DSE (I.4.3) Mathematics for all: Inclusive learning spaces
Discipline Specific Elective

1. Credit Distribution of the Course

Course title & Code DSE (I.4.3)	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Mathematics for all: Inclusive learning spaces	4	3	0	1	Undergraduate	-

2. Learning Objectives

The course aims to enable students to use/develop need based pedagogical strategies and teaching learning resources for an inclusive classroom. It will focus on learning needs of differently abled learners.

3. Learning Outcomes

- able to understand meaning of diverse ability learners;
- conceptualize framework of an inclusive classroom;
- able to learn strategies of differentiation in an inclusive classroom;
- able to develop need-based resources for differently abled learners, including double exceptional.

4. Syllabus

Unit I Theoretical constructs of Inclusive Mathematics Education for All - Diversity in Mathematics classroom, Mathematics for all, Accessible curriculum, Universal design of learning in mathematics. **[12 hours]**

Unit II Fundamentals of pedagogical intervention - Pedagogical intervention as a process, Pedagogical intervention vs Instructional strategy, Pedagogical intervention vs Accommodation, Challenges of diverse learners (SEN, Dyscalculia, Gifted, Socio-economic marginalized disparities, Twice-exceptional). **[12 hours]**

Unit III Strategies for pedagogical interventions - Differentiation concept and principles strategic grouping and peer collaborations, Culturally-responsive pedagogy, Mathematical anxiety and growing mind set. **[12 hours]**

Unit IV Bridging the achievement gap - Need based leaching resources using visual, tactile; auditory; kinematic, Curriculum for advanced learner using acceleration and enrichment.

[9 hours]

5. Illustrative Practicum Details **[30 hours]**

- Diagnostic assessment for learning difficulties in mathematics;
- Error pattern analysis;
- Misconception identification tool design;
- Grade specific context based mathematics module design;
- Learning tools for differently abled learners.

6. Essential/recommended readings

- Riccomini P.J. (2009). *Response to Intervention in Mathematics,* Corwin Publisher.
- Hudson P.P. & Miller P.S. (2005). *Designing and Implementing Mathematics Instruction,* Pearson, 2005.
- Alisopp D., Kyger M. & Lovin L.H. (2007). *Teaching Mathematics Meaningfully: Solution for reaching struggling learners*. Brookers Publishing.

7. Suggestive Readings

- Boaler J. & Dweck C. (2015). *Mathematical Mindsets: Unleashing Students' Potential through Creative Mathematics, Inspiring Messages and Innovative Teaching,* Jossey-Bass Publishers.
- NCTM. (2014). *Principles to Actions: Ensuring Mathematical Success for All.*
- Chinn S. (2017). *The Routledge International Handbook of Dyscalculia and Mathematics Learning*. Routledge Publishers.