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| https://i0.wp.com/www.webiusdigital.com/wp-content/uploads/2018/03/Antalya-Bilim-%C3%9Cniversitesi-Logo.jpg?fit=300%2C300&ssl=1 | **ECTS Course Description Form** |
| **PART I ( Senate Approval)** |
| **Offering School**  | **College of Engineering** |
| **Offering Department** | **Industrial Engineering** |
| **Program(s) Offered to** | **Industrial Engineering** |  |
| **Other Engineering Departments** |  |
|  |  |
| **Course Code**  | **IE 349** |
| **Course Name** | **Blockchain:Case Studies** |
| **Language of Instruction** | **English** |
| **Type of Course** | **Departmental Area Elective** |
| **Level of Course** | **Undergraduate** |
| **Hours per Week** | **Lecture: 3** | **Laboratory:** | **Recitation:**  | **Practical:**  | **Studio:** | **Other:** |
| **ECTS Credit** | **6** |
| **Grading Mode** | **Letter grade** |
| **Pre-requisites** | **-** |
| **Co-requisites** | **-** |
| **Registration Restriction** | ***-*** |
| **Educational Objective**  | **This Course provides a conceptual understanding of how to secure distributed information in blockchain, its content, how it provides consensus, and how to provision new applications. Distributed data structures and decision-making systems cover the technological foundations of block chain operations as functions and different architectural types. It provides a critical assessment of the Existing "smart contract" capabilities and platforms and examines their future aspects, opportunities, risks and challenges.** |
| **Course Description** | **Blockchain is one of the most important technologies that will affect law and trade for many years. Blockchain is also one of the most interdisciplinary areas that brings together new questions and opportunities at the intersection of technology, business and law. This Course is designed to use interdisciplinary nature. An overview of the technology behind the Blockchain will be presented, and the current and potential real-world applications in the field of technology, business and law are explained.** |
| **Learning Outcomes**  | **LO1** |  **LO1: Explaining what the Blockchain is and why it is needed****LO2: Understanding and explaining how the Blockchain works****LO3: The process of Blockchain technology, blocks, the ability to explain the work of the** **LO4: Understanding what constitutes a "Smart" contract, what is the legal consequences and learning what to do now and in the near future****LO5: Ability to integrate ideas in Blockchain technology into their own projects** |
| **LO2** |
| **LO3** |
| **LO4** |
| **LO5** |
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| **PART II ( Faculty Board Approval)** |
| **Basic Outcomes (University-wide)****Faculty Specific Outcomes** |  | **Program Outcomes** | **LO1** | **LO2** | **LO3** | **LO4** | **LO5** |
| **PO1** | **Ability** to communicate effectively and write and present a report in Turkish and English.  | 0 0 0 0 1 0 1 1 0 00 0 1 2 10 0 0 0 11 1 3 1 10 0 0 0 00 2 0 1 00 1 0 1 00 0 1 1 10 1 0 0 1 0 0 1 0 01 1 1 1 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. |
| **PO6** | **Understanding** of professional and ethical responsibility and **demonstrating** ethical behavior. |
| **Faculty Specific Outcomes****Discipline Specific Outcomes (program)** | **PO7** | **The ability to practice knowledge of Mathematics, science and engineering.** |
| **PO8** | **The ability to design and execute experiments to analyse and interpret Data.** |
| **PO9** | The ability to design a blockchain infrastructure to meet the Desired requirements. |
| **PO10** | **Ability to work in Multidisciplinary teams.** |
| **PO11** | **The ability to design blockchain infrastructure to meet the desired needs within realistic constraints such as Economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability** |
| **PO12** | **The ability to use the techniques, skills and modern engineering tools required for Engineering applications** |
| **Discipline Specific Outcomes (program)** | **PO13** |  |
| **PO14** |  |
| **PO15** |  |
| **PO16** |  |
| **PO17** |  |
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| **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** |  |
| **S1** | **1** | **Introduction**  |  | A1,A2 | A1,A2 |  |  |  |
| **S2** | **2** | **History of Blockchain** | A1,A2  |  |  |  |   |  |
| **S3** | **3** | **Overview of Blockchain Technologies** |  | A2,A3,A4 |  | A2,A3,A4 |  |  |
| **S4** | **4** | **Methods of Blockchain Security** |  | A1,A2 |  | A2,A3,A4 | A2,A3,A4 |  |
| **S5** | **5** | **Blockchainde registration operations, digital signature and verification operations** |  | A1,A2 | A2,A3,A4 |  | A2,A3,A4 |  |
| **S6** | **6** | **Blocks and Blockchain** |  |  |  | A1,A2 | A2,A3,A4 |  |
| **S7** | **7** | **Smart contracts** |  | A1,A2 | A2,A3,A4 |  |  |  |
| **S8** | **8** | **Mining** | A2,A3,A4 | A2,A3,A4 |  |  | A2,A3,A4 |  |
| **S9** | **9** | **Bitcoin** | A2,A3,A4 |  |  |  | A2,A3,A4 |  |
| **S10** | **10** | **Blockchain Apps** | A2,A3,A4 |  | A2,A3,A4 | A2,A3,A4 | A2,A3,A4 |  |
| **S11** | **11** | **Blockchain Apps** | A2,A3,A4 |  | A2,A3,A4 | A2,A3,A4 | A2,A3,A4 |  |
| **S12** | **12** | **Blockchain Apps** | A2,A3,A4 |  | A2,A3,A4 | A2,A3,A4 | A2,A3,A4 |  |
| **S13** | **13** | **Final Projects** |  | A2,A3,A4 | A2,A3,A4 |  |  |  |
| **Assessment Methods, Weight in Course Grade, Implementation and Make-Up Rules** **Evidence of Achievement of Learning Outcomes** | No | **Type** | **Weight** | **Implementation Rule** | **Make-Up Rule** |
| **A1** | **Homework** | ***10%*** | ***Homework are given by announcing deadline. Homework that are submitted after the deadline are not accepted.*** | **There is no compensation for the Homework.** |
| **A2** | **Project** | ***50%*** | ***Will be done as a group*** | **There is no compensation for the Project** |
| **A3** | **Report** | ***20%*** | ***The report on the group projects will be delivered electronically*** | **There is no compensation for the Report** |
| **A4** | **Presentation** | ***20%*** | ***Will be done as a group*** | **There is no compensation for the Presentation** |
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| **TOTAL** | **Other** |  |  |  |
|  | **100%** |
| **Method for Determining Letter Grade** |

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| **Activities** | **Homework** | **Project** | **Report** | **Presentation**  |
| **Quantity** | **2** | **1** | **1** | **1** |
| **Effects on Grading, %)** | **10** | **50** | **20** | **20** |

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| **Teaching Methods, Student Work Load** | **No** | **Method** | **Explanation** | **Hours** |
| ***Time applied by instructor*** |
| **1** | **Lecture** |  | **3x13** |
| **2** | **Interactive Lecture** |  | **6** |
| **3** | **Recitation** |  | **-** |
| **4** | **Laboratory** |  | **-** |
| **5** | **Practical** |  |  |
| **6** | **Field Work** |  |  |
| ***Time expected to be allocated by student*** |
| **7** | **Project** | **The project is prepared at home.** | ***28*** |
| **8** | **Homework** | **The homework is prepared at home.** | **5** |
| **9** | **Pre-class Learning of Course Material**  | **New subjects are learned by watching videos or reading course notes before class.** | **28** |
| **10** | **Review of Course Material** |  |  |
| **11** | **Studio** |  | **-** |
| **12** | **Office Hour** | **Two work hour in a week** | **26** |
| **TOTAL** |  ***190*** |
| **IV. PART** |
| **Instructor****Course Materials** | **Name** | **Ali Cem Başarır** |
| **E-mail** | **alicem.basarir@antalya.edu.tr** |
| **Phone Number** | **0532 308 06 88** |
| **Office Number** | **TTO Office** |
| **Office Hours** |  |
| **Mandatory** | **It will be determined during the semester.** |
| **Course Materials****Other** | **Recommended** | **Yaga, Dylan , Peter Mell, Nik Roby, and Karen Scarfone. 2018. Blockchain Technology Overview. Draft NISTIR 8202.** |
| **Scholastic Honesty** | **Laurence, Tiana. 2017. Blockchain For Dummies. John Wiley & Sons, Inc** |
| **Other** | **Students with Disabilities** | **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.** |
| **Safety Issues**  | **Reasonable accommodations will be made for students with verifiable disabilities.** |
| **Flexibility** | **The course does not require any special safety precautions.** |
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