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-term course, ie: 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
GE 401-402 Innovative Design and Entrepreneurship I – II,
Course Objectives

• Foster your innovation and entrepreneurship abilities
• Enhance your ability of assessing the commercial viability of a new technology based idea.
• Understanding of processes of bringing new knowledge or new technology to the market.
• Developing business plans
• Participate in a 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
GE401 and GE402 can be taken as:

- **In Electrical Engineering;** Project Elective: EE491 and EEE495 sequence or EEE493 – EEE494 sequence,
- **In Computer Engineering;** Project Elective: CS491 – CS492 sequence,
- **In Industrial Engineering;** Project Elective: IE477 – IE478 sequence,
- **In Management;** Unrestricted Major elective courses,
GE401 and GE402 can be taken as:

- In Graphic Design; Restricted Elective courses,
- In Communication and Design; Elective courses,
- In Economics; Restricted and Unrestricted Elective courses.
GE 401 – 402 Prerequisites

- 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:
  - IE271 – Operations Analysis and Design
  - IE375 – Production Planning
GE 401 – 402 Prerequisites

- **MAN Students:**
  - MAN321 – Corporate Finance
- **ECON Students:**
  - ECON301 – Econometrics I
- **GRA Students:**
  - GRA301 – Graphic Design III
- **COMD Students:**
  - COMD305 – Digital Video Production I
Lecturers:

- COMD: Julide AKSİYOTE  
  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: Örsan Örge  
  orsan@bilkent.edu.tr
- MAN: Tolga BAYCAN  
  baycan@bilkent.edu.tr
Team Structure

- Maximum of 6 Students, Minimum of 4 students
- Students from at least 3 different departments in the team
- Total of 2 students from MAN and ECON
- Total of one student from GRA and COMD
- Maximum one student from Industrial Engineering Department if there is MAN student in the team
- **Maximum of 2 Students from a single department**
- Diversity is desired to promote multidisciplinary structure

TEAM FORMING MEETING today, 17:30 – 19:00, EE - 05
The Project

• Students propose a project idea.
• Project: identifying the need/problem of target customer, formulating the solution by specifying the product, design, development, testing of this product, activities
• Lecturers act as advisors to the students
• Sell the idea to course lecturers and get venture capital.
The Project

• **Students propose a project idea.**

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

• Students propose a project idea

• Work on different functions of running a company while realizing the project

• Complete, demonstrate and validate the product at the end of the year (This is a must)
The Project Idea

- Innovative!
- Innovative means – examples:
  - A new idea,
  - A new process,
  - An idea that makes production easier or makes life easier for mankind
  - To sum up; something that makes life easier for the mankind-i.e., something that makes money or saves money.
The Project

- Students are encouraged to develop ideas and projects that are not commonplace and that is expected to produce wealth if realized either in Turkey or in the World.

- Projects must contain enough technical content, which will fulfill the senior project requirements of EE and CS departments.

- Projects must be conducted in such a manner that will fulfill the senior project requirements of IE department.

- Projects must be conducted in such a manner that is acceptable to ECON, MAN, GRA and COMD departments for their students to participate.
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
  • Customer interviews
  • Hypothesis testing
  • Revision of your hypothesis
  • Validation of your hypothesis
Course Structure

• Specification of your product
  • 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.
Course Structure

• Initial Business Plan
  • Organizational plan
  • Marketing Plan

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

Course introductory web page: [http://ge402.bilkent.edu.tr](http://ge402.bilkent.edu.tr)
We will be using Moodle throughout the year for the course.
Course Organization

• SEMINARS
• WORKSHOPS
• STOCK MARKET
• COACHING:
  • Each activity will be coached by the corresponding discipline
  • Meetings with lecturers from EE, CS, IE, MAN and COMD
  • EE and CS students meet regularly at EE102 on Fridays at 15.40
  • EE and CS students can work on their projects at EE102 during free hours (7/24 allocated table for each team)
  • Graded in the discipline for about 40%
Benefits to Students

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

• Hands-on project execution experience
• Broadened student vision of the working environment
• Early work experience-company orientation starting at senior level
• Up-to-date information from distinguished speakers on practical matters of forming and running a company
• Teams who are accepted to take this course and register to BİGG Marka will be eligible to take first phase training of BİGG program
• Other funding mechanisms will be available