



SYSTEM DESIGN

IE477 - IE 478

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Outline

- IE477 wrap-up and feedback
- IE478 Notes on Implementation/Integration
- IE478 Summary of Requirements followed by details
- Project Fair
- Reminder of the Assessment Criteria



Characteristics of IE477-478

- Project-based and Problem Solving
- Synthesis – Capstone Project
 - Oral and Written Communication
 - Team work
- Two semesters, but you will receive a grade at the end of each semester



Learning Outcomes

(Previous presentation – M.S. Aktürk)

- Analyze system data to identify problems
 - Know how to access information and do literature survey
 - Formulate problems and propose solution methodologies
 - Construct mathematical models of the system and validate based on actual data
 - Effectively use teamwork (+Peer Evaluation)
 - Prepare reports and presentations to explain ideas
 - Practice professional and ethical responsibility
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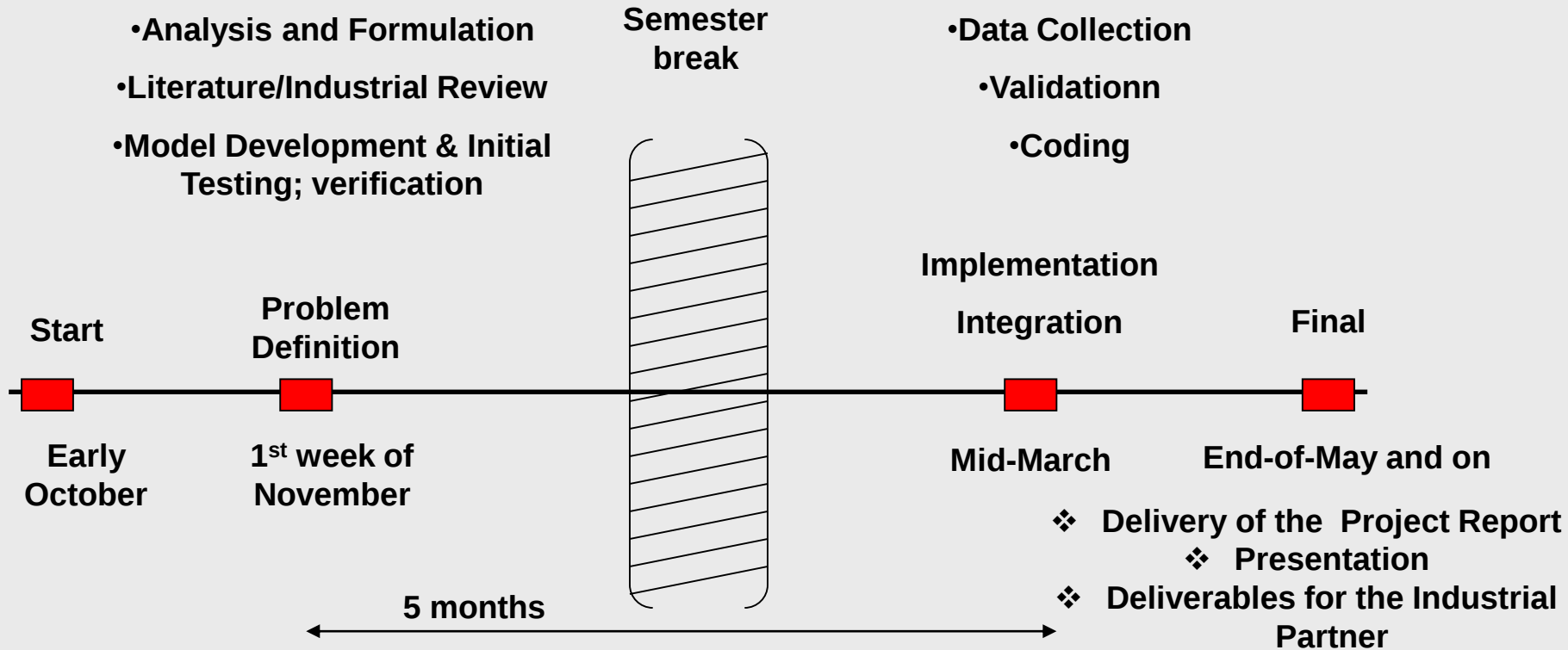


Learning Outcomes and Project Work (IE477 - Previous Presentation)

- **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 2020**
 - **VALIDATE** based on “actual” data
 - What-if analyses, integration, implementation – **BENCHMARKING, REPORT**
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The System





FEEDBACK

General Observations (1)

- **Grading issues**
 - grading IE477 – “benefit of doubt”
 - grade you will receive from IE478 is the correct indicator of your performance
 - regardless of the grade received for IE477, **ALL** of the groups have a chance of presenting in the project fair.
 - **Academic advisor’s** presence - in developing/enhancing project ideas. Make sure that you make use of the expertise in the best possible way
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FEEDBACK

General Observations (2)

- **Relevant for almost all groups**
 - Realizing IA's role: Validation/Implementation/Integration
 - problems in reporting persists; for some presentation styles have improved – Still room for improvement
 - **Work-in Progress and Issues Regarding Validation/Implementation/Integration:** Only a few groups are aware of the vast challenges in the real environment and its relation with what we call “implementation” of the project and further integration with the current system
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Feedback: Related to communicating your work (1)

- visit Eng401 until it's too late
- Presentations
 - rehearse your presentation mimicking the conditions of the real presentation
 - practice presenting without any printed presenter notes or reading directly from the slides
 - tables and figures are critical in presentations
 - make sure that you emphasize the relevant and most critical parts - limited time



Feedback: Related to communicating your work (2)

- Reports: lack coherence
 - titles, subtitles are instrumental in emphasizing what your actual strong points are
 - figures, tables are very powerful instruments
 - read/upgrade with full capacity
 - prepare for limited number of pages
 - minor but important issues:
 - Write dates on reports and presentations (first page)
 - relevant and meaningful titles for the project
 - Title page of presentations/reports



Notes on Implementation (1)

- The majority of projects are related to developing procedures which will be repeatedly exercised.
 - One important task for the coming semester (systemic characteristic): Frequency of exercising the developed procedures, algorithms, etc.;
 - need to check whether information needed to run those will be available at the required times
 - We see this as a crucial part of system integration, the integration of your approach to company's decision making procedures.
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Notes on Implementation (2)

- Another important task for the coming semester (systemic characteristic): When do you recommend your industrial advisor to repeat your analyses (IE477+) to adapt to changes?
 - information and/or data is [are] used to come up with some methods - dependent on some parameters or structural properties (stationary demand, seasonality, etc.).
 - Crucial part of system implementation/integration and an approach to keep it alive in the future should be recommended.
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Notes on Implementation (3)

- Finally, your IA should be able to use your developed procedures as seamlessly as possible, meaning that you should have a working user interface (not necessarily the final one) that will streamline all steps of your procedure
 - leave the user with almost no complicated manual task
 - include any intermediate steps requiring data/file transfer
 - Without these, it will be unattractive to an end user and hence your project will not likely be implemented extensively, if not at all
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Notes on Implementation (4)

- A limited number of project themes are based to **one-time implementation**. Hence, we do not expect the developed methodology to be repeated in the near future – no need to be integrated with the current system
 - In those projects you have to make sure that you covered a number of scenarios
 - Sensitivity analyses of your input
 - Role of your assumptions
 - Make sure that the approach is valued
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SUMMARY of REQUIREMENTS

- Project Progress Report
 - Final Report
 - 10-Page Project Summary (Booklet Report)

 - Project Progress Presentation
 - Presentation to Course Coordinators
 - End of Semester Presentation

 - Submission of the Deliverables

 - A poster to be displayed/presented in the project fair
 - A one-page PowerPoint slide - a project summary

 - Two peer evaluation forms filled individually
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Project Progress Report/Presentation

- status of progress with respect to deliverables (including reports/manuals)
- approach, model, codes must be verified; validation either is completed or plans for validation (additional data collection, etc) are firm and clear.
- project must be almost ready for implementation and project team must provide an implementation plan of the project



Project Progress Report/Presentation

- Company Representatives
- Academic Advisor
- Teaching Assistant
- Coordinator

☐ Draft due: February 19

☐ Report Submission: March 5

☐ Presentations: March 8 – April 2

(Every team should be ready by March 8)



Meeting with Course Coordinators

- All groups will present the status of their projects to all course coordinators.
 - This meeting will determine in part the 12 groups that will be short-listed for the project fair qualification.
- ☐ Meetings: **April 7, April 9 and April 12**
– (Presentation videos should be ready by April 5)



Project Final Report

- This report should contain all the relevant work you have done for the project and will be in English.
 - Company requirements (if any): An example is a User Manual for using your approach for decision making (or support decision making) put it as an Appendix.
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- ☐ Draft due: **April 28**
 - ☐ Report Submission: **May 10**



Final Presentations

- All presentations are **in Turkish**
- Short-listed for qualification
 - 12 groups
 - **Face to Face** Presentations: **May 20 - May 21***
- Remaining Groups
 - 9 groups
 - **Online** Presentations: **May 27 - May 28***
- Rehearsal for the project fair; 8 groups
 - **Face to Face** Presentations: **May 31**



Projects Booklet (To share at large)





Projects Booklet

- 10 page summary report in English

Report draft to academic and industrial advisor and
Teaching assistant : April 16

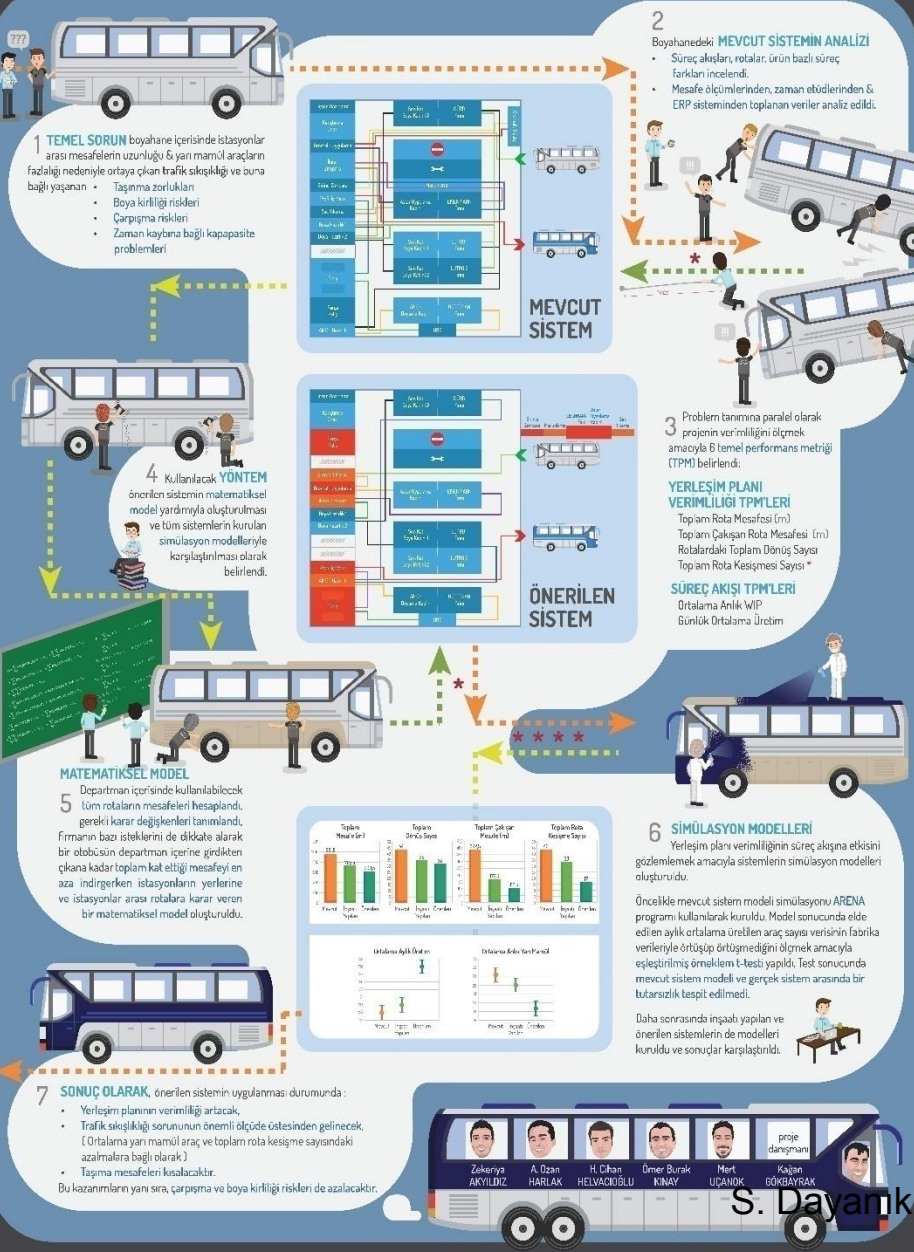
Final version: April 30

- MUST BE approved by the company!
- Please pay attention to format requirements!
Need to write it using Latex.



Poster

- May 4: Draft Submission
- May 10: Feedback
- May 11: Final Submission



Mağaza İçi Teşhir Yönetimine Yardımcı Karar Destek Sistemi

Yardımcı

Ali Bozkurt
Elife Buluç
Merve Büyükbaş
Nigün Dönmez
Yağmur Güven
Sertuğ Kostik

Problem Tanımı ve Amaç

Tepe Home mağazalarının ürün sergileme süreçlerinin belirli bir standart çevresinde gerçekleştirilmesi ve bu durumdan kaynaklanan mağaza içi komplikasyonlar-Kararsız yerleşim örnekleri

Tepe Home mağazalarının aksesuar koleksiyonunun sergilenişine yardımcı olacak bir karar destek sistemi tasarlanarak müşteri dikkatini yüksek tutmak ve satışlarda artış yakalamak



Önerilen Süreç



Önerilen Matematiksel Model



Sonuç

Raf 1	Görüntü	Su bulaşığı	Amerikan servisi
Raf 3	Sampir mat	Münib	Tart mat
Raf 4	Kupa	Kilip aynası	Dekoratif obje 1
		Dekoratif obje 2	Elbise askısı
		Sabunluk	Banyo kova



Project Fair Timeline

- 10-Page Project Summary – in English with a Turkish Abstract (Öz) (April 30)
 - Need to write it using Latex (See Course Web Site for details).
- Project Poster (May 11)
- Project Fair and Competition (June 1)
 - Projects Booklet
 - Project Competition
 - Poster Competition

See details in General Schedule for IE478



Project Fair and Competiton



Project Fair and Competiton





IE 478 Assessment Criteria-1

(Previous Presentations)

- **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



IE 478 Assessment Criteria-2

(Previous Presentations)

- **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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Important

- Check our web-site frequently.
<http://courses.ie.bilkent.edu.tr/ie477>
- Submit all the requirements **on time**
- Provide enough feedback time for your academic advisors



BİLKENT ÜNİVERSİTESİ ENDÜSTRİ MÜHENDİSLİĞİ PROJE FUARI VE YARIŞMASI'NA HOŞGELDİNİZ!



S. Dayanık, N. K. Erkip, E. Uzun