GE105
Introduction to Engineering Design
College of Engineering
King Saud University

Studio 4.
Project Planning and Literature Review

FALL 2016

Contents:

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

1. Project Planning

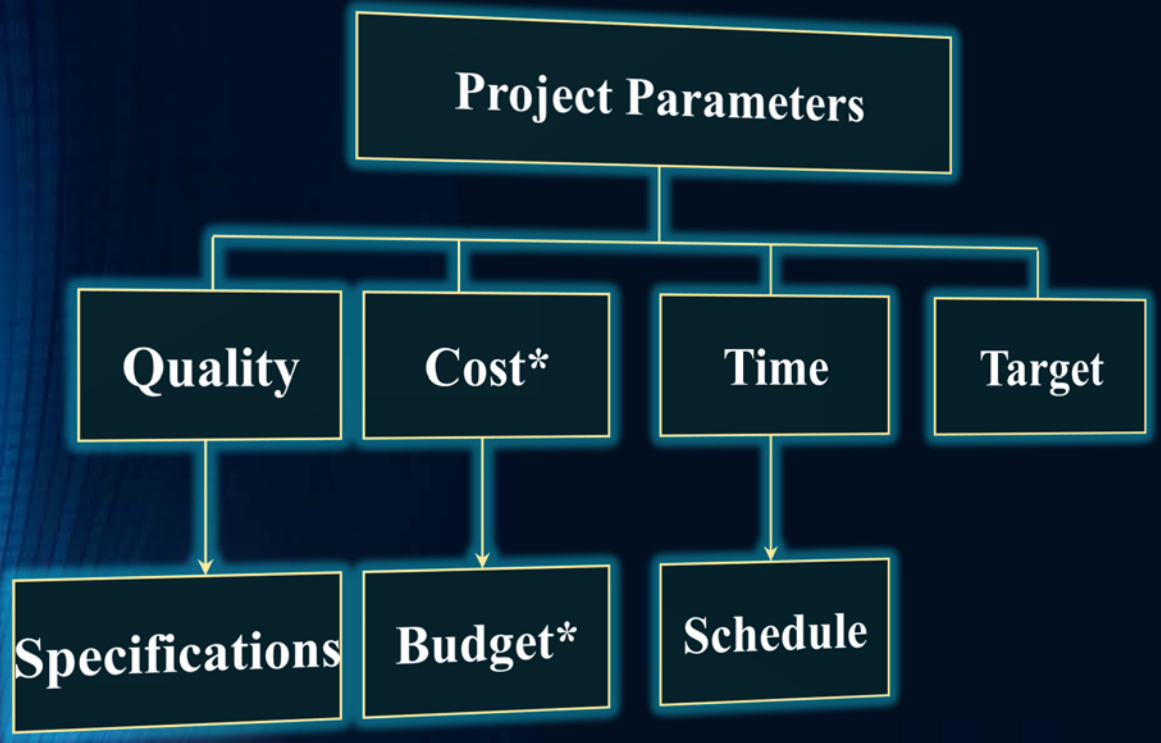
Studies report that nearly half of all projects initiated are not completed because of:

- 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

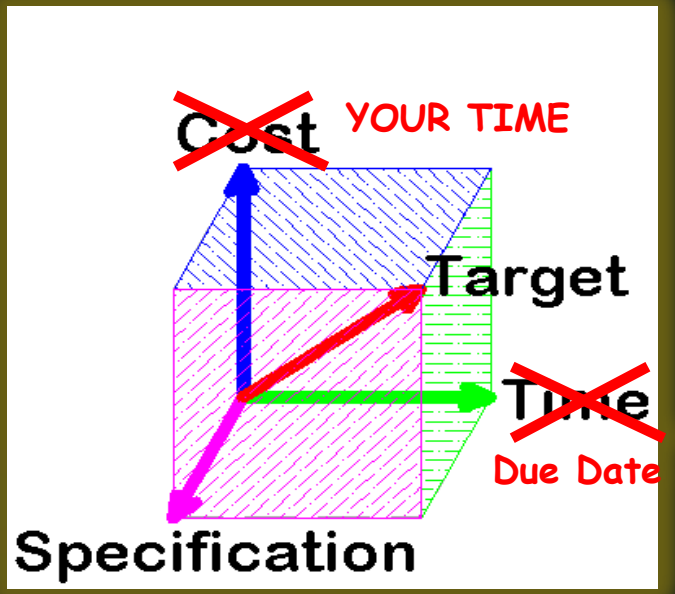
You do not manage time
You manage your commitments

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

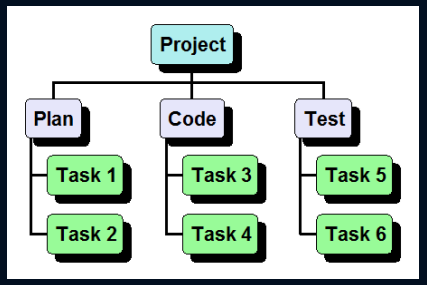
Review & adjust

Break Down Project Tasks (WBS)*

Time Estimation & Dependencies

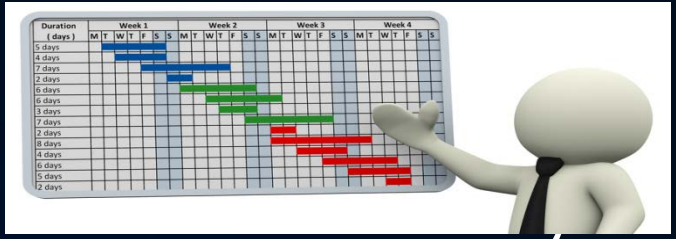
Assign Tasks

Develop Gantt Chart



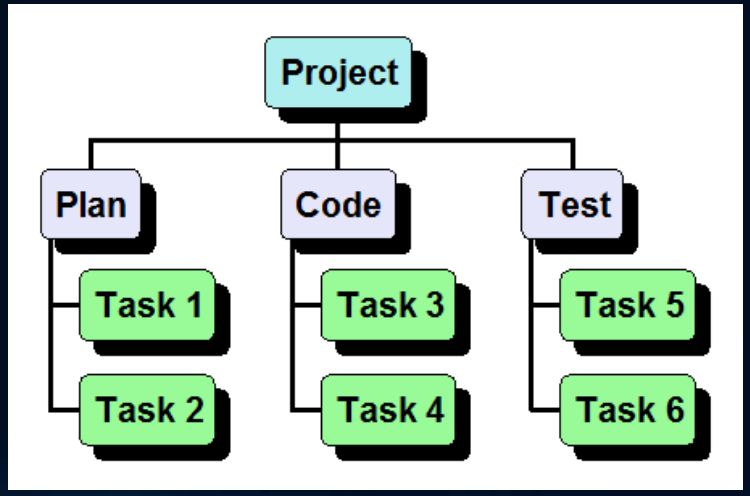
- Task 1 – 20hrs
- Task 2 – 10hrs – FS 1
- Task 3 – 15hrs – FS 1
- Task 4 – 25hrs – FS 2

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

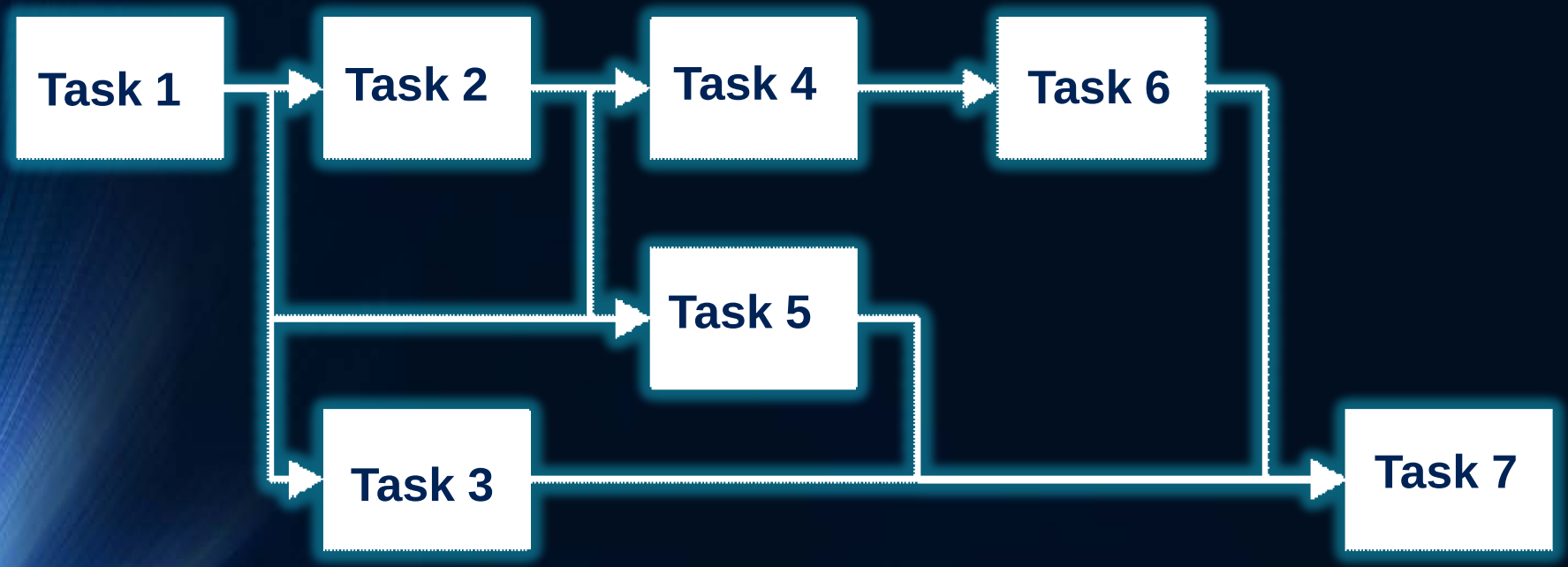
  Unconstrained: the task can start at any time

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

Note: FS=Finish to Start



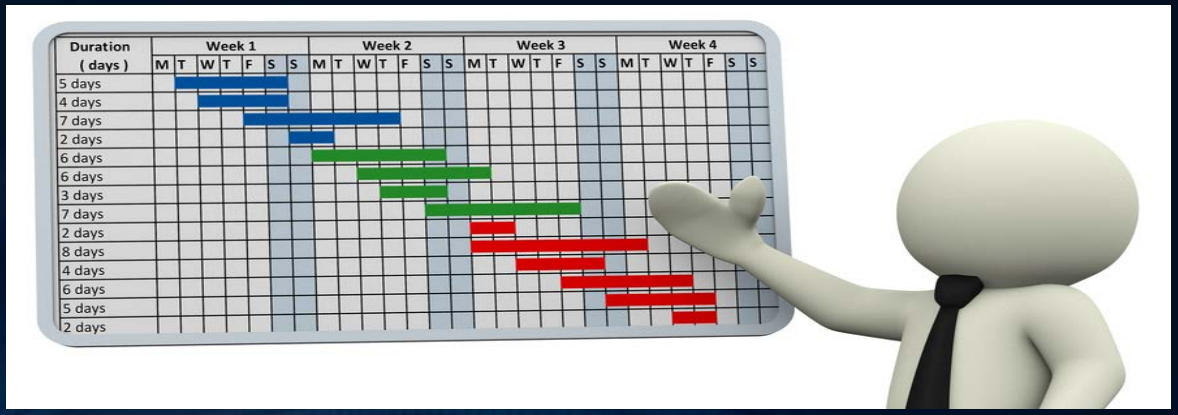
Responsibility Matrix

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

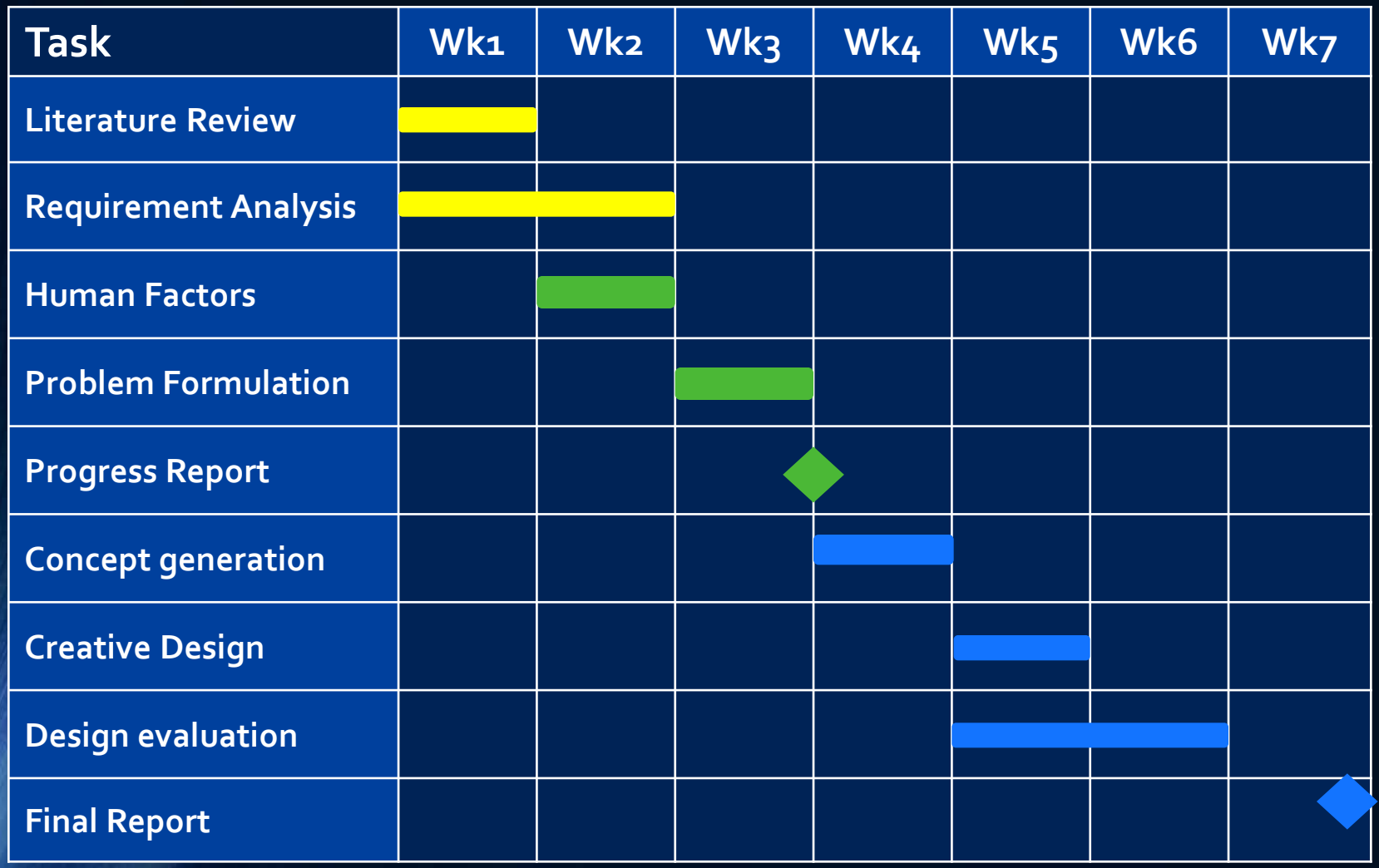
Task	Hours Needed*	Who
Activity 1	10	Ali
Activity 2	7	Ahmed
Activity 3	13	Abdullah

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 !

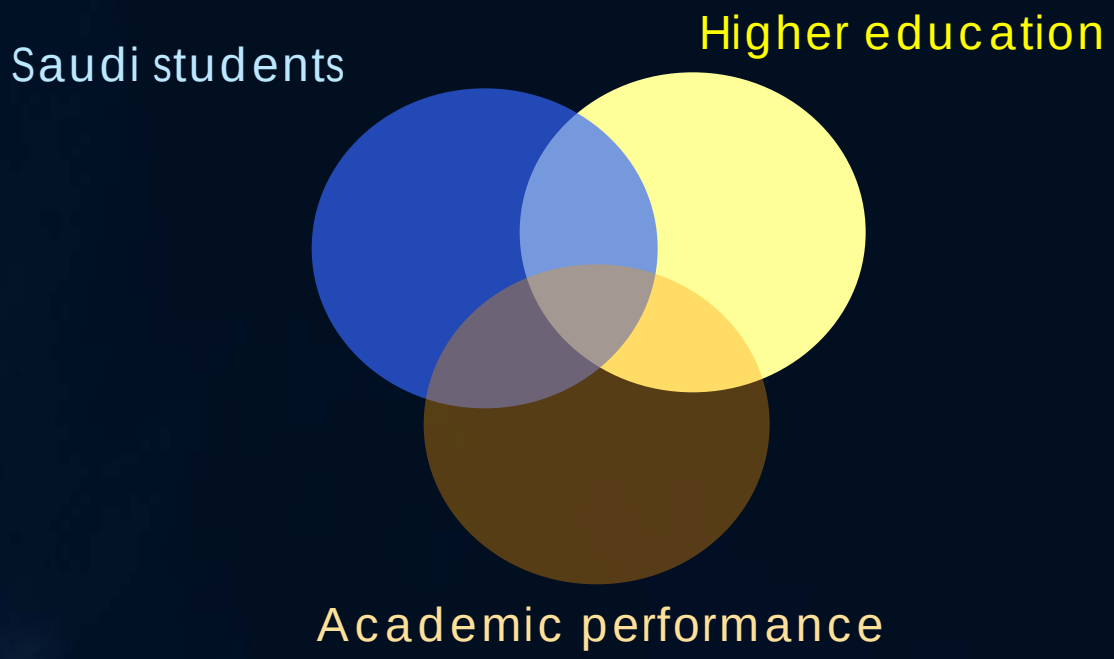
2. Literature Review

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**

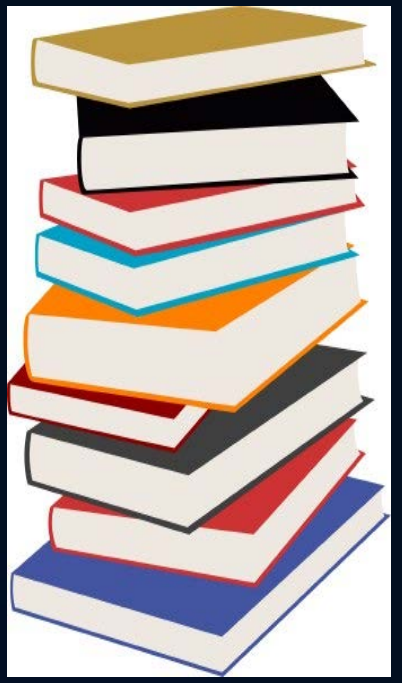
  Use keyword searches in Google Scholar: http://scholar.google.com/

- **Digital Libraries**

  Need to use accurate keywords to identify relevant articles

- **Libraries**

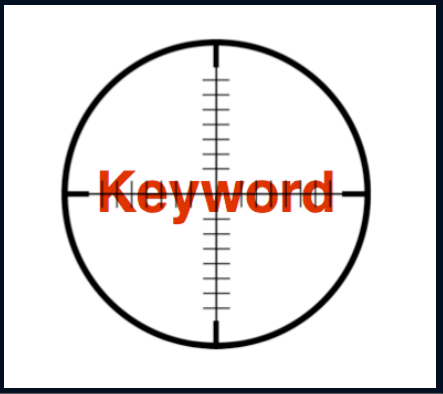
  Look through the list of journals and browse the books on the shelves to find relevant ones



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

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