See Syllabus for description. Annotated outline is below.



**Title**: Identification of the case study, Student Name. (see file “Organization of DMAIC paper.docx” in supplemental files

1. Introduction and Summary
2. Define the Problem
   * Define the project purpose and scope – the problem to be solved or improved. Include a Project Charter (C6σGBH, p. 95).
     + Problem statement guidance: <http://www.dummies.com/how-to/content/how-to-write-a-problem-statement-for-six-sigma.html>
   * Define the existing processes using a SIPOC or equivalent representation.
3. Measure the Problem
   * Clearly restate the problem you are addressing
   * Determine appropriate measures to validate the problem and any solutions
   * Collect baseline data on the selected problem
   * Validate the problem based on the data
4. Analyze the Problem

* Gather data, build, and execute process models (minimum: cause-effect diagrams) to determine root causes.
  + Identify and document potential causes; explain the causal relationships. Every arrow on the diagram should have an explanation.
* Use statistical or other quantitative methods to quantify the effects and select a significant root cause.
* Clearly identify the root cause you plan to Improve.

1. Improve the Problem
   * Conduct a trade study on possible solutions and select a preferred solution which solves the problem or improves the situation
   * Show, based on the analysis, modeling and data, why the solution is feasible, effective, and preferred
   * Develop a “design of experiments” implementation for optimization of the implementation
   * Identify challenges and compensating strategies for implementing the improvements
   * Define implementation plans, including tasks, timelines, budget, resources, and stakeholders, to ensure feasibility, effectiveness, and optimization of the improvement plans
2. Control the System
   * Define a control plan for implementing and monitoring the improvement. Identify control mechanisms for implementing the improvement and monitoring effectiveness.
   * Define the required or expected progress of specific measures that will be used to determine success and control implementation (e.g., TPMs or process measures and their associated plans)
   * Identify any additional organizational improvements to ensure success (e.g., process definition or changes, training, additional computer-based tools, additional measurements)