

Course: Teaching of Mathematics
Credit Hours: 3

Introduction: This course is designed specifically to equip the prospective science teachers with the latest pedagogical knowledge required to teach the contents of Mathematics at secondary level. In addition, the course will also provide the prospective science teachers an acquaintance with the modern assessment techniques and use of modern equipment and computers in the field of teaching of Mathematics.

Objectives:

Students will be able to

Differentiate between method, technique and strategy in context of teaching.

Describe various methods for teaching of Mathematics.

Identify most suitable method to teach diverse topics.

Extend their knowledge of teaching to implement various methodologies.

Recognize the importance of teaching of Mathematics.

Demonstrate the use of low cost no cost materials for teaching of Mathematics.

Apply the computer technology for teaching of Mathematics.

Course Contents

1. Teaching of Mathematics

Introduction

Mathematical literacy and its importance

Physical sciences and limitations of science

Definition of Mathematics

Importance of Mathematics in everyday life

Why teach Mathematics

2. Aims and Objectives of teaching Mathematics

Aims of teaching Mathematics

Criteria for selection of aims

Objectives of teaching Mathematics

Writing objectives

Difference between aims and objectives

3. Methods of teaching Mathematics

Various methods of teaching Mathematics

Lecture method

Project method

Inductive method

Deductive method

Scientific method

Problem solving method

Choice of best method

4. Lesson Planning

Advantages of the Lesson Planning

Feature of a lesson plan

Steps in lesson plan

Distinguishing features of mathematics lesson plan

5. Teaching aids in Mathematics

Importance of teaching aids

Principles for selection of teaching aids

Principles for effective use of teaching aids

Different types of teaching aid material

Charts, Diagrams, Pictures and Bulletin board

Improvised Apparatus

Text books

6. The Mathematics Teacher

Duties and Responsibilities of a Mathematics teacher

Effective use of Mathematics Laboratory

Making Mathematics teaching more Interesting

7. Evaluation in Mathematics

Introduction

Designing of Test

Evaluation of Functional skills

The Assessment of Practical work

Recent Trends in Teaching of Mathematics

Evaluation Criteria

Examination	Type	Marks
Internal Examination	Sessional Work	15%
	Mid-Semester	25%
External Examination	Final Semester	60%

References

Basserear, T. (2012). *Mathematics for Elementary School Teachers*: Belmont, CA: Brooks.

Donovan, S. & Bransford, J.(2005). *How Students Learn: History, Mathematics, and Science in the Classroom* Washington DC: National Academies Press. Also available at

www.nap.edu/catalog.php?record_id=10126#toc

Haylock, D. (2010) *Mathematics Explained for Primary Teachers*, CA: SAGE Publications.

Protheroe, N. 'What Does Good Mathematics Instruction Look Like?' available at

<http://www.naesp.org/resources/2/Principal/2007/S-Op51.pdf>

National Council of Teachers of Mathematics, 'Illuminations'. <http://illuminations.nctm.org>

New Zealand Ministry of Education, 'New Zealand Maths', Curriculum. <http://nzmaths.co.nz>

University of Cambridge, 'NRICH: Enriching Mathematics'. <http://nrich.maths.org>

Van de Walle J. A., Karp, K. & Williams, J. Bay (2013) *Elementary and Middle School*

Mathematics: Teaching Developmentally. Boston: Pearson Education.