# SARDAR PATEL UNIVERSITY
## Vallabh Vidyanagar, Gujarat
## (Reaccredited with 'A' Grade by NAAC (CGPA 3.25))
## Programme: B.COM   Semester: IV
## Syllabus with effect from the Academic Year: 2022-2023

| B.COM. SEMESTER-IV | | |
|---|---|---|
| **Paper Code**<br>**UB04DCOM86** | **Title of the Paper**<br>**ADVANCED STATISTICS – VIII** | **Total Credit**<br>**3** |
| **Course Objectives** | The objective of the course is to provide essential knowledge of the Basics Statistics for interpreting Business information and their business application for decision making in Statistics. | |

| Course Description | | |
|---|---|---|
| **Unit** | **Description** | **Weightage** |
| 1. | **Assignment Problem (AP) and Replacement Problem (RP)**<br>Meaning of balanced Assignment problem (AP), its mathematical form, Hungerian method for solving A.P. in the cases of minimization and maximization problem Meaning of Replacement Problem, simple examples of Replacement Problem<br>when the units are deteriorating with time and the value of money remains unchange | 25% |
| 2. | **Simplex Method**<br>Definition of slack and surplus variables and other basic terms like basic solution, basic feasible solution, initial basic feasible solution, Standard form of L.P.P., Introduction to Simplex Method, Simplex algorithm for solving LPP, Simple Simplex Algorithm (Problems with constraints "≤" and "=" types only). | 25% |
| 3. | **Arithmetic Progression and Geometric Progression**<br>Introduction of arithmetic progression and geometric progression, sum of series in arithmetic progression, arithmetic mean, geometric mean, sum of series in geometric progression. Its application based examples. | 25% |
| 4. | **1. PERT and CPM Techniques**<br>Meaning and characteristics of PERT, explanation of basic terms like activity, event, dummy activity, optimistic time, pessimistic time, most likely time, expected time. Fulkerson's rules for numbering the events, meaning of Critical Path Method (CPM), differences between PERT and CPM, earliest start time ,earliest finish time, latest start time, latest finish time, total float time of activity ,uses and limitations of PERT and CPM and simple examples on the basis of all above. | 25% |

*Units will have the same Weightage in the evaluation as suggested in the course outline.

| Teaching-Learning Methodology | • Lecture Method<br>• Online Lectures<br>• Group Discussion<br>• Practical Problem Solving |
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| Evaluation Pattern |
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| Sr. No. | Details of the Evaluation | Weightage |
|---|---|---|
| 1. | Internal/Written Examination | 15% |
| 2. | Internal Continuous Assessment in the form of Practical, Viva-Voce, Quizzes, Seminars, Assignments, Attendance | 15% |
| 3. | University Examination | 70% |

\* Students will have to score a minimum of 40 (Forty) Percent to pass the course.

**Course Outcomes: Having Completed this course, the students will be able to**

- Uses of operation research in assignment problem and simplex method.
- Identify the transportation and assignment problem and solution.
- Use of Pert and CPM in real life situation and project management.

**Suggested References: (include Reference Material from where a student is expected to study the said content in APA Style) Reference Websites can also be included)**

| Sr. No | References |
|---|---|
| 1. | Loomba & N. Paul : Linear Programming Tata Mc Graw Hill, NewDelhi. |
| 2. | Gass S. I.: Linear Programming Methods & Applications, Mc GrawHill. |
| 3. | J.K.Sharma : O.R. Theory and Applications, Macmillan IndiaLtd. |
| 4. | Anderson, Sweeney, Williams, An Introduction to Management ScienceQuantitative Approch to Decision Making, Cengage Learning India Pvt. Ltd. NewDelhi. |
| 5. | Barry Render, Ralph M. Stair , Michael E. Hanna, Quantitative Analysis forManagement, Pearson Education(Singapore) Pte. Ltd |

**On-Line Resources available that can be used as Reference Material**

**https://ugcmoocs.inflibnet.ac.in/view_module_ug.php/157**