



GE106

Introduction to Engineering Design

College of Engineering

King Saud University

# Studio 4. *Project Planning and Literature Review*

FALL 2022

# **Contents:**

- 1. Project Planning**
- 2. Literature Review**
- 3. Group Activity**

# 1. 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 perspective, with a grid of fine lines visible on the inner surfaces, creating a sense of depth and movement.

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

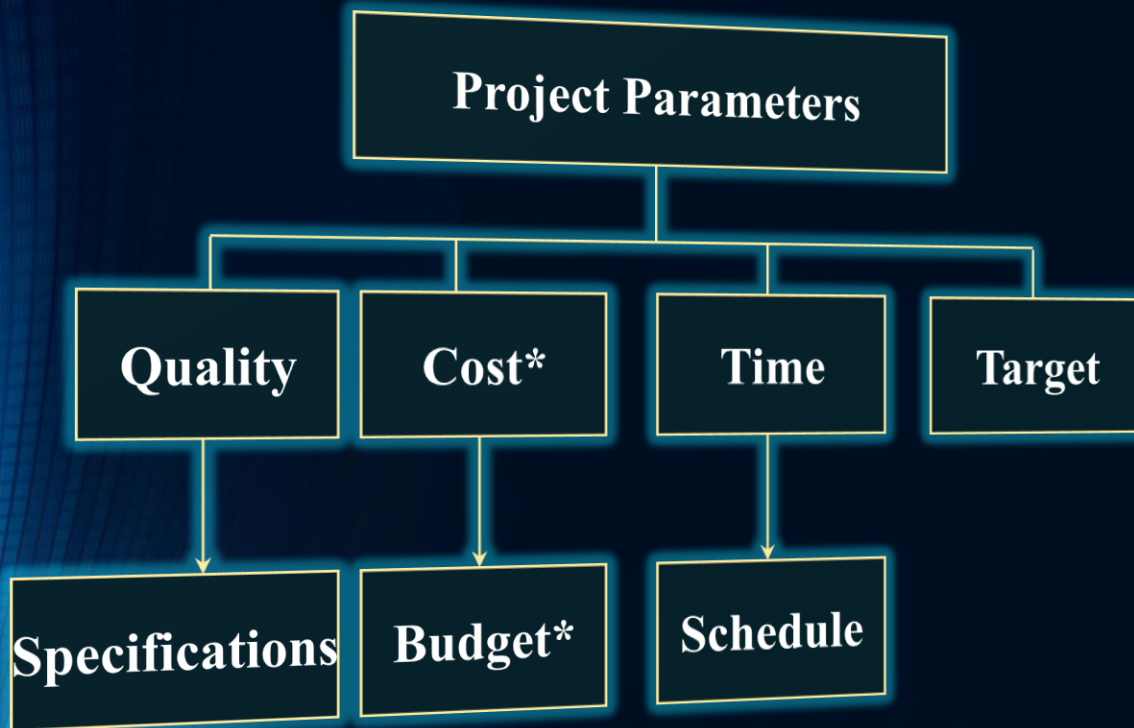


**You do not manage time  
You manage your  
commitments**

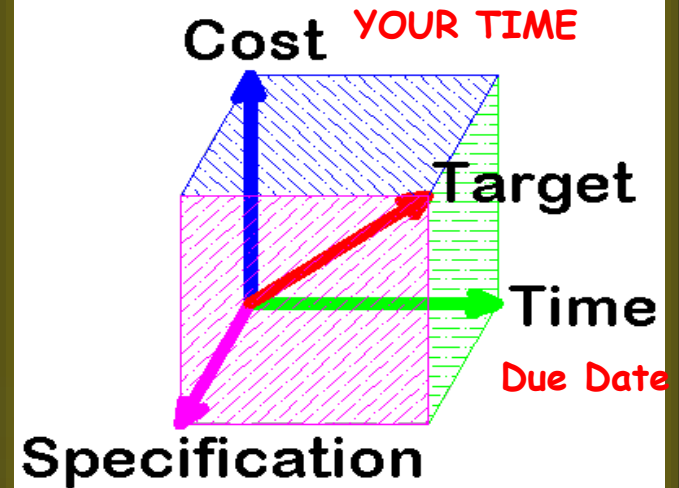
The Main Reason For Failure:

**You Don't Start Soon  
Enough**

# Project Parameters



## GE106 project



# Phases of Project Planning

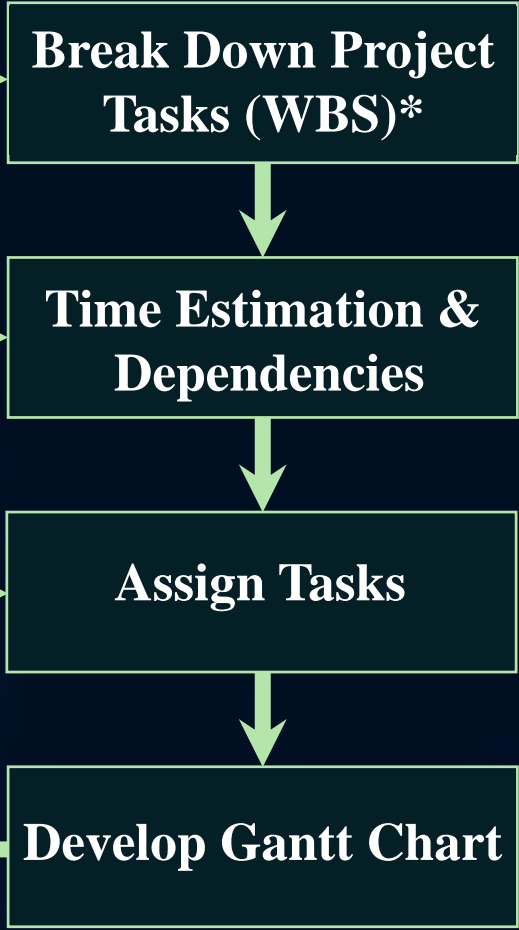
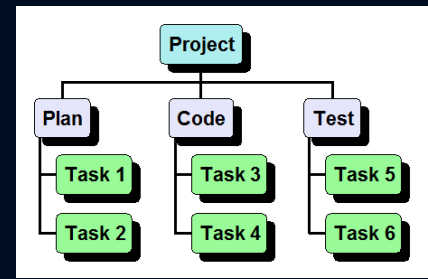
- **Define** the project's scope\* (including literature review given at the end of these slides)
- **Develop** the project's plan
- **Implement** the plan
- **Control** the process
- **Complete** the project



## 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*

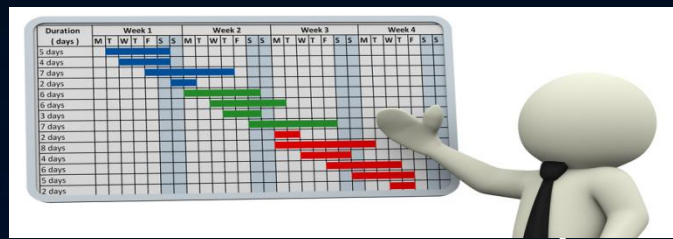
# Develop the Project's Plan



Review & adjust

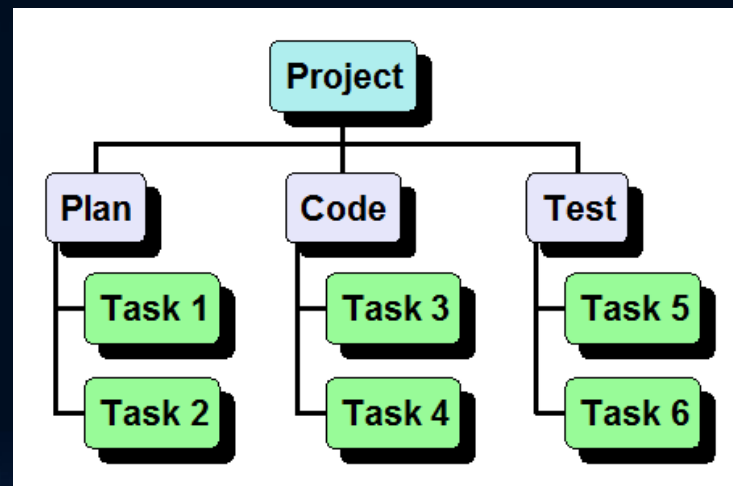
- Task 1 – 20hrs
- Task 2 – 10hrs – FS 1
- Task 3 – 15hrs – FS 1
- Task 4 – 25hrs – FS 2

| Task   | Hrs | Who   |
|--------|-----|-------|
| Act. 1 | 10  | Ali   |
| Act. 2 | 7   | Ahmed |
| Act. 3 | 13  | Omar  |



# 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

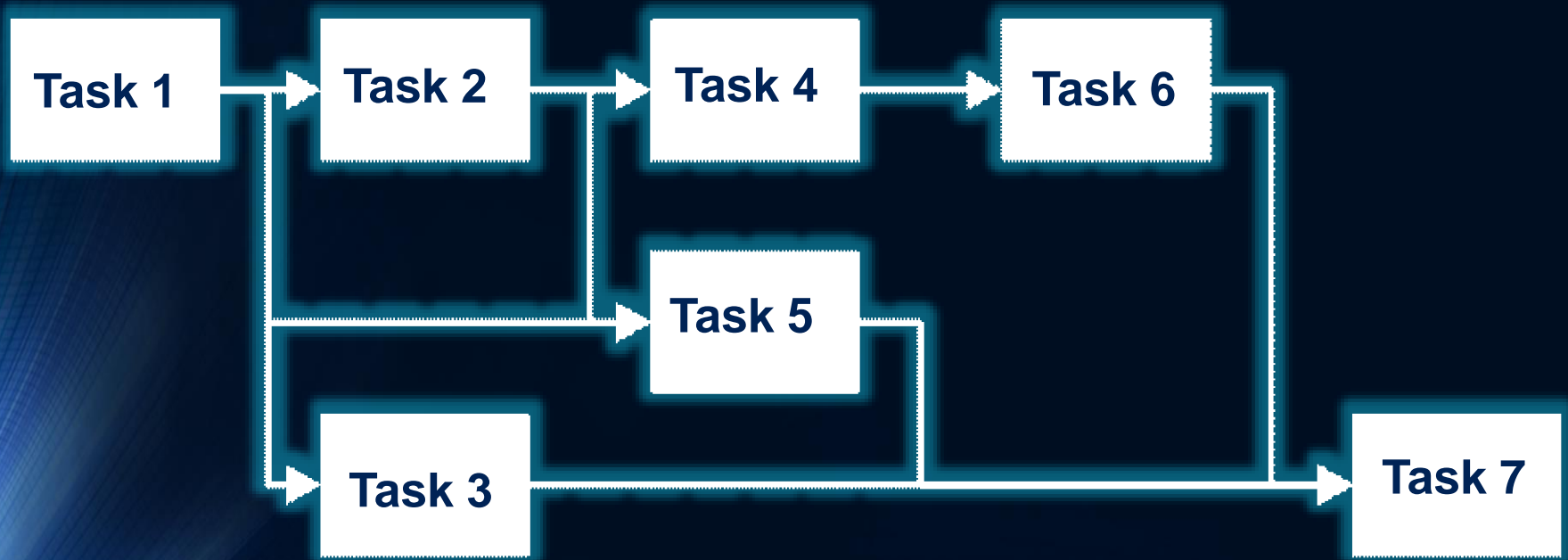
Unconstrained: the task can start at any time

# 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 4,2
- Task 7 – 10 hrs – FS 6, 5, 3

**Note: FS=Finish to Start**



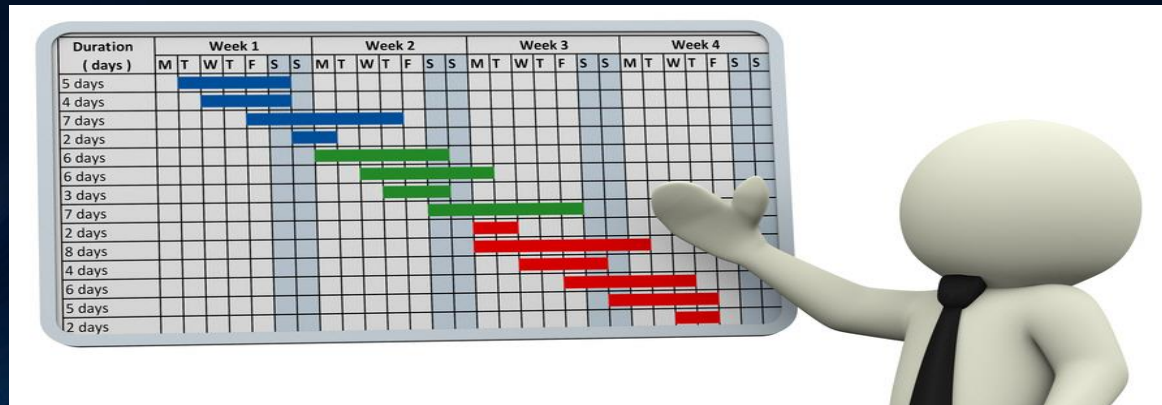
# Responsibility Matrix

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

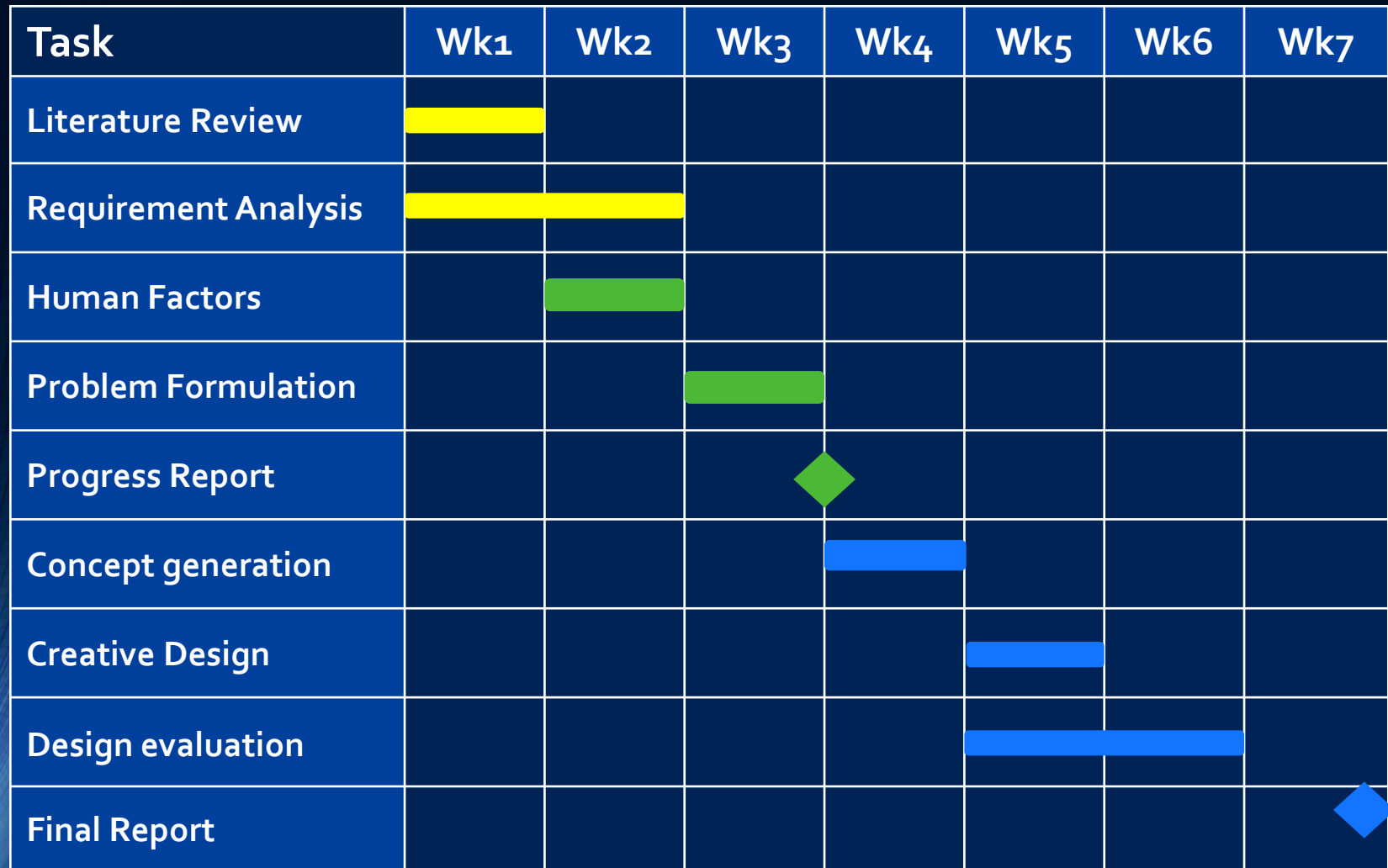
| Task       | Hours Needed* | Who      |
|------------|---------------|----------|
| Activity 1 | 10            | Ali      |
| Activity 2 | 7             | Ahmed    |
| Activity 3 | 13            | Abdullah |

# Gantt Chart Basics

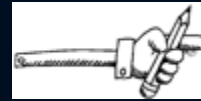
- Generated from Network Chart
- In a single page, it graphically shows :
  - ✓ Timeline for each task
  - ✓ Dependencies of tasks
  - ✓ Progress towards project completion
- May include initials of the responsible for each task
- "Milestone" events marked with a special symbol



# Gantt Chart Example\*



# Project Planning Summary



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

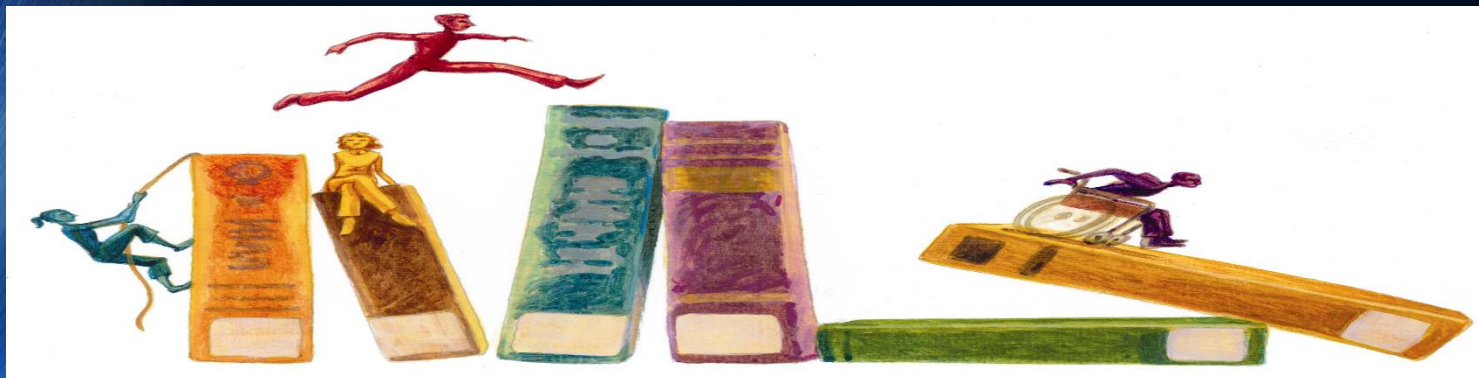


## **2. Literature Review**

The background of the slide is a dark blue gradient. On the right side, there is a complex, abstract pattern of curved lines that create a sense of depth and movement, resembling a tunnel or a stylized architectural structure. The lines are lighter blue and white, creating a grid-like effect that recedes into the distance.

# Purpose of a literature review

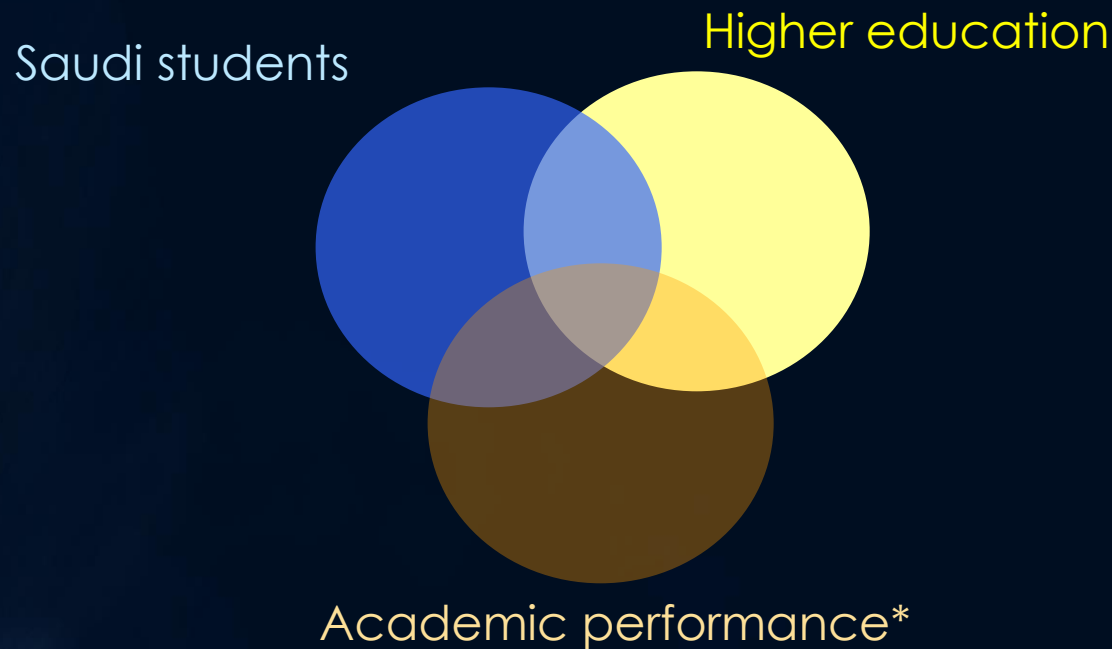
- Find out what others did and avoid duplication of efforts
- Learn from achievements/failures of other engineers
- Better identify and estimate the risk in achieving the tasks
- Highlight gaps and under-researched areas
- Find ideas about approaches and methods which had not occurred to you
- Learn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

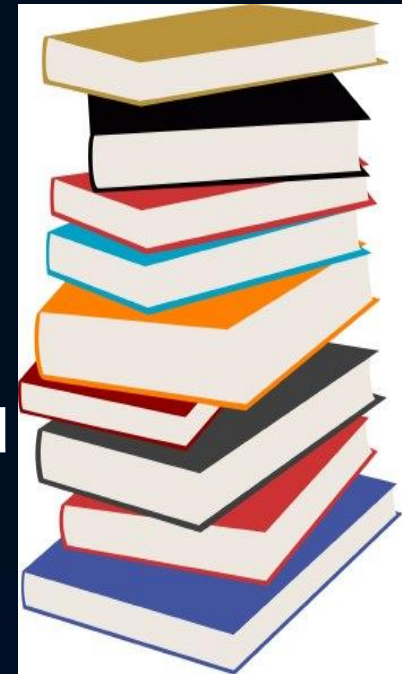


- Digital Libraries\*

Need to use accurate keywords to identify relevant articles

- Libraries

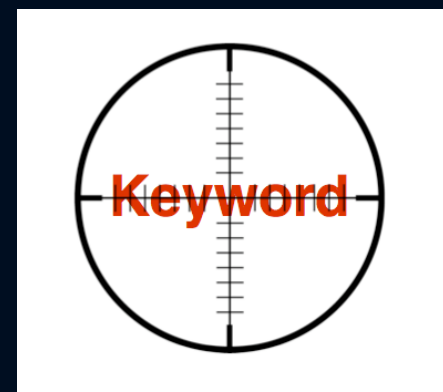
Look through the list of journals and browse the books on the shelves to find relevant ones



# 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

# 3. Group Activity

The background of the slide is a dark blue gradient. On the right side, there is a complex, abstract pattern of curved lines that create a sense of depth and movement, resembling a tunnel or a stylized architectural structure. The lines are in various shades of blue, from light to dark, and some areas have a fine grid or mesh pattern overlaid on them.

# Project Planning Class Activity



- Create a work breakdown structure for your project and an initial Gantt Chart

Watch the following great video for ideas:

<https://youtu.be/ADK58IRPKh8> \*

- Decide on the appropriate keywords for your projects' literature review