

# **ECE314 Facilitating Children's Mathematical Thinking**

**Level:** 3

**Credit Units:** 5 Credit Units

**Language:** ENGLISH

**Presentation Pattern:** EVERY JAN

## **Synopsis:**

Young children are self-motivated to explore shapes, patterns, measurement and how numbers work in our world. Hence, ECE314 advocates for mathematical literacy in early childhood classrooms, rather than school mathematics. The emphasis is on facilitating children's use of mathematical and scientific thinking to make sense of the world. Early childhood mathematics should offer children challenge and joy, and invite them to experience mathematics as they play and live in the world.

## **Topics:**

- Fundamentals of mathematical literacy
- Curriculum design principles
- Examining approaches such as curriculum by Maria Montessori, Kamii-Devries, High/Scope, and Clements & Sarama's "Building Blocks"
- Pedagogical materials (e.g., manipulatives and technology) that support mathematical exploration and learning
- Block play and constructivism
- Use of language to support mathematical and scientific thinking
- Creating daily opportunities for children to count, compare, categorise, reason, analyse, enquire, solve problems and dialogue
- Use of picture books and songs
- Setting up learning corners to encourage mathematical play
- Supporting child-initiated play
- Assessing progress, and documenting and communicating children's learning
- Children requiring additional support

## **Textbooks:**

Erikson Institute: Big Ideas of Early Mathematics: What Teachers of Young Children Need to Know - The Early Math Collaborative (e-book) 2014 Pearson  
ISBN-13: 9780133259957

Erikson Institute: Big Ideas of Early Mathematics: What Teachers of Young Children Need to Know - The Early Math Collaborative (e-book) 2014 Pearson  
ISBN-13: 9780133259957-AA

**Learning Outcome:**

- Examine fundamental mathematical concepts in theory and practice
- Discuss children's ability to think mathematically
- Illustrate various types of teacher scaffolding techniques
- Analyse a centre's use of time, space, materials and teaching strategies to support children's mathematical learning
- Plan activities that engage different age groups
- Create developmentally appropriate activities to support children's thinking

**Assessment Strategies:**

<b>Continuous Assessment Component</b>	<b>Weightage (%)</b>
PRE-COURSE QUIZ	5
TUTOR-MARKED ASSIGNMENT	40
DISCUSSION BOARD	5
<b>Sub-Total</b>	<b>50</b>

<b>Examinable Component</b>	<b>Weightage (%)</b>
ECA	50
<b>Sub-Total</b>	<b>50</b>

**Weightage Total** **100**