

SEMESTER - IV

CPS 2d – Part IV - PEDAGOGY OF MATHEMATICS

Credits: 2

Internal: 20 marks

Hours/Week: Theory-2hrs Practical - 3hrs

External: 30 marks

Total: 50 marks

Objectives

At the end of the course the student teachers will be able to:

- implement the knowledge of the learner controlled instruction, collaborative and co-operative learning effectively for better curriculum transaction;
- sensitize themselves with the School Curriculum;
- links the relationship of mathematics with other subjects.

Unit I: Teacher Controlled Instruction, Learner Controlled Instruction, Group Controlled Instruction

Teacher Controlled Instruction (TCI): Meaning and nature, various methods (lecture, team-teaching, demonstration, teacher based activities), strengths and weaknesses of each method, process / procedure for organizing effective lecture and demonstration, assessment of lecture and demonstration, role of teacher's in TCI. Learner Controlled Instruction (LCI): Meaning and nature, self-learning, methods of self-learning (self-instructional print material, Keller's Plan, Programmed Instruction and Computer Assisted Instruction), organization and assessment of LCI, teacher's role in LCI. Group Controlled Instruction (GCI): Meaning and nature, various methods (small group interaction, co-operative learning approach, role play, field trips, tutorial, project work), organization of GCI, problems in organizing GCI.

Unit II: School Mathematics Curriculum

Meaning of curriculum-Principles of curriculum construction in Mathematics-Development of a curriculum in Mathematics-Formulation of Objectives, Selection and Organization of Contents or Topics, Suggesting Appropriate Learning Experiences, Suggesting Suitable Methods and

Techniques for Evaluation-Recommendations of Kothari Commission and National Curriculum Framework for bringing improvement in Mathematics.

Unit III: Linkage of mathematics with community life

Rethinking Mathematics-link with everyday life, nature, other subjects and its own branches; Mathematics and other subjects- Mathematics and Astronomy, Astrology- Mathematics and Art- Mathematics and Music, Vedic Mathematics- Basic Operations.

Suggested references:

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- ❖ Boyer, Carl B. (1969). *A History of Mathematics*. New York: Wiley Publications.
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- ❖ Kapur S.K. (2005). *Learn and Teach Vedic Mathematics*. New Delhi: Lotus Publication.
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- ❖ Muijs, Daniel., & Reynolds, David. (2005). *Effective Teaching: Evidence and Practice*. London: Sage Publication.
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- ❖ Schwartz, James E. (1994). *Essentials of Classroom Teaching Elementary Mathematics*. London: Allyn and Bacon Publication.
- ❖ Sharan,R., & Sharma,M. (2006). *Teaching of Mathematics*, New Delhi: APH Publishing Corporation.

- ❖ Sharma,R.A. (2008).*Technological Foundations of Education*. Meerut: R.Lall Books Depot.
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- ❖ Sidhu,K.S. (2006).*Teaching of Mathematics*. New Delhi: Sterling Publishers private limited.
- ❖ Singh,M. (2006).*Modern Teaching of Mathematics*. New Delhi: Anmol Publications Pvt. Ltd.
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- ❖ பாலகிருஷ்ணன் R. & சரிதா M. (2010). கணிதம் கற்பிக்கும் முறைகள். தாள்-1.சென்னை: ஸ்ரீகோமதி பப்ளிஷர்ஸ்.
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