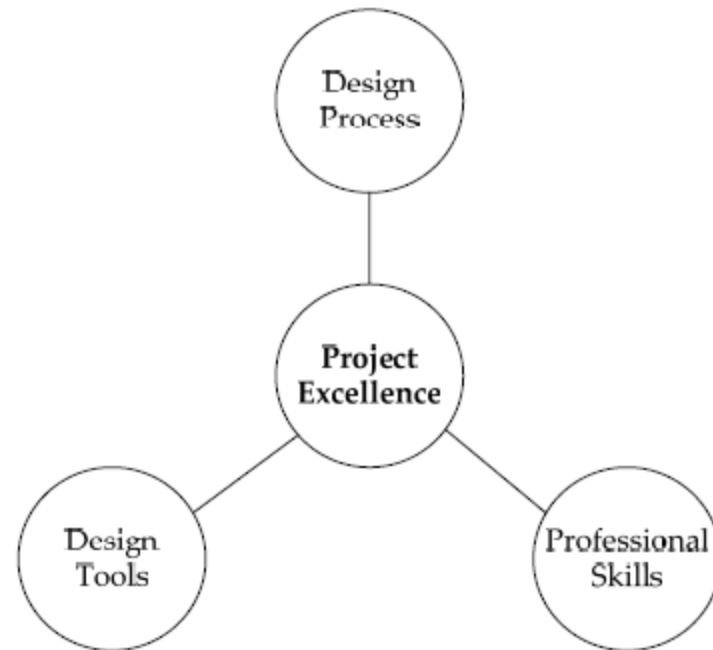


Project Management

Motivation

- Projects are king in the career of engineers!
- Middle management continues to shrink
- Industry now organizes more around projects than functions.



Engineers have led the way on project management!

The Basic Idea

To complete the project

- On-time
- Within budget
- So that it meets the **requirements**

The Work Breakdown Structure

- *A WBS displays and defines the product, or products, to be developed and/or produced. It **relates the elements of work to be accomplished to each other** and to the end product.*
- *A WBS can be expressed down to any level of interest. However the **top three levels** are as far as any program or contract need go unless*

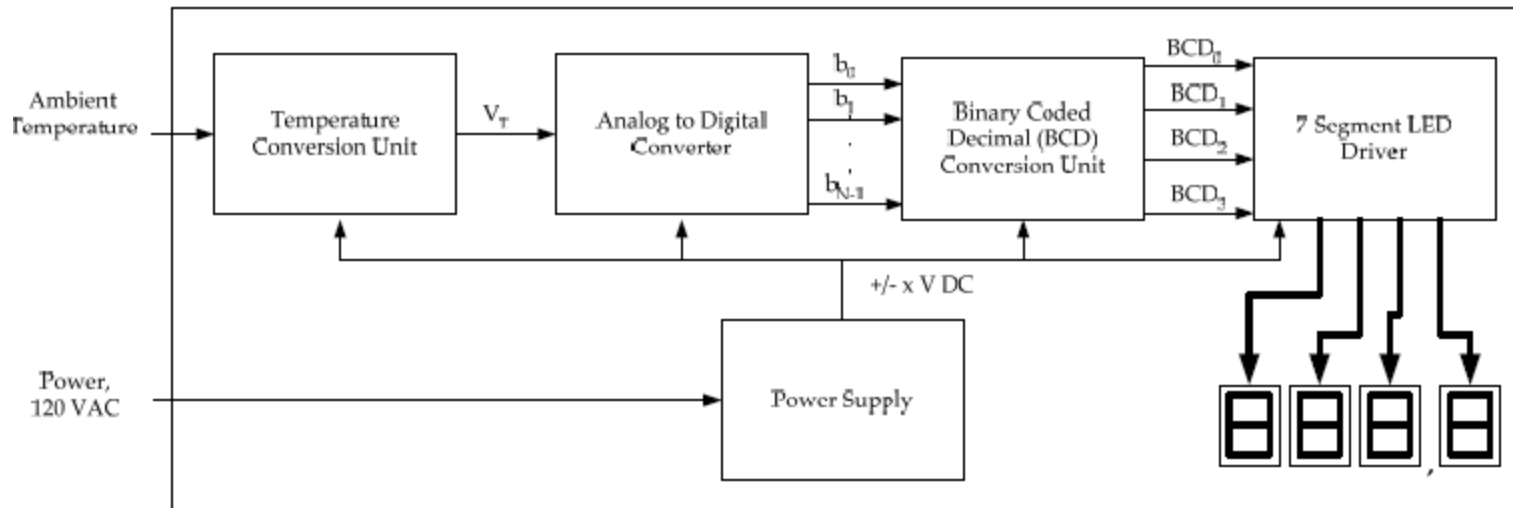
Elements of the Project Plan

- Activities
- Responsibilities
- Timeline
- Dependencies
- Costs

HINT: THESE THINGS OUGHT TO BE
IN YOUR PLAN!

Example – Thermometer Design

Problem: Create the WBS for a temperature monitoring system design



Example

There are three main tasks

1. The analog interface circuitry.
2. The LED & digital circuitry.
3. Integrate & Test.

Activities

ID	Activity	Description	Deliverables / Checkpoints	Duration (days)	People	Resources	Predecessors
1	Interface Circuitry						
1.1	Design Circuitry	Complete the detailed design and verify it in simulation	<ul style="list-style-type: none"> • Circuit schematic • Simulation verification 	14	Rob (1) Jana (1)	<ul style="list-style-type: none"> • PC • SPICE simulator 	
1.2	Purchase Components		<ul style="list-style-type: none"> • Identify parts • Place order • Receive parts 	10	Rob		1.1
1.3	Construct & Test Circuits	Build and test.					
1.3.1	Current Driver Circuitry	Test of circuit with sensing device.	<ul style="list-style-type: none"> • Test data • Measurement of linearity 	2	Jana (1) Rob (2)	<ul style="list-style-type: none"> • Test bench • Thermometer 	1.2

Gantt Charts

Task Name	Start	Finish	Duration	Jan 2005		Feb 2005				
				1/16	1/23	1/30	2/6	2/13	2/20	2/27
1: Interface Circuitry	1/10/2005	2/22/2005	32d							
1.1: Design Circuitry	1/10/2005	1/27/2005	14d							
1.2: Purchase Components	1/28/2005	2/10/2005	10d							
1.3: Construct & Test Circuits	2/11/2005	2/22/2005	8d							
1.3.1: Current Driver Circuitry	2/11/2005	2/14/2005	2d							
1.3.2: Level Offset & Gain Circuitry	2/11/2005	2/15/2005	3d							
1.3.3: Integrate Components	2/16/2005	2/22/2005	5d							
2: LED & Driver Circuitry	1/10/2005	2/9/2005	23d							
2.1 Research A/D Converters	1/10/2005	1/10/2005	1d							
2.2 Complete Hardware Design	1/11/2005	1/19/2005	7d							
2.3 Purchase LED & Driver Components	1/20/2005	2/2/2005	10d							
2.4: Construct & Test	2/3/2005	2/9/2005	5d							
3: System Integration & Test	2/23/2005	3/3/2005	7d							

- *Gantt Chart and/or Network Diagram.*
Provide a graphical representation of the project plan.

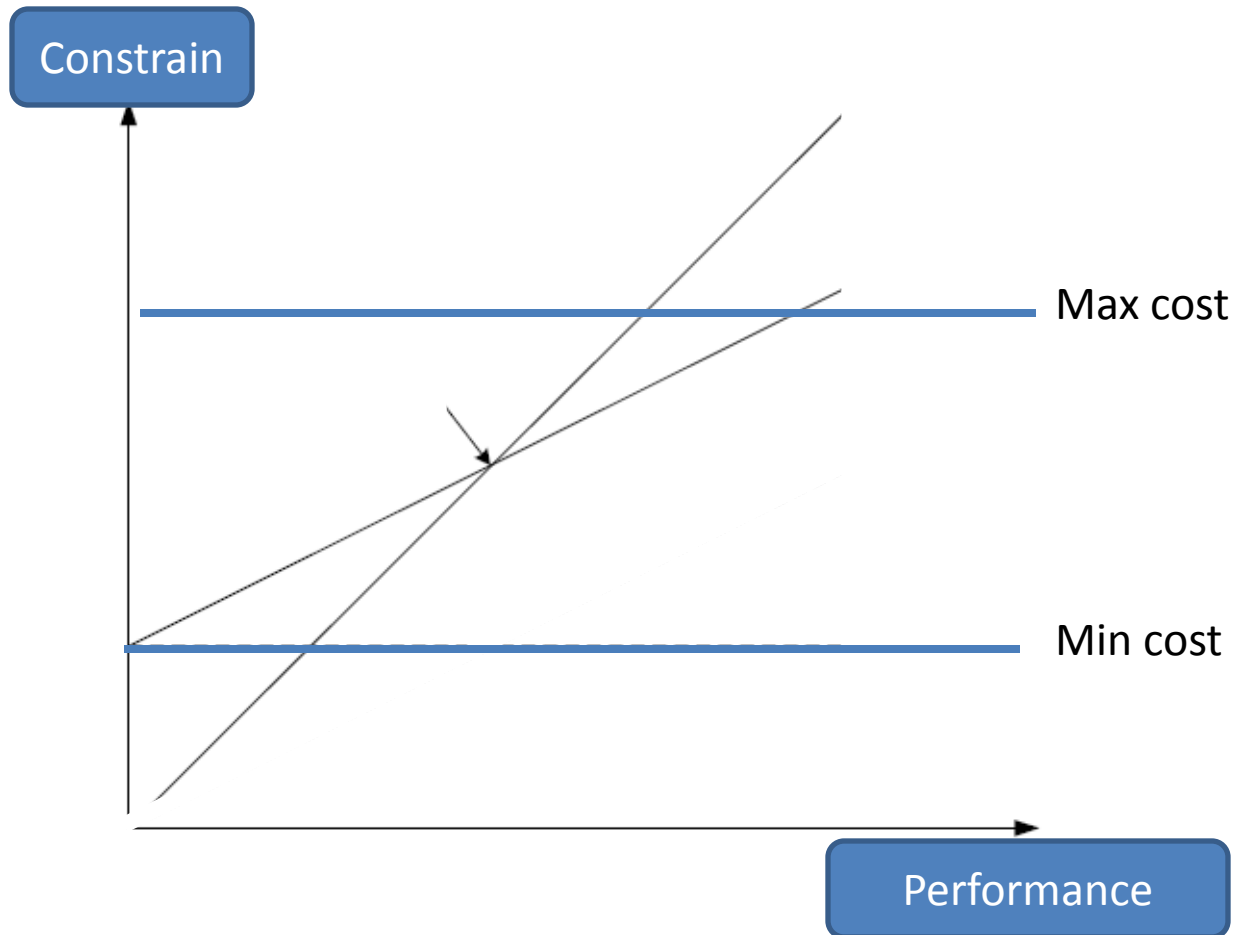
Creating a Gantt Chart

- First step is defining your project plan structure. I suggest you to use this basic structure:
 - Column A: *Task ID (WBS)* (an unique ID which identifies each task with a progressive number).
 - Column B: *Task description* (a short description of the activity).
 - Column C: *Percentage of completion* (0%-100%).
 - Column D: *Predecessor* (finish-start relationships between tasks).
 - Column E: *Start date* (task start date).
 - Column F: *Finis date* (task finish date).

<http://www.editgrid.com/>

Or Google Gant Chart

Constrain Analysis



- **Costs.** Develop a tabulated list of costs and for the equipment, materials, and labor necessary to carry out the project.

Consider Alternative Designs

- Decision Matrix

	Cost	Size	Complexity		
Alternative	x3	x1	x2		Total
A	5	1	3		22
B	3	1	5		20
C	2	5	3		17

Homework

- Do a Gantt Chart for your project
- Describe 5 alternative designs (do the decision matrix for each case)
- Design test plans for 5 different functionalities – assign responsibilities to each test
- Finalize your web site
- Identify 5-10 risks and describe your contingency play for each
- Identify 5-10 major technical issues and describe how each can impact the design