**İTÜ**

**DERS programı FORMU**

**(Course syllabus ForM)**

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| **Course Name** | | | | | | |
| Senior Design Project | | | | | | |
| **Code** | **Semester** | **Local Credits** | **ECTS Credits** | **Course Implementation, Hours/Week** | | |
| **Theoretical** | **Tutorial** | **Laboratory** |
| TEK 4901E | Fall | 4 |  | 1 | 6 | 0 |
| **Department/Program** | Textile Engineering/ Textile Engineering | | | | | |
| **Course Type** | Compulsory | | **Course Language** | English | | |
| **Course Prerequisites** | For senior students only | | | | | |
| **Course Category**  **by Content, %** | **Basic Sciences** | **Engineering Science** | | **Engineering Design** | **General Education** | |
|  |  | | 100 |  | |
| **Course Description** | The course requires students to work in small design teams to solve an engineering problem. Students create, design potential solutions to the engineering issue in collaboration with the Faculty Advisor. The course reinforces the concepts of the engineering design process and acts as a foundation for Textile engineering skills gained in the Textile engineering curriculum. The ethical and social implications of technology and the basic concepts of business are also aspects of the course. Each student design team is expected to present information on their project in both written and oral formats. This course includes a project proposal presentation with a comprehensive written report documenting the design and analysis. | | | | | |
| **Course Objectives** | 1.To provide the opportunity for the students to gain experience on all aspects and phases of design within the framework of an engineering problem,  2.To develop the creativity of the students and promote teamwork,  3.To help the students develop professionally and ethically,  4.To bring the students in improved oral and written communication skills. | | | | | |
| **Course Learning Outcomes** | At the end of this project, the students are expected to demonstrate:  I.Knowledge and experience on design methodology  II.Experience gained on;   * Problem definition * Searching and using information * Alternative concept development * Concept selection * Evaluation of concepts   through the open-ended design project conducted.  III.Teamwork experience gained by working in groups of 2-4 students.IV.Consciousness on professional ethics | | | | | |
| **Textbook** | No textbook is required or recommended; however, use of engineering handbooks is encouraged | | | | | |
| **Other References** | G.E. Dieter, “Engineering Design”3.ed.,McGraw Hill, 1999.  K.T. Ulrich, S.D. Eppinger, “Product Design and Development”, McGraw Hill, 1995.  J.Wilson, “ Handbook of Textile Design”, Woodhead Publishing L.,2001.  B.J.Collier, “Understanding Textiles”, Prentice Hall PTR,2000.  “The Design Logic of Textile Products”, Textile Progress, Vo.27, No.3, The Textile Institute, | | | | | |
| **Homework & Projects** | A design project proposal preparation covering the whole semester will be conducted. The project work will be performed in teams, and every team will have a project topic and adviser (faculty or instructor) assigned. The students will be given the chance to form their teams, and select their own project topics as well as advisers. | | | | | |
| **Laboratory work** |  | | | | | |
| **Computer Use** | Computers will be used in preparing the project report, performing the necessary design calculations, making technical drawings and presenting the whole work. | | | | | |
| **Other Activities** | By the end of the semester, the adviser will evaluate the project report or file and decide if the project is satisfactorily complete for the proposal presentation.  The proposal presentations of the satisfactorily completed projects are performed in front of a jury formed of Department members and also open to other faculty, visitors and students. The team will make the presentations and all the team members will be ready to reply the questions of the jury. The jury that also includes the adviser will make the grading team wise.and the proposal is supposed to include:  -presentation of the engineering problem/subject/assignment  -definition of design problem and constraints  -theoretical knowledge, literature, standards, patents  -alternative design options and selection criteria  -Optimum design solution with appropriate selecton decisions  -cost analysis, feasibility, compatibility with related standards and regulations, environmental effects, ethical and legal concerns.  The adviser organizes weekly meetings with the team following the project progress. During the semester, the individual team members are supposed to prove the progress in their work by making at least one oral presentations (with slides, drawings etc.) and prepare the Logbook.  -Other requirements: regular meetings with the faculty advisor and industry representatives,timely submission of progress reports, and informal and formal presentation of the design, including a proposal presentation at the end of the semester. | | | | | |
| **Assessment Criteria** | **Activities** | | **Quantity** | | **Effects on Grading, %** | |
| **Midterm Exams** | |  | |  | |
| **Quizzes** | |  | |  | |
| **Homework** | |  | |  | |
| **Projects** | |  | |  | |
| **Term Paper/Project** | |  | |  | |
| **Laboratory Work** | |  | |  | |
| **Other Activities** | |  | |  | |
| **Final Project Presentation** | | 1 | | 100 | |

**Relationship between the Course and TEXTILE Engineering Curriculum**

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|  | **Student outcomes** | **Level of Contribution** | | |
| **1** | **2** | **3** |
| **1** | An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics |  | x |  |
| **2** | an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors |  |  | x |
| **3** | an ability to communicate effectively with a range of audiences |  | x |  |
| **4** | an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts |  | x |  |
| **5** | an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives |  | x |  |
| **6** | an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions | x |  |  |
| **7** | an ability to acquire and apply new knowledge as needed, using appropriate learning strategies |  | x |  |
| 1: Little, 2. Partial, 3. Full | | | | |

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| *Düzenleyen (Prepared by)* | Tarih (Date) | İmza (Signature) |