

**DEPARTMENT of INDUSTRIAL ENGINEERING
COURSE CATALOGUE FORM**



Course Code: INDE3314				Course Title: Quality Planning and Control			
Semester	L + R + L	Credits	AKTS	Language	Category	Instructional Methods	Prerequisites
6	3 + 0 + 0	3	6	English	Required	Lecture	INDE2156
Course Objectives			This course aims to equip students with the necessary quantitative tools and teach methods for modern statistical quality planning and control.				
Course Content			Principles of quality control systems and process control; concepts of specification and tolerance; process capability analysis; control charts; acceptance sampling plans; cost dimension of quality decisions; quality improvement programs; quality information systems.				
Course Learning Outcomes			Students, who pass the course satisfactorily: 1. Understand the philosophy of quality of products and processes within the statistical and assurance domain. [2] 2. Able to solve the problems related to variable and attribute type quality factors. [2] 3. Realize the quality design and process capability dimension of decision support systems. [2] 4. Define and design a project via data analytics of the course and carry it out in the scope of team work. [5] [Note: Numbers in brackets are indicating the related program outcomes]				
ISCED Category of the course			52 Engineering				
Textbook			Introduction to Statistical Quality Control, Douglas C. Montgomery				
Supplementary Material			Fundamentals of Quality Control and Improvement, Amitava Mitra				

COURSE PLAN

Week	Topics	Laboratory / Tutorial Work
1	Introduction to quality control philosophy and concepts	-
2	Review of statistical tools	-
3	Process control and improvement	-
4	Variable control charts design	-
5	Variable control charts analysis	Statistical package application
6	Attribute control charts design	-
7	Attribute control charts analysis	Statistical package application
8	Discussion and proposal of the term project	-
9	Process capability analysis	-
10	Tolerances and specifications	Statistical package application
11	CUSUM and EWMA control charts	-
12	Modern control charts	-
13	Acceptance sampling	-
14	Recent advances in process control	-

COURSE ASSESSMENT SYSTEM

	Activities	Contribution (%)
Semester Activities	Semester Written Exams	40
	Homework	-
	Reports	-
	Labs	-
	Seminars	-
	Presentations	-
	Term Project	15
	Other (attendance, field trip etc.)	5
FINAL EXAM		40
Total		100

CONTRIBUTION of the COURSE on INDUSTRIAL ENGINEERING PROGRAM OUTCOMES

	Program Outcomes	Low	High
1	Adequate knowledge in mathematics, science and subjects pertaining to Industrial Engineering; ability to use theoretical and applied knowledge in these areas in complex engineering problems.		
2	Ability to identify, formulate, and solve complex Industrial Engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.		X
3	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.		
4	Ability to devise, select, and use modern techniques and tools needed for analyzing and solving problems encountered in engineering practice; ability to employ information technologies effectively.		
5	Ability to design and conduct experiments, gather data, analyze and interpret results for investigating complex engineering problems or discipline specific research questions.		X
6	Ability to work efficiently individually and in intra-disciplinary / multi-disciplinary teams.		
7	Knowledge of Turkish and English languages; ability to communicate effectively orally, inscriptive and visually by using these languages (via business methods such as reports, presentations and instructions).		
8	Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.		
9	Consciousness to behave according to ethical principles and professional and ethical responsibility; knowledge on standards used in engineering practice.		
10	Knowledge about business life practices (management activities such as project, risk, change and quality etc.); awareness in entrepreneurship, innovation; knowledge about sustainable development.		
11	Knowledge about the global and social effects of engineering practices on health, environment, economics and safety, and contemporary issues of the century reflected into the field of engineering; awareness of the legal consequences of engineering solutions.		

ECTS - WORK LOAD TABLE

COURSE ACTIVITIES	Quantity	Time (hr)	Work Load (hr)
Lectures	14	3	42
Final Exam (Preparation included)	1	25	25
Semester Written Exams (Preparation included)	2	10	20
Out of class study time	12	2,5	30
Homework	5	1	5
Reports	-	-	-
Labs	-	-	-
Seminar	-	-	-
Presentations	-	-	-
Term Project	1	25	25
Total Load (hr)			147
ECTS Credits of the course (Total Work Load / 25)			6

Revision / Date 5/02/2020	Coordinator / Prepared By Çağlar Aksezer	Approved By Çağlar Aksezer
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