Course Unit Title	**MEM501 Quantitative Methods in Engineering Management**
Programme of study	MSc in Engineering Management
Lecturer	Dr.-Ing. Paris A. Fokaides
Type of course unit	Compulsory
ECTS	7
Year of study:	1
Semester(s) offered	Fall Semester 2013
Course content	▪ Introduction to quantitative analysis ▪ Fundamental concepts in statistical dependent and independent events, in random variables and in probability distribution ▪ Regression models, decision analysis models ▪ Quantitative methods simulation and modelling
Course modules:	1. Introduction to quantitative analysis ▪ What is quantitative analysis ▪ How to develop a quantitate analysis model ▪ Possible problems using quantitative analysis ▪ Spreadsheet models to perform quantitative analysis ▪ Break-even analysis 2. Probability concepts and applications ▪ Fundamental concepts ▪ Statistically independent and dependent events ▪ Random variables ▪ Probability Distributions 3. Regression models ▪ Scatter diagrams ▪ Simple linear regression ▪ Measuring the fit of regression models ▪ Using computer software for regression 4. Decision Analysis ▪ Types of decision making environments ▪ Decision making under uncertainty ▪ Decision making under risk ▪ Decision trees ▪ Utility theory 5. Simulation modelling ▪ Advantages and disadvantages of simulation ▪ Monte Carlo simulation ▪ Simulation of inventory analysis ▪ Simulation of queuing problems ▪ Simulation of maintenance model
Textbooks:	Render, B. (2011). Quantitative analysis for management. Pearson Education.
Instruction language	English
External reference	link