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**BABASAHEB BHIMRAO AMBEDKAR UNIVERSITY**
**(A Central University)**
**Vidya Vihar, Rae Bareli Road, Lucknow**

**Letter No. : / DoM / BBAU**
**Date: 15 / 07 / 2024**

# Notice

This is to inform to all concerned that the Department of Mathematics is offering the following optional papers under Open Elective Course for 1st semester students of PG programme. This can be opted by any PG student other than SPDS under the Choice Based Credit System (**CBCS**).

The details of the paper and the syllabus are as follows.

| Course Code | Course Title | Maximum Marks | | | Credit |
|---|---|---|---|---|---|
| | | End Semester | Sectional | | |
| | | | Test-I | Test -II | |
| MAM-106 | Linear Programming and Optimization | 70 | 15 | 15 | 04 |

S.K. Singh
15.07.2024
**Head**
**Department of Mathematics**

**Copy to:-**

1. Dean (Academic Affairs), BBAU.
2. P.S. to Registrar, BBAU
3. Dean, SPDS, BBAU.
4. S.O to COE, BBAU.
5. All Dean/HoD
6. Notice Board, DoM
7. I/C University Website for its uploading on university website.

Head
Department of Mathematics
B.B.A. University, Lucknow

**Head**
**Department of Mathematics**

## CBCS (Open Elective) courses for other Departments/Schools other than SPDS

### Semester-I

**Course Code: MAM-106**

**Course Title: Linear Programming and Optimization**

**Course Credits: 04**

**Course Objectives**: The purpose of this course is to introduce linear programming problems and various techniques to solve linear programming problems, transportation and assignment problems. Introduce the concepts of game theory and various methods for solving games.

**Course Outcomes**: After completion of this course students will be able to:

1. Formulate real-world problems as a linear programming model and find their solutions by using graphical methods.
2. Solve linear programming problems by the simplex method, dual simplex method, etc.
3. Solve transportation and assignment problems.
4. Formulate different strategic situations in terms of game theoretic models and find out the optimal strategy.

**Evaluation Criteria:**

(a) End-Semester Examination: 70%
(b) Sessional (Class Test/Quiz/Presentation/Seminar/Assignments etc.): 30%

**Course Contents:**

**Unit 1**: Definition, scope and applications, Linear programming problems (L.P.P.), Mathematical formulation of the problems, Solution of L.P.P. by graphical method.

**Unit 2**: Simplex method, Duality in L.P.P., Dual simplex method.

**Unit 3**: Transportation problems and assignment problems of linear programming. Travelling salesman problem.

**Unit 4**: Game theory: Two-person zero-sum games, Games with mixed strategies, Graphical solutions, and solutions by linear programming.

**Reference Books:**


1. H. A. Taha, Operation Research- An introduction, Macmillan Publishing Co. Inc., NY., 2016.
2. K. Swarup, P. K. Gupta and M. Mohan, Operations Research, S Chand and Sons, New Delhi, 1977.
3. G. Hadley, Linear Programming, Narosa Publishing House, 1995.