

# Project Planning

# Planning what exactly?

- 1. To finish!**
- 2. To deliver what you agreed!**
- 3. To work at the highest academic level!**
- 4. To get a good mark!**
- 5. To achieve something worthwhile of value!**

# 1. Finishing on time

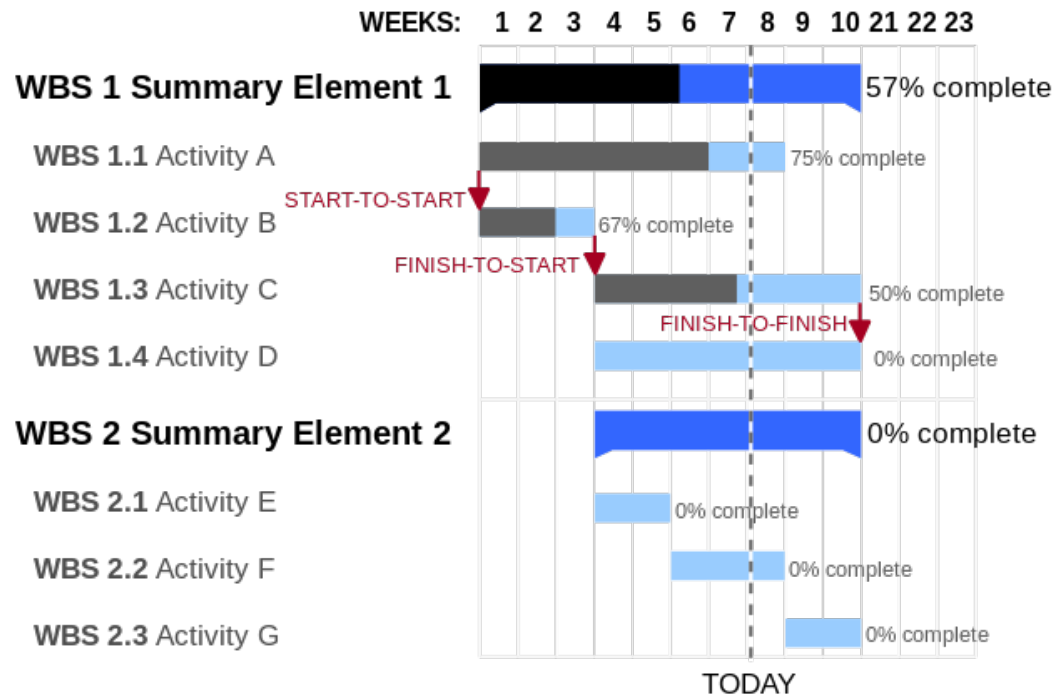


"I can count on one hand the number of contracts that I didn't finish on time."

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# Make a Gantt Chart

- Plan to finish within the timescale given, considering resources, dependencies, milestones, risks and concurrent time allocation to tasks!





# It is complex, but planning keeps it manageable!

	A	B	C	D	E	F	G	H	I	J	K																	
3	<b>[Project Name]</b>																											
4	[Company Name]					Today's Date: <u>2/24/2009</u> Tuesday																						
5	(vertical red line)																											
6	Project Lead: <u>John Doe</u>																											
7	Start Date: <u>1/5/2009</u> Monday																											
8	First Day of Week (Mon=2): 2																											
					Duration (Days)	% Complete	Working Days	Days Complete	Days Remaining	05 - Jan - 09	12 - Jan - 09	19 - Jan - 09	26 - Jan - 09	02 - Feb - 09	09 - Feb - 09	16 - Feb - 09	23 - Feb - 09	02 - Mar - 09	09 - Mar - 09	16 - Mar - 09	23 - Mar - 09	30 - Mar - 09	06 - Apr - 09	13 - Apr - 09	20 - Apr - 09	27 - Apr - 09	04 - May - 09	
9	<b>WBS</b>	<b>Tasks</b>	<b>Task Lead</b>	<b>Start</b>	<b>End</b>																							
10	1	Task Category 1	John	1/03/09	3/18/09	75	70%	53	52	23	[Gantt bars for Category 1]																	
11	1.1	Sub Tasklevel 2		1/03/09	1/20/09	18	100%	12	18	0	[Gantt bars for 1.1]																	
12	1.2	Sub Tasklevel 2		1/21/09	2/19/09	30	95%	22	28	2	[Gantt bars for 1.2]																	
13	1.2.1	Sub Tasklevel 3		1/22/09	1/31/09	10	20%	7	2	8	[Gantt bars for 1.2.1]																	
14	1.2.2	Sub Tasklevel 3		1/23/09	2/01/09	10	20%	6	2	8	[Gantt bars for 1.2.2]																	
15	1.3	Sub Tasklevel 2		1/22/09	2/09/09	19	95%	13	18	1	[Gantt bars for 1.3]																	
16	1.4	Sub Tasklevel 2		2/10/09	3/18/09	37	50%	27	18	19	[Gantt bars for 1.4]																	
17	2	Task Category 2	Jane	3/01/09	5/12/09	73	13%	52	9	64	[Gantt bars for Category 2]																	
18	2.1	Sub Tasklevel 2		3/01/09	3/17/09	17	50%	12	8	9	[Gantt bars for 2.1]																	
19	2.2	Sub Tasklevel 2		3/01/09	3/17/09	17	30%	12	5	12	[Gantt bars for 2.2]																	
20	2.3	Sub Tasklevel 2		3/18/09	4/25/09	39	0%	28	0	39	[Gantt bars for 2.3]																	
21	2.4	Sub Tasklevel 2		4/15/09	5/12/09	28	0%	20	0	28	[Gantt bars for 2.4]																	
22	3	Task Category 3	Bill	4/25/09	8/02/09	100	0%	70	0	100	[Gantt bars for Category 3]																	
23	3.1	Sub Tasklevel 2		4/25/09	5/11/09	17	0%	11	0	17	[Gantt bars for 3.1]																	
24	3.2	Sub Tasklevel 2		5/12/09	5/28/09	17	0%	13	0	17	[Gantt bars for 3.2]																	
25	3.3	Sub Tasklevel 2		5/29/09	7/05/09	38	0%	26	0	38	[Gantt bars for 3.3]																	
26	3.4	Sub Tasklevel 2		7/05/09	8/02/09	29	0%	20	0	29	[Gantt bars for 3.4]																	
27	4	Task Category 4	Bill	4/25/09	8/02/09	100	0%	70	0	100	[Gantt bars for Category 4]																	
28	4.1	Sub Tasklevel 2		4/25/09	5/11/09	17	0%	11	0	17	[Gantt bars for 4.1]																	
29	4.2	Sub Tasklevel 2		5/12/09	5/28/09	17	0%	13	0	17	[Gantt bars for 4.2]																	
30	4.3	Sub Tasklevel 2		5/29/09	7/05/09	38	0%	26	0	38	[Gantt bars for 4.3]																	
31	4.4	Sub Tasklevel 2		7/05/09	8/02/09	29	0%	20	0	29	[Gantt bars for 4.4]																	
32																												

## 2. Deliver what you agreed

Create a list of all deliverables and who you should deliver them to:

–*supervisor:*

- *Models*
- *Tools*
- *Lit. review*
- *MOP*
- *Reports/presentations*
- *Papers*
- *Data sets...*

– *collaborating company:*

- *Solutions*
- *Computer tools*
- *Rules*
- *Presentations & manuals*

### 3. Work at the highest academic level of achievement

So, in terms of modelling real research problems:

***"As far as the laws of mathematics refer to reality, they are not certain; as far as they are certain, they do not refer to reality ."***

***Albert Einstein***



# Using the Scientific Method

- The scientific method is a way to ask and answer scientific questions by making observations and doing experiments.
- The steps of the scientific method are to:
  - Ask a Question
  - Do Background Research
  - Construct a Hypothesis
  - Test Your Hypothesis by Doing an Experiment
  - Analyze Your Data and Draw a Conclusion
  - Communicate Your Results
- It is important for your engineering experiment to be a fair test. A "fair test" occurs when you 'TRY' to change only one factor (variable) and keep all other conditions the same.
- While scientists study how nature works, engineers use this to create new things, such as products, websites, environments, and experiences; realize the overlap!

# 4. To get a high mark

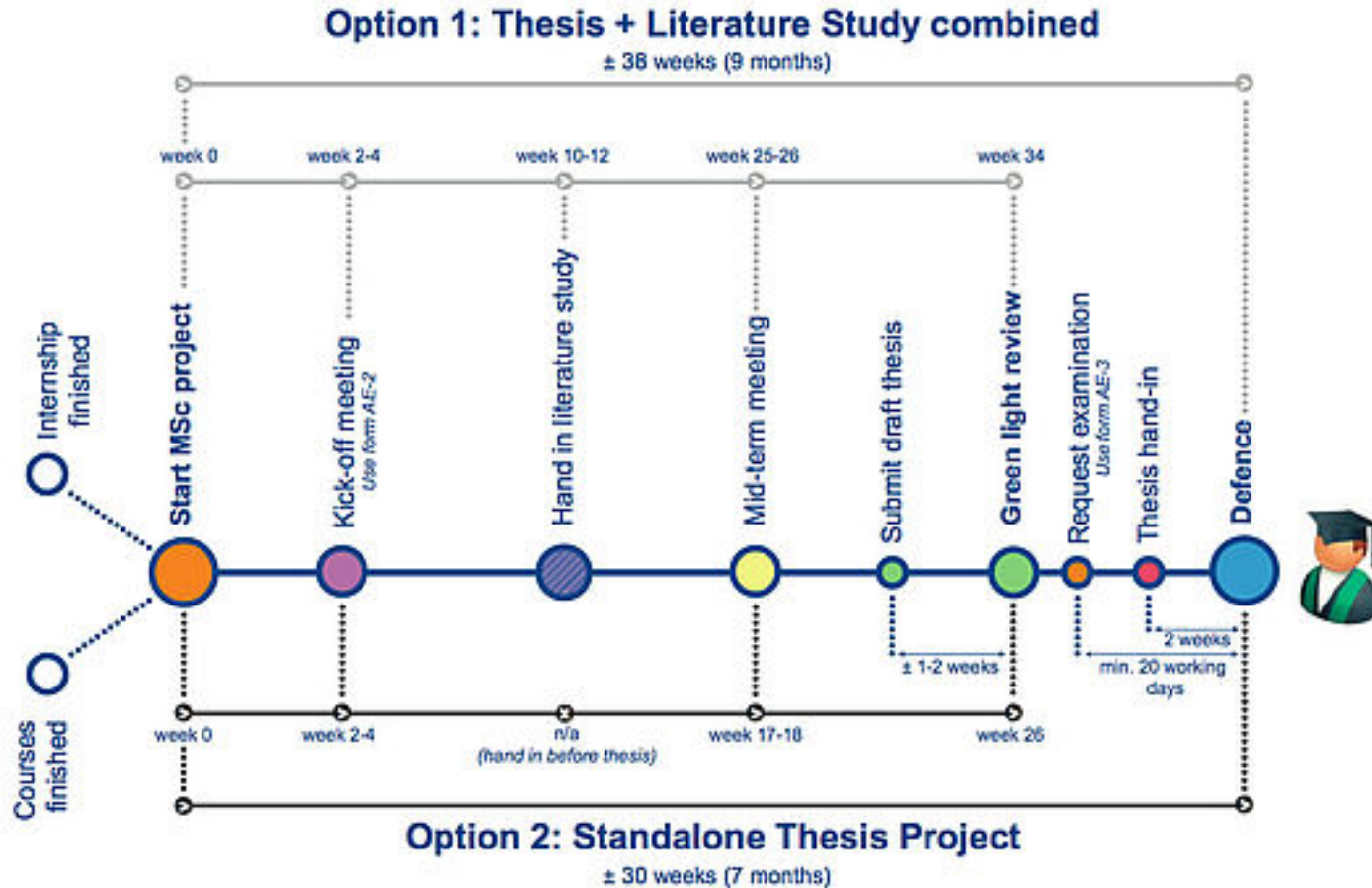
To achieve a high mark:

- ***Do something new and innovative***
- ***Have a strong theoretical basis***
- ***Establish the viability prior to the mid-term***
- ***Be very critical of your theoretical assumptions and subsequent findings***
- ***Plan!***
- ***Verify your work at what ever level possible***
- ***Validate your models if possible***
- ***Ask your supervisor how your work could improve***
- ***Ask yourself if it is publishable?***
- ***Write a draft of the results chapter at least 2 months before the end***
- ***Keep your thesis concise, insightful and clear, and highlight the main elements***
- ***Have fewer main points than numerous ‘interesting’ points!***
- ***Etc... proof read it, be critical, be reflective!***

# Prepare!



# Plan Globally!

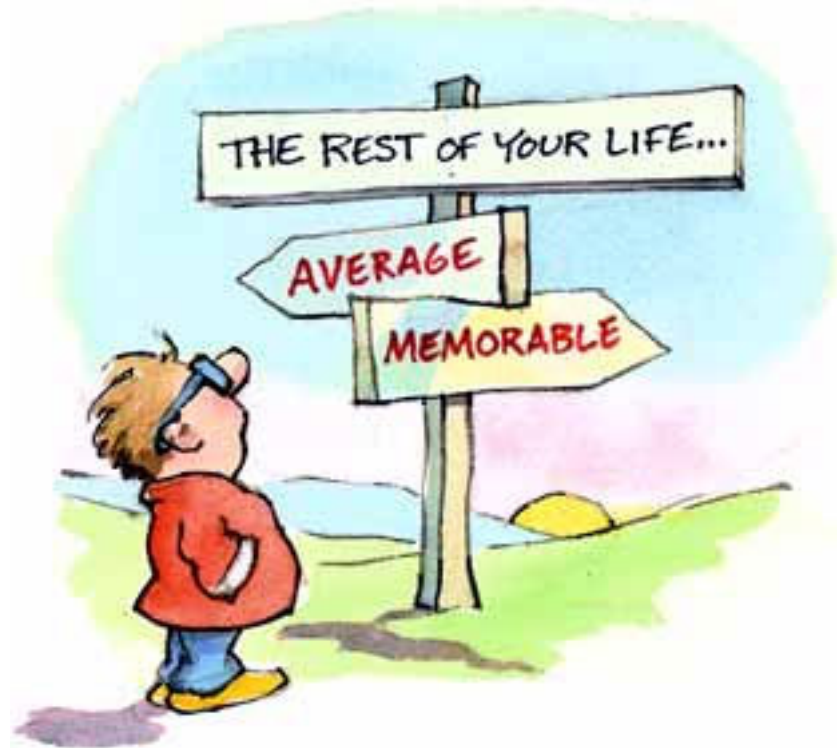


# Keep your eye on the ball

- What is the research question?
- What is the hypothesis to test?
- What do I need to deliver?
- How is my timing?
- What can I improve?
- Do I still have time at the end to reflect and improve, or is it on the edge?



## 5. Do something worthwhile of real value



# Add value by

- Including validation & verification
- Ensure all choices are explained and where relevant references given thus ensuring academic reproducibility
- Ensure you answer all research questions and address issues openly
- Finish with clear and complete conclusions and recommendations
- Ensure your thesis reads well - use proof readers (friends, family)