Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
IND 522	Advanced Statistical Modeling	1	3	0	0	3	6

Prerequisites	
Admission Requirements	

Language of Instruction	English
Course Type	Compulsory
Course Level	Masters Degree
Objective	This advanced course in inferential statistics emphasizes the practical application of statistical analysis. Instruction includes an examination of the role of statistics in research; understanding statistical terminology; use of appropriate statistical techniques; and interpretation of findings in the fields of engineering.
Content	Topics include graphing and tabulation of data, hypothesis testing for small and large samples, chi-squared, statistical quality control, analysis of variance (ANOVA), regression, correlation, and decision making under uncertainty.Topics combines intermediate and advanced statistical methods with practical research applications
References	Understanding and Using Advanced Statistics: A Practical Guide for Students, Jeremy J Foster, Emma Barkus, Christian Yavorsky, Sage pub., 2006 Advanced Statistics, Jain, T.R. ,, Aggarval, S.C., Statistics: Methods and Applications : a Comprehensive Reference for Science, Industry, and Data Mining, Statsoft, 2006.

Theory Topics

Week	Weekly Contents
1	Introduction to Advanced Statistical Modeling
2	Sampling and Survey Techniques
3	Estimation and inferences
4	Hypothesis testing
5	The Design & Analysis of Factorial Experiments for 2 Factors - Model I Applications
6	The Design & Analysis of Factorial Experiments for 2 Factors - Model II Applications
7	The Design & Analysis of Factorial Experiments for 2 Factors - Model III Applications
8	Midterm
9	Linear Regression Analysis I
10	Linear Regression Analysis II
11	Linear Regression Analysis III
12	Linear Regression Analysis IV
13	Multiple Regression Analysis I
14	Multiple Regression Analysis II