GE 401 – 402 INNOVATIVE DESIGN AND ENTREPRENEURSHIP I-II

2023 – 2024 Course Presentation

M. Alper KUTAY

September 14, 2023, Thursday
GE 401 Innovative Design and Entrepreneurship I – Course Description

Sequence of two courses GE 401: Fall, GE 402: Spring

From the conception of an idea to a marketable end product within the framework of a simulated start-up company. Inception of a start-up company. Entrepreneurial processes, business plan preparation; fundamentals of project management; product design stages; incorporation of standards, quality directives, social and environmental factors. Seminars by experts in the field. Concept demonstration of the end-product.

Prerequisites: Each department has its own prerequisites.
GE 401 Innovative Design and Entrepreneurship I – Course Description

- This is a 3 credit course (per semester)
- This is a two-semester long course: GE401 and GE402 must be taken consecutively.
- Multidisciplinary course: 7 different departments from 4 different faculties
GE 401 – 402 Participating Departments

- Communication and Design
- Computer Engineering
- Economics
- Electrical Engineering
- Graphic Design
- Industrial Engineering
- Management
GE401 and GE402 can be taken as:

- **In Computer Engineering;** Senior Project Elective. Alternative: CS491 – CS492 sequence,

- **In Electrical Engineering;** Senior Project Elective. Alternatives: EE491 and EEE495 or EEE493 – EEE494 sequence,

- **In Industrial Engineering;** Senior Project Elective. Alternative: IE477 – IE478 sequence,
GE401 and GE402 can be taken as:

- In Communication and Design; Restricted/Unrestricted Elective courses,
- In Economics; Restricted/Unrestricted Elective courses,
- In Graphic Design; Restricted Elective courses,
- In Management; Unrestricted Major Elective courses,
GE 401 – 402 Prerequisites - Important

• EE Students:
  • EEE212 – Microprocessors
  • EEE313 – Electronic Circuit Design
  • EEE321 – Signals and Systems

• CS Students:
  • CS202 – Fundamental Structures of Computer Science II
  • CS319 – Object-Oriented Software Engineering

• IE Students;
  • IE272 – Manufacturing Processes and Operations Analysis
  • IE375 – Production Planning
GE 401 – 402 Prerequisites

- **COMD Students:**
  - COMD282 - Media and Design Studio II
- **ECON Students:**
  - ECON301 – Econometrics I
- **GRA Students:**
  - GRA301 – Graphic Design III
- **MAN Students:**
  - MAN321 – Corporate Finance
Instructors (2023 – 2024):

- **COMD**: Jülide AKŞİYOTE GÖRÜR  aksiyote@bilkent.edu.tr
- **CS**: H. Altay GÜVENİR  guvenir@cs.bilkent.edu.tr
- **EE**: M. Alper KUTAY  kutay@ee.bilkent.edu.tr
- **IE**: Yiğit KARPAT  ykarpat@bilkent.edu.tr
- **MAN**: Tolga BAYCAN  baycan@bilkent.edu.tr
- **MAN**: Örsan ÖRGE  orsan@bilkent.edu.tr
GE 401-402 Innovative Design and Entrepreneurship I – II, Course Objectives

- Foster your innovation and entrepreneurial skills;
- Enhance your ability of assessing the commercial viability of a new, technology based idea;
- Learn basic processes/activities of a start-up company;
- Develop identity for your team (name, logo, webpage etc);
GE 401-402 Innovative Design and Entrepreneurship I – II,
Course Objectives

• Develop business plans;
• Learn/apply product development processes;
• Understanding of the processes of bringing new knowledge or new technology to the market;
• Participate in an multidisciplinary project team.
GE 401-402 Innovative Design and Entrepreneurship I – II, Course Objectives

• Capstone Design Course for CS, EE, IE departments
  ▪ Identify and formulate an engineering problem by specifying requirements and constraints
  ▪ Design an engineering system/product to meet these specifications/requirements within constraints
GE 401-402 Innovative Design and Entrepreneurship I – II, 
Course Objectives

- Capstone Design Course for CS, EE, IE departments
  - Implement the design on a hardware and test it against requirements/specifications by performing appropriate observations and measurements
  - Apply project management and execution methodology
  - Apply configuration management and quality
Team Structure

- Students form their team
- Maximum of 6 Students, Minimum of 5 students
- Students from at least 3 different departments in the team
- At least three (3) students from CS or EE departments
- Total of maximum two (2) students from MAN and ECON
- Total of maximum one (1) student from GRA and COMD
Team Structure

- Diversity is desired to promote multidisciplinary structure
- YOU FORM YOUR TEAM
- Team composition will be evaluated by instructors of the course

- Team Formation Meeting: September 14, 2023, @18:00, at EE-05
Project Idea

- Students propose technology based/innovative ideas. YOU DEVELOP IDEAS!
- Project: identifying and validating the need/problem of a target customer; formulating the solution by specifying the product; design, development, testing of this product; business plan development, identity development for your team
- Instructors act as advisors/mentors to the students
Project

• Students propose a project idea.

• Value proposition is very important:
  • Who will use? (Target customer/consumer)
  • For what? (Problem/need or opportunity associated with target customer and your initial solution)
  • Why should they use/prefer your product? (Comparison with competitors/available solutions with your key differentiation)
Project

• Students propose a project idea
• Focus your ideation efforts in one of the following domains:
  1. Education
  2. Environment and climate change (including natural disasters)
  3. Agriculture / Farming / Gardening
  4. Energy
• Consider target customer (customer segment) who are easy to reach!
Project

- Students propose a project idea
- You will mature/pivot your idea through the entrepreneurial process and finalize your idea and requirements
- Work on different functions of a running startup company while realizing the project
- Complete, demonstrate and validate the product with your customer segment at the end of the year (This is a must!)
Course Structure/Activities

• Project Idea Proposition
  • Target Customer
  • Problem/need of the target customer
  • Your solution, proposition
  • Comparison with competitors with your key differentiation

• Revision/Validation of your idea (Entrepreneurial Process)
  • Customer interviews
  • Hypothesis testing
  • Revision of your hypothesis
  • Validation of your hypothesis
Course Structure/Activities

• Defining your product in detail
  • Requirements (basic functions and operational/performance requirements)
  • Specifications (technical description of your product)

• Developing identity of your team/company
  • Name (company/product)
  • Logo (company/product)
  • Communications templates etc.

• Business Plan
  • Organizational plan
  • Marketing Plan
  • Financial Plan
Course Structure

• Design and Development of your Product
  • QFD and technical specifications
  • Design
  • Development
  • Test
  • Quality

• Quality and Configuration Processes
  • Team Meetings
  • Quality Plan
  • Configuration Plan

Course web page: http://ge402.bilkent.edu.tr
Grading

- Each activity will be graded,
- Grade types:
  - Team grades (examples):
    - Entrepreneurial process grades,
    - Presentation grades,
    - Some Reports grades
    - Final report grades
  - Individual grades, examples:
    - Product Development, Business plan, Quality/Config. etc.
    - Peer grades
    - Lab grades
Grading

• Total Grade Point:

  Team grade + Individual Grade + Peer Grade;

• Total Grade Point: a guiding number for letter grades. The letter grades will be decided by the all course instructors taking into account the student's total grade point and his/her performance at his/her discipline
Peer Grades

- Students evaluate their teammates at the end of each term,
- The evaluation must be impartial and unbiased,
- Each student must contribute to the team as much as possible and the contribution must be reflected in the peer grades
Course Organization

- Course hours: Wednesdays (10:30 – 12:20), Fridays (15:30 – 17:20)
- SEMINARS (Wednesdays/Fridays)
- WORKSHOPS (Wednesdays/Fridays)
- VIRTUAL STOCK MARKET (second semester)
- PRODUCT DEMONSTRATIONS (Fridays)
Course Organization

• COACHING:
  • Each activity will be coached/mentored by the corresponding discipline
  • Meetings with instructors from EE, CS, IE, MAN and COMD
  • Team members responsible from Product Development will meet regularly on Fridays at 15:30 starting from 9th week in the Fall semester
Benefits to Students

• This course gives you the chance to work in a simulated start-up company environment from its inception!
• Learn diverse aspects of turning your tech idea to a marketable product
• Multidisciplinary/interdisciplinary collaboration
• Project and team (especially multidisciplinary) management,
• Simultaneous emphasis on the originality and the marketability of an idea
Benefits to Students

• Hands-on project execution experience
• Up-to-date information from distinguished speakers on practical matters of forming and running a company, developing a tech-based idea
• Teams who are accepted to take this course and register to BİGG Marka will be directly eligible to take first phase training of BİGG program
• Other funding mechanisms are available
How to proceed?

• Form your team

• Develop tech-based start – up ideas on given topics

• Fill in proposal form(s) for your idea(s)

• You will present your ideas and we will discuss them next week.
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<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>14.09.2023</td>
<td>12:30 - 13:20</td>
<td>Course Introduction Presentation (Mithat Çoruh Auditorium)</td>
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<tr>
<td>14.09.2023</td>
<td>18:00 - 19:00</td>
<td>Team formation meeting (All students should attend, regardless of they’ve already formed a team or not EE-05)</td>
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<tr>
<td>17.09.2023</td>
<td>23:59</td>
<td>Team lists are submitted (by e-mail to <a href="mailto:kutay@ee.bilkent.edu.tr">kutay@ee.bilkent.edu.tr</a>)</td>
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# Plan of First 9 days

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<tr>
<th>Date</th>
<th>Event</th>
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<tr>
<td>18.09.2023 Mon</td>
<td>Feedback sent to teams by e-mail</td>
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<td>(23:00)</td>
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<tr>
<td>20.09.2023 Wed</td>
<td>The last day of add/drop. <strong>Members of accepted teams register to this course</strong></td>
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<td>Students who don’t have a team drop the course</td>
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<td>20.09.2023 Wed</td>
<td><strong>Course Organization Presentation</strong></td>
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<td>(10:30 – 11:20)</td>
<td><strong>EE – 01</strong></td>
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<td>22.09.2023 Fri</td>
<td><strong>Idea Proposal Presentations by teams</strong></td>
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Team List

- Each team should submit names, departments and contact information of team members
- **Until 23:59, September 17, 2023 to me (kutay@ee.bilkent.edu.tr) by e-mail**
- Include all team members as CC in the e-mail
Project Idea Proposal Form

- Each team can submit up to 3 project ideas
- Submit your project ideas until 23:59, September 22, 2023 to me (kutay@ee.bilkent.edu.tr) by e-mail
- Include all team members as CC in the e-mail and send all your proposals in one e-mail
- You can download project idea proposal template from the webpage of the course: http://ge402.bilkent.edu.tr/
- You will present your ideas to the class on September 22, 2023 in EE-01
Project Idea Proposal Form

PROJECT IDEA PROPOSAL
(Team number 1)

Date:
Team and team composition:

<table>
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<tr>
<th>Student ID</th>
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You can download project proposal template from the webpage of the course: http://ge402.bilkent.edu.tr/
Course Webpage

Bilkent University

GE401-402: Innovative Design and Entrepreneurship I-II

Announcements

- **18.09.2018** -- Welcome New Students! You can find some updated information about the course from [here](#).
- **18.09.2018** -- You can download the template for the project proposal from [here](#).
- **18.09.2018** -- Time table of the first week
- **18.09.2018** -- Course introduction presentation will be held at EE - 01 auditorium on September 24, 2018 between 12:30 and 13:30

Contact
For questions and comments:

kutay@ee.bilkent.edu.tr

This page was last updated: Tuesday 20:51, September 18, 2018
Where To Look For Ideas

- Internet (Just for inspiration)
- TÜBİTAK: http://www.tubitak.gov.tr/tr(destekler/sanayi/ulusal-
destek-programlari/icerik-1512-teknogirisim-sermayesi-
destegi-programi-bigg
- FP7 and H2020
  http://ec.europa.eu/programmes/horizon2020/
- Eurostars – Eureka
  https://www.eurostars-eureka.eu
- NSF SBIR
  http://www.nsf.gov/eng/iip/sbir/
Thank You