Introduction to
CS491/2
Senior Design Project I/II

Sep 29, 2021, Wednesday

İbrahim Körpeoğlu
Course Description

- Capstone **design** project
- **Technical** and **innovative**
- **Group** project
- Emphasizing **engineering design** principles on a specific topic in any field of computer science and engineering
  - **creative** components in design
- Two semesters
Course Description

• Students develop their project idea themselves.
• Opportunity to enhance innovation and entrepreneurship skills.
• You should try to use all knowledge and skills you acquired in your computer engineering education. It is a culminating engineering project.

• There will be a project fair at the end as well.
• There will be awards in different categories. Various companies sponsor them.
Steps of a typical project

Idea → Problem → Analysis → Design → Implementation → Test → Product Solution → Maintenance

CS491/2 Senior Design Project
Course Work

- **CS491**
  - Project specification
  - Analysis
  - High level design
  - Oral presentation + demo

- **CS492**
  - Low level design
  - Final report
  - Oral presentation + demo
Process

• Before submitting project specification
  • **Form a team** of 3, 4, or 5 students
  • Come up with an innovative project idea (**The hardest part**)
    • Identify and formulate a novel problem
  • Develop (novel) initial solution ideas
  • Choose a **supervisor**
  • Supervisor:
    • Assesses the project
      • It is a capstone design project
      • Time and number of members suitable
      • It is innovative
    • Then, assigns you to (or you choose) one of the **Innovation Experts**

Choosing Supervisor

- It is upto you to choose and contact a supervisor.
- A supervisor may take upto 3 teams.
- See the current load of supervisors at course webpage

https://www.cs.bilkent.edu.tr/~cs4912/

Looking for Supervisor

A supervisor should be able to supervise upto 3 teams. If a team sees that a supervisor is already supervising 3 teams, then the team should contact to a supervisor with less number of teams. Below you see links to pages of supervisors showing the teams they are committed to supervise.

[Selim Aksoy] [Mehmet Fatih Aktas] [Can Alkan] [Shervin Arashloo] [Ceydet Aykanat] [Fazli Can] [Ercument Cicek] [Hamdi Dibeklioglu] [Ugur Dogrusoz] [Aysegul Dundar] [Ugur Gudukbay] [Cigdem Gunduz Demir] [Altay Guvenir] [Ibrahim Korpeoglu] [Ozcan Ozturk] [Eray Tuzun] [Ozgur Ulusoy]
Meeting with innovation experts

• Prepare a presentation describing your project
• It should last about 20-30 minutes
• Make an appointment
• Visit the innovation expert
• Present your project
• Ask for suggestions
• Have him/her fill the Assessment of Innovativeness Form
Evaluation of Innovativeness

• Innovation expert will fill the following form:
  • Assessment of Innovativeness Form

• Questions:
  • What is the nature of the innovation in the project?
  • Are there similar products, systems, services, or technologies in the market?
    If there are what are the differences in relevant aspects such as cost, efficiency and usability?
  • Who are the potential users?

• Grade: out of 20. It is 20% of your CS491 grade.
• Return the form to your project supervisor.
Important dates for 2021-2022

Written in: https://www.cs.bilkent.edu.tr/~cs4912/

• Below are the specific deadlines set for this academic year.
  • CS491: Project Specification + filled innovation export form + website + info about group and website to dept  
    Oct 11, 2021, Monday, 5pm.
  • CS491: Analysis Report: Nov 8, 2021, Monday, 5 pm.
  • CS491: High-Level Design Report: Dec 24, 2021, 5pm.
  • CS491: Presentation and Demo: Last week of the semester (schedule will be announced later).
    • Running code / prototype
• We will also have deadlines in CS492 next semester. We will announce them in the beginning of the next semester.
  • CS492: Low-Level Design Report: TBD
  • CS492: Final Report: TBD
  • CS492: Presentation and Demo: TBD
  • CS Fair: In May or June.
Use Iterative Model

<table>
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<tr>
<th>Spec (S)</th>
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<th>HLD (D)</th>
<th>LLD (D)</th>
<th>Implement (I)</th>
<th>Test (T)</th>
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from: https://en.wikipedia.org/wiki/Iterative_and_incremental_development
CS492 in Fall

• CS491-492 will be offered once per year.
• CS491 in Fall and CS492 in Spring
CS Fair 2022

• We will have a project fair, called **CS Fair**, at the end 2021-2022 academic year for 2021-2022 projects.
• Date: last week of Spring 2022 or during/after final exams.
• If face-to-face: Bilkent Hotel.
• If online: zoom based organization.

• Various awards.
  • One of them will be “**SUSTAINABILITY AWARD**”
Sustainability Year

• Bilkent declared this academic year as “Sustainability Year”.

Definition of sustainable

1. capable of being sustained

2. a. of, relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged
   // sustainable techniques
   // sustainable agriculture

b. of or relating to a lifestyle involving the use of sustainable methods
   // sustainable society

• You are encouraged to do projects related with Sustainability
Sustainability Considerations

• Additionally, each project will have a sustainability consideration, like global, economic, … considerations.

• Write it in the Analysis Report as a separate sub-section.

  (in Section 4.1 of the Analysis Report): Section 4.1. Consideration of Various Factors in Engineering Design
Project web page by each team

• Each team is required to prepare a webpage for their project.
• It should contain:
  • Description of the project
  • Team members, supervisor, jury members, innovation expert.
  • All reports.
  • Screen shots, demo.

• We will get the URLs of your pages via a Google form that we will send you later.
Seminars

• Meet 1-2 hours per week for seminars.
• This is the first of these seminars.
• Attendance to the seminars is required. There may be a quiz at the end as well.
  • Your attendance + quiz performance will be part of your CS491 grade.
• Seminars are only in CS491.
Related Web Pages

• You can find detailed course information, related documents and forms, and what is expected from teams at the following CS491-2 webpage:
  https://www.cs.bilkent.edu.tr/~cs4912/

• Please read everything very carefully.

• Later we will also set up a CS fair webpage (in Spring semester):
• Seminars will be organized by
  • Prof. Selim Aksoy
  • Asst. Prof. Dr. Mehmet Fatih Aktaş
• Teaching Assistant:
  • Mehmet Özkanoğlu
• CS491 jury members
  • 1) Your Supervisor
  • 2) Asst. Prof. Dr. Shervin Arashloo
  • 3) Asst. Prof. Dr. Hamdi Dibeklioğlu
• Thank you for listening.

• Questions?