



IE 477-78 Feedback Following Coordinator Presentations and Future Requirements

Course Coordinators:

Dr. Savaş Dayanık,

Dr. Nesim K. Erkip,

Dr. Emre Uzun

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Recall:

Learning Outcomes and Project Work

- **THROUGHOUT THE PROJECT WORK**
 - Effectively use teamwork (Peer Evaluation)
 - Prepare reports and presentations to explain ideas
 - Practice professional and ethical responsibility
 - **PROPOSAL**
 - Analyze system data to identify problems – Agreement on the **SCOPE**
 - **END OF FALL SEMESTER**
 - Access information and do literature survey – **IE CAPSTONE**
 - Formulate problems and propose solution methodologies – **FEEDBACK**
 - Construct mathematical models of the system – **MODEL, VERIFY**
 - **MARCH 2021**
 - **VALIDATE** (based on “actual” data, etc.)
 - What-if analyses, integration, implementation – **BENCHMARKING, REPORT**
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Common Feedback - ALL groups

- Our input: From your presentations to coordinators (most recent), as well as your previous work
 - Feedback:
 - (1) Coordinator Presentations – each group
 - (2) This presentation (common feedback)
 - Related to your approach
 - Related to planning your work
 - Related to communicating your work
 - With reminders using the introductory presentation and video
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Feedback:

Related to approach

It is understandable that you are missing some components: first experience

- 1) Need to question the given limits, constraints imposed:
 - Your role: You need to persuade all sides, if necessary, to lift those limits which are “artificial”
 - Do not take anything for granted
 - Persuasion requires evidences – not words
 - 2) Lack of focus on more important/crucial ideas
 - 3) Measures/metric for comparison are missing
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Feedback:

Related to approach

- 4) System design – not solving a problem only once and go home, but implement it repeatedly
 - Systemize the way to implement your proposed methods repeatedly
 - Systemize how you approached the problem to allow for updates of your proposed solution
 - **Recall the slide on IE CAPSTONE**
 - **Designing** a system means a preparation to repeatedly implement the proposed approach over time under almost all conditions
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Feedback:

Related to approach

5) Show your approach with a clear time-line: when is information available, when is decision taken.

6) Verification – **Recall the slide on VERIFICATION**

What is model verification?

- Check if model constructed (approach) is yielding results, solutions as intended (expected)
 - » Make sure that everything is correctly represented (Math program, computer code, state-space, ...)
 - » Debug, intuition, sanity check, discuss with advisors
 - » No need to have real data – generate samples
 - » Make sure you have a model to represent the trade-offs present in the real system
- Is your approach useful? Persuade all sides



Feedback:

Related to approach

Explanation in Information for Progress Report

- model with trade-offs you observe,
- model yields results that are meaningful and comparable
- No need for real data,
- make sure that the model is working as intended, even in some “extreme” situations that you will not expect to observe very frequently in real life.
- potentially useful.
- **We expect this stage to be completed by the end of the Fall semester.**

7) We found some groups' approach simplistic - should have been elaborate and exhaustive.

8) Not using jargon properly in written and/or oral communication is a weakness.



Feedback: Related to Planning Future Work

Validation

You have to make sure that you know and company agrees on how, when and with what input/output to make the validation of your approach.

This is what you need to plan **NOW for Spring**



Recall the Slide on:

VALIDATION

What is model validation?

- Check if models constructed are yielding results comparable to current affairs when current decisions are implemented
 - Make sure that you come up with a way of validating (not necessarily exact)
 - Use of past data to compare
 - Implementing your approach in a small-scaled part of the real-system
 - Show your sample results and ask the firm to validate
 - Credible Model (approach)
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Feedback: Related to Planning Future Work

Benchmarking

Make sure that you can quantify the benefits you bring and make comparison with the current system – benchmark your results with the current system.

This is what you need to plan for Spring, after validation (partly with validation)



Recall the Slide on:

BENCHMARKING

- Benchmarking is testing and showing the benefit of your approach compared to what is currently done — a natural follower of the VALIDATION step.
 - You need the following (for validation, as well):
 - How are those decisions made in the current system? (ANALYSIS OF THE CURRENT SYSTEM)
 - Performance measures (ANALYSIS OF THE CURRENT SYSTEM)
 - Data needs
 - Comparison methods: Simulation using the past data; Implementation of your approach by the company; others
 - **measure the benefit the proposed approach**
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Feedback:

Further on planning your work

We want you to make sure that you see your future activities as detailed as possible.

- Verification, validation – as explained before you need to execute/plan by the end of December.
 - Work packages and time charts are needed for you to consider these activities
 - Recall your IE478 Final Report Requirements
 - *** slides on pages 13, 14 and 15**
 - Recall your IE477 Final Report Requirements
 - *** slide on page 16**
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Recall:

Explanations – **REPORT-2**

Final Report Work (IE478) – Should include:

- 1) Details of your approach to solve the identified problem (only the final version) agreed upon by SCOPE (submitted to academic advisors and company) for grading/understanding the impact
 - 2) Plan to integrate your solution with the system's current operation – System Integration
 - 3) Details of how you analyzed the system and how you carried out the computations, estimations, etc of your approach as a manual (submitted to the company) so that they can further use it. Manual is more algorithmic
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Recall: IE 478 Assessment Criteria-1

(May 2019 presentation – M.S. Aktürk)

- **System design:**

- Model development and validation: The proposed model can be an optimization, statistical, database, marketing or simulation model
- Consideration of alternatives: Extent to which the team demonstrated critical thinking in the design process
- Scenario/ what if analysis: 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



Recall: IE 478 Assessment Criteria-2

(May 2019 presentation – M.S. Aktürk)

- **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 is to be provided)
 - End-user evaluation and assessment: A written statement from the industrial advisor(s) evaluating the project
 - Impact on the organization: Affect of the proposed system on the organization (financial impact, simplified operations, etc) – in terms of performance measure(s) used in validation
 - Global and societal impact: As an additional consideration
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IE 477 Assessment Criteria

- **Your progress** with respect to the level desired for the complete project, see IE478 Assessment Criteria
 - Our expectation:
 - Brief definition of the Problem
 - Analysis of the current system
 - Literature Review
 - Previous studies in the scientific literature
 - Similar Studies in the industry
 - Proposed System - Methodology
 - Model Development and verification
 - Project Plan: Timetable + clearly specified work packages (and preliminaries on the work should have been initiated) for IE478
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Feedback: Related to communicating your work

- Some groups are using different wording to express certain matter which should have been handled by using IE jargon consistently. **IE – Engineer**
 - Issues mentioned/questions raised during your presentation may either show those you missed or those which you were not able to present properly.
 - It is understandable that you are missing a number of important issues in your presentations and report writing – visit Eng401 until it's too late
 - **feedback on reports - take it seriously**
 - **feedback on presentations - take it seriously**
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Feedback: Related to communicating your work

- Open Source Programs
- Minor but important issues:
 - Please follow instruction regarding format requirements
 - Use of technology properly – ASK TA's
 - First Page of the Report
 - Make sure that you have relevant and meaningful titles for the project (both in English and Turkish) that all parties accept
 - Title page of presentations/reports should contain all names in alphabetical order according to your last names



Final Remarks

grading + final presentations

- We are planning to grant I grade (incomplete grade) for at least two situations described below:
 - those groups which we think will considerably improve their position after a couple of weeks of additional work
 - those groups which will fail if the group can not bring the project to an acceptable level
 - In the next round of group presentations to us (new dates to be announced if needed) we are planning to ask questions to individuals - just to confirm team work component of the course.
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