

Model-Based Systems Engineering: Documentation and Analysis

Project Scoring Rubric

WEEK 1: WHAT IS MBSE?

Criterion	Step 1: Choose System and Define Scope
Prompt	What is your system? What is in scope for the MBSE effort in your chosen system?
Points	
3	Complete: The response clearly delineates what is in and out of the overall system. Additionally, the write up delineates the scope of the MBSE effort within the system. The write up should identify which system functions (at least 3), which system components, and which teams (at least one), will fall within the MBSE approach. Mention at least three functions and one team that will fall under the MBSE strategy.
2	Partially Complete: The response describes the chosen system, briefly touching upon only one or two functions and teams that are involved in the system. The answer does not describe which of these will be explicitly modeled.
1	Incomplete: The system being modeled for MBSE is not clearly defined. The scope of the MBSE strategy is also not covered.
0	Not Attempted: No answer is provided. Sample project is copied for submission.

Criterion	Step 2: Define MBSE Approach
Prompt	How would the approach to this project change with MBSE?
Points	
3	Complete: The response describes how the MBSE contrasts with the existing approach, giving at least one example of how they might differ.
2	Partially Complete: The response details the MBSE strategy for the system, however it does not provide information about how it will be different from current practice.
1	Incomplete: The change in approach is not really clear from the response.
0	Not attempted: No answer is provided. Sample project is copied for submission.

Criterion	Step 3: Define MBSE Purpose
Prompt	What are the purposes of your MBSE effort? Describe the financial and non-financial benefits you expect.
Points	
3	Complete: The response identifies several benefits of the MBSE approach (e.g. improve communication between teams, improve productivity) and includes a logical rationale for these benefits in the context of a specific project. It also mentions whether the benefit is financial or non-financial.
2	Partially Complete: The response talks about one or two benefits of the MBSE approach, but does not clearly articulate a rationale.
1	Incomplete: The benefits of the MBSE approach are not defined properly or are not obvious.
0	Not Attempted: No answer is provided. Sample project is copied for submission.

Criterion	Step 4: List Major Tenets of MBSE
Prompt	Describe how you will model the system. Briefly describe your approach to each of the major tenets of MBSE.
Points	
3	<p>Complete: The response describes the modeling strategy for each of the 7 major tenets of MBSE:</p> <ul style="list-style-type: none"> • Central Model or Federation of Models • Model Views • Model repository or library • Standards and Patterns • Model Checking: Logically Verifiable Rules or Tests • Ontology • MBSE Methodology <p>The description is specific to the project at hand, not a general discussion of MBSE.</p>
2	<p>Partially Complete: The response describes the modelling strategy, but touches less than six tenets. It also describes how they apply to your approach.</p>
1	<p>Incomplete: There is a description of the modeling approach, but it is not clear how the system will be modeled.</p>
0	<p>Not Attempted: No answer is provided. Sample project is copied for submission.</p>

Criterion	Step 5: Identify the Most Important Qualities of Great Models
Prompt	Reflect on the Qualities of Great Models -- what are the top three qualities you are concerned about for your MBSE approach?
Points	
3	Complete: The response describes the top three qualities that are of the biggest concern for your strategy. The qualities all come from the list of Qualities of Great Models. There is a clear description of why these qualities are of the biggest concern. Where relevant, potential mitigation strategies are touched upon.
2	Partially Complete: The response describes one or two qualities that are of biggest concern for the MBSE strategy for your system, or lists qualities that are not present on the Qualities of Great Models list.
1	Incomplete: The response does not describe clearly which qualities are of biggest concern for the system.
0	Not Attempted: No answer is provided. Sample project is copied for submission.

Criterion	Step 6: Identify Systems Engineering Tasks
Prompt	Systems engineering has a variety of different tasks depending upon its role in the organization such as interface management, change management, facilitate information transfer. Which of these or other tasks in your view are applicable to your chosen MBSE strategy?
Points	
3	Complete: The response describes the system engineering tasks in your organization today, then explicitly calls out a subset of those tasks that will be impacted by MBSE. There is not an assumption that all tasks of the system engineer will be automatically impacted by MBSE, and the response shows an understanding of how some tasks will change.
2	Partially Complete: The response describes how system engineering fits into the MBSE strategy without providing much detail about exact tasks that systems engineers will have, and how it differs from what they are doing currently.
1	Incomplete: The response does not mention how systems engineering fits into the MBSE strategy.
0	Not Attempted: No answer is provided. Sample project is copied for submission.