Form No: ÜY-FR-0267

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|  | **ECTS Course Description Form** | | | | | | | | | | | | | | | | | | | | | | |
| **PART I ( Senate Approval)** | | | | | | | | | | | | | | | | | | | | | | | |
| **Offering School** | College of Engineering | | | | | | | | | | | | | | | | | | | | | | |
| **Offering Department** | Civil Engineering | | | | | | | | | | | | | | | | | | | | | | |
| **Program(s) Offered to** | *Civil Engineering* | | | | | | | | | | | | | *Must* | | | | | | | | | |
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|  | | | | | | | | | | | | |  | | | | | | | | | |
| **Course Code** | CE 212 | | | | | | | | | | | | | | | | | | | | | | |
| **Course Name** | Construction Materials | | | | | | | | | | | | | | | | | | | | | | |
| **Language of Instruction** | English | | | | | | | | | | | | | | | | | | | | | | |
| **Type of Course** | Lecture | | | | | | | | | | | | | | | | | | | | | | |
| **Level of Course** | Undergraduate | | | | | | | | | | | | | | | | | | | | | | |
| **Hours per Week** | **Lecture:** 2 | | | | | | **Laboratory:2** | | | | **Recitation:** - | | | | | | **Practical:-** | | | | | | |
| **ECTS Credit** | 4 | | | | | | | | | | | | | | | | | | | | | | |
| **Grading Mode** | Letter Grade | | | | | | | | | | | | | | | | | | | | | | |
| **Pre-requisites** | CE 211 | | | | | | | | | | | | | | | | | | | | | | |
| **Co-requisites** | - | | | | | | | | | | | | | | | | | | | | | | |
| **Registration Restriction** | - | | | | | | | | | | | | | | | | | | | | | | |
| **Educational Objective** | This course is designed for students to introduce various materials used in the construction industry and to make a concrete mixture calculation. After making general definitions in construction materials, students will have knowledge about materials and product manufacturing techniques and design concrete mix. | | | | | | | | | | | | | | | | | | | | | | |
| **Course Description** | Introduction to building materials, aggregates, binding materials: lime, gypsum, cement, pozzolans, additives, factors affecting concrete and concrete strength, properties of fresh concrete, concrete mixture calculation, concrete production, hardened concrete properties, bricks, building blocks, portland cement, ferrous metals are the presented in the course. | | | | | | | | | | | | | | | | | | | | | | |
| **Learning Outcomes** | **LO1** | | | To be able to list the basic definitions related to building materials.  To be able to distinguish the properties of pozzolans and portland cement binders.  To be able to comprehend detailed information about concrete and concrete aggregate is provided as building material.  To be able to make concrete mixture calculation.  To be able to identify the behavior of bricks and building blocks.  To be able to grasp the properties of ferrous metals. | | | | | | | | | | | | | | | | | | | |
| **LO2** | | |
| **LO3** | | |
| **LO4** | | |
| **LO5** | | |
| **LO6** | | |
| **PART II ( Faculty Board Approval)** | | | | | | | | | | | | | | | | | | | | | | | |
| **Basic Outcomes**  **(University-wide)** | **No.** | | | **Program Outcomes** | | | | | | | | | **LO1** | | **LO2** | **LO3** | | **LO4** | | **LO5** | | | **LO6** |
| **PO1** | | | **Ability** to communicate effectively and write and present a report in Turkish and English. | | | | | | | | | LO1, LO2, LO3, LO4, LO5, LO6  LO2, LO3, LO5  LO2, LO3, LO4, LO5  LO2, LO3, LO4, LO5, LO6  LO4, LO5, LO6  LO4, LO5, LO6  LO4 LO5, LO6  LO4, LO5, LO6  LO2, LO3, LO4, LO5, LO6  LO2, LO3, LO4, LO5, LO6  LO3, LO4, LO5, LO6 | | | | | | | | | | |
| **PO2** | | | **Ability** to work individually, and in intra-disciplinary and multi-disciplinary teams. | | | | | | | | |
| **PO3** | | | **Recognition** of the need for life-long learning and **ability** to access information , follow developments in science and technology, and continually reinvent oneself. | | | | | | | | |
| **PO4** | | | **Awareness** of sectors and **ability** to prepare a business plan. | | | | | | | | |
| **PO5** | | | **Understanding** of professional and ethical responsibility and **demonstrating** ethical behavior. | | | | | | | | |
| **Faculty Specific Outcomes** | **PO6** | | | Ability to develop, select and use modern techniques and tools necessary for engineering applications and ability to use information technologies effectively. | | | | | | | | |
| **PO7** | | | Recognition of the effects of engineering applications on health, environment and safety in the universal and societal dimensions and the problems of the time and awareness of the legal consequences of engineering solutions. | | | | | | | | |
| **PO8** | | | Ability to identify, define, formulate and solve complex engineering problems; and electing and applying appropriate analysis and modeling methods for this purpose. | | | | | | | | |
| **Discipline Specific Outcomes (program)** | **PO9** | | Sufficient knowledge in mathematics, science and civil engineering; and the ability to apply theoretical and practical knowledge in these areas to model and solve engineering problems. | | | | | | | | | |
| **PO10** | | Ability to design a complex system, process, device or product to meet specific requirements under realistic constraints and conditions of economic, environmental, sustainability, manufacturability, ethics, health, safety, social and political issues; and the ability to apply modern design methods for this purpose. | | | | | | | | | |
| **PO11** | | Ability to design experiments, conduct experiments, collect data, analyze and interpret results for the examination of civil engineering problems. | | | | | | | | | |
| **PART III ( Department Board Approval)** | | | | | | | | | | | | | | | | | | | | | | | |
| **Course Subjects, Contribution of Course Subjects to Learning Outcomes, and Methods for Assessing Learning of Course Subjects** | **Subjects** | **Week** | | |  | | | | | **LO1** | | **LO2** | | | **LO3** | | **LO4** | | **LO5** | | **LO6** | | |
| **S1** | 1 | | | Introduction to Construction Materials | | | | | A1-A2 | | A1-A2 | | | A1-A2 | | A1-A2 | | A1-A2 | | A1-A2 | | |
| **S2** | 2 | | | Concrete Ingredients | | | | | A1-A2 | | A1-A2 | | | A1-A2 | | A1-A2 | | A1-A2 | | A1-A2 | | |
| **S3** | 3 | | | Manufacture of cement | | | | | A1-A2 | | A1-A2 | | | A1-A2 | | A1-A2 | | A1-A2 | | A1-A2 | | |
| **S4** | 4 | | | Aggregates | | | | | A1-A2 | | A1-A2 | | | A1-A2 | | A1-A2 | | A1-A2 | | A1-A2 | | |
| **S5** | 5 | | | Blended concrete | | | | | A1-A2-A5 | | A1-A2-A5 | | | A1-A2-A5 | | A1-A2-A5 | | A1-A2-A5 | | A1-A2-A5 | | |
| **S6** | 6 | | | Pozzolan and admixtures | | | | | A1-A2-A5 | | A1-A2-A5 | | | A1-A2-A5 | | A1-A2-A5 | | A1-A2-A5 | | A1-A2-A5 | | |
| **S7** | 7 | | | Concrete properties | | | | | A1-A2-A5 | | A1-A2-A5 | | | A1-A2-A5 | | A1-A2-A5 | | A1-A2-A5 | | A1-A2-A5 | | |
| **S8** | 8 | | | Fresh concrete | | | | | A1-A2 | | A1-A2 | | | A1-A2 | | A1-A2 | | A1-A2 | | A1-A2 | | |
| **S9** | 9 | | | Hardened concrete | | | | | A1-A2 | | A1-A2 | | | A1-A2 | | A1-A2 | | A1-A2 | | A1-A2 | | |
| **S10** | 10,11 | | | DOE mix design | | | | | A1-A2 | | A1-A2 | | | A1-A2 | | A1-A2 | | A1-A2 | | A1-A2 | | |
| **S11** | 12 | | | Metallic materials | | | | | A1-A2 | | A1-A2 | | | A1-A2 | | A1-A2 | | A1-A2 | | A1-A2 | | |
| **S12** | 13 | | | Steel | | | | | A1-A2 | | A1-A2 | | | A1-A2 | | A1-A2 | | A1-A2 | | A1-A2 | | |
| **S13** | 14 | | | Bricks and Blocks | | | | | A1-A2 | | A1-A2 | | | A1-A2 | | A1-A2 | | A1-A2 | | A1-A2 | | |
| **Assessment Methods, Weight in Course Grade, Implementation and Make-Up Rules** | **No** | **Type** | | | | | | **Weight** | | A1-A2 | | | | | | A1-A2 | | | | | | | |
| **A1** | **Exam** | | | | | | 80% | | No electronic equipment is allowed in the exams except the calculators. | | | | | | If the student's special situation is justified or the report is accepted by the university, he/she is informed about the time of the make-up exam. | | | | | | | |
| **A2** | **Quiz** | | | | | | 10% | | Time and subject coverage is notified to students at least one week in advance. | | | | | | There is no compensation for quiz exams. | | | | | | | |
| **A3** | **Homework** | | | | | | - | | Homework is given by specifying the deadline. Homeworks submitted after the deadline are not accepted. | | | | | | There is no compensation for homework. | | | | | | | |
| **A4** | **Project** | | | | | | - | |  | | | | | |  | | | | | | | |
| **A5** | **Report** | | | | | | 10% | | Reporting of laboratory experiments as specified by the instructor and the course's academician | | | | | | There is no compensation for reports | | | | | | | |
| **A6** | **Presentation** | | | | | | - | |  | | | | | |  | | | | | | | |
| **A7** | **Attendance/ Interaction** | | | | | | - | |  | | | | | |  | | | | | | | |
| **A8** | **Class/Lab./**  **Field Work** | | | | | | - | |  | | | | | |  | | | | | | | |
| **A9** | **Other** | | | | | | - | |  | | | | | |  | | | | | | | |
| **TOTAL** | | | | | | | **100%** | | | | | | | | | | | | | | | |
| **Evidence of Achievement of Learning Outcomes** | Every topic is tested with at least one exam question. By the percentages given to each learning assessment type, the weighted grade point average of each student will be calculated. In order to pass, a student needs to accumulate certain percentage of points and this percentage is determined by the class mean. | | | | | | | | | | | | | | | | | | | | | | |
| **Method for Determining Letter Grade** | One midterm, quiz exams, reports and a final exam are used for grading. The table shows the maximum points to be collected.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Assessment** | Midterm | Report | Quiz | Final exam | TOTAL | | **Points** | 40 | 10 | 10 | 40 | 100 |   Letter grade is determined using the table below:   |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Total points** | **Toplam Puan** | 100-95 | 94-85 | 84-80 | 79-75 | 74-65 | 64-60 | 59-55 | 54-50 | 49-45 | 44-40 | | **Letter Grade** | **Harf Notu** | A | A- | B+ | B | B- | C+ | C | C- | D+ | D | | | | | | | | | | | | | | | | | | | | | | | |
| **Teaching Methods,**  **Student Work Load** | **No** | | | | | **Method** | | | **Explanation** | | | | | | | | | | | | | **Hours** | |
| ***Time applied by instructor*** | | | | | | | | | | | | | | | | | | | | | | |
| **1** | | | | | **Lecture** | | |  | | | | | | | | | | | | | 28 | |
| **2** | | | | | **Interactive Lecture** | | |  | | | | | | | | | | | | | - | |
| **3** | | | | | **Recitation** | | |  | | | | | | | | | | | | | - | |
| **4** | | | | | **Laboratory** | | |  | | | | | | | | | | | | | - | |
| **5** | | | | | **Practical** | | |  | | | | | | | | | | | | | - | |
| **6** | | | | | **Field Work** | | |  | | | | | | | | | | | | | - | |
| ***Time expected to be allocated by student*** | | | | | | | | | | | | | | | | | | | | | | |
| **7** | | | | | **Project** | | |  | | | | | | | | | | | | | - | |
| **8** | | | | | **Homework** | | |  | | | | | | | | | | | | | - | |
| **9** | | | | | **Pre-class Learning of Course Material** | | |  | | | | | | | | | | | | | 20 | |
| **10** | | | | | **Review of Course Material** | | |  | | | | | | | | | | | | | 58 | |
| **11** | | | | | **Studio** | | |  | | | | | | | | | | | | | - | |
| **12** | | | | | **Office Hour** | | |  | | | | | | | | | | | | | 14 | |
| **TOTAL** | | | | | | | | * 120 | | | | | | | | | | | | | | |
| **IV. PART** | | | | | | | | | | | | | | | | | | | | | | | |
| **Instructor** | **Name** | | | | | | | | Fuad Abutaha | | | | | | | | | | | | | | |
| **E-mail** | | | | | | | | fabutaha.2@gmail.com | | | | | | | | | | | | | | |
| **Phone Number** | | | | | | | | 5538965177 | | | | | | | | | | | | | | |
| **Office Number** | | | | | | | |  | | | | | | | | | | | | | | |
| **Office Hours** | | | | | | | | Will be determined during the education term. | | | | | | | | | | | | | | |
| **Course Materials** | **Mandatory** | | | | | | | | - | | | | | | | | | | | | | | |
| **Recommended** | | | | | | | | Lecture grade | | | | | | | | | | | | | | |
| **Other** | **Scholastic Honesty** | | | | | | | | Violations of scholastic honesty include, but are not limited to cheating, plagiarizing, fabricating information or citations, facilitating acts of dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. Any for of scholastic dishonesty is a serious academic violation and will result in a disciplinary action. | | | | | | | | | | | | | | |
| **Students with Disabilities** | | | | | | | | Reasonable accommodations will be made for students with verifiable disabilities. | | | | | | | | | | | | | | |
| **Safety Issues** | | | | | | | | The handling of the course does not require any special safety requirements. | | | | | | | | | | | | | | |
| **Flexibility** | | | | | | | | Circumstances may arise during the course that prevents the instructor from fulfilling each and every component of this syllabus; therefore, the syllabus is subject to change.  Students will be notified prior to any changes. | | | | | | | | | | | | | | |