As per the new syllabus of Diploma in Elementary Education (DElEd) recommended by West Bengal Board of Primary Education and NCTE

PEDAGOGY ACROSS CURRICULUM

(DElEd Part-II • CC-04)

Dr. Papiya Upadhyay
MSc, BEd, MA, PhD
Assistant Professor, School of Education
Netaji Subhas Open University, Salt Lake City, Kolkata

Mayurakshi Basu
MA (Geography), MEd (First Class First) from RIE (NCERT), Bhubaneswar
UGC Net & JRF (Geography), PhD Research Scholar
Assistant Professor & TIC, Bishnupriya College of Education (BEd & DElEd), Barasat

Santanu Patra
MA (Geography), MA (Education), BEd, PGDGC, PGDSLM
PhD Research Scholar, NSOU, Kolkata
Google Certified Educator (Level 2)

Rita Publication
(*Publisher and Book-seller*)
25B, Beniatola Lane, Kolkata-700 009
www.ritapublication.com/www.ritapublication.in

SYLLABUS

CC-04: PEDAGOGY ACROSS CURRICULUM

Maximum Marks = 100 (Internal = 30 + External = 70)
Pass Marks = 40% of Full Marks in each of the External and Internal Evaluation
Student Contact = 90 hours

Unit-1: Pedagogic Practice and Process of Learning — Class-6 hours

- Concept of Pedagogy and Pedagogy across Curriculum—meaning, features, objectives.
- Critical understanding of the process of concept-formation.
- Constructivist approach in pedagogy across curriculum.
- Aspects of child-centric education and creation of non-intimidating environment for knowledge construction.

Unit-2: Historical and Philosophical Perspectives of Pedagogy Across Curriculum — Class-5 hours

- Philosophical bases of pedagogy across curriculum.
- History of the development of pedagogy across curriculum.
- Constructivist approach and pedagogy across curriculum.
- Development of skills through pedagogy across curriculum—nature, principles, significance.
- Pedagogy across curriculum for inclusive education.

Unit-3: Integrative Teaching in Pedagogy Across Curriculum — Class-5 hours

- Concept of Integrated teaching-learning.
- Concept of interdisciplinary approach—difference with multi-disciplinary approach.
- Significance of interdisciplinary approach in integrated teaching at the elementary level.
- Socio-cultural aspects in pedagogy across curriculum.

Unit-4: Knowledge and Methods of Enquiry — Class-5 hours

- Concept of knowledge, information and their differences.
- Concept of Knowledge Construction—case examples from elementary school subjects.
- Methods of Enquiry, different types of thinking—scientific, mathematical, social, higher order thinking.
- Relation between knowledge, curriculum, textbooks, learners and pedagogy.
- Basic tenets of enquiry based learning, contextualization, project based learning.

Unit-5: Learner and their Context — Class-6 hours

- Alternative frameworks of children's thinking.
- Everyday concepts and situated cognition.
- Pedagogy across curriculum for contextualization—language, social relations, identity, equity, rights and their relation through education.
- Eradication of Child and adult misconceptions.

Unit-6: Use of ICT for Pedagogy Across Curriculum — Class-10 hours

- Role of ICT in education.
- Use of ICT for pedagogy across curriculum.
- Capacity development in the use of ICT for integrated teaching.
- Significance of ICT in catering to diverse needs of children with special needs in an inclusive classroom.

Unit-7: Integration of Values and Performing Arts through Pedagogy Across Curriculum **Class-10 hours**

- Value education-importance at elementary stage, integration through pedagogy across curriculum.
- Types of performing arts, their relevance in education at elementary level.
- Integration of performing arts—principles, significance, strategies.
- Integration of performing arts for learner motivation with special reference to inclusive setting.

Unit-8: Pedagogy Across Curriculum for Class I-V **Class-15 hours**

- Content analysis for teaching in Interdisciplinary approach.
- Plan and Design of relevant teaching learning material for pedagogy across curriculum-Year Plan, Unit Plan, Lesson Plan, Writing Instructional Objectives, Instructional Aids, Instructional Strategies.
- Concept mapping and integrative teaching for inclusive classroom.

Unit-9: Pedagogy Across Curriculum for Class VI-VIII **Class-15 hours**

- Content analysis for teaching in Interdisciplinary approach.
- Plan and Design of relevant teaching learning material for pedagogy across curriculum—Year Plan, Unit Plan, Lesson Plan, Writing Instructional Objectives, Instructional Aids, Instructional Strategies.
- Concept mapping and integrative teaching for inclusive classroom.

Unit-10: Evaluation **Class-15 hours**

- Monitoring the progress during and after lesson.
- Follow-up activities—Maintenance of student profile, reporting progress.
- Diagnosis and diagnostic tests in L-1, L-2, Mathematics and Environmental Science.
- Remedial Measures.

CONTENTS

1. PEDAGOGIC PRACTICE AND PROCESS OF LEARNING ... 1-52

1.1. Concept of Pedagogy Across Curriculum 1

1.1.1. Meaning of Pedagogy across Curriculum 2

1.1.2. Features of Pedagogy across Curriculum 3

1.1.3. Aims and Objectives of Pedagogy across Curriculum 4

1.2. Understanding of the Process of Concept Formation 5

- Characteristics of Concept 6
- Importance of Concept Formation 6

1.2.1. Teachers' Responsibility of Concept Formation 7

1.2.2. Principles of Concept Formation 8

- Similarity-based Categorization 8
- Dissimilarity-based Differentiation 8
- Typicality and Gradience 9
- Contextual Influences 9
- Prototype Formation 9
- Hierarchical Organization 9

1.2.2.1. Heuristic Method in Concept Formation 10

1.2.2.2. Concept Formation by the Comparative Method 11

1.2.2.3. Bruner's Concept Attainment Model for Concept Formation 12

- Main Components 12
- Concept Attainment Model's Steps 12
- Application of the Concept Attainment Model (CAM) 13

1.2.2.4. Concept Formation by Instructional Method 14

- Direct Instruction 14
- Indirect Instruction 15

1.2.2.5. Problem Solving Method 16

- Role of Teacher in Problem Solving Method 17

1.2.2.6. Project Method 18

- Aims of the Project Method 18
- Principles of the Project Method 19
- Steps of the Project Method 19
- Concept Formation by Independent Study 21
- Concept Formation by Interactive Instruction 21
- Experiential Learning 23

1.3. Constructivist Approach in Pedagogy Across Curriculum 23

1.3.1. Steps of Instruction 25

1.3.2. Constructivism and the 5E Model 26

1.3.3. Key Elements of 5E Model 27

1.3.4. Role of Teacher and Students in 5E Model 27

1.3.5. Teaching Learning Stages by following 5E Model 29

1.4. Aspects of Child-centric Education and Creation of Non-intimidating Environment for Knowledge Construction 36
- Characteristics of Child-centric Education 36
- Importance of Child-centric Education 36
- Role of the Teacher in Child-centric Education 36

1.4.1. Non-Intimidating Environment 36
1.4.2. Reasons behind an Intimidating Environment in Education 37
1.4.3. Creating a Non-intimidating Environment in Education 38
- **Exercise 41**

2. HISTORICAL AND PHILOSOPHICAL PERSPECTIVES OF PEDAGOGY ACROSS CURRICULUM ... 53-88

2.1. Bases of Pedagogy Across Curriculum 53
2.1.1. Philosophical Bases of Pedagogy Across Curriculum 53
- Idealism 54
- Pragmatism 54
- Marxism 55
- Naturalism 55
- Behaviouralism 56
- Cognitive Approach 56

2.1.2. Sociological Bases of Pedagogy 57
2.1.3. Psychological Bases of Pedagogy 58
2.2. Historical Development of Pedagogy Across Curriculum 60
2.3. Constructivist Approach and Pedagogy Across Curriculum 62
2.3.1. The Cognitive Constructivism of Jean Piaget (1896-1980) 62
2.3.2. Social Constructivism 63
2.4. Development of Skills Through Pedagogy Across Curriculum 64
2.4.1. Meaning of Pedagogy 64
2.4.2. Nature of Pedagogy 64
2.4.3. Principles of Skill Development in Pedagogy 65
2.4.4. Characteristics of Pedagogy 65
2.4.5. Importance of Pedagogy 66
2.4.6. Various Skills of Pedagogy 67
- Skill of Integrating Knowledge and Experience 67
- Skill of Facilitating Child Centric Learning 68
- Skill of Encouraging Learners to Enquire 69
- Skill of Developing Observation in Learners 70
- Skill of Integrating Art with the Learning Situation 71

2.5. Pedagogy Across Curriculum for Inclusive Education 72
2.5.1. Types of Inclusive Education 74
2.5.2. Principles of Inclusive Education 76
2.5.3. Aspects of Inclusive Education 76
2.5.4. Role of Teacher in Inclusive Education 78
- **Exercise 80**

3. INTEGRATIVE TEACHING IN PEDAGOGY ACROSS CURRICULUM 89-113

3.1. Concept of Integrated Teaching-Learning 89
3.1.1. Key Components of Integrated Teaching and Learning 89
3.1.2. Pigdon's Concept of Integrated Teaching and Learning 90
3.1.3. Wolley's Concept of Integrated Teaching and Learning 90
3.1.4. Importance of Integrated Teaching Learning 90
3.1.5. Incorporating Integrated Teaching Learning Process in Classroom 91
3.1.6. Example of Implementing Integrated Teaching Learning for Class-IV 92
3.1.7. Integrated Lesson Plan Preparation 94
3.1.8. Example Integrated Lesson Plan 95
3.1.9. Advantages and Disadvantages of Integrative Teaching 96
3.2 Concept of Interdisciplinary Approach—Difference with Multidisciplinary Approach 97
3.2.1. Characteristics of Interdisciplinary Approach 97
3.2.2. Importance of incorporating Interdisciplinary Approach in Teaching-Learning Process 98
3.2.3. Important Lessons Learned 99
3.2.4. Concept of Other Approaches 100
3.2.5. Multidisciplinary Approach 101
3.2.5.1. Characteristics of a Multidisciplinary Approach in Education 102
3.2.5.2. Advantages of a Multidisciplinary Approach 102
3.2.6. Difference between Interdisciplinary and Multidisciplinary Approach 104
3.3. Significance of Interdisciplinary Approach in Integrated Teaching at Primary Level 104
3.4. Socio-Cultural Aspects in Pedagogy Across Curriculum 106
- **Exercise 107**

4. KNOWLEDGE AND METHODS OF ENQUIRY ... 114-142

4.1. Concept of Knowledge, Information and their Differences 114
4.1.1. Meaning and Concept of Information 114
- Information Processing 115

4.1.2. Knowledge 116
- Propositional Knowledge and Non-Propositional Knowledge 117
- *A Priori* and a *Posteriori* Knowledge 118
- Other Types of Knowledge 118
- Relation between Knowledge & Information 118

4.1.3. Belief 120
- Relation between Belief, Information and Knowledge 120

4.1.4. Opinion 120
- Relation between Opinion and Belief 121

4.2. Concept of Knowledge Construction 121
4.3. Methods of Enquiry, Different Types of Thinking 123
4.3.1. Methods of Enquiry 123
- Significance of Methods of Enquiry 124
- Utility of Inquiry-based Learning 124
- Application of Inquiry-based Teaching 125

4.3.2. Scientific Thinking 126

4.3.3. Mathematical Thinking 127
4.3.4. Social Thinking 128
4.3.5. Higher Order Thinking 129
4.4. Relationship among Knowledge, Curriculum, Textbook, Learners and Pedagogy 129
4.5. Basic Tenets of Enquiry-Based Learning, Contextualization and Project-Based Learning 130
4.5.1. Enquiry-based Learning 130
4.5.2. Contextualization 130
4.5.3. Project Method 132
- Principles of Project Method 133
- Steps of Project Method 133
- Merits of Project Method 134
- Demerits of Project Method 134
- Example of Project Method 134

- **Exercise 136**

5. LEARNER AND THEIR CONTEXT ... 143-159
5.1. Alternative Framework of Children's Thinking 143
5.1.1. Reasons for the Formation of Alternative Frameworks 143
5.1.2. Ways to Develop Right Conception instead of Alternative Conception in the Learners' Thinking 144
5.2. Everyday Concepts and Situated Cognition 145
5.2.1. Principles of Teaching Situated Cognition 146
5.3. Pedagogy Across Curriculum for Contextualization 146
5.3.1. Relation between Language & Education 147
5.3.2. Social Relations 148
- Methods of Social Relationship Building 148
- Identity 149
- Equity 149
- Inequity in Education 150
- Ways to Eradicate Inequity 150
- Rights 151

5.4. Eradication of Child and Adult Misconception 152
5.4.1. Child Misconception 152
- Common Child Misconceptions 152
- Development of Child Misconception 152
- Reasons behind Unfavourable Childhood 153
- Ways to Eradicate Child Misconception 154

5.4.2. Adult Misconception 155
- Development of Adult Misconception 155
- Ways to Eradicate Adult Misconception 155

- **Exercise 156**

6. USE OF ICT FOR PEDAGOGY ACROSS CURRICULUM ... 160-187

6.1. Role of ICT in Education 160

6.2. Teleconferencing 161

6.2.1. Different Types of Teleconferencing 161
6.2.2. Instructional Design of Teleconferencing 162
6.2.3. Use of Teleconferencing in Education 162
6.2.4. Advantages of Teleconferencing 163

6.3. Multimedia 163

6.3.1. Principles of Multimedia 164
6.3.2. Nature of the Multimedia Approach 164
6.3.3. Methods of Use Multimedia 165
6.3.4. Advantages of Using Multimedia in Education 165

6.4. Meaning of Computer 166

6.4.1. Functions of Computer 166
6.4.2. Uses of Computer 167
6.4.3. Computer in Learning 168
6.4.4. Computer-Assisted Instruction (CAI) 168
6.4.5. Computer Managed Instruction (CMI) 170

6.5. Internet 170

6.5.1. History of the Internet 171
6.5.2. Working Process of Internet 172

6.6. Use of ICT for Pedagogy Across Curriculum 172

6.6.1. Capacity Development in the Use of ICT for Integrated Teaching 174
6.6.2. Educational Content Development 176

6.7. Significance of ICT in Catering to Diverse Needs of Children with Special Needs in an Inclusive Classroom 176

6.7.1. Identification of Barriers to Learning for Students with Special Needs 177
6.7.2. The Role of ICT in Education of Children with Special Needs 178
6.7.3. Supportive Inclusive Education through ICT Implementation 178
6.7.4. Benefits of ICT Use in Education for Children with Special Needs 178

6.8. ICT Benefits for Teacher, Non-teaching Staff 179

- **Exercise 180**

7. INTEGRATION OF VALUES AND PERFORMING ARTS THROUGH PEDAGOGY ACROSS CURRICULUM ... 188-229

7.1. Value Education 188

7.1.1. Meaning and Concept of Value 188
7.1.2. Nature of Values 190
7.1.3. Characteristics of Values 191
7.1.4. Functions of Values 191
7.1.5. Role of Education in Inculcating Values 192
7.1.6. Meaning and Concept of Value Education 193
7.1.7. Nature of Value Education 194
7.1.8. Scope of Value Education 195

7.1.9. Role of Value Education 196
7.1.10. Need for Value Education 197
7.1.11. Significance of Value Education 197
7.1.12. Importance of Value Education in the Present Day Context 198
7.1.13. Importance of Value Education in Elementary Stage 199
7.1.14. Integration of Value Education through Pedagogy Across Curriculum 201
7.2. Types of Performing Arts, their Relevance in Education at Elementary Level 204
7.2.1. Concept and Meaning of Performing Arts 204
7.2.2. Features of Performing Arts 205
7.2.3. Types of Performing Arts 207
7.2.4. Importance of Performing Arts 209
7.3. Integration of Performing Arts: Principles, Significance, Strategies 210
7.3.1. Principles of Integration of Performing Arts 211
7.3.2. Significance of Integration of Performing Arts 213
7.3.3. Strategies of Integration of Performing Arts 214
7.4. Integration of Performing Arts for Learner Motivation with Special Reference to Inclusive Setting 216
7.4.1. Understanding Learner Motivation in Inclusive Settings 216
7.4.2. Role of Performing Arts in Education 217
7.4.3. Inclusive Education and the Performing Arts 217
7.4.4. Strategies for Integrating Performing Arts in Inclusive Classrooms 218
- **Exercise 219**

8. PEDAGOGY ACROSS CURRICULUM FOR CLASS I-V ... 230-277

8.1. Pedagogical Analysis 230
8.1.1. Meaning of Pedagogical Analysis 230
8.1.2. Steps of Pedagogical Analysis 230
8.1.3. Importance of Pedagogical Analysis 232
8.2. Plan and Design of Relevant Teaching-Learning Material for Pedagogy Across Curriculum 250
8.2.1. Formulating an Annual Plan 251
8.2.1.1. Rationale for Developing an Annual Plan 251
8.2.1.2. How to Develop an Annual Plan ? 252
8.2.1.3. Example of an Annual Plan Outline 253
8.2.2. Formulating a Unit Plan 254
8.2.2.1. Rationale for Developing a Unit Plan 254
8.2.2.2. How to Develop a Unit Plan ? 255
8.2.2.3. Example of Unit Plan Outline 256
8.2.3. Assessment Plan 257
8.2.3.1. Formulating a Lesson Plan 257
8.2.3.2. Rationale for Developing a Lesson Plan 257
8.2.3.3. How to Develop a Lesson Plan ? 258
8.2.3.4. Example of a Lesson Plan Outline 259
8.2.4. Role of Teachers in Formulating Annual Plan, Unit Plan and Lesson Plan 260

8.3. National Curriculum Framework (NCF-2005) 262
8.3.1. Background of NCF (2005) 262
8.3.2. Objectives of NCF (2005) 263
8.3.3. Classroom Transaction under NCF (2005) 263
8.3.4. Constructivism in the Light of NCF (2005) 264
8.3.4.1. Key Components of ICON Model of Constructivism 265
8.3.4.2. Example from Class 2 EVS Topic: 'Our Environment' 265
8.3.5. ICON Model Application 267
8.3.6. 5E Model of Constructivism 267
8.3.7. Steps in the 5E Model of Constructivism 267
8.3.8. Application of the 5E Model in a Classroom 269
8.3.9. Benefits of the 5E Model 269
8.3.10. Prescribed (Stage Wise) Lesson Plan Format 270
- **Exercise 274**

9. PEDAGOGY ACROSS CURRICULUM FOR CLASS VI-VIII ... 278-304
9.1. Pedagogical Analysis 278
9.1.1. Steps of Pedagogical Analysis for Class VI-VIII 278
9.1.2. Importance of Content Analysis for Classes VI-VIII 301
- **Exercise 302**

10. EVALUATION ... 305-348
10.1. Monitoring the Progress during and after Lesson 305
10.1.1. Meaning and Definition of Evaluation 305
10.1.2. Objectives of Evaluation 306
10.1.3. Characteristics of Evaluation 307
10.1.4. Steps of Evaluation 307
10.1.5. Functions of Evaluation 308
10.1.6. Needs and Importance of Evaluation 308
10.1.7. Principles of Evaluation 308
10.1.8. Types of Evaluation 309
10.1.8.1. Formative Evaluation 309
10.1.8.2. Summative Evaluation 310
10.1.8.3. Diagnostic Evaluation 312
10.1.8.4. Placement Evaluation 313
10.2. Follow-up Activities: Maintenance of Student Profile, Reporting Progress 314
10.2.1. Maintenance of Student Profile 314
10.2.1.1. Definition and Purpose of Student Profile 314
10.2.1.2. Components of a Student Profile 315
10.2.1.3. Methods of Maintaining Student Profiles 317
10.2.1.4. Importance of Student Profiles 318
10.2.2. Reporting Progress 319
10.2.2.1. Definition and Purpose of Reporting Progress 319
10.2.2.2. Types of Progress Reports 320
10.2.2.3. Methods of Reporting Progress 321

10.2.2.4. Importance of Reporting Progress 323
10.2.2.5. Challenges and Best Practices 323
10.3. Diagnosis and Diagnostic Tests in L-1, L-2, Mathematics and Environmental Science 325
10.3.1. Diagnosis and Diagnostic Tests: Concept and Significance 326
10.3.1.1. Definition of Diagnosis in Education 326
10.3.1.2. Difference Between Formative, Summative and Diagnostic Assessment 326
10.3.1.3. Key Features of Diagnostic Tests 327
10.3.1.4. Significance of Diagnostic Tests 327
10.3.2. Diagnosis and Diagnostic Tests in L-1 (First Language) 327
10.3.2.1. Importance of Diagnostic Tests in L-1 328
10.3.2.2. Components of Diagnostic Tests in L-1 328
10.3.2.3. Methods of Diagnostic Testing in L-1 329
10.3.2.4. Examples of Diagnostic Tools in L-1 329
10.3.3. Diagnosis and Diagnostic Tests in L-2 (Second Language) 330
10.3.3.1. Importance of Diagnostic Tests in L-2 330
10.3.3.2. Components of Diagnostic Tests in L-2 330
10.3.3.3. Methods of Diagnostic Testing in L-2 331
10.3.3.4. Examples of Diagnostic Tools in L-2 331
10.3.4. Diagnosis and Diagnostic Tests in Mathematics 332
10.3.4.1. Importance of Diagnostic Tests in Mathematics 332
10.3.4.2. Components of Diagnostic Tests in Mathematics 332
10.3.4.3. Methods of Diagnostic Testing in Mathematics 333
10.3.4.4. Examples of Diagnostic Tools in Mathematics 333
10.3.5. Diagnosis and Diagnostic Tests in Environmental Science 334
10.3.5.1. Importance of Diagnostic Tests in Environmental Science 334
10.3.5.2. Components of Diagnostic Tests in Environmental Science 334
10.3.5.3. Methods of Diagnostic Testing in Environmental Science 335
10.3.5.4. Examples of Diagnostic Tools in Environmental Science 335
10.4. Remedial Measures 336
10.4.1. Remedial Measures in L-1 336
10.4.2. Remedial Measures in L-2 337
10.4.3. Remedial Measures in Mathematics 338
10.4.4. Remedial Measures in Environmental Science 339
- **Exercise 339**

DElEd Examination (Part II) Question Papers 349-365