

**Pedagogy of Mathematics: Part - I**

Course Code: BED504

Credit: 02 (L-2, T-0, P-0)

Contact Hours: 30

Course Objectives:

MM: 50

**Course Objectives:**

- The students will know about the Nature of Mathematics.
- To provide the concept of Methods of Writing objectives in Behavioural terms.
- To make able to understand the Measurement and Testing.
- To make them clear about Assumptions and Hypothesis in Mathematics.

**Course Outline:**

**Unit I: Nature, Scope, Aims and Objectives of Mathematics:**

- Meaning, Nature and Scope of Mathematics
- History of mathematics, Contribution of great Mathematicians : Aryabhatt, Bhaskaracharya, Srinivas Ramanujan, Euclid, Pythagoras, Arkimidies
- General and Specific objectives of Mathematics teaching
- Teaching Methods : Lecture cum Demonstration, Heuristic
- Axioms, Postulates, Assumptions and Hypothesis in Mathematics

**Unit II: Approaches, Strategies and Learning Resource:**

- Unit plan, Lesson plan
- Methods of Writing objectives in Behavioural terms : Mager's scheme, Miller's scheme, RCEM
- Techniques of writing objectives in Arithmetic, Algebra and Geometry
- Improvised apparatus in Mathematics teaching
- Mathematics curriculum at different stages : Primary, Middle and High school

**Unit III: Assessment and Evaluation of Learning in Mathematics:**

- Evaluation, Measurement and Testing
- Techniques of Evaluation : Essay type, Objective type
- Diagnostic and Remedial teaching : Diagnostic test, Remedial test, Summative test
- Construction of appropriate test

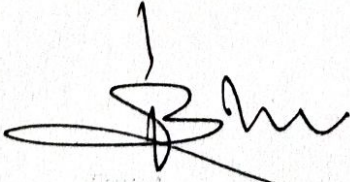
**Course Outcomes:**


After going through the course the teacher trainee will be able:


- To understand meaning, nature and scope of mathematics
- To develop an insight into aims and objectives of teaching school mathematics
- To understand approaches and strategies in teaching and learning of mathematics.
- To understand the characteristics of Mathematical language and its role in Science
- To state specific objectives in behavioural terms.
- To diagnose basic causes for difficulties in learning mathematics.

**Suggested Reading:**

- Butler and Wren. The Teaching of Secondary Mathematics, London: McGraw Hill Book Company.
- Cooney, T.J. and Others. Dynamics of Teaching Secondary School Mathematics, Boston: HoughtonMifflin.
- Cooney, Thomas, J. et al. Dynamics of teaching secondary school mathematics. Boston: HoughtonMifflin
- Copeland, R.W. How children learn mathematics. New York: MacMillan

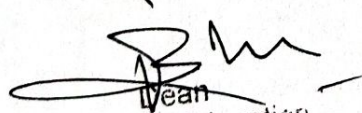
  
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- Kapler, Miriam B. Behavioural objectives in Curriculum Development: Selected Readings and Bibliography. Englewood Cliffs, NJ: Educational Technology.
  - Kapur, J.N. Suggested experiments in mathematics, New Delhi: Arya Book Depot
  - Mager, Robert. Preparing instructional objectives, Palo Alto, C A: Fearon.
  - NCERT. A textbook of Content-cum-Methodology of Teaching Mathematics, New Delhi: NCERT.
  - Polya, George. How to solve it, Garden City, New York: Doubleday.
  - Rouse Ball, W.W. Mathematical recreation and essay. Macmillan & Co.
  - Servas, w and T. Varga. Teaching School Mathematics - UNESCO Source Book.
  - Sharma, C.S. and others. Textbook of mathematics. New Delhi: Arya Book Depot
  - Siddiqui, M.H. Teaching of mathematics. New Delhi: APH Publishing Corporation
  - Weil, J. and Weil, M. Models of teaching.
- Cooney, Thomas, J. *et al. Dynamics of teaching secondary school mathematics.* Boston: Houghton Mifflin
- Copeland, R.W. *How children learn mathematics.* New York: MacMillan
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