

FACULTY OF ENGINEERING – KTO KARATAY UNIVERSITY



**KTO KARATAY
ÜNİVERSİTESİ**

**KTO KARATAY UNIVERSITY
FACULTY OF ENGINEERING
ERASMUS+ Course Catalogue
for the Academic year 2019/2020
Spring & Fall Semester**

KONYA, 2019-2020

FACULTY OF ENGINEERING – KTO KARATAY UNIVERSITY**Course Name:** SPECIAL TOPICS IN INDUSTRIAL ENGINEERING - **Course Code:** END523

FACULTY: Faculty of Engineering	CLASS TYPE: Bachelor/Technical Selective Course
NUMBER OF HOURS: 3	ECTS TYPE: ECTS (3)
SEMESTER: Spring	CLASS LEVEL: 4rd Year
LANGUAGE OF INSTRUCTION: English	
PRELIMINARY REQUIREMENTS: Probability and Statistics, Engineering Statistics, Production and Service Systems	
CONTENTS: Lean Thinking, Seven Wastes, 5S's, Work Cell Redesign, Value Stream Maps and Knowledge-Driven Continuous Improvement (PDCA), Preventive Maintenance Principles, Assembly Operations - Takt Time, Machining Operations - Cycle Time, Kanban, Hejunka/Product Leveling, Kaizen-Teian Improvement Systems, Hoshin Planning/Policy Deployment, Sustainability and Lean/Six Sigma	
EFFECTS OF EDUCATION PROCESS: Develop a broad understanding of Lean/Six Sigma principles and practices Build capability to implement Lean/Six Sigma initiatives in manufacturing operations Operate with awareness of Lean/Six Sigma at the enterprise level	
LITERATURE (OPTIONAL): The Lean Management Systems Handbook, by Rich Charron , H. James Harrington, Frank Voehl, Hal Wiggin, CRC Press, 2014	
TEACHING METHODS: Verbal and applied course	
ASSESSMENT METHODS: Project, Midterm Exam and Final Exam	
LECTURER (NAME, EMAIL CONTACT): Assist. Prof. Dr. Sule ERYURUK	

FACULTY OF ENGINEERING – KTO KARATAY UNIVERSITY

Course Name: STATISTICAL QUALITY CONTROL - **Course Code:** END523

FACULTY: Faculty of Engineering	CLASS TYPE: Bachelor/Technical Selective Course
NUMBER OF HOURS: 3	ECTS TYPE: ECTS (5)
SEMESTER: Fall	CLASS LEVEL: 3rd Year
LANGUAGE OF INSTRUCTION: English	
PRELIMINARY REQUIREMENTS: Probability and Statistics	
CONTENTS: Introduction to concepts of quality and total quality management. Basic principles of teamwork and learning. Probability in Quality Control. Methods and Philosophy of Statistical Process. Control Charts for variables and attributes. Cumulative-Sum and Exponentially Weighted Moving-Average Control Charts. Process Capability Analysis. Introduction to Experimental Design and Factorial Experiments. Taguchi Method, Lot-by-Lot Acceptance Sampling for attributes and by variables.	
EFFECTS OF EDUCATION PROCESS: Utilizing up-to-date techniques, computer hardware and software required for statistical applications; developing software programs and numerical solutions for specific problems when necessary. Analysing small and big volumes of data and interpreting results. Defining, modeling and solving real life problems that involve uncertainty, and interpreting results.	
LITERATURE (OPTIONAL): Introduction to Statistical Quality Control, DOUGLAS C. MONTGOMERY, Arizona State University	
TEACHING METHODS: Verbal and applied course	
ASSESSMENT METHODS: Project, Midterm Exam and Final Exam	
LECTURER (NAME, EMAIL CONTACT): Assist. Prof. Dr. Sule ERYURUK	

FACULTY OF ENGINEERING – KTO KARATAY UNIVERSITY

Course Name: OPERATIONS RESEARCH I - **Course Code:** END305

FACULTY: Faculty of Engineering	CLASS TYPE: Bachelor/Mandatory
NUMBER OF HOURS: 4	ECTS TYPE: ECTS (5)
SEMESTER: Fall	CLASS LEVEL: 2rd Year
LANGUAGE OF INSTRUCTION: English	
PRELIMINARY REQUIREMENTS: Calculus I-II, Introduction to Industrial Engineering	
CONTENTS: Introduction to Decision making, Model building, Modeling philosophy, Linear programming, Graphical solution, Simplex algorithm, M method, Two phase simplex, Dual simplex, Revised simplex, Lindo and Excel solver, GAMS, Duality, Sensitivity analysis, Complementary slackness, Transportation models and solving methods	
EFFECTS OF EDUCATION PROCESS: To use different mathematical modeling techniques utilizing Operations Research (OR) methodology, To learn various methods that are used for quantitative decision making, To find optimal solutions to problems	
LITERATURE (OPTIONAL): Introduction to Operation Research, F.S. Hillier, G.J. Lieberman, McGrawHill, 10th edition Operation Research An introduction, Hamdy Taha, Pearson, 10th edition Operations Research: Applications and Algorithms, Wayne L. Winston 4th Edition, CENGAGE,	
TEACHING METHODS: Verbal and applied course	
ASSESSMENT METHODS: Quiz, Midterm Exam and Final Exam	
LECTURER (NAME, EMAIL CONTACT): Assist. Prof. Dr. Sule ERYURUK	

FACULTY OF ENGINEERING – KTO KARATAY UNIVERSITY

Course Name: OPERATIONS RESEARCH II - **Course Code:** END405

FACULTY: Faculty of Engineering	CLASS TYPE: Bachelor/Mandatory
NUMBER OF HOURS: 4	ECTS TYPE: ECTS (5)
SEMESTER: Spring	CLASS LEVEL: 2rd Year
LANGUAGE OF INSTRUCTION: English	
PRELIMINARY REQUIREMENTS: Operations Research I, Calculus I-II, Introduction to Industrial Engineering	
CONTENTS: Transshipment and Assignment models and solving methods, , Integer Programming, Multi objective decision making (Goal Programming), Non-Linear Programming, Dynamic Programming	
EFFECTS OF EDUCATION PROCESS: To use different mathematical modeling techniques utilizing Operations Research (OR) methodology, To learn various methods that are used for quantitative decision making, To find optimal solutions to problems	
LITERATURE (OPTIONAL): Introduction to Operation Research, F.S. Hillier, G.J. Lieberman, McGrawHill, 10th edition Operation Research An introduction, Hamdy Taha, Pearson, 10th edition Operations Research: Applications and Algorithms, Wayne L. Winston 4th Edition, CENGAGE,	
TEACHING METHODS: Verbal and applied course	
ASSESSMENT METHODS: Project, Midterm Exam and Final Exam	
LECTURER (NAME, EMAIL CONTACT): Assist. Prof. Dr. Sule ERYURUK	

FACULTY OF ENGINEERING – KTO KARATAY UNIVERSITY

Course Name: ERGONOMICS - **Course Code:** END501

FACULTY: Faculty of Engineering	CLASS TYPE: Bachelor/Mandatory
NUMBER OF HOURS:4	ECTS TYPE: ECTS (4)
SEMESTER: Fall	CLASS LEVEL: 3rd Year
LANGUAGE OF INSTRUCTION: English	
PRELIMINARY REQUIREMENTS: Engineering Statistics, Job Evaluation	
CONTENTS: The main aim of the course is to introduce basic knowledge and experiences to think and to design human – centered -The important role of ergonomics in engineering and system design , The research methods the human factors , The study methods for ergonomics conditions in the work places, The measuring methods for mental work tiredness – displays and controls , Determining causes for human errors.	
EFFECTS OF EDUCATION PROCESS: By the end of this module students will be able to: Learn more important human factors for designing systems, Know human work capabilities, Know research methods in human factors, Learn causes human errors, Design displays and controls in man – machine systems	
LITERATURE (OPTIONAL): 1. Human Factors In Engineering and Design- M.S Sanders, Ernest J. Mc Cormick 2. The Ergonomics Edge – D. Macleos 3. Ergonomics: How To Design For Ease and Efficiency – K.H.E. Kroemer, H.B. Kroemer, K.e. Kroemer	
TEACHING METHODS: Verbal and applied course	
ASSESSMENT METHODS: Quiz, Midterm Exam and Final Exam	

FACULTY OF ENGINEERING – KTO KARATAY UNIVERSITY

LECTURER (NAME, EMAIL CONTACT): Prof. Dr. Dogan EROL

Course Name: MANUFACTURING PROCESSES - **Course Code:** END403

FACULTY: Faculty of Engineering	CLASS TYPE: Bachelor/Mandatory
NUMBER OF HOURS:4	ECTS TYPE: ECTS (4)
SEMESTER: Spring	CLASS LEVEL: 2rd Year
LANGUAGE OF INSTRUCTION: English	
PRELIMINARY REQUIREMENTS: Engineering Drawing, Engineering Mechanics	
CONTENTS: Knowledge on materials, mechanical, heat, electrical, chemical and electrochemical methods, processes that cause changes at the mass of the materials and/or transformation-unifying processes-, choosing processes according to design. Choose process to transform materials according to their design, Determine the appropriate range for the parameters of the chosen process, evaluate the duration of the methods.	
EFFECTS OF EDUCATION RPOCESS: Learn basic knowledge for manufacturing methods, Learn parameters of traditional and modern manufacturing processes, Evaluate durations of the manufacturing processes, Consider the manufacturing capacity and sensitivity while designing, Choose appropriate manufacturing process according to specified criteria for a part whose design is given.	
LITERATURE (OPTIONAL): Todd R.H., Allen D.K., Alting L., 1994, Manufacturing Processes Reference Guide, Industrial Press Inc., New York. Kalpakjian S., Schmid S.R., 2006, Manufacturing Engineering and Technology, Pearson Education Inc.	
TEACHING METHODS: Verbal and applied course	
ASSESSMENT METHODS: Quiz, Midterm Exam and Final Exam	

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LECTURER (NAME, EMAIL CONTACT): Prof. Dr. Dogan EROL