

GE 401 – 402 INNOVATIVE DESIGN AND ENTREPRENEURSHIP I-II

2018 – 2019 Fall Course Presentation

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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 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,
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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 Öрге 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)
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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>

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 BiGG Marka will be eligible to take first phase training of BiGG program**
- **Other funding mechanisms will be available**