



Bachelor of Education (B.Ed. General)  
Semester-II

Course Code	UE02GBED53	Title of the Course	CPS-5 : Pedagogy of Mathematics
Total Credits of the Course	02	Hours per Week	02

Course Objectives:	<ol style="list-style-type: none"><li>1. The student-teachers analyze and prepare aids for teaching Mathematics and use justifiable teaching aids according to the classroom situations in the teaching-learning process.</li><li>2. The student-teachers identify and describe various learning resources in Mathematics and construct/collect activities for effective use of learning resources in Mathematics classrooms.</li><li>3. The student-teachers participate and organize the different co-curricular activities in Mathematics to enhance the quality of teaching Mathematics at the upper primary and secondary level.</li><li>4. The student-teachers construct and use different kinds of evaluation tools in Mathematics, and conduct continuous and comprehensive evaluation for enhancing the quality of teaching Mathematics.</li><li>5. The student-teachers review and clarify the relationship of Mathematics with its branches and other school subjects, and improve competencies and qualify in teaching upper primary and secondary level Mathematics.</li><li>6. The student-teachers explain the need and importance of textbook in teaching Mathematics, and interpret by analyzing the content of Mathematics textbook.</li><li>7. The student-teachers analyze and explain various concepts/content in Mathematics included in the standard 9 curriculum.</li></ol>
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Course Content		
Unit	Description	Weightage* (%)
1.	<b>Learning Resources and Co-curricular Activities in Mathematics</b> A. Aids for Teaching Mathematics <ol style="list-style-type: none"><li>1. Concept and Importance of Teaching Aids</li><li>2. Classification, Preparation and Use of Teaching Aids</li></ol> B. Learning Resources in Mathematics <ol style="list-style-type: none"><li>1. Educational Videos and Movies, Magazines and Periodicals, Reference Books, Blogs and Websites, Apps and Softwares</li></ol>	35





	<p>2. Mathematics Laboratory and Mathematics Corner : Concept, Objectives, Importance and Uses</p> <p>C. Co-curricular Activities in Mathematics</p> <p>1. Mathematics Club : Concept, Objectives, Importance, Organisation and Activities</p> <p>2. Mathematics Quiz, Mathematics Fair, Mathematics Olympiad, and Recreational Activities- Games, Puzzles, Riddles in Mathematics</p> <p>D. Self Learning</p> <p>1. ICT in Teaching Mathematics : CAI, e-Learning, Web based Learning</p> <p>2. Student Workbook : Concept, Objectives, Formation, Importance and Limitations</p>	
2.	<p><b>Evaluation &amp; Co-relation in Mathematics, and Mathematics Teacher</b></p> <p>A. Evaluation in Mathematics</p> <p>1. Evaluation Tools : Meaning, Need and Use of Diagnostic Testing and Remedial Teaching</p> <p>2. Various Techniques of Formative Evaluation and the Role of the Teacher in it.</p> <p>B. Relationship in Mathematics and Mathematics Teacher</p> <p>1. Mathematics : Relationship with its branches and other School Subjects</p> <p>2. Mathematics Teacher : Qualities, Qualification, Role and Professional Growth</p> <p>C. Mathematics Textbook and its Evaluation</p> <p>1. Need and Importance of Textbook in Teaching Mathematics, Characteristics of Good Textbook, Evaluation of Textbook - External, Internal and other Characteristics, Evaluation of Mathematics Textbook of Standard 8<sup>th</sup> &amp; 9<sup>th</sup></p> <p>2. Teacher Handbook : Concept, Objectives and Importance</p> <p>D. Self Learning</p> <p>1. Objectives and Principles for designing the Curriculum of Mathematics at different stages of schooling</p> <p>2. Online Tests : Concept, Advantages and Limitations</p>	35
3.	<p><b>Mathematics Content</b></p> <p>Standard-9 Mathematics Textbook (GSEB): Published by Gujarat State Board of School Textbooks, Gandhinagar</p>	30





Teaching-Learning Methodology	Question-Answer, Collaborative and Co-operative Learning, Inquiry Based Learning, Problem Solving Activities, Presentations by Students, Discussion Panel/Experts, Debate, Brainstorming, Case study, Think Pair Share, Jigsaw, Workshops, Project Based Learning, Flipped Classroom Strategies, Blended Learning Designs, Concept Mapping
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	30%
2.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Enlist the aids for teaching Mathematics and explain their importance in learning Mathematics.
2.	Classify the aids for teaching Mathematics and prepare an effective and useful teaching aid for teaching certain topic of Mathematics.
3.	Use various learning resources effectively in teaching Mathematics according to the classroom situations.
4.	Describe the importance and uses of Mathematics laboratory and Mathematics corner.
5.	Identify and implement the activities that can be undertaken by Mathematics club.
6.	Infer the implications by conducting Mathematics Quiz, Mathematics Fair, Mathematics Olympiad and recreational activities in Mathematics.
7.	Classify evaluation tools in Mathematics, and construct and use of diagnostic test and organize remedial teaching.
8.	Apply appropriate techniques of formative evaluation in Mathematics classroom.
9.	Explain the relationship of Mathematics with its branches and other school subjects by illustration.
10.	Describe the qualities of a good Mathematics teacher and clarify the role of a Mathematics teacher.





11.	Identify the characteristics of a good Mathematics textbook and compare the standard 8 and 9 Mathematics textbook in terms of external and internal characteristics.
12.	Analyze and discuss the topics covered in the teacher handbook.
13.	Perform pedagogical analysis of various concepts/content in Mathematics included in the standard 9 curriculum.

Suggested References:

Sr. No.	References
1.	Aiyangar & Kuppaswami, N. (1999). <i>The Teaching of Mathematics in New Education</i> . Universal Publication.
2.	Butler, C.H. & Wren, K.H. (1980). <i>The Teaching of Secondary Mathematics</i> . New York : McGraw-Hill Book Co.
3.	Carey, L.M. (1975). <i>Measuring and Evaluating School Learning</i> . Boston: Allyn and Bacon.
4.	Dave, R.H. & Saxena, R.C. (1970). <i>Curriculum and Teaching of Maths in Secondary Schools, A Research Monograph</i> . Delhi : NCERT.
5.	Davis, D.R. (1951). <i>The Teaching of Mathematics</i> . London : Addison Wesley Press.
6.	Ediger Mariow (2004). <i>Teaching Math Successfully</i> . Discovery Publication.
7.	Jain, S.L. (1973). <i>Ganit Shikshan</i> . Jaipur : Hindi Granth Academy.
8.	Kapur, J.N. (1997). <i>Modern Mathematics for Teachers</i> . New Delhi : Arya Book Depot.
9.	Krulik, S. & Weise, I.B. (1975). <i>Teaching Secondary School Mathematics</i> . Philadelphia : W.B. Saunders Co.
10.	Lieback, Pamela (1984). <i>How Children Learn Mathematics</i> . Penguin Books.
11.	Mangal, S.K. (2007). <i>Teaching of Mathematics</i> . New Delhi: Arya Book Depot.
12.	Moon, B. & Mayes, A.S. (eds.) (1995). <i>Teaching and Learning in Secondary School</i> . London : Routledge.
13.	Sidhu, K.S. (1995). <i>The Teaching of Mathematics</i> . New Delhi : Sterling Publishers.





14.	જી.સી.ઈ.આર.ટી. (2014). શાળાકીય સર્વગ્રાહી મૂલ્યાંકન : શિક્ષક માર્ગદર્શિકા. ગાંધીનગર : લેખક.
15.	ભટ્ટ, શુક્લા અને પારેખ (2003). નૂતન ગણિતનું અધ્યાપન. અમદાવાદ : સી. જમનાદાસ કંપની.
16.	શાહ, બી. એસ. (1987). ગણિતના અધ્યાપનનું પરિશીલન. અમદાવાદ : બી.એસ. શાહ પ્રકાશન.

On-line resources to be used if available as reference material

On-line Resources

<https://ccl.iitgn.ac.in>

<https://diksha.gov.in>

<https://sakshat.ac.in>

<https://swayam.gov.in>

<https://www.education.com>

<https://www.kendallhunt.com>

<https://www.nationalmathtrail.org>

<https://www.ncert.nic.in>

<http://www.nctm.org>

<https://www.themathguru.ca>

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