Mangalmay Institute of Management Technology
Greater Noida (U.P.)

Lesson Plan

Program: BCA **Semester:** IV **Course Code**: BCA 404 **Course Name:** OPTIMIZATION TECHNIQUES

Course Objectives

(CO1): To enumerate the fundamental knowledge of Linear Programming and Develop and solve transportation model and assignment problem Model

(CO2): To Develop and solve Queuing Theory and related problems and understand various queuing conditions and identify the best optimal solution using various models

(CO3): Able to understand replacement theory and find out the best time to replace any product

(CO4): Able to solve problems based on Inventory Theory Applying

(CO5): Able to solve the problems related to job sequence and able to interpret results

Session Duration: 60 minutes

Participants: BCA Fourth Semester Students

Entry level knowledge and skills of students

i. General idea about matrix
ii. General idea about statistics

Equipment required in Classroom/ Laboratory/ Workshop

i. projector
ii. Marker and white board

Assessment Schemes

S. No.	Criteria	Marks (100)
1	CCSU End Term Examination	75
2	Internal Evaluation Scheme	25
2(a)	Teacher Assessment (Continuous Evaluation) (Assignment & Attendance)	25
2(a)(i)	Assignment -1	10
2(a)(ii)	Assignment -2	10
2(a)(iii)	Attendance (compulsory)	5

Course Outcomes (starting with action-oriented observable and measurable verb)

(CO1): Able to understood the concept of linear programming and solve related problem using LPP methods and analyze the result Understanding. ***Understanding (K2), Applying (K3)***

(CO2): Able to understand Queuing problem and solve queuing problems. ***Understanding (K2), Applying (K3)***

(CO3): Able to understood the concept of replacement theory and find out the best time to replace any product. ***Understanding (K2), Applying (K3)***

(CO4): Able to solve problems based on Inventory Theory. ***Applying (K3)***

(CO5): Do you able to solve the problems related to job sequence and able to interpret results understand. ***Understanding (K2), Applying (K3), Analysis (K4)***

L. No.	Topics	Sub Topics	Date of implementation	Pedagogy	CO-Covered	Faculty Sign	HoD's Remark with Date
Unit - 1							
1.	Discussion about the Subject Syllabus and Learning outcomes	Course Objective & Course Outcome			CO-1 TO CO-5		
2.	Linear programming Problem	Central Problem of linear Programming various definitions		lecture	Co-1		
3.		Statements of basic theorem and also their properties, simplex methods		lecture	Co-1		
4.		primal and dual simplex method					
5.	Transportation problem	tic-tac problem, and its solution		lecture	Co-1		
6.		VAM Techniques		lecture	Co-1		
7.	Assignment	Hungarian					

	problem	method for solving Assignment problem					
8.	LPP	Graphical method		lecture	Co-1		
9.		Simplex method		lecture	Co-1		
10.	Doubt class			Lecture Brainstorming	Co-1		
11.	University ques and Assignment			Brainstorming lecture	Co-1		
Unit - 2							
12.	Queuing Theory:	Characteristics of queuing system		lecture	Co-2		
13.		Classification of Queuing Model		lecture	Co-2		
14.		Single Channel Queuing Theory		lecture	Co-2		
15.		Generalization of steady state		lecture	Co-2		
16.		queuing models(Model-I, Model-II).		lecture	Co-2		
17.	University ques and Assignment			Lecture Brainstorming	Co-2		
18.	Doubt class			Lecture Brainstorming	Co-2		
19.	Class test				Co-2		
Unit - 3							
20.	Replacement Theory	Replacement of item that deteriorates		lecture	Co-3		
21.		replacement of items that fail.		lecture	Co-3		
22.		. Group replacement and individual replacement		lecture	Co-3		
23.		Nunerical based on above		lecture	Co-3		

24.				lecture	Co-3		
25.	University ques and Assignment			Lecture Brainstorming	Co-3		
26.	Doubt class			Lecture Brainstorming	Co-3		
Unit - 4							
27.	Inventory theory	Cost involved in inventory problem		lecture	C0-4		
28.		single item deterministic model		lecture	C0-4		
29.		economics long size model without shortage and with shortage		lecture	C0-4		
30.		economics long size model without shortage and without shortage		lecture	C0-4		
31.		Nunerical based on above		lecture	C0-4		
32.	University Ques and Assignment			Lecture Brainstorming	C0-4		
33.	Doubt class			Lecture Brainstorming	C0-4		
34.	Class test				C0-4		
Unit - 5							
35.	Job sequencing	Some important terms		lecture	CO-5		
36.		solution of sequencing problem for two machines		lecture	CO-5		
37.		Johnson s algorithm for n jobs through 2 machines.		lecture	CO-5		
38.		Johnson s algorithm for n		lecture	CO-5		

		jobs through 3 machines.					
39.		Numerical for above		lecture	CO-5		
40.	University ques and Assignment			Lecture Brainstorming	CO-5		
41.	Doubt class			Lecture Brainstorming	CO-5		
Revision							
42.	**UNIT-1**			lecture	Co-1		
43.	**UNIT-1**			lecture	Co-1		
44.	**UNIT-2**			lecture	Co-2		
45.	**UNIT-3**			lecture	Co-3		
46.	**UNIT-4**			lecture	Co-4		
47.	**UNIT-4**			lecture	Co-4		
48.	**UNIT-5**			lecture	Co-5		
49.	**UNIT-5**			lecture	Co-5		

Text Books: S.D.Sharma "Operation Research

Reference Books: Kanti Swarup "Operation Research

Journals: Optimization Theory and Applications

Electronic Database: