DATA ANALYSIS & DECISION MAKING - III

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IIT Kanpur

TYPE OF COURSE : New | Elective | PG
COURSE DURATION : 12 weeks (29 Jul’19 - 18 Oct’19)
EXAM DATE : 16 Nov 2019


INTENDED AUDIENCE : Masters in Business Administration, Economics, Statistics/Mathematics, Industrial Engineering, Operations Research/Operations Management, PhD in related fields

INDUSTRIES APPLICABLE TO : Manufacturing industry, Chemical industry, Steel industry, Cement industry, etc

COURSE OUTLINE :
This is the third part of the three part course (DADM-I, DADM-II, DADM-III) which covers Operations Research and its tools with applications. In general, Decision Analysis and Decision Making (DADM) covers three main areas which are: Multivariate Statistical Analysis with its applications, Other Decision Making Models like DEA, AHP, ANP, TOPSIS, etc., and Operations Research and its tools with applications. This three part DADM course will be more practical and application oriented rather than theoretical in nature.

ABOUT INSTRUCTOR :
Prof. Raghu Nandan Sengupta completed his Bachelors in Mechanical Engineering from Birla Institute of Technology Mesra, Ranchi INDIA and his FPM (PhD) from Indian Institute of Management Calcutta, with specialization in Operations Management. His research interests are in Sequential Analysis, Statistical and Mathematical Reliability, Optimization and its use in Financial Optimization. At Indian Institute of Technology Kanpur, India he is a Professor in the Industrial and Management Engineering Department and teaches courses like Probability and Statistics, Stochastic Processes and their Applications, Management Decision Analysis, Financial Risk Management, etc. He is also the recipient of IUSSTF Fellowship 2008 and visited Operations Research & Financial Engineering department at Princeton University, USA, ERASMUS MUNDUS Fellowship 2011 to Warsaw University, Poland, EU-NAMASTE Fellowship 2015 to IST, University of Lisboa, Portugal, DAAD Fellowship 2015 to TU Dresden, Germany.

COURSE PLAN :
Week 1: Introduction, Ideas of Optimization and Modeling
Week 2: Linear Programming (LP) and related topics
Week 3: Simplex Method, Interior point Method and related concepts
Week 4: Non-Linear Programming (NLP)
Week 5: Goal Programming
Week 6: Stochastic Programming
Week 7: Programming and other related methods
Week 8: Polynomial Optimization
Week 9: Reliability Based Programming
Week 10: Robust Optimization
Week 11: Parametric programming, etc
Week 12: Multi-objective Programming