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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | | | **ECTS Course Description Form** | | | | | | | | | | | | | | | | |  |
|  | **PART I (Senate Approval)** | | | | | | | | | | | | | | | | | | | | |  |
|  | **Offering School** | **Engineering** | | | | | | | | | | | | | | | | | | | |  |
|  | **Offering Department** | **Computer Engineering** | | | | | | | | | | | | | | | | | | | |  |
|  | **Program(s) Offered to** | **Computer Engineering** | | | | | | | |  | | | | | | | | | | | |  |
|  | **Electrical Engineering** | | | | | | | |  | | | | | | | | | | | |  |
|  |  | | | | | | | |  | | | | | | | | | | | |  |
|  | **Course Code** | **CS331** | | | | | | | | | | | | | | | | | | | |  |
|  | **Course Name** | **Introduction to Database Systems** | | | | | | | | | | | | | | | | | | | |  |
|  | **Language of Instruction** | **English** | | | | | | | | | | | | | | | | | | | |  |
|  | **Type of Course** | **Compulsory – Lectures** | | | | | | | | | | | | | | | | | | | |  |
|  | **Level of Course** | **Undergraduate** | | | | | | | | | | | | | | | | | | | |  |
|  | **Hours per Week** | **Lecture: 3** | | | | **Laboratory:** | | | **Recitation:** | | **Practical:** | | | **Studio:** | | | | **Other:** | | | | |
|  | **ECTS Credit** | **6** | | | | | | | | | | | | | | | | | | | |  |
|  | **Grading Mode** | **Letter Grade** | | | | | | | | | | | | | | | | | | | |  |
|  | **Pre-requisites** | **CS102** | | | | | | | | | | | | | | | | | | | |  |
|  | **Co-requisites** |  | | | | | | | | | | | | | | | | | | | |  |
|  | **Registration Restriction** |  | | | | | | | | | | | | | | | | | | | |  |
|  | **Educational Objective** | **The main objective of this course is to introduce students to the nature of database systems and how to view and manipulate the structures and data in such systems.** | | | | | | | | | | | | | | | | | | | |  |
|  | **Course Description** | **This course introduces the fundamentals of database systems including relational data model, entity/relationship model, SQL, query optimization, integrity constraints, normalization, transaction management, concurrency control and recovery systems.** | | | | | | | | | | | | | | | | | | | |  |
|  | **Learning Outcomes** | **LO1: Understand DBMS and RDBMS** | | | | | | | | | | | |  | | | | | | | |  |
|  | **LO2: Explain the basic components of an E-R Model** | | | | | | | | | | | |  |
|  | **LO3: Normalize a database** | | | | | | | | | | | |  |
|  | **LO4: Obtain data from a database using SELECT SQL queries** | | | | | | | | | | | |  |
|  | **LO5: Alter data in a database using UPDATE, DELETE, INSERT SQL queries** | | | | | | | | | | | |  |
|  | **LO6: Design, create, and modify structure of a database** | | | | | | | | | | | |  |
|  |  | | | | | | | | | | | | | | | | | | | | |
|  | **PART II (Faculty Board Approval)** | | | | | | | | | | | | | | | | | | | | |  |
|  | **Basic Outcomes (University-wide)** |  | | **Program Outcomes** | | | | | | | | **LO1** | | **LO2** | **LO3** | | **LO4** | | **LO5** | | **LO6** | |
|  |  | | | | | | | | | | | |  | | | | | | | | |
|  | **PO1** | **Ability** to communicate effectively and write and present a report in Turkish and English. | | | | | | | | | **0 1 0 0 0 0**  **0 0 0 0 0 0**    **0 0 0 0 0 0**  **0 0 0 0 0 0**  **1 1 0 0 0 0**  **0 0 0 0 0 0**  **3 2 1 1 1 1**    **1 0 0 0 1 1**    **1 0 0 0 0 0**  **0 0 0 0 0 0**  **0 0 1 0 0 0**  **3 1 2 2 2 3**  **1 1 0 0 0 1** | | | | | | | | | |  |
|  | **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** | **Knowledge** of project management, risk management, innovation and change management, entrepreneurship, and sustainable development. | | | | | | | | |  |
|  | **PO5** | **Awareness** of sectors and **ability** to prepare a business plan. | | | | | | | | |  |
|  | **Faculty/ Program Specific Outcomes** | **PO6** | **Understanding** of professional and ethical responsibility and **demonstrating** ethical behaviour. | | | | | | | | |  |
|  | **PO7** | **Ability** to define complex engineering  problems, develop models and  implement solutions for these  problems | | | | | | | | |  |
|  | **PO8** | **Ability** to conduct lab experiments by using  computers and the ability of collecting, analysing and interpreting data. | | | | | | | | |  |
|  | **PO9** | **Ability** to apply the knowledge of  mathematics, science and engineering  principles to solve problems in computer  engineering. | | | | | | | | |  |
|  | **PO10** | An **understanding** of current contemporary  issues and impact of engineering solutions  in legal and ethical levels | | | | | | | | |  |
|  | **PO11** | **Ability** to understand and apply discrete  mathematics concepts. | | | | | | | | |  |
|  | **PO12** | **Ability** to use modern engineering  techniques, tools and information  technologies and develop software  equipment and software. | | | | | | | | |  |
|  | **PO13** | **Ability** to analyse, design and manage the  hardware/software computer system  requirements with limited resources and  conditions by modern engineering  principles. | | | | | | | | |  |
| **PART III (Department Board Approval)** | | | | | | | | | | | | | | | | | | | | | | |
| **Course Subjects, Contribution of Course Subjects to Learning Outcomes, and Methods for Assessing Learning of Course Subjects** | | **Subject** | | **Week** | | |  | | | | | **LO1** | | **LO2** | | **LO3** | | **LO4** | | **LO5** | | **LO6** |
| **S1** | | 1 | | | Introduction | | | | | A1/2/3/4 | |  | |  | |  | |  | |  |
| **S2** | | 2 | | | Relational Model | | | | | A1/2/3/4 | |  | |  | |  | |  | |  |
| **S3** | | 3 | | | SQL | | | | |  | |  | |  | | A1/2/3/4 | | A1/2/3/4 | | A1/2/3/4 |
| **S4** | | 4 | | | Database System Development | | | | |  | |  | |  | |  | | A1/2/3/4 | | A1/2/3/4 |
| **S5** | | 5 | | | Database Analysis | | | | | A1/2/3/4 | |  | |  | |  | |  | |  |
| **S6** | | 6-7 | | | Entity Relationship Model | | | | |  | | A1/2/3/4 | |  | |  | |  | |  |
| **S7** | | 8-9 | | | Normalization | | | | |  | | A1/2/3/4 | | A1/2/3/4 | | A1/2/3/4 | | A1/2/3/4 | |  |
| **S8** | | 10 | | | Conceptual Database Design | | | | |  | | A1/2/3/4 | |  | |  | |  | | A1/2/3/4 |
| **S9** | | 11 | | | Logical Database Design | | | | |  | |  | | A1/2/3/4 | |  | |  | | A1/2/3/4 |
| **S10** | | 12 | | | Physical Database Design | | | | | A1/2/3/4 | |  | |  | |  | | A1/2/3/4 | | A1/2/3/4 |
|  | |  | | |  | | | | |  | |  | |  | |  | |  | |  |
| **Assessment Methods, Weight in Course Grade, Implementation and Make-Up Rules** | |  | | **Type** | | | | | | **Weight** | | | **Implementation Rule** | | | | | **Make-Up Rule** | | | | |
| **A1** | | **Exam** | | | | | | **50** | | | **There are two midterm exams each with a weight of 25 for the course. Exam dates will be shown on the tentative schedule and it can be changed according to the course schedule.** | | | | | **If a student misses an exam and provides an acceptable legitimate document, a make-up exam will be provided.** | | | | |
| **A2** | | **Quiz** | | | | | | **5** | | | **There are between 2 and 4 announced quizzes given in class. The cumulative weight of the quizzes together is 5.** | | | | | **If a student misses a quiz and provides an acceptable legitimate document, a make-up quiz will be provided.** | | | | |
| **A3** | | **Homework** | | | | | | **20** | | | **There are approximately 5 assignments with a weight of 4 for each. Each student should prepare the assignment individually and submissions are done electronically.** | | | | | **There will be no make-up for the homework.** | | | | |
| **A4** | | **Project** | | | | | | **25** | | | **There will be a group project with a weight of 25. A final presentation along with anonymous surveys and questions will be used to assess each group member’s contribution and will affect the member’s score for the project** | | | | | **There will be no make-up for the project.** | | | | |
| **A5** | | **Report** | | | | | |  | | |  | | | | |  | | | | |
| **A6** | | **Presentation** | | | | | |  | | |  | | | | |  | | | | |
| **A7** | | **Attendance/ Interaction** | | | | | |  | | |  | | | | |  | | | | |
| **A8** | | **Class/Lab./**  **Field Work** | | | | | |  | | |  | | | | |  | | | | |
| **A9** | | **Other** | | | | | |  | | |  | | | | |  | | | | |
| **TOTAL** | | | | | | | | **100%** | | | | | | | | | | | | |
| **Evidence of Achievement of Learning Outcomes** | | **Students will demonstrate learning outcomes through midterm exam, homework assignments, and the final project. Every topic is tested with at least one exam or homework 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. All items given the weights above will be used to determine the student’s overall score out of 100 possible points. Each student’s score will be calculated to give the class mean a value of 75 points. Then the following table will be used to determine overall letter grade.**   |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Total points | 97 – 100 | 93 – 96.99 | 90 – 92.99 | 87 – 89.99 | 83 – 86.99 | 80 – 82.99 | 77 – 79.99 | 73 – 76.99 | 70 – 72.99 | 67 – 69.99 | 60 – 66.99 | < 60 | | Letter Grade | A+ | A | A- | B+ | B | B- | C+ | C | C- | D+ | D | F | | | | | | | | | | | | | | | | | | | | | |
| **Teaching Methods, Student Work Load** | |  | | **Method** | | | | **Explanation** | | | | | | | | | | | | **Hours** | | |
| ***Time applied by instructor*** | | | | | | | | | | | | | | | | | | | | |
| **1** | | **Lecture** | | | | Lecturing utilizing slides and white board. Sample questions and answers to strengthen learning. In class quizzes. | | | | | | | | | | | | 4 X 14 = 56 | | |
| **2** | | **Interactive Lecture** | | | |  | | | | | | | | | | | |  | | |
| **3** | | **Recitation** | | | |  | | | | | | | | | | | |  | | |
| **4** | | **Laboratory** | | | |  | | | | | | | | | | | |  | | |
| **5** | | **Practical** | | | |  | | | | | | | | | | | |  | | |
| **6** | | **Field Work** | | | |  | | | | | | | | | | | |  | | |
| ***Time expected to be allocated by student*** | | | | | | | | | | | | | | | | | | | | |
| **7** | | **Project** | | | | Preliminary readings, coding, testing, presentation | | | | | | | | | | | | 22 | | |
| **8** | | **Homework** | | | | Answers of given questions are prepared at home | | | | | | | | | | | | 5 X 6 = 30 | | |
| **9** | | **Pre-class Learning of Course Material** | | | | New subjects are learned by watching videos or reading course notes before class. | | | | | | | | | | | | 2 X 14 = 28 | | |
| **10** | | **Review of Course Material** | | | | Review of the subjects before exams in order to prepare. | | | | | | | | | | | | 8 X 2 = 16 | | |
| **11** | | **Studio** | | | |  | | | | | | | | | | | |  | | |
| **12** | | **Office Hour** | | | | Two office hours per week are allocated for students’ questions | | | | | | | | | | | | 2 X 14 = 28 | | |
| **TOTAL** | | | | | | 180 | | | | | | | | | | | | | | |
| **IV. PART** | | | | | | | | | | | | | | | | | | | | | | |
| **Instructor** | | **Name** | | | | | | Cafer Çalışkan | | | | | | | | | | | | | | |
| **E-mail** | | | | | | cafer.caliskan@antalya.edu.tr | | | | | | | | | | | | | | |
| **Phone Number** | | | | | | +90 242 245 00 00 | | | | | | | | | | | | | | |
| **Office Number** | | | | | | A1-70 | | | | | | | | | | | | | | |
| **Office Hours** | | | | | | TBA | | | | | | | | | | | | | | |
| **Course Materials** | | **Mandatory** | | | | | | T. Connolly and C. Begg, Database Systems: A Practical Approach to Design, Implementation, and Management, Global Edition. Pearson (Intl), 2014. ISBN-13: 9781292061184  A tool for accessing database through SQL | | | | | | | | | | | | | | |
| **Recommended** | | | | | | Some options for a useful tool for manipulating and accessing databases are given:  [https://en.wikipedia.org/wiki/List\_of\_Apache%E2%80%93MySQL%E2%80%93PHP\_packages](https://en.wikipedia.org/wiki/List_of_Apache–MySQL–PHP_packages)  XAMPP  Microsoft Access  WAMP  MAMP  LAMP | | | | | | | | | | | | | | |
| **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** | | | | | |  | | | | | | | | | | | | | | |
| **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. | | | | | | | | | | | | | | |