**Form No: ÜY-FR-0263**

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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 | Compulsory |
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|  |  |
| **Course Code**  | CE 200 |
| **Course Name** | Surveying |
| **Language of Instruction** | English |
| **Type of Course** | Lecture, Problem Solving, Project |
| **Level of Course** | Undergraduate |
| **Hours per Week** | **Lecture:** 2 | **Laboratory:** | **Recitation:**  | **Practical:** 1 | **Studio:** | **Other:** |
| **ECTS Credit** | 4 |
| **Grading Mode** | Letter Grade |
| **Pre-requisites** | - |
| **Co-requisites** | - |
| **Registration Restriction** | - |
| **Educational Objective** | The objective of this course is to introduce students to perform a basic leveling field survey to accurately establish heights. To introduce to use survey data to compute adjusted elevations for the check points and determine relative precision estimates. To teach the students how to apply data corrections and reductions from distance and angle measurements, GPS measurements, coordinate systems and datum. |
| **Course Description** | This course will introduce the fundamentals of surveying measurements to provide a broad overview of the surveying instrumentation, procedures, measurement corrections and reductions, survey datums, and computations that are required to produce a topographical map for engineering projects. Fundamentals of terrestrial surveying measurements include leveling, distances, angle measurements, basic elements of map design and production methods are introduced. Simple concepts on data integration are introduced for a perspective on a useful tool for rapid geospatial mapping and data queries. Coordinate systems, datum and state-of-art data acquisition techniques also will be given. |
| **Learning Outcomes**  | **LO1** | 1. Perform the units used in topography and transform them into each other.2. Check the use of simple measuring instruments and the acquisition methods theoretically.3. Perform the uncoordinated application of land according to the site plan.4. Analyze geodetic basic assignments based on the information about the polygons.5. Accomplish area calculation methods with the help of the calculations.6. Undertake height determination methods, excavation calculations based on given information. |
| **LO2** |
| **LO3** |
| **LO4** |
| **LO5** |
| **LO6** |
| **n..** |
| **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 |
| **PO2** | **Ability** to work individually, and in intra-disciplinary and multi-disciplinary teams. | LO1, LO2, LO3, LO4, LO5, LO6 |
| **PO3** | **Recognition** of the need for life-long learning and **ability** to access information , follow developments in science and technology, and continually reinvent oneself. | LO1, LO2 |
| **PO4** | **Knowledge** of project management, risk management, innovation and change management, entrepreneurship, and sustainable development. | LO3, LO4, LO5, LO6 |
| **PO5** | **Awareness** of sectors and **ability** to prepare a business plan. | LO 2 |
| **PO6** | **Understanding** of professional and ethical responsibility and **demonstrating** ethical behavior. | LO 1 |
| **Faculty Specific Outcomes** | **PO7** | Ability to develop, select and use modern techniques and tools necessary for engineering applications and ability to use information technologies effectively. | LO 2, LO 3, LO 6 |
| **PO8** | 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. | LO 2, LO 4 |
| **PO9** | Ability to identify, define, formulate and solve complex engineering problems; and electing and applying appropriate analysis and modeling methods for this purpose. | LO 4, LO 5 |
| **Discipline Specific Outcomes (program)** | **PO10** | 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. | LO 1, LO 2, LO 3, LO 4 |
| **PO11** | 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. | LO 4, LO 5, LO 6, LO 7 |
| **PO12** | Ability to design experiments, conduct experiments, collect data, analyze and interpret results for the examination of civil engineering problems. | LO 4, LO 5, LO 6 |
| **Specialization Specific Outcomes** | **PO N….** | **-** | **-** |
| **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 Surveying | A1 |  |  |  | A7 |  |
| **S2** | 2 | Introduction to Units and Field Notes, Theory of Errors | A1 | A3 |  |  | A7 |  |
| **S3** | 3 | Distance Measurements, Surveys of Buildings | A1 | A3 |  | A4 |  |  |
| **S4** | 4 | Fieldwork: Distance Measurement | A1 | A3 | A3 | A4 |  | A8 |
| **S5** | 5 | Leveling | A1 | A3 |  |  |  |  |
| **S6** | 6 | Fieldwork: Leveling | A1 | A3 | A3 |  |  |  |
| **S7** | 7 | Leveling Computations, Mapping Surveys | A1 | A3 |  | A4 | A7 |  |
| **S8** | 8,9 | Angles, Azimuths, and Bearings | A1 |  | A3 |  |  | A8 |
| **S9** | 10 | Traversing and Computations | A1 | A3 |  | A4, A6 |  |  |
| **S10** | 11 | Fieldwork: Closed Traverse and Looping | A1 |  | A3 | A4 |  | A8 |
| **S11** | 12 | Areas, Volumes | A1 |  |  |  |  | A8 |
| **S12** | 13,14 | Fieldwork: Area and Volume | A1 |  |  | A4 |  | A8 |
| **Assessment Methods, Weight in Course Grade, Implementation and Make-Up Rules**  | **No.** | **Type** | **Weight** | **Implementation Rule** | **Make-Up Rule** |
| **A1** | **Exam** | *%70* | Midterm exams and final exams will take place. Exams will be in written test and all the course materials will be forbidden to use during the examination. Midterm dates are tentative and announced at the beginning of semester. | The official rules and regulations of the University apply. |
| **A2** | **Quiz** |  |  | - |
| **A3** | **Homework** | *%10* | Homework is due the following class. Late homework are not accepted. Homework is to be neat and orderly. All calculations of homework problems are to be in an orderly fashion.  | - |
| **A4** | **Project** | *-* | Projects are due the following class. Late projects are not accepted. Project is to be neat and orderly. All calculations of problems are to be in an orderly fashion. The same rules apply also for the group projects. | - |
| **A5** | **Report** | - | All reports should be in written format. | - |
| **A6** | **Presentation** | - | Different types of presentation techniques are allowed. | - |
| **A7** | **Attendance/ Interaction** |  | Attendance is strongly recommended and obligatory.  | The official rules and regulations of the University apply. |
| **A8** | **Class/Lab./****Field Work** | %20 | Fieldwork techniques are demonstrated by written, verbal and/or oral ways. | The official rules and regulations of the University apply. |
| **A9** | **Other** | - | - | - |
| **TOTAL** | **100%** |
| **Evidence of Achievement of Learning Outcomes** | Students will demonstrate learning outcomes through midterm exams, homework assignments, fieldworks, projects, reports, presentations and the final exam. Every topic is tested with at least one exam question. 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** | The method on which the letter grade is based on will be announced at the beginning of the semester, and this method may be subjected to change depending on the performance of the students.The table shows the maximum points to be collected.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Assessment** | Midterm 1 | Homework | Fieldwork | Final exam | TOTAL |
| **Points** | 25 | 10 | 20 | 45 | 100 |

Letter grade is determined using the table below. It may be subjected to change depending on the performance of the students:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Total points** | 100-95 | 94-85 | 84-80 | 79-75 | 74-65 | 64-60 | 59-55 | 54-50 | 49-45 | 44-40 |
| **Letter Grade** | A | A- | B+ | B | B- | C+ | C | C- | D+ | D |

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| **Teaching Methods, Student Work Load** | **No** | **Method** | **Explanation** | **Hours** |
| ***Time applied by instructor*** |
| **1** | **Lecture** | Lecturing and utilizing chalkboard/whiteboard. Sample questions and answers. Total number of hours in semester. | 28 |
| **2** | **Interactive Lecture** |  |  |
| **3** | **Recitation** | Presentation/Seminar/Preparation to demo | 6 |
| **4** | **Laboratory** | Research/Report/Others and their preparations | 6 |
| **5** | **Practical** | Fieldwork etc. Total number of hours in semester. | 14 |
| **6** | **Field Work** |  |  |
| ***Time expected to be allocated by student*** |
| **7** | **Project** |  |  |
| **8** | **Homework** | Homework and preparations | 8 |
| **9** | **Pre-class Learning of Course Material**  | Pre-class/ after class individual study | 20 |
| **10** | **Review of Course Material** | Review of course materials pre-class/ after class | 8 |
| **11** | **Studio** | Midterm and preparations | 13 |
| **12** | **Office Hour** | End of semester exams, final exam and preparation | 18 |
| **TOTAL** | *121* |
| **IV. PART** |
| **Instructor** | **Name** | Doç. Dr. Bekir Taner SAN |
| **E-mail** | tanersan@akdeniz.edu.tr |
| **Phone Number** | +90 242 310 6359 |
| **Office Number** | Akdeniz University, Engineering Faculty, B-332 |
| **Office Hours** | Thursday 11:00 |
| **Course Materials** | **Mandatory** |  |
| **Recommended** | Elementary Surveying: An Introduction to Geomatics, 14th Ed., Charles D. Ghilani and Paul R. Wolf, Prentice Hall, Pearson Education. |
| **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.  |