

GUJARAT TECHNOLOGICAL UNIVERISTY

General Recommendations for the faculty members & and Paper Setter for the subject Quantitative Analysis – II (QA-II), Sub Code: - 2820007, MBA-I, Semester-II (Report of the Subject Workshop conducted at SJPI-NICM, on 9th March 2013)

Module No.	Module Content Given by GTU	Detailing Done by MBA Faculty Affiliated to GTU	Special Remarks\suggestions for designing final exam question papers
I	Introduction to Quantitative Analysis: Basic concepts and its role in decision making, Nature of OR problem, steps in OR problem, Formulation of LP problems Solution of L.P.P. by Graphical Method, Computer Output	Simple LP formulations of more than two variable problems can be discussed in class. Graphical Method: Exceptional cases in LPP such as multiple optima, infeasibility and unboundedness must be covered in class. (Only two variables). Computer Output can be introduced in this module. Theory topics given in GTU syllabus must be discussed in detail.	GTU syllabus does not include simplex method , so No simplex method to solve LPP (not to teach and not to be asked even in exam paper). Questions based on simplex output should not be asked in any case.
II	Duality and its implications, Sensitivity analysis, Introduction to Integer programming, Goal programming problems (Only formulation and solution of two variable case)	Duality in LPP with mixed Constraints must be discussed. Comparing of optimal solutions of primal and dual with simplex table not to be covered, as GTU syllabus does not include simplex method. Sensitivity analysis only through computer output, concepts like range of optimality and shadow price must be discussed, No simplex method to solve LPP (not to teach and not to be asked even in exam paper). IPP (pure, mixed and binary models) only formulation. No solution procedure even in the case of two variables.	Comparing of optimal solutions of primal and dual with simplex table not to be asked in GTU exam, as GTU syllabus does not include simplex method. Sensitivity analysis only through computer output. IPP and GPP: Only formulation, no solution procedure even in the case of two variables.

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		<p>GPP (single, prioritised etc) only formulation. No solution procedure even in the case of two variables.</p> <p>Theory topics given in GTU syllabus must be discussed in detail.</p>	
III	<p>Transportation Models, Initial Basic Feasible Solution and Optimal Solution, Assignment Problem and Travelling Salesman Problem, Network Models: Minimum Spanning Tree Problems, Shortest Route and Maximal Flow Technique</p>	<p>LP formulation of TP, IBFS only through VAM (considered as best in comparison with others but NWCR, LCM must be discussed). Only MODI method for optimal solution.</p> <p>Different variations in TP are (Unbalanced, multiple solutions, prohibited routes, degeneracy, maximisation type) must be covered.</p> <p>GTU syllabus does not include Transshipment problems, but can be discussed in the class for students' benefit.</p> <p>Assignment problem: Special cases like Unbalanced, Constrained Assignment problems, Unique vs multiple solutions, maximization type) must be covered.</p> <p>Introduction to TSP: More weithage to be given on theoretical aspects rather than solution of practical problems.</p> <p>Network Models: Only three methods namely Minimum Spanning Tree Problems, Shortest Route and Maximal Flow Technique (Note: discussed in book authored by Berry Render Pearson publication).</p>	<p>Paper setter can ask Full practical problem on TP with minimum of 2 iterations with weithage of 14 marks.</p> <p>Second way of asking could be: solution from second last iteration must be given to the students and can be asked to find optimal solution.</p> <p>Transshipment problems not to be asked in GTU exam paper, as GTU syllabus does not include Transshipment problems.</p> <p>If paper setter wants to ask Travelling Salesman Problem (TSP), then ensure that sum have only one iteration, not much time consuming and can be solved within 7-8 minutes. TSP of having 5-6 cities to be covered by travelling salesman must be strictly avoided in exam paper.</p>

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		Theory topics given in GTU syllabus must be discussed in detail.	
IV	Queuing theory: Single Channel Queuing Model with Poisson arrivals and Exponential Service Times (M/M/1) , Simulation Modeling, Markov Analysis	<p>(M/M/1):(infinity/FIFO) model: General Structure of Queuing System, Operating Characteristics of QS, Queuing Model(1st Model) Simple Cost analysis practical problems must be covered with other practical problems of queuing.</p> <p>Simulation: Theory plus practical problems must be covered in detail.</p> <p>Markov Analysis: Markov Chain only up to steady state probabilities. No problems based on absorbing chains.</p> <p>Theory topics given in GTU syllabus must be discussed in detail.</p>	<p>Simple Cost analysis practical problems can be asked in exam paper.</p> <p>Simulation of an inventory problem (lead time) and other time consuming applications must be avoided at the time of designing the question paper.</p> <p>No problems based on absorbing chains in GTU exam.</p>
V	Use of Excel Solver/TORA software to solve above problems and teaching the above concepts using at least one case in each topic	Excel Solver/TORA software must be introduced to students.	
<p>Note: Theory topics (in each module) relating to respective chapters must be covered in detail, before discussing practical problems (sums) and applications.</p>			

Module – V : Presentations on practical applications of various theory/concepts taught in the class-room teaching.