

QUANTITATIVE METHODS FOR BUSINESS DECISIONS (QMBD)

Credits	Three (3)
Faculty Name	Arun Kumar Paul (arun@ximb.ac.in)
Program	Executive MBA 1 Yr Full-time; Elective from DS area
Academic Year and Term	2019-2020; Term 4

1. **Course Description:** Most of the successful business decisions rely on quantitative methods to select potential alternatives and help predict what options will have the greatest chance of success. Whether making purchasing, marketing or financing decisions, it is essential to obtain a quantitative foundation to assist in the decision-making process. Objectives of the course are to provide a formal quantitative approach to problem solving, to give an insight for managerial situations where a quantitative approach is appropriate and conceptual understanding of the role that quantitative methods play in the decision-making process. In addition, this course also introduces some widely used Quantitative Models used for Business Decision.
2. **Learning Objective:** After completing this course, students should be able to:
 - learn popular quantitative tools and techniques used in decision making.
 - know quantitative models and their relevance in business situations.
 - apply suitable quantitative approaches in business decision making and operations.
3. **Provisional Session Plan:**

Session No.	Topic Description	Remarks
1,2	Problem formulation under constraints - Linear, Non-linear	Reading materials, Cases will be given to the students.
3,4	Multi-Criteria Decision Making (MCDM) - Weighted methods; AHP	
5 - 8	LPP and its applications	
9,10	<i>Monte Carlo simulation - decision with quantified uncertainties</i>	
11,12	Inferential statistics, Regression models , SPSS	
13	<i>Data Envelopment Analysis</i> ; Goal Programming	
14	Network models	
15,16	Waiting line models	
17	Theory of Constraints	
18	Game Theoretic approach	
19	Multi-Attribute Utility Theory (MAUT); Interpretative Structural Modeling (ISM) - Introduction	
20	Case study presentations; Group work presentations	
Quiz, Final Exam, Group / Case Presentations		

4. Group Work:

Practical / Application oriented: Applying concepts and tools learnt in the course, to a real-life situation. (Submission: Hard copy (.doc + .xls) + soft copy (.doc, .xls, .ppt), *on the day of Group presentation*)

Criteria of evaluation:

- Choice of situation 5 %
- Definition of problem 10 %
- Collection of data 15 %
- Analysis of data,
 use of tools 40 %
- Suggested solution 20 %
- Reporting 10 %

5. Evaluation Methodology (for the entire course):

a. Class Room Attendance & Participation	:	10 %
b. Quiz -1 (Individual)	:	15 %
c. Quiz -2 (Individual)	:	20 %
d. Group Work + presentation	:	15 %
e. Final exam (Individual)	:	40 %
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TOTAL		100 %

6. Grading System, Academic Integrity: (to follow the Manual of Policies)

7. Reference, Bibliography:

- Business Statistics for Contemporary Decision Making by Ken Black, Wiley India
- Basic Econometrics by Damodar N. Gujarati, Mc Graw Hills
- Multivariate Data Analysis, by Joseph F. Hair, Jr; William C. Black, Barry J. Babin and Rolph E. Anderson, Prentice Hall
- Statistics for Management by Levin, Rubin, Rustogi and Siddiqui, 7th edn., Pearson
- **Quantitative Methods for Business by Anderson, Sweeney, Williams, Camm & Martin, CENGAGE Learning (TEXT BOOK)**
- Data Analysis, Optimization, and Simulation Modeling by Albright, Zappe and Winston, CENGAGE Learning
- Quantitative Methods for Decision Making using Excel by Davis and Pecar, Oxford University Press.
- *Selected Reading Articles & Cases will be provided and will be discussed during the course.*