

1. Introduction to PM in Context of the Project	There is a strong correlation between the problem solving Engineering Process found in the Project Planning part of this curriculum and the 5 Project Management Process Groups (as well as “The Design Process”, “The Scientific Method” and other PROJECT outlines (see appendix).
1.1. Terms and Process Groups	PP - <i>What is Engineering Process</i> PP – <i>Definitions of Engineering</i>
1.2. Scope/Cost/Time Dilemma	PP – <i>Understanding the Problem</i> PP – <i>What is Engineering Process p.1</i> , the Research process group that leads to “Choose an Idea”
2. Define the Scope	Clearly define the problem or opportunity, separating needs from wants . This can be concurrent with brainstorming and proposing solutions. Include stakeholders beyond the team itself. PP – <i>Brainstorming and Preparing for a Competition</i>
2.1. Define the Problem or Opportunity	Competition defines minimum requirements and any scoring criteria.
2.2. Imagine a Vision	What is the preferred state at the end of the project?
2.3. Agree on a Mission	What is your mission (should you choose to accept it...this tape will self-destruct in 5 seconds)
2.4. Scope Inclusions and Exclusions	What is clearly within your scope and clearly NOT in the scope of the project?
3. Gain Stakeholder Support	PP – <i>Team Building</i>
3.1. 3.1 Identify Stakeholders	
3.1.1.Owners	
3.1.2.Customers	
3.1.3.Sponsors	
3.1.4.Other	
3.2. Define Stakeholder Interests and Expectations	A stakeholder matrix including columns on interests, expectations and communications needs is a useful tool.
4. Develop the Project Charter (use Template)	Prior to starting the Plan, Prototype and Test processes, formalize work thus far in a Project Charter that assures a complete pre-planning checklist.
5. Create the Work Breakdown Structure	PP – <i>Planning Your Time</i> and “Work Planning Aids” such as timelines, Gantt Charts and Pert Charts Also see “Group Design Notebook”. Use templates or software such as MindView.
5.1. Outlining Major Tasks	
5.2. Breakdown Sub-tasks	
6. Develop a Budget Plan	Follow up work from Project Charter

6.1. Revenues	
6.2. Costs	
7. Develop a Project Schedule	PP – <i>Planning Your Time</i>
7.1. Beginning and End Timeline/Calendar	
7.2. Calendar Key Dates for Deliverables	
8. Develop an Organization Structure	PP – <i>Organizational Matrix Ideas and Recording Progress</i> . Starts from the time the project team and stakeholders are engaged, and is fleshed out as team and task aptitudes and interests are discovered.
8.1. Define team roles and responsibilities	
8.2. Build Team (and Communications)	
9. Obtain and Manage Resources	
9.1. People	
9.2. Things	
9.3. Money	
10. Assure Quality	
10.1. Product Quality Standards	
10.2. Meet or Exceed Stakeholder Expectations	
11. Achieve the Deliverables	PP – <i>Design Reviews</i>
11.1. Pacing Against Deliverables Dates	
11.2. Celebrate Milestones	
12. Measure and Communicate Performance	
12.1. Reports on Progress and Deliverables	
12.2. Celebrate and Share Success	
13. Conduct Project Review for Learning and Continuous Improvement	
13.1. What Went Well	
13.2. What Could Be Improved	
13.3. What Resources Would Support Improvement	

Aligning PM Education to ROBOTC® Curriculum



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13.4. How Would Improvement
Be Measured (Indicators)

**14. Assure Sustainability Issues are
Addressed (Use Pocket Guide for
questions)**
