



**MIDDLE EAST TECHNICAL UNIVERSITY
DEPARTMENT OF ELECTRICAL &
ELECTRONICS ENGINEERING**

**EE493 - 494
SENIOR DESIGN COURSE SEQUENCE**

INTRODUCING

October 3rd, 2018 - Wednesday

Design Studio Coordinators



Outline

- Objectives of the course
- Course platform
- Project work
- Course timeline
- Watch out!
- This year's projects

Elements of Engineering Training

- Analytical skills
 - System approach
 - Technical perfection
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- Research ability
 - Lifelong learning habit and skills
 - Effective communication skills
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- Creative thinking
 - Project management skills
 - Teamwork ability

Learning Methods

“Passive learning”

theoretical lectures

“Active learning”

laboratory work, homework

Senior Design Course Sequence

Learn by Doing



Objective of the course

- To provide **engineering design experience** for our students through
 - intra and inter-team **collaboration**,
 - physical **project work**, and
 - process **documentation**,
- To provide the ability to **understand and redefine** a given engineering problem and the ability to develop a **conceptual design**,
- To provide students the ability to **communicate** effectively.



Learning outcomes of the course

- Understand fundamentals of design process such as problem redefinition, idea generation, idea evaluation,
- Apply creative thinking for the design of a product,
- Develop the ability to communicate and discuss design ideas,
- The ability to share and fulfill responsibilities within a team,
- Gain the ability to analyze a design problem,
- Resolve interface elements and develop an engineering standard document.

Course Platform

Seminars

Standard
Committees

Studio1

Studio2

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Studio9

DS1.1

DS1.2

DS2.1

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Studio Coordinators

- Ö. Yüksel
- Sect.1 M. Eyüboğlu
- Sect.2 A. Erkmen
- Sect.3 E. Vural
- Sect.4 G. Dural
- Sect.5 A. Tuncay Koç
- Sect.6 E. Özkan
- Sect.7 M. Ankaralı
- Sect.8 S. Korkan
- Sect.9 L. Alatan

Design Studio

Attendance is required for all !...

- Large Group (25-30 people) – Thursdays
 - General discussion on Methodology
- Small Group (5 people) –
 - Company based
- Standard committees (9-10 people) – Thursdays
 - Representatives of each company

Each meeting is an exam



Why a standard committee?

- Need of minimum set of rules for all, to create a common working platform
- Arbitrary and unnecessary rules must be avoided
- Solution variety should **not** be hindered
- Should **not** dictate a solution.

Aim?

- ~~• To come up with a common solution~~
- ~~• Standardized solutions~~
- To make common operation possible



Seminars

Attendance is required for all !...

- Design tools / How to ?
 - Project management
 - Standards
 - Presentation
 - Statistical tools
 - Safety
 - • •
- Invited speakers
 - Transfer of experience
 - Success stories
 - Opportunities after graduation
 - • •

Each seminar will have an in-class QUIZ



Student Presentations

- Written reports
 - Business statement
 - Proposal (incl. ideas on standards)
 - Standard document
 - Conceptual design
 - Weekly progress reports
 - Critical design review report
 - Final report
- **Log-book** (throughout the project, individual, lab-diary!)
- Oral presentation
- Critical module demo
- Implementation demo
- Final demo
- Project fair

Projects, “Companies” and Partners

One of the FOUR **projects**:

- Open ended
 - Encouraging creativity
 - Realistic constraints
 - Not necessarily have comparable difficulty
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- Companies
 - Consist of FIVE partners
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- Partners
 - Share all responsibilities within the “Company” and the expenses
 - Responsible for the progress of the project individually and as a team

How to start a “Company”?

- Recommendations for composition of “Partners”
 - have similar expectations
 - be reliable
 - have complementary skills / talents
 - All partners should be confident for the entire design!
- A company requires professional partnership, it is **not** a social club!
- All “partners” must register to the same section (studio)



Immediate tasks you should take care of:

- Assemble your team, fill in the **Team Application Form**
- Slide the form under the office (Rm: C-208) door of **Dr. Elif Vural** before **October 5th, Friday 16:40**
- Results will be announced on **October 9th, Tuesday**
- Attend your first lecture according to your section **October 10th, Wednesday 15:40**
- The following **October 11th, Thursday 16:40** you **MUST** join the **meeting with your Design Studio Coordinator**

Project Work

- A year long process!
- Conceptual design to production and demo
- Project management
- Written documentation & oral presentation

Budget

- Partners should share the project expenses.
- Final product cost limit: **200 USD**
 - Sponsorship
- Laptops or PC's **are not** included in the project cost.



Business Statement Report

- Company info
 - Mission / Vision
 - Human resources
 - Composition
 - CV's
- 4 projects
 - redescribe
 - interpret
 - Put under a microscope
- Tentative work plan
 - scheduling
 - task allocation

Design studio laboratory

- **Design studio laboratory (DSL) (E-block basement)** is equipped with basic measurement devices.
- **Test room** with specific equipment (inside DSL) – by booking in advance.
- Sustainability
- Clean working environment
- Safety
- Emergency
- Sharing common space
- Student property

Who can / must take this course ?

- Who are expected to graduate 2019-20 fall semester or before,

and
- those who have passed **EE 313** and at least **two of** EE302, EE314, EE361
- All EEE seniors who wish to graduate from this dept. must take this course sequence.

Important Milestones:

| | | |
|-------------------------|---|---|
| Business Statement | : | October 19 th |
| Proposal | : | November 9 th |
| Standard report | : | December 7 th |
| Module demo | : | December 17 th -21 st |
| Conceptual design rept. | : | December 26 th |
| Oral presentation | : | Dec 27 th - Jan 4 th |

START WORKING & ENJOY!

Don't rush ≠ Sit & wait

Don't rush = Think!

Create ideas

Create more ideas

Compare & contrast

Test as necessary

Make sure you are on the right track!





Thank you for your attention.