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| antalya bilim Ã¼niversitesi ile ilgili gÃ¶rsel sonucu | **ECTS Course Description Form** |
| **PART I (Senate Approval)** |
| **Offering School**  | College of Engineering |
| **Offering Department** | Industrial Engineering |
| **Program(s) Offered to** | Industrial Engineering | Compulsory |
|  |  |
|  |  |
| **Course Code**  | IE 201 |
| **Course Name** | Operations Research I |
| **Language of Instruction** | English |
| **Type of Course** | Lecture |
| **Level of Course** | Undergraduate  |
| **Hours per Week** | **Lecture:** 3 | **Laboratory:** | **Recitation:** 1 | **Practical:**  | **Studio:** | **Other:** |
| **ECTS Credit** | 5 |
| **Grading Mode** | Letter Grade |
| **Pre-requisites** |  |
| **Co-requisites** |  |
| **Registration Restriction** |  |
| **Educational Objective** | *The objective of this course is to develop students’ ability to design, improve and operate complex systems in the best feasible way using quantitative methods and techniques that are used in solving engineering decision**problems. To achieve this objective, students will learn linear decision models, particularly linear programming and related decision analysis optimization software, and contribute to the analysis and solution of complex, large-scale decision problems.*  |
| **Course Description** | *Introduction to operations research, Linear programming, Linear programming models with integer variables, Transportation Models, Network Models, Other optimization models* |
| **Learning Outcomes**  | **LO1** | * to develop an understanding of operations research and mathematical modeling
* to develop formulation of linear programming, integer programming and mixed-integer programming models
* to develop formulation of transportation programming models
* to develop formulation of network programming models
* to incorporate in model the effects of uncertainty in operations decisions
* to solve mathematical programming problems using optimization software packages
 |
| **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.  | 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸  |
| **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** | **PO7** |  |
| **PO8** |  |
| **PO9** |  |
| **PO10** |  |
| **PO11** |  |
| **PO12** |  |
| **Discipline Specific Outcomes (program)** | **PO13** |  |
| **PO14** |  |
| **PO15** |  |
| **PO16** |  |
| **PO17** |  |
| **PO18** |  |
| **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 operations research | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 |
| **S2** | 2-5 | Linear programming | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 |
| **S3** | 6-8 | Linear programming models with integer variables | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 |
| **S4** | 9-10 | Transportation Models | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 |
| **S5** | 11-12 | Network Models | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 |
| **S6** | 13 | Other Optimization Models | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 |
| **S7** | 14 | Effects of uncertainty on decision making | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 | A1, A2, A3 |
| **Assessment Methods, Weight in Course Grade, Implementation and Make-Up Rules**  | **No.** | **Type** | **Weight** | **Implementation Rule** | **Make-Up Rule** |
| **A1** | **Exam** | 65% | *No electronic devices are allowed in the examinations except for calculators.* | *If an exam is missed, a make-up exam may be granted if student’ absence from the exam is because of a valid and documented excuse.* |
| **A2** | **Quiz** | 10% | *No electronic devices are allowed in the examinations except for calculators.* | *If an exam is missed, a make-up exam may be granted if student’ absence from the exam is because of a valid and documented excuse.* |
| **A3** | **Homework** | 20% | *Submission by the deadline* | *Late homework is penalized by a percentage* |
| **A4** | **Project** | - | *-* | - |
| **A5** | **Report** | - | - | - |
| **A6** | **Presentation** | - | - | - |
| **A7** | **Attendance/ Interaction** | 5% | - | *No compensation, no makeup* |
| **A8** | **Class/Lab./****Field Work** | - | - | - |
| **A9** | **Other** | - | - | - |
| **TOTAL** | **100%** |
| **Evidence of Achievement of Learning Outcomes** | *%70 course attendance and gaining 70% or more on taken exams and other assignments.*  |
| **Method for Determining Letter Grade** | *The %70 total attendance is required otherwise student will fail the course due to absenteeism. Letter grades are determined by applying catalogue system on student’s total weighted grade. Following is an example:*≥ 97% A+[93 97) A[90 93) A-[87 90) B+[83 87) B[80 83) B-[77 80) C+[73 77) C[70 73) C-[67 70) D+[60 67) D< 60 F |
| **Teaching Methods, Student Work Load** | **No** | **Method** | **Explanation** | **Hours** |
| ***Time applied by instructor*** |
| **1** | **Lecture** | *(14 weeks) × (3 hrs per week)* | *42* |
| **2** | **Interactive Lecture** |  |  |
| **3** | **Recitation** | *(14 weeks) × (1 hr per week)* | *14* |
| **4** | **Laboratory** |  |  |
| **5** | **Practical** |  |  |
| **6** | **Field Work** |  |  |
| ***Time expected to be allocated by student*** |
| **7** | **Project** |  |  |
| **8** | **Homework** | *(14 weeks) × (1 hr per week)* | *14* |
| **9** | **Pre-class Learning of Course Material**  | *(14 weeks) × (1 hr per week)* | *14* |
| **10** | **Review of Course Material** | *(14 weeks) × (2 hrs per week)* | *28* |
| **11** | **Studio** |  |  |
| **12** | **Office Hour** | *(14 weeks) × (3 hrs per week)* | *42* |
| **TOTAL** | *154* |
| **IV. PART** |
| **Instructor** | **Name** | Dr. Masood JABARNEJAD |
| **E-mail** | masood.jabarnejad@antalya.edu.tr |
| **Phone Number** | 05539153010 |
| **Office Number** | A1-69 |
| **Office Hours** | 3 hrs per week |
| **Course Materials** | **Mandatory** |  |
| **Recommended** | * “Operations Research: Applications and Algorithms” by Wayne L. Winston
* *“Operations Research: An Introduction”* by Hamdy Taha
 |
| **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 form 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 course does not require any special safety precautions. |
| **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. |