**DEPARTMENT OF EDUCATION**

**Shyama Prasad Mukherji College for Women**

**Teaching Plan for Semester – July to December 2022 (Semester V)**

**Course and Year:** B.El.Ed. (III year)

**Paper:** Logico Mathematics Education (P 3.2)

**Faculty:** Ms Alprata Ahuja

**No. of Classes** (per week)**:** 3 Lectures and 1 tutorial

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| **Teaching Plan** | |
| **MONTH: JULY** | |
| **July: Week-wise Plan** | **TOPICS/ UNITS** (with details) |
| **4th Week** | Introduction to the paper LME – purpose of studying a pedagogy paper, connection of this paper with MDE studied alongside in the same year and to CM studied in 1st year. Also, discussion on how this paper is related to III-year block teaching is done. A run through on how this paper will be studied throughout the session is also taken up in lectures.  Discussion about the essence and importance of Mathematics (through TED talks/ recorded sessions). |
| **5th Week** | Discussion about nature of mathematics and relating it their experiences of studying mathematics. Also discussing implication of nature of mathematics on teaching and learning of mathematics (Unit 4). |
| **MONTH: AUGUST** | |
| **August: Week-wise Plan** | **TOPICS/ UNITS** (with details) |
| **1st Week** | Implication of nature of mathematics on teaching and learning of mathematics – through study of perspective-based paper. (Unit 4) |
| **2nd Week** | Discussion about nature of mathematical concepts – Primary and secondary concepts, higher order concepts and this discussion culminates in understanding the nature of mathematical concepts. (Unit 4) |
| **3rd Week** | Role of definitions and examples in exploring mathematical concepts and its implications for teachers. Exploring and comparing how concept maps are made and its uses for the teachers. (Unit 4) |
| **4th and 5th Week** | Task of making and presenting concept maps made on primary level concepts. Follow up discussions on these concept maps. (Unit 4) |
| **MONTH: SEPTEMBER** | |
| **September: Week-wise Plan** | **TOPICS/ UNITS** (with details) |
| **1st Week** | Nature of Logico-Mathematical Thinking- Looking at types of Knowledge given by Piaget. Understanding the Logico-Mathematical nature of number through discussion of various examples (Unit 1 and 5). |
| **2nd Week** | Understanding role of pre-number concepts – through analysis of a given situation. Discussion about various activities and role of textbooks. Principles of teaching numbers. (Unit 1 and 5) |
| **3rd Week** | Exploring content specific pedagogy-Place value, Addition, Subtraction and interplay between these number operations, studying common errors made by students, role of activities and role of teacher in teaching these concepts. (Unit 4 and 5).  Assignment on place value may be given here. |
| **4th Week** | Exploring content specific pedagogy-Place value, Addition, Subtraction and interplay between these number operations, studying common errors made by students, role of activities and role of teacher in teaching these concepts. (Unit 4 and 5) – Continued though looking at the workbooks followed in Vidyalaya in Digantar, Khushi-Khushi and NCERT. |
| **5th Week** | Exploring content specific pedagogy- Multiplication, Division and interplay between all the four number operations, studying common errors made by students, role of activities and role of teacher in teaching these concepts. (Unit 4 and 5) |
| **MONTH: OCTOBER** | |
| **October: Week-wise Plan** | **TOPICS/ UNITS** (with details) |
| **1st Week** | Mid-Semester Break |
| **2nd Week** | Mid-Semester Break |
| **3rd Week** | School visits may be planned under the CRM practicum. |
| **4th Week** | Exploring content specific pedagogy- Multiplication, Division and interplay between all the four number operations, studying common errors made by students, role of activities and role of teacher in teaching these concepts. (Unit 4 and 5) – Continued though looking at the workbooks followed in Vidyalaya in Digantar, Khushi-Khushi and NCERT. |
| **5th Week** | Theoretical underpinnings of the following theorists and implications to mathematics education:  Dienes  Van Hiele’s (Unit 1 and 3) |
| **MONTH: NOVEMBER** | |
| **November: Week-wise Plan** | **TOPICS/ UNITS** (with details) |
| **1st Week** | School visits may be planned under the CRM practicum. |
| **2nd Week** | Implications of the theory of geometric thinking given by Van Hiele’s – to understand the stages of learning of geometry and its implications in the primary grades. (Unit 1 and 3). |
| **3rd Week** | **Dispersal of classes, Preparation Leave and Practical Exam Begin.** |
| **4th Week** | **Dispersal of classes, Preparation Leave and Practical Exam Begin.** |
| **5th Week** | **University Semester Examination/ Internal Examination** |
| **MONTH: DECEMBER** | |
| **December: Week-wise Plan** |  |
| **1st – 3rd Week** | **University Semester Examination/ Internal Examination** |
| **4th and 5th Week** | **Winter Break** |

**E-RESOURCES**

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| **S. No** | **Name of the e-Resources** | **Link to the e-Resources** |
|  | Prof Jo Boaler and Tanya LaMar views on Mathematics teaching | <https://www.youtube.com/watch?v=qdhIyzj5_Mg> |
|  | Prof Jo Boaler task on number talks | <https://www.youtube.com/watch?v=-pJhCAiaV-Q> |
|  | Website ‘Toys from Trash’ | <http://www.arvindguptatoys.com/toys.html> |
|  | Khushi-Khushi: Textbooks available on Eklavya’s Website | <https://www.eklavya.in/past-work-top/programmes-past-top/prashika-activities/173-khushi-khushi> |
|  | Math Resources available on HBCSE’s Website | <http://mathedu.hbcse.tifr.res.in/resources/> |
|  | Stories related to Mathematics on Story Weaver’s Website | <https://storyweaver.org.in/> |
|  | Resources and Stories related to Mathematics on Eklayya’s Website | <https://www.eklavya.in/> |
|  | Cambridge University Website on Mathematics Education | <https://nrich.maths.org/> |
|  | Stanford University Website on Mathematics Education | <https://www.youcubed.org/> |
|  | TED Talk: Math is the hidden secret to understanding the world | Roger Antonsen | <https://www.youtube.com/watch?v=ZQElzjCsl9o> |

**READINGS LIST**

1. NCERT. (2012). Source Book of Assessment I-V. New Delhi: NCERT.
2. Post, T. (1992). Teaching Mathematics in Grades K-8: Research Based Methods (2nd Ed.). Boston: Allyn and Bacon.
3. Skemp, R. (1989). Mathematics in the Primary School. London: Routledge.
4. Van De Walle, J. A., Karp, K. S., & Bay-Willams, J. M. (2013). Elementary and middle school mathematics: Teaching developmentally. USA: Pearson.
5. Zevenbergen, R., Dole, S., & Wright, R. (2005). Teaching Mathematics in Primary School. Australia: Allen and Unwin.

**PLAN OF ASSESSMENT**

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| **S. No.** | **Topic of Assessment Task**  (Assignment/ Project/ Presentation/ Activity) | **Month of Assessment Task** | **Weightage/ Marks Assigned** |
| 1. | Making and presentation of concept maps | August 2022 | Non evaluative |
| 2. | Assignment on place value and aspects related to its teaching | September 2022 | 7 marks |