Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
IND 523	Advanced Topics in Quality	1	3	0	0	3	6
	Engineering						

Prerequisites	
Admission Requirements	

Language of Instruction	English	
Course Type	Elective	
Course Level	Masters Degree	
Objective	The aim of this course is to provide students with a basic understanding of the approaches, systems and techniques to assess and improve product/service quality in a manufacturing/service organization. The principles and techniques of experimental design and Six Sigma methodology and their practical implementation issues in product and service realization are introduced. Quality Systems and Management in both the manufacturing and servicing environment with strong emphasis on development of quality management systems and application of Total Quality Management (TQM) concepts to enhance organizational competitiveness are discussed.	
Content	 week: Product and service quality dimensions week: Modern Quality Management development and background week: Basic statistics and probabilities for quality and reliability week: Statistical Process Control, Control Charts for Variables week: Introduction to experimental design week: Experiments with a single factor: the analsis of variance week: Introduction to factorial designs week: Blocking and confounding in the 2k factorial design week: Mid term week: Response surface models week: Quality function deployment, voice of the customer week: Six Sigma and DMAIC methodology week: Case studies week: Case studies 	
References	 Montgomery, D.C., Design and Analysis of Experiments, Sixth Edition, John Wiley & Sons, 2005. Besterfield D.H. et al, Total Quality Management, Prentice-Hall, Englewood, USA, 2003. Gryna F.M., Chua C.H., DeFeo J.A., Juran's Quality Planning and Analysis, 5th edition, McGraw-Hill, 2007. 	

Theory Topics

Week	Weekly Contents
1	Product and service quality dimensions
2	Modern Quality Management development and background
3	Basic statistics and probabilities for quality and reliability
4	Statistical Process Control, Control Charts for Variables
5	Introduction to experimental design
6	Experiments with a single factor: the analsis of variance
7	Introduction to factorial designs
8	Blocking and confounding in the 2k factorial design

Week	Weekly Contents
9	Mid term
10	Response surface models
11	Quality function deployment, voice of the customer
12	Six Sigma and DMAIC methodology
13	Case studies
14	Case studies