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-term course, ie: GE401 and GE402 must be taken consecutively.
• Multidisciplinary/interdisciplinary 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; Project Elective.** Alternative: CS491 – CS492 sequence,

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

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

- In Communication and Design; Elective courses,
- In Economics; Restricted and Unrestricted Elective courses.
- In Graphic Design; Restricted Elective course,
- In Management; Unrestricted Major elective course,
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:**
  - IE271 – Operations Analysis and Design OR IE272 – Manufacturing Processes and Operations Analysis
  - IE375 – Production Planning
GE 401 – 402 Prerequisites

• MAN Students:
  • MAN321 – Corporate Finance

• ECON Students:
  • ECON321 – Econometrics I

• GRA Students:
  • GRA301 – Graphic Design III

• COMD Students:
  • COMD305 – Digital Video Production I
Instructors (2020 – 2021):

• 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:  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 entrepreneurship abilities
- 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 processes of bringing new knowledge or new technology to the market.
• Participate in an interdisciplinary 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
• Maximum of 2 Students from a single department
• Total of maximum 2 students from MAN and ECON
• Total of maximum one student from GRA and COMD
Team Structure

- Maximum one student from Industrial Engineering Department if there is MAN or ECON student in the team
- Diversity is desired to promote multidisciplinary structure
- YOU FORM YOUR TEAM

Team Formation Meeting: Today (September 16, 2020), at 15:00, ONLINE:
https://zoom.us/j/2160463180?pwd=M3FocVNFeVVSMmZQb1hqVjhydTQrUT09
Project Idea

• Students propose project ideas. YOU DEVELOP IDEAS!

• Project: identifying and validating the need/problem of 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)
  - 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

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

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

• Tech-based and 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.
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
  - 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
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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 Documents, Business plan 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 – 11:20), Fridays (13:40 – 17:00)

• SEMINARS (Wednesdays/Fridays)

• WORKSHOPS (Wednesdays/Fridays)

• VIRTUAL STOCK MARKET (second semester)

• DEMONSTRATIONS (Wednesdays - Fridays)
Course Organization

• COACHING:
  • Each activity will be coached/mentored by the corresponding discipline
  • Meetings with instructors from EE, CS, IE, MAN and COMD
  • EE and CS students will meet regularly at EE102 on Fridays at 14:40 starting from 10th week
  • EE and CS students can work on their projects at EE102 during free hours (7/24 allocated table for each team)
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
• Interdisciplinary collaboration
• Project and team (especially interdisciplinary) 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 will be available
How to proceed?

• Form you team
• Develop tech-based start – up ideas
• Fill in proposal form(s) for your idea(s)

• We will meet and evaluate your ideas next week.
## Plan of First 7 days

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<th>Date</th>
<th>Time</th>
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<tr>
<td>16.09.2020</td>
<td>Wednesday</td>
<td>Course Presentation online (Zoom Link: <a href="https://zoom.us/j/2160463180?pwd=M3FocVNFeVVSMmZQb1hqVjhydTQrUT09">https://zoom.us/j/2160463180?pwd=M3FocVNFeVVSMmZQb1hqVjhydTQrUT09</a>)</td>
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<td>16.09.2020</td>
<td>Wednesday</td>
<td>Team formation meeting online (All students should attend, regardless of they’ve already formed a team or not)</td>
<td>Zoom Link: <a href="https://zoom.us/j/2160463180?pwd=M3FocVNFeVVSMmZQb1hqVjhydTQrUT09">https://zoom.us/j/2160463180?pwd=M3FocVNFeVVSMmZQb1hqVjhydTQrUT09</a>)</td>
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<td>18.09.2020</td>
<td>Friday</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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<td>21.09.2020</td>
<td>Monday</td>
<td>Brief project idea proposals with value propositions 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 7 days

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<tr>
<th>Date</th>
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<tr>
<td>21.09.2020</td>
<td>Decisions sent to teams by e-mail</td>
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<td>22.09.2020</td>
<td>The last day of add/drop. <strong>Members of successful teams register to this course</strong></td>
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<td>23.09.2020</td>
<td>Course Organization Presentation online</td>
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Team List

- Each team should submit names, departments and contact information of team members
- Until 22:00, September 18, 2020 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 14:00, September 21, 2020 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/
Project Idea Proposal Form

PROJECT IDEA PROPOSAL
(Team number 1)

Date:
Team and team composition:

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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
2018-2019

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:

[kutsay@ee.bilkent.edu.tr](mailto:kutsay@ee.bilkent.edu.tr)

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

• Internet (Just for inspiration)
• GE 401 – 402 web site: http://ge402.bilkent.edu.tr/
• 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