B.Ed OPTIONAL COURSE

MATHEMATICS - II

OBJECTIVES

At the end of the course, the student teachers will be able to

- understand the curriculum development in mathematics
- understand the models of teaching mathematics
- know the importance of learning theories and strategies in mathematics
- acquire the skills on the usage of learning theories in mathematics
- acquire the skills of organising mathematical laboratory.
- know the importance of aesthetic and recreational mathematics
- know the importance of computers in teaching and learning of mathematics

UNIT I. Principles of Curriculum Development in Mathematics

Curriculum development in mathematics – need and importance – barriers – Types of curriculum development and strategies to be employed – stages of curriculum development in mathematics – Different approaches followed in curriculum development in mathematics.

UNIT II. Models of Teaching Mathematics and Class Room Interaction

Formation and applications of mathematical concepts – Concept attainment model, Advanced organiser model, Jurisprudential Inquiry model.

Classroom interaction analysis (Flanders Interaction Analysis Category System) and its implications in learning mathematics.

UNIT III. Learning Theories and Strategies - I

Individualised learning techniques – concept mapping, Keller plan and learning packages – Dalton plan – benefits, criticisms – supervised study - Programmed learning and computer assisted instruction.

UNIT IV. Learning Theories and Strategies - II

Group learning techniques – Cooperative learning, Buzz sessions, Group discussions – mathematical games.

UNIT V. Learning Resources

Classroom conditions for learning mathematics – characteristics and role of mathematics teacher – text book preparation – structure and uses – workbook and its uses.

UNIT VI. Utilizing Additional Resources for learning Mathematics

Organising mathematics laboratory, library, club and Expo - its uses.

UNIT VII. Strategies for improving effective problem solving skills

Short cut methods – rapid calculation, simple multiplication – tests of divisibility – methods to develop speed and accuracy

UNIT VIII. Recreational Mathematics

Recreational mathematics – riddles, puzzles, paradoxes, beautiful number patterns, magic squares, unsolved problems.

UNIT IX. Computer in Mathematics Education

The influence of computers in teaching and learning of mathematics – The uses of application software packages – MS Office – Word, Excel, Power Point presentation.

UNIT X. Application E-resources in Learning Mathematics

The uses of multimedia and internet - their applications to learning mathematics

PRACTICAL WORK

- Collection of mathematical puzzles, riddles etc.,
- Practising the models of teaching
- Preparation of concept mapping for particular learning units
- Participating in buzz sessions in class discussions

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