ISE 497-498 Senior Project Policy Document

Description

The Senior Project is intended to be a capstone experience that draws on the previous three years of course work. The Senior Project should therefore be sufficient in scope and technical content in order to expose students' technical competence developed during their education at Izmir University of Economics Industrial Systems Engineering Department. The project's specific topic can be in any field of industrial systems engineering or similar areas. It is also expected that the project be carried out by **a team of 4-6 senior students** under the supervision of related faculty member(s). The project's duration is expected to run over 2 semesters, and it will be separately graded at the end of each semester.

Agreement

Announcements are made at the beginning of the Fall semester regarding the Senior Projects. The students are responsible for forming their groups. Student groups may find organizations to carry out the senior project. In this case, they should inform the department as soon as possible. Otherwise, the department may assign project topics and organizations. When agreement is reached for a project, it is highly recommended that the project be documented at this stage with at least a brief vision statement that captures the stakeholders' understanding of the project.

The project topic should be the application of the methods and techniques to a real life problem in an organization.

The Role of the Advisor

The role of the advisor is to advise, guide and direct the student in a properly and timely manner. Students should consult regularly at least weekly with their advisor, well in advance of deadlines, to get advice and feedback about the content and quality of deliverables.

Project Milestones

A typical Senior Project will consist of several stages as described below. At the end of each phase, the students are supposed to document their work and hand out the deliverables to their advisor on time for review and feedback.

Meetings with the Advisor and Progress Reports

Each team should meet with their advisor(s) regularly and submit progress reports (approximately every 2 weeks). These reports should contain the names of the group members, title of the project, the work carried out in the previous weeks and the work that the team is planning to do in the following week(s). At the beginning of each term, the teams are expected to prepare a schedule of their project studies.

Background Research

At this stage, the students are required to formulate a problem statement which is a document containing the description of the problem, the scenarios in which the problem may occur, and their proposed solution to the problem.

The students are also required to complete a background research on the project. This will include a literature survey, studies in industry or subject area, and different approaches to the problem on hand, wherever applicable. It is recommended that the students meet frequently with their advisor(s) for guidance.

At the end of this phase, the following objectives must be reached:

- The stakeholders (student(s), advisor(s), customers or user if any) must agree on the purpose and scope of the project;
- A vision of the project solution or output should be clearly stated;
- A summary of the related studies must be provided;
- The stakeholders must agree on the criteria defining the success of the project.

All above objectives must be fully documented.

Requirements Specification

The students are expected to come up with a plan to solve the problem providing a high level description of the "system" and reaching the objectives of the project.

At the end of this phase, the following objectives must be reached:

- Functional and nonfunctional requirements,
- Required outcomes and expectations,
- Project constraints and limitations,
- Proposed methodology.

System Design

System design is a process of problem-solving and planning leading to a solution for the project. By the end of system design phase, a detailed low level design of a feasible solution to the problem must be completed. This may include but not restricted to:

- Rationale for the proposed solution;
- Model development;
- All identified risks eliminated or covered by a contingency plan.

Verification and Validation

At verification and validation (or testing) phase, students are expected to prepare a plan that would provide stakeholders with information about the quality of the project's output or service under test, with respect to the context in which it is intended to operate. A primary objective for testing is to detect project failures so that defects may be uncovered and corrected.

Implementation

At the implementation phase, the students begin to implement the project, showing end-to-end functionality. At the end of this phase, the following objectives must be reached:

- The implementation should explicitly prove the developed model is operational and functional;

- All the proposed features or objectives must be implemented;
- The implementation must be robust.

An independent third party must be able to install, verify/test, and use the output of the project.

Delivery

At this phase, the project team completes, finalizes the documents, and participates in the senior project presentations. At the end of this phase, the following objectives must be reached:

- A group of a similar team of competent engineers re-implement the output with only the documentation as guidance;
- The satisfaction of the criteria of success identified at the project proposal.

Project Report Format

Reports should not exceed 15 pages (excluding appendices) in ISE497 and 30 pages (excluding appendices) in ISE498.

Section List

The reports should include the following sections:

> Title page (attached)
> Abstract, Keywords
> Table of contents
> Introduction
> Literature survey
> Problem definition
> Mathematical model
> Solution method
> Design of experiments (if appropriate)
> Computational results
> Conclusion
> References
> Appendices (if appropriate)

Abstract

Abstracts should be between 100 and 300 words. At least 3 keywords should follow the abstract.

Paper and Duplication

To insure durability, permanency, and opacity, all copies must be on good quality white bond paper, of at least 75 g, measuring 21 by 29.7 cm (A4). Only single-sided copies will be accepted.

Submission of the original copy is not required. Photocopies must be made from the original, and all pages must have high contrast with consistently dark print throughout the report. The print must be permanent; it must not smudge. All pages must be copied onto acceptable paper, as described above. Inferior copies and copies not made on approved paper will not be accepted. It is

recommended that you work with a reputable copying firm or bindery when having your report reproduced.

Type

The type size should be 12-point. Standard font e.g., "Arial" is acceptable. Do not use script, or ornamental fonts. The typeface and size must be consistent throughout the report. Bold face letters and symbols, and italics may be used for special emphasis and foreign words.

In the body of the report, different typefaces and sizes may be used to set chapter titles, section headings, footnotes, endnotes, examples, quotations, tables, and charts from the rest of the text, as long as they are easily readable.

Laser and ink-jet prints are preferred. All print works must be in permanent black ink and must appear on only one side of each page.

No ink corrections, strikeovers, correction fluid or tape, paste-ups, insertions between lines, and letraset are permitted on the final bound copies. If you must make corrections, do them on the original manuscript before it is copied (but not by ink corrections and strikeovers which are never allowed).

Spacing

The general text of the report must use one-half line spacing, although tables, long quotations, footnotes, endnotes, bibliographies, and captions may be single-spaced.

Margins

The left margin (binding side) must be at least 4 cm wide to allow for binding; the other three margins must be 2.5 cm wide minimum. Narrower margins are not acceptable. Slightly larger margins are advisable, to allow for error during reproduction. Absolutely nothing should appear in the margins. This means that all headings, page numbers, text, tables, illustrations, etc., must be contained completely within the area bounded by the margins.

Pagination

All page numbers of the report must appear in the same location on the page. Page numbers must be at least two single spaces above or below the nearest line of text, but within the margin boundaries as stated above. All page numbers must be in the same font and size.

The following pagination plan should be used:
      a) For the preliminary pages, use small Roman numerals (i, ii, iii, iv, etc.). The title page does not have number but count as page i. Actual page numbering begins with ii on the Abstract page.
      b) Use Arabic numerals beginning with "1" on the first page of the text and continue throughout the rest of the report, including bibliography, and appendices. All pages must be numbered consecutively, including pages containing chapter pages, illustrations, such as tables, figures, plates, and photographs.

Tables and Figures

A number and title must be written below each figure and above each table.

References

Every reference should be mentioned in the text and listed in the references section.

Example:

 "For a fuller description of the ergonomics method the reader is referred to the paper by Wilson (1998)."

References should be listed in the following format in alphabetical order:

Book:
Kuo, W. and Zuo, M.J. (2003). Optimal Reliability Modeling, Principles and Applications. New Jersey: John Willey & Sons, Inc.
Article:
Fu. J.C. (2001). "Distribution of the scan statistic for a sequence of bistate trials," Journal of Applied Probability, 38, 908-916.

Submission of the Reports

Every team will submit one wire-bound copy of the report and a CD including all materials of their project (report, appendices, presentation, any file containing data tables, models or outputs) to their advisor.

Oral Presentation

Each team will prepare two presentations: one in the middle and one at the end of each semester including appropriate slides and handouts. There will be a 15-20 minute oral presentation in front of their Examination Committee. In the middle of the semester the examination committee **will not** include the advisor of the team. At the end of the semester, there will be one session where all professors in the department will evaluate the presentation.

The purpose of the midterm presentation is to monitor the team. We want to make sure that each team started their project and fully defined their problem and its scope. The students are also expected to have literature survey on the topic and identify some relevant solution methods and a road map such as the concrete plan of what they will do through the rest of the semester.

The aim of the final presentation is to defend the project and its output. The presentation is to describe and discuss why each of the critical decisions was made and how it was made. The presentation should describe also the deliverables and the important functionalities of the project.

Attendance to both oral presentations and final examination is compulsory.

Not attending to the final presentation and final examination will be graded as FF.

Poster Presentation

At the end of the second semester, each team is to prepare a poster of size A1 or larger that summarizes both semesters' work and present to participants. The posters will be evaluated by the jury members and the best posters will be awarded.

Poster guidelines:
- Posters should be prepared in English.
- The size should be A1 or larger.
- It should include project title, logos of IEU and the company.
- Posters will be evaluated based on following criteria:
    o Problem Definition and Purpose
    o Methodology
    o Results and Contribution
    o Presentation

Web page

Every team is expected to prepare a web page for their senior project and update it regularly. The webpage should be active from the beginning of the semester.

The web page should include the project title, company, problem definition, methodology, and contribution to the firm as well as progress reports, final report, poster, presentations and other documents related to the project.

Senior Project Development Schedule

The weekly schedule of the senior projects is given below.

1st semester (ISE 497)

Weeks 1-2	Project selection and team formation, coming up with a team name.
Week 3	Project proposal (including project schedule) submission Web page should be up (with basic information) and the address should be emailed to zeynep.sargut@ieu.edu.tr
Weeks 5, 7, 9, 11	Progress report submission
Week 8	Midterm presentation
Week 13	Final Report Submission Midterm Examination
Week 14	Final presentation

2nd semester (ISE 498)

Weeks 3, 5, 7, 9, 11	Progress report submission
Week 8	Midterm presentation
Week 13	Final report submission
	Midterm examination
Week 14	Final presentation
	Poster presentation

Grading Policy

Students will get their grading according to the grading policy given below:

- Advisor evaluation is based on the attendance of the students to the weekly meetings and the contribution of the student to the project.
- Midterm exam evaluates the knowledge of the student about their team's work .

1st semester (ISE 497)

Criterion	Percentage
Advisor evaluation	15%
Progress reports	20%
Final report	25%
Midterm exam	15%
Midterm presentation	5%
Web page	5%
Final presentation	15%

2nd semester (ISE 498)

Criterion	Percentage
Advisor evaluation	15%
Progress reports	20%
Final report	25%
Midterm exam	15%
Final presentation	15%
Poster	10%

IZMIR UNIVERSITY OF ECONOMICS
INDUSTRIAL SYSTEMS ENGINEERING
ISE 497(498) SENIOR PROJECT I (II)

Project Title

Team Members:

Advisor(s):