MBE I Year	MBE--C202		Semester-II		
	Management Science				
Time Allotted for End Semester Examination	Marks Allotted for Internal Assessment	Marks Allotted for End Semester Examination (ESE)	Maximum Marks (MM)	Total Credits	Maximum Hours
3 Hrs.	**30(20+10)**	**70**	**100**	**03**	**40**

OBJECTIVE: The objective of this paper is to familiarize the students with the principles and practice of Management Science

- Management Science: Basic Concepts and its role in decision making, Applications of Management Science in Business Organizations, Introduction to Linear Programming, Non-Linear Programming, Graphical and Simplex Method. **Case Study1:** Kiwanis Pancake Day– a service operations management.   **(8Hours)**
- Assignment Models: Mathematical Formulation of Assignment Fundamental theorems, Hungarian Method for Assignment Problem, Unbalanced Assignment Problem, Variations in Assignment Problem.   **(8Hours)**
- Mathematical Formulation, Metric form Transportation Problem, Feasible Solution, Basic Feasible Solution and Optimum Solution, Moving towards Optimum Solution.Solution by N.W. Corner Rule, Least Cost Method & Vogel's Approximation Method. **Case Study2:**   Bharat Tobacco: vendor selection and vendor rating.   **(8Hours)**
- Simulation: Definition, Types, Uses, Limitations & Phases of Simulation, Even Type, Monte Carlo Simulation, Application of Simulation, Decision Theory: Types, Components of Decision Making, Decision Models, Decision Making under Uncertainty, Decision Tree Analysis. **Case Study3:** Customer asset management at DHL in Asia.   **(8Hours)**
- Queuing Theory: Waiting Line Models, Inventory Management, Job Sequencing, Project Management by PERT and CPM.Game theory: Characteristic of Game Theory, Minimax Criterion & Optimal Strategy. Theoretical Introduction to Gamification.   **(8Hours)**

SUGGESTED READINGS:

1. Barry, Render, Ralph, M. & Michael, E., Hanna(2011).Quantitative Analysis, PHI, New Delhi.
2. Budnik ,Frank, S., Dennis, Mcleavey & Richard, Mojena (2003). Principles of Operations Research. All India
3. Traveller Booksheller, New Delhi,
4. Gupta, R. K. (2010).Operation Research. Krishna Prakash Media, Meerut.
5. Sharma, J. K.(2009). Operations Research.Theories and Applications. Macmillian India Ltd., New Delhi.
6. Sharma, S. D.(2007). Operation Research. Kedarnath & Co. Meerut.
7. Taha, H. A.(2008). Operation Research.An Introduction. Mc.Millan, New York.
8. Andrew Tiger, Robert Howard, (2011) "Kiwanis Pancake Day – a service operations management case study", Emerald Emerging Markets Case Studies, Vol. 1 Issue: 4, pp.1-5, https://doi.org/10.1108/20450621111186147
9. Monica Singhania, Gagan Gandhi, (2013) "Bharat Tobacco: vendor selection and vendor rating", Emerald Emerging Markets Case Studies, Vol. 3 Issue: 2, pp.1-8, https://doi.org/10.1108/EEMCS-02-2013-0019
10. Jochen Wirtz, Indranil Sen, Singh Singh, (2011) "Customer asset management at DHL in Asia", Emerald Emerging Markets Case Studies, Vol. 1 Issue: 1, pp.1-6, https://doi.org/10.1108/20450621111117413
11. **Case Study1:** Kiwanis Pancake Day– a service operations management
12. **Case Study2:** Bharat Tobacco: vendor selection and vendor rating.
13. **Case Study3:** Customer asset management at DHL in Asia

NOTE: The list of cases, specific references and books including recentarticles will be announced in the class by concerned teachers from time to time.