



SILVER OAK UNIVERSITY

College of Computer Application

Bachelor of Computer Application

Subject Name: Statistical Methods and Operations Research

Subject Code:1040273102

Semester: II

Prerequisite: NIL

Objective: To provide an understanding for the students on statistical concepts and Operation Research Techniques.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Evaluation Scheme				Total Marks
L	T	P		Internal		External		
				Th	Pr	Th	Pr	
3	1	-	4	40	-	60	-	100

Content:

Unit No.	Course Contents	Teaching Hours	Weightage %
1	Population, Sample and Data Condensation <ul style="list-style-type: none"> ➤ Concept of population and simple with Illustration ➤ Raw data ➤ Attributes and variables ➤ Classification ➤ Frequency distribution ➤ Cumulative frequency distribution 	8	20
2	Measures of Central Tendency and Dispersion <ul style="list-style-type: none"> ➤ Concept of central Tendency ➤ Requirements of good measures of central tendency ➤ Mean: Arithmetic mean, Geometric mean, Harmonic mean ➤ Median ➤ Mode ➤ Concept of dispersion ➤ Absolute and relative measures of dispersion ➤ Applications 	8	20

3.	Probability <ul style="list-style-type: none"> ➤ Experiments and random experiments ➤ Ideas of deterministic and non-deterministic experiments ➤ Definition of sample space, discrete sample space, events ➤ Types of events Union and intersections of two or more events ➤ Mutually exclusive events, Complementary event, Exhaustive event ➤ Classical definition of probability ➤ Addition theorem of probability without Proof (up to three events) ➤ Conditional probability ➤ Independence of two events ➤ Applications 	8	20
4.	Operations Research and Linear Programming Problem <ul style="list-style-type: none"> ➤ Introduction to Operations Research and Linear Programming Problem ➤ Utility of OR ➤ Graphical solution of L.P.P. with two variables ➤ Transportation problem, Assignment Problem and Sequencing problem ➤ Applications 	8	20
5.	Game theory and Networks <ul style="list-style-type: none"> ➤ Characteristics of games ➤ Maximin, minimax criteria of optimality ➤ dominance property ➤ algebraic and graphical method of solution of solving 2 x 2 games ➤ Network Minimization ➤ PERT and CPM ➤ Applications 	8	20

Course Outcome:

Sr. No.	CO statement	Unit No
CO-1	To impart the required knowledge of basics of statistics and statistical methods for computational activities among students	1,2,3
CO-2	To impart the knowledge of selection, manipulation and application of different statistical and operational research methods among students	1,2,3,4,5
CO-3	To develop practical and subject specific skills and cognitive skills (thinking and analysis)	4,5
CO-4	To improve the skill of decision making	1,2,3,4,5

Books Recommended:-

1. Operations Research, By P Sankara Iyar 2, Publisher : McGraw Hill.
2. Operation Research , By Aditham B. Rao, Publisher: Jaico Publishing House.
3. Fundamentals of statistics ,S.C.Gupta , Sultan chand& sons, Delhi.
4. Fundamentals of statistics ,D.N.Elhance , KitabMahal, Allahabad.
5. Fundamentals of statistics,Goon, Gupta And Das gupta , The world press private ltd. Kolkata.
6. Mathematical statistics,Kapoor&Saxena, S. Chand &sons .
7. Introduction to mathematical statistics,Hogg RV &Cralg AL ,Tata McGraw Hill.