

IE 478 Spring 2021 - SUGGESTED CONTENT FOR FINAL REPORT

Please note that there is no single outline that we want you to adopt. This is only a suggestion.

Always remember that your names and Bilkent University IE Department will be on the title page, meaning that these reports are likely to be used for further test of ideas, in the company as well as at Bilkent.

General Remarks: This is the final report of a project that took several months, with several “candidate” industrial engineers on board. We expect that the report should reflect this work, as well as to be a starting point for another team to start new projects. Therefore, we expect that you write everything clearly, concisely, and properly. Please, **DO NOT** describe the approaches you have just thought about it. Remember that, the final report is not a historical sketch of the work you have done. Of course, during analysis if you have worked on alternatives and finally selected one of them you **MUST** mention those alternatives, as well as why you have not considered them further; this is very important as it is simply an account for an engineering work, with identification of a problem and how you solved it.

Recall the criteria for the success of any project:

Assessment Criterion 1: System design:

- Model development and validation
- Consideration of alternatives: Extent to which the team demonstrated critical thinking in the design processes including scenario and/or what-if analyses
- Model usage for changing environments
- Creativity: Extent to which the team developed a novel solution to the design problem while still achieving a functional design
- Technical competencies: Extent to which and validity of the technical aspects have been used properly, including methods, tools, and techniques.

Assessment Criterion 2: Success of the design:

- Attainment of project deliverables: Extent to which the goals of the project and end-user specifications have been met.
- Benchmarking: A comparison of the current and proposed system should be provided along with a cost/benefit analysis.
- Implementation and system integration: Extent to which the proposed system is successfully implemented and integrated into the existing system – if not applicable, then a detailed implementation plan and a pilot study may be provided.
- End-user evaluation and assessment: A written statement from the industrial advisor(s) evaluating the project.
- Impact on the organization: Effect of the proposed system on the organization (financial impact, simplified operations, etc) – in terms of performance measure(s) used in validation as well as other performance measures.
- Global and societal impact: As an additional consideration, if applicable.

There is no page limitation for the Final Report. On one hand, it is important that you do not miss issues to be covered. On the other hand, writing too long is not meaningful, as getting

maximum use of the time for anybody who reads will become difficult. We believe that characteristics of your project will be an important factor in deciding how long to write and what sections to include.

Below we supply a list of topics (Suggested Contents) we think is reasonable for a project. However, some of the projects are expected to include certain contents which are not in the list or highlight some of the contents in very detail. PLEASE DO NOT FEEL RESTRICTED WITH THE BELOW SUGGESTIONS.

Suggested Contents:

1. Identification of an Engineering Problem
Provide a very short description and some general information about the company and its service/manufacturing system. Include “System Analysis” which resulted in the identification of the problem. State the problem definition, performance measures and deliverables.
2. Model Development - Proposed System
 - a) Inputs and outputs of the proposed system
 - b) Major components (subsystems or elements)
 - c) A simple flowchart that schematically describes inputs and outputs, and the relations between the major elements of the system would be very beneficial. (This will provide the conceptual model of the system)
 - d) A literature review (including textbooks, if applicable) relevant to the development achieved in parts a) through c).
 - e) Detailed description of the models/policies that you have developed for the entire system or for each element of the system.
 - f) Solution – approaches and methods. Platforms needed for the solution of the stated problems.
3. Validation, and statement of project’s possible contribution to the company
4. Integration of the results to company’s existing system and Implementation
5. Conclusions, with future work suggestions

References and Appendix: You are expected to refer references you have used throughout the text. Please, use proper citation and list of references. Make sure that you do not miss any, so that you will not be suspected of academic dishonesty. Please make sure that each appendix clearly describes the information you place and is not a “garbage can”. Each Appendix is an independent text that describes an issue to its full detail but is simply placed in the Appendix as the level of detail considered is too extensive to be placed in the main report.