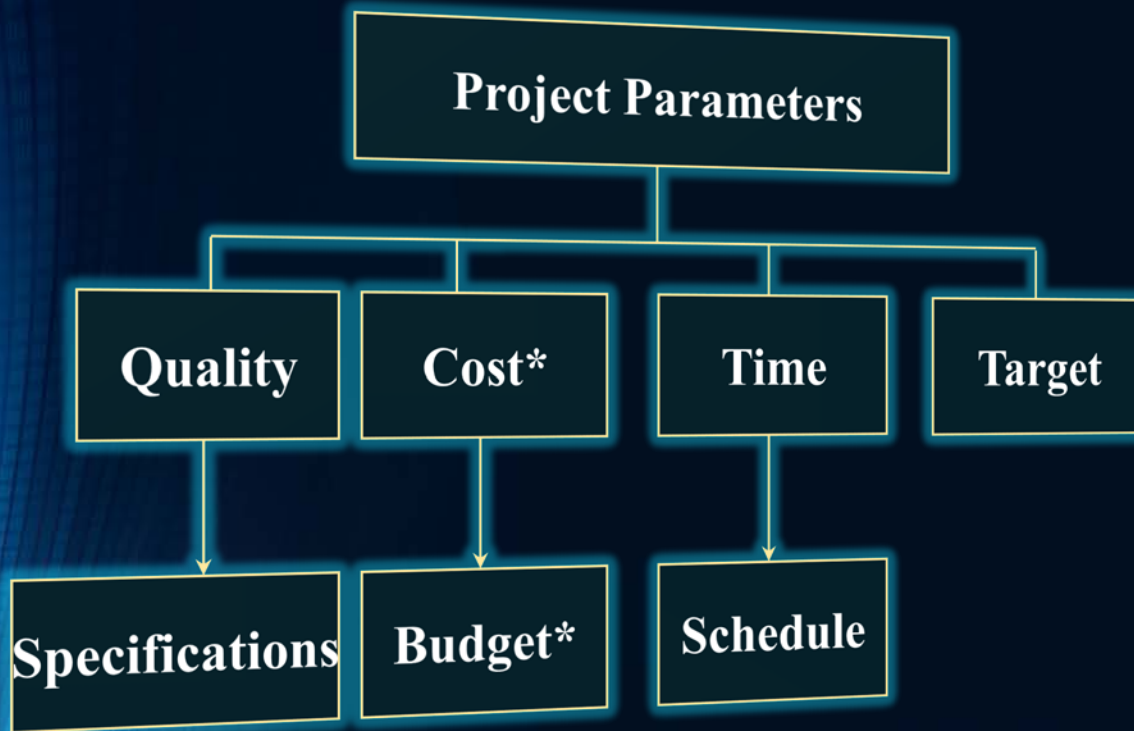


**You do not manage time
You manage your
commitments**

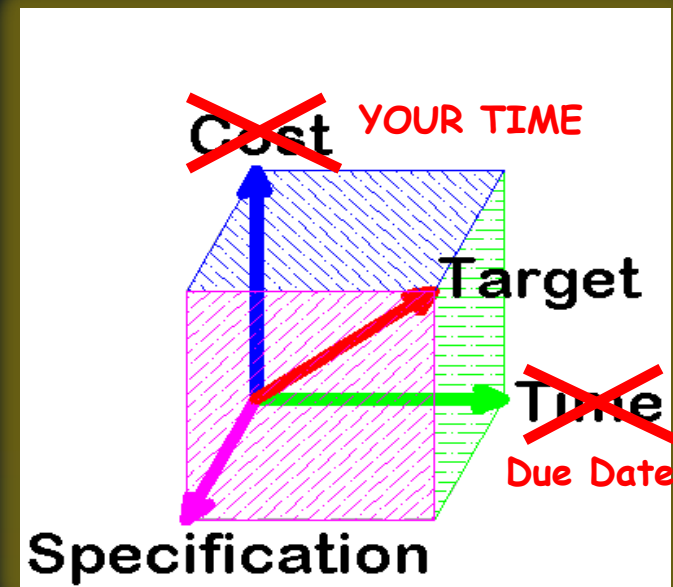
The Main Reason For Failure:

**You Don't Start Soon
Enough**

Project Parameters



GE105 project



Phases of Project Planning

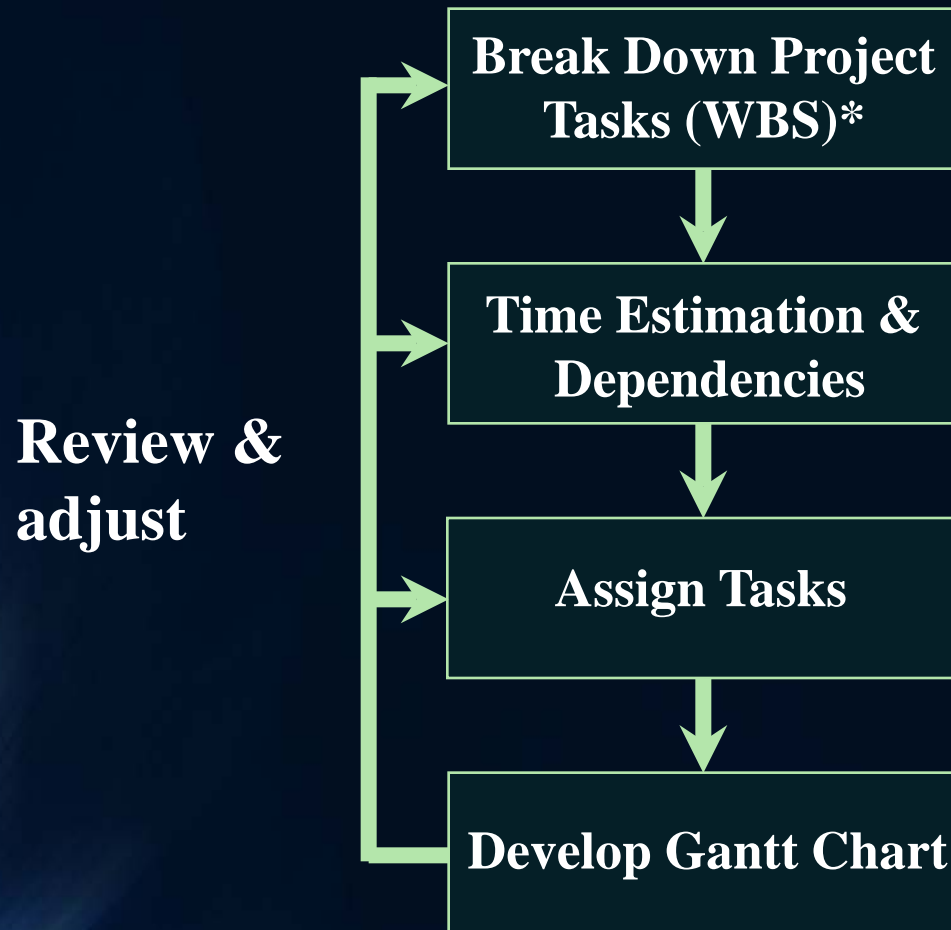
- **Define** the project's scope* (including literature review given at the end of these slides)
- **Develop** the project's plan
- **Implement** the plan
- **Control** the process
- **Complete** the project



What is a project plan?

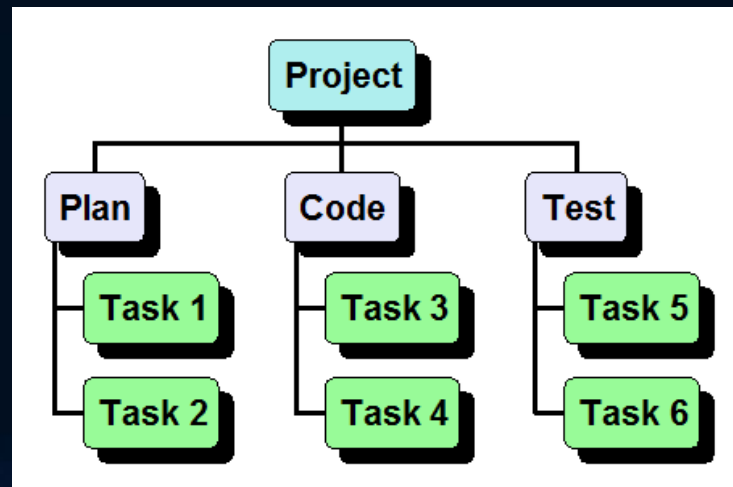
- Can be as simple as a list of sequences for a small project
- Can be more complex with charts, tables, costings etc. for a larger project

Develop the Project's Plan



Work Breakdown Structure (WBS)

- A hierarchical representation of activities
- It starts with the major project tasks to be accomplished
- It breaks the project tasks into actionable pieces of work, segmenting elements into appropriate sublevels
- Number of levels depends on project complexity



Task Dependencies

- Dependencies are the relationships between activities
- “Finish to Start (FS)” example

Task B cannot begin until
Task A is complete



- Examples of other dependency types:

Start-Start (SS): have to start at the same time

Finish-Finish (FF): have to end at the same time

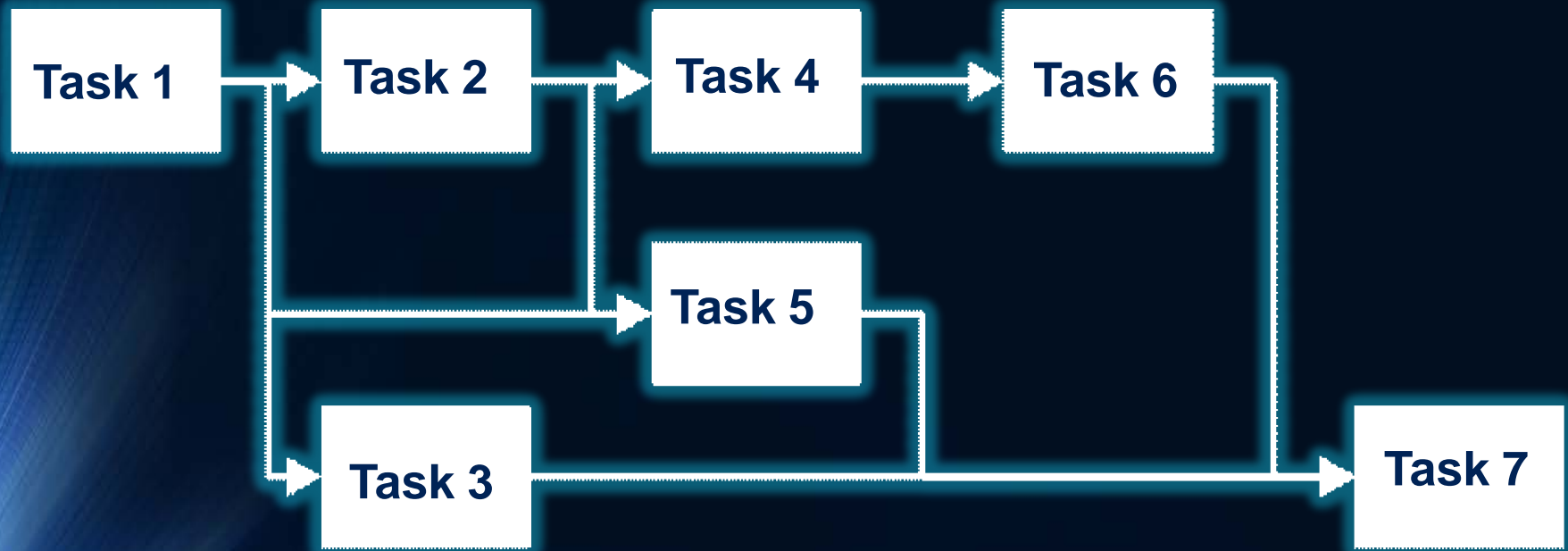
Unconstrained: the task can start at any time

Network Charts

- Task 1 – 20hrs
- Task 2 – 10hrs – FS 1
- Task 3 – 15hrs – FS 1
- Task 4 – 25hrs – FS 2

- Task 5 – 12hrs – FS 1,2
- Task 6 – 20 hrs – FS 3,2
- Task 7 – 10 hrs – FS 4

Note: FS=Finish to Start



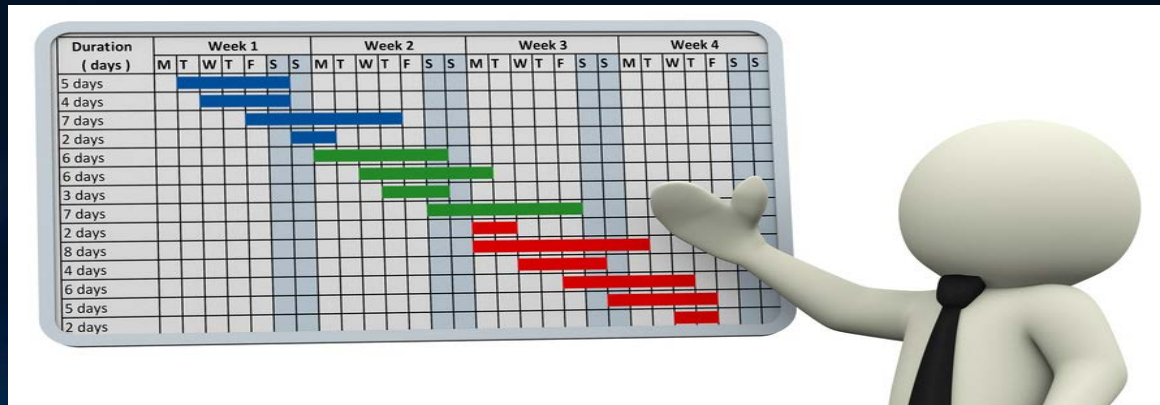
Responsibility Matrix

Creates accountability by assigning each task to the person with the right skill










| Task | Hours Needed* | Who |
|------------|---------------|----------|
| Activity 1 | 10 | Ali |
| Activity 2 | 7 | Ahmed |
| Activity 3 | 13 | Abdullah |

Gantt Chart Basics

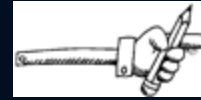
- Generated from Network Chart
- In a single page, it graphically shows :
 - ✓ Timeline for each task
 - ✓ Dependencies of tasks
 - ✓ Progress towards project completion
- May include initials of the responsible for each task
- "Milestone" events marked with a special symbol



Gantt Chart Example*

| Task | Wk1 | Wk2 | Wk3 | Wk4 | Wk5 | Wk6 | Wk7 |
|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----|---------------------------------------------------------------------------------------|
| Literature Review |  | | | | | | |
| Requirement Analysis |  | | | | | | |
| Human Factors | |  | | | | | |
| Problem Formulation | | |  | | | | |
| Progress Report | | | |  | | | |
| Concept generation | | | |  | | | |
| Creative Design | | | | |  | | |
| Design evaluation | | | | |  | | |
| Final Report | | | | | | |  |

Project Planning Summary



- Create WBS to identify activities
- Estimate time durations
- Assign the right person to the right task
- Note dependencies between tasks
- Schedule activities using a Gantt chart
- Put plan into action
- Document, document, document !



Literature Review

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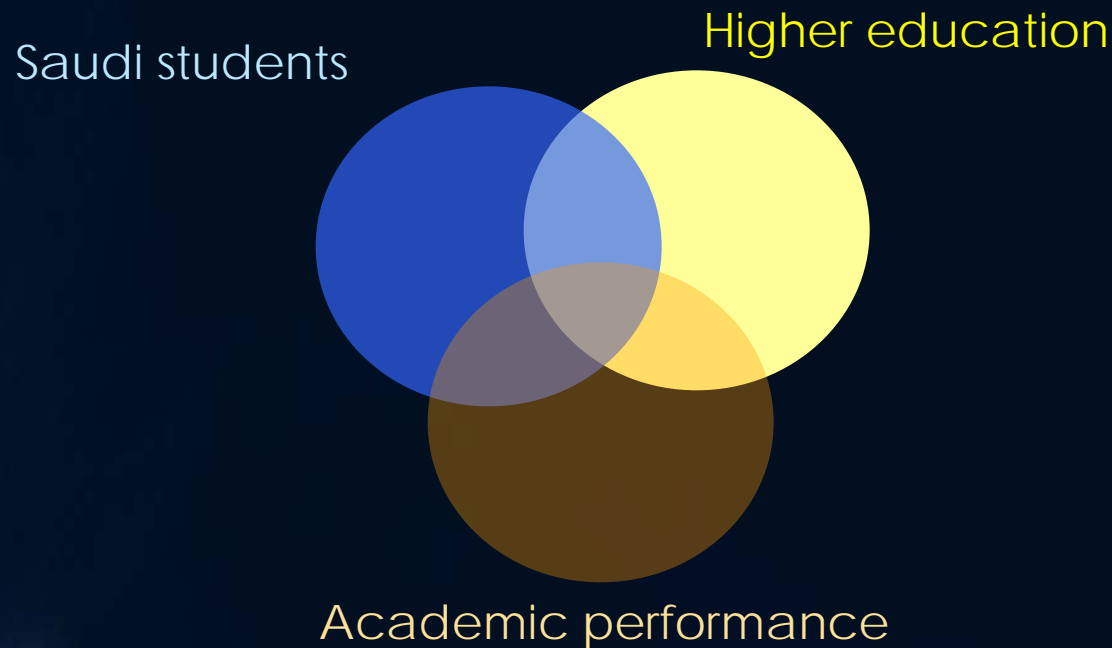
Purpose of a literature review

- Find out what others did and avoid duplication of efforts
- Learn from achievements/failures of other engineers
- Better identify and estimate the risk in achieving the tasks
- Highlight gaps and under-researched areas
- Find ideas about approaches and methods which had not occurred to you
- Learn how you might classify and present your own data



Literature Review model

- Example: you may be researching the academic performance of Saudi students in higher education



Where do you search?

- Internet

Use keyword searches in Google Scholar: <http://scholar.google.com/>



- Digital Libraries

Need to use accurate keywords to identify relevant articles

- Libraries

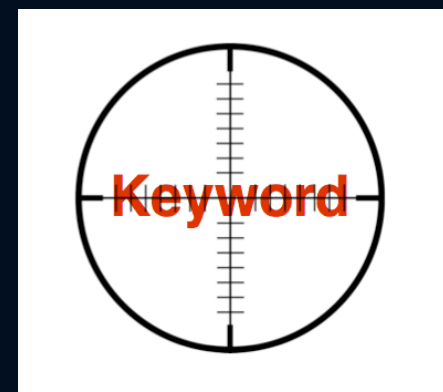
Look through the list of journals and browse the books on the shelves to find relevant ones



Basic Steps

1. Identify a coherent set of keywords

Concise and exhaustive



Example:

(Saudi students **OR** Saudi education **OR** Saudi learning)

AND

(academic performance **OR** academic achievement)

AND

(higher education **OR** colleges **OR** universities)

2. Search your sources for relevant publications
(Identify search time-span)

3. Compile and sort the collected material

4. Extract a list of references

Refer to references whenever contents are used

Include this list of references in your final document

5. Write your literature review

6. Always acknowledge the source of information

7. Do NOT copy word-for-word from a reference



Adhere to ethical norms and avoid **plagiarism**; This issue will be looked at very seriously throughout the course

Activity

The background features a dark blue gradient on the left, transitioning into a series of curved, glowing blue lines on the right. These lines create a sense of depth and movement, resembling a tunnel or a futuristic architectural structure. A bright, circular light source is visible at the top right, casting a glow over the surrounding lines.

Project Planning Class Activity



- Create a work breakdown structure for your project and an initial Gantt Chart
- Decide on the appropriate keywords for your projects' literature review