

SYLLABUS

C.R.S.U. / M.D.U. / K.U.K. / C.D.L.U.

PEDAGOGY OF MATHEMATICS

B.Ed.

Paper-IV & V

[Group-B Opt-i]

Time : 3.00 Hours

Max. Marks : 100

[External : 80, Internal : 20]

Note For Paper Setter :

- (i) Paper setter will set 9 questions in all, out of which students will be required to attempt 5 questions
- (ii) Q.NO. 1 will be compulsory and will carry 16 marks. It will be comprised of 4 short answer type questions of 4 marks each to be selected from the entire syllabus.
- (iii) Two long - answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. Long-answer type questions will carry 16 marks each.
- (iv) All questions will carry equal marks.

COURSE CONTENTS

UNIT-I

1. **Concept and aims of Teaching of Mathematics**
 - Meaning, scope and nature of mathematics
 - Aims and objectives of teaching mathematics at secondary stage
 - Framing objectives according to Blooms taxonomy
 - The nature of mathematical propositions, use of quantifiers and venn diagram
 - A Mathematical theorem and its variants- converse, inverse and contra positive, proofs and types of proof.
2. **Historical Perspective of Mathematics**
 - History of mathematics with special emphases on teaching of mathematics
 - Coexistence of precision and beauty in mathematics

UNIT-II

3. **Development of Curriculum in Mathematics**
 - Meaning and objectives of curriculum
 - Principles for designing curriculum of mathematics at different stages of schooling
 - Recent curriculum reform at national/ state level at their critical appraisal
 - Content Analysis, Pedagogical Analysis and their comparison
 - Pedagogical analysis of following topics of mathematics
 - Equations
 - Sets

- Volume
- Trigonometry
- Ratio and proportion
- **Methods of Teaching Mathematics**
 - Inductive - deductive
 - Analytic - synthetic
 - Problem solving
 - Heuristic method

UNIT-III

4. Learning Resources

- Importance of summer programs, correspondence courses, **mathematics club**, contests and fairs
- Designing mathematics laboratory and its effective use
- Importance of recreational activities - games, puzzles and riddles in mathematics
- **Projective and non-projective teaching aids**

5. Instructional and Material Development

- Writing of lesson plan
- Micro lesson planning with special reference to following :
micro teaching skills—Introduction, probing question class room management, skill of illustration with examples, skill of reinforcement
- Preparation and use of audio-visual material and equipments
- **Application of ICT in teaching of mathematics**

UNIT-IV

6. Evaluation in Mathematics

- **Evaluation Tools: Meaning, need and use of diagnostic testing and remedial teaching**
- **Continuous and comprehensive evaluation**
- Formative and summative evaluation
- **Criterion and norm reference test**

7. Professional Development of Mathematics Teachers

- **Types of In-service programme for mathematics teacher**
- **Role of mathematics teachers association, journals and other resource material in mathematics education**
- Professional growth through participation in conference / seminars / workshop

Tasks & assignments: any one of the following

(10 marks)

- Preparation of an unit plan in Mathematics
- Preparation of lesson plans on two different approaches on a selected content matter
- Development of learning aids on any topic in Mathematics and procedure for using it.
- Book review of any two books in Mathematics.
- Any other task/assignment given by the institution