

Quantitative Reasoning –II

Credit Hours: 3 Course Code: MATH-1107 Prerequisites: None
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Course Introduction: This is the follow up course of quantitative reasoning 1 course. It will enhance the quantitative reasoning skills learned in quantitative reasoning 1 course. Students will be introduced to more tools necessary for quantitative reasoning skills along with mathematical skills to live in the fast paced 21st century. These quantitative reasoning skills will help students to better participate in national and international issues like political and health issues. This course will prepare the students to apply quantitative reasoning tools more efficiently in their professional and daily life activities. This course will help them to better understand the information in form of numeric, graphs, tables, and functions

Course Learning Outcomes: Upon successful completion of this course, a student should be able to:

CLO1: Understanding logic and logical reasoning.

CLO2: Understanding of basic quantitative modeling and analysis

CLO3: Logical reasoning skills and abilities to apply to solve quantitative problems and evaluate arguments

CLO4: Ability to critically evaluate quantitative information to make evidence-based decisions through appropriate computational tools

PLO/CLO Mapping:

	PLO1	PLO2	PLO3
CLO1	✓		
CLO2	✓		
CLO3			✓
CLO4		✓	✓

Course Contents:

Mathematical logic: Logics, Propositional Logic. Applications of Propositional Logic. Propositional Equivalences. Propositional Calculus. Predicate calculus. Predicates and Quantifiers.

Counting methods: The Basics of Counting. Pigeonhole principle and its applications. Permutations and Combinations, Generating Permutations and Combinations. Product and

inclusion exclusion formulae. Binomial Coefficients and Identities.

Analytical Reasoning: Introduction to analytical reasoning, Direction, Conditions, Grouping and Blood relations statements for analytical reasoning. Simple and coded inequalities. Indexing of a Sequence, Ranking and Time sequence. Jumbled relation. Seating arrangement questions. Apply mathematical techniques to the analysis and solution of real-life problems, investigating relationships between variables, exploring tools to find relationship between variables, Resources and population growth; simultaneous linear equations in two variables and their applications. Graphical and analytical approaches to solve a problem, Applications of graphical & analytical approaches, absolute value and inequalities

Recommended Books: Following are the recommended books

1. Richard J., Discrete Mathematics, 7th edition (December 29, 2007) MK Pandey, Magical Book Series Analytical Reasoning, BSC Publication,
2. R. S. AGGARWAL, A Modern Approach to Verbal & Non-Verbal Reasoning. January 1, 2010
3. R. S. Aggarwal - Quantitative Aptitude for Competitive Examinations, Chand Publishing (2017)
4. Quantitative Reasoning: Tools for Today's Informed Citizen by Alicia Sevilla & Kay Somers
5. Bennett, J. & Briggs, W. (2015). Using and understanding mathematics(6th Edition). Pearson Education, Limited
6. Blitzer, R. (2014). Precalculus. (5th Edition). Pearson Education, Limited