(III) Area of Specialization Courses in Mathematics
TEACHING OF MATHEMATICS

Course Code: EDBESc-361   **Credit Hours: 3**

Course Description

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.

Learning Outcomes

At the end of the course, Students will be able to

1. Differentiate between method, technique and strategy in context of teaching.
2. Describe various methods for teaching of mathematics.
3. Identify most suitable method to teach diverse topics.
4. Extend their knowledge of teaching to implement various methodologies.
5. Recognize the importance of teaching of mathematics.
6. Demonstrate the use of low cost no cost materials for teaching of mathematics.
7. Apply the computer technology for teaching of mathematics.

Contents

1. Teaching of Mathematics
1.1 Introduction
1.2 Mathematical literacy and its importance
1.3 Physical sciences and limitations of science
1.4 Definition of Mathematics
1.5 Importance of Mathematics in everyday life
1.6 Why teach Mathematics?

2. Aims and Learning Outcomes of teaching Mathematics
2.1 Aims of teaching Mathematics
2.2 Criteria for selection of aims
2.3 Learning Outcomes of teaching Mathematics
2.4 Writing Learning Outcomes
2.5 Difference between aims and Learning Outcomes

3. Methods of teaching Mathematics
3.1 Various methods of teaching Mathematics
3.2 Lecture method
3.3 Project method
3.4 Inductive method
3.5 Deductive method
3.6 Scientific method
3.7 Problem solving method
3.8 Choice of best method

4. Lesson Planning
4.1 Advantages of the Lesson Planning
4.2 Feature of a lesson plan
4.3 Steps in lesson plan
4.4 Distinguishing features of mathematics lesson plan

5. Teaching aids in Mathematics
5.1 Importance of teaching aids
5.2 Principles for selection of teaching aids

5.3 Principles for effective use of teaching aids
5.4 Different types of teaching aid material
5.5 Charts, Diagrams, Pictures and Bulletin board
5.6 Improvised Apparatus
5.7 Text books

6. **The Mathematics Teacher**
   6.1 Duties and Responsibilities of a Mathematics teacher
   6.2 Effective use of Mathematics Laboratory
   6.3 Making Mathematics teaching more Interesting

7. **Evaluation in Mathematics**
   7.1 Introduction
   7.2 Designing of Test
   7.3 Evaluation of Functional skills
   7.4 The Assessment of Practical work
   7.5 Recent Trends in Teaching of Mathematics

Assessment and Examinations

The students will be assessed according to the following criteria.

Examination	Marks Distribution
Sessional work	25 %
Mid Semester	35%
Final Semester	40%

Suggested Readings

Bassercar, 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 ww.nap.edu/catalog.php? record_id=10126#toc

Haylock. D. (2010). *Mathematics explained for primary teachers*. CA: SAGE Publications.

Protheroe, N. (2007). What does good math instruction look like. Retrieved from http://www.naesp.org/resources/2/Princi pal/2007/S-Op51.pdf.

National Council of Teachers of Mathematics. (n.d). *Illuminations*. Retrieved from http://illuminations.nctm.org

New Zealand Ministry of Education.(2014). *Mathematics and statistics*. Retrieved from https://nzcurriculum.tki.org.nz/The-New-Zealand-Curriculum/Mathematics-and-statistics

University of Cambridge, NRICH. (2020). Enriching Mathematics. Retrieved from 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.