

Course : IT 704 : Optimization Techniques

Course Code	704
Course Title	Optimization Techniques
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	June 2019
Purpose of Course	The purpose of this course is to impart knowledge of various Optimization Techniques.
Course Objective	To impart knowledge of various Optimization Techniques to solve real world problem.
Pre-requisite	Basic knowledge of Mathematics.
Course Out come	Students will be able to apply Optimization Techniques for solving real world problems.
Course Content	<p>Unit : 1 : Job Sequencing</p> <ol style="list-style-type: none"> 1.1 Processing n jobs through 2 machines 1.2 Processing n jobs through 3 machines 1.3 Processing 2 jobs through m machines 1.4 Processing n jobs through m machines <p>Unit : 2 : Network Analysis</p> <ol style="list-style-type: none"> 2.1 Project Evaluation and Review Technique (PERT) 2.2 Critical Path Method (CPM) <p>Unit : 3 : Queuing Theory</p> <ol style="list-style-type: none"> 3.1 Essential features of queuing system 3.2 Performance measurement of queuing system 3.3 Classification of queuing model 3.4 Single server queuing model 3.5 Multi-server queuing model <p>Unit : 4 : Simulation</p> <ol style="list-style-type: none"> 4.1 Simulation Introduction 4.2 Types of simulation 4.3 Steps of simulation process 4.4 Advantages and disadvantages of simulation process 4.5 Stochastic simulation and random numbers <p>Unit : 5 : Dynamic programming</p> <ol style="list-style-type: none"> 5.1 Dynamic programming 5.2 Developing optimum decision policy 5.3 Dynamic programming under certainty 5.4 Shortest route problem 5.5 Multiple separable Return function and single additive constraints 5.6 Additive separable Return function and single additive constraints 5.7 Additive separable Return function and single multiplicative constraints
Reference Book	<ol style="list-style-type: none"> 1. Operation Research, S. D. Sharma; Kedar Nath, Ram Nath & Co. 2. Kantiswarup, P.K.Gupta and Manmohan: Sultan Chand and Sons. 3. Introduction to Operation Research Computer Oriented algorithm; B.E. Gillet 4. Operation research an Introduction; H.A. Taha 5. Optimization for Engineering Design, Algorithms and Examples Prentice; Kalyanmoy Deb; Hall of New Delhi, India, 2000 6. PERT and CPM: Principles and Applications; 2nd edition, 1975; Srinath L.S.
Teaching Methodology	Lectures, Discussion, Independent Study, Seminars and Assignment
Evaluation Method	30% Internal assessment 70% External assessment