SYLLABUS

B.Ed. (Special Education)

Norms, Regulations & Course Content

REHABILITATION COUNCIL OF INDIA

(Statutory Body under the Ministry of Social Justice and Empowerment)

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GENERAL REGULATIONS OF B.ED SPECIAL EDUCATION COURSES

1. Preamble

In the Foreword to the National Policy For Persons With Disabilities (2006), Smt. Meira Kumar, the then Minister for Social Justice and Empowerment, rightly observes: "The Constitution of India ensures equality, freedom, justice and dignity of all individuals and implicitly mandates an inclusive society for all including persons with disabilities."

Indeed, it is universally recognized now that persons with disabilities constitute valuable human resources for societies. Meaningful education alone can enable them to face the challenges of life effectively, participate actively in community activities and thus become useful assets.

It is in this background that Section 26 of our Persons with Disabilities Act – 1995, enjoins upon all the appropriate Governments and the local authorities to "Ensure that every child with a disability has access to free education in an appropriate environment till he attains the age of eighteen years."

The UN Convention on the Rights of Persons With Disabilities which our Government has already ratified in October 2007, recognizes through Article 24, the right of persons with disabilities to education. For realizing this right, the Convention calls upon Member-States, inter-alia, to ensure that children with disabilities are not excluded from free and compulsory primary and secondary education, on the basis of disability and that they receive 'effective individualized support measures in environments that maximize academic and social development, consistent with the goal of full inclusion'.

In this important context, our country's "The Right of Children to Free and Compulsory Education Act, 2009 "assumes special significance. It provides for quality educational opportunities to be made available to children with disabilities as well, along with necessary infrastructural facilities and support services including trained teachers.

It is, therefore, incumbent upon us all to redouble our efforts with utmost vigour and sincerity to create educationally conducive environments for our disabled children. We have, of course, a long way to traverse. The literacy rate among persons with disabilities is reported to be just about 49 percent. Only about 9 percent of disabled youngsters manage to complete secondary education.

Para 48 of the National Policy for Persons with Disabilities, seeks to ensure "that every child with disability has access to appropriate pre-school, primary and secondary level education by 2020." In order to work towards realizing this huge target, we need a large cadre of appropriately and adequately trained teachers, apart from other requisite support services and technologies.

Our teachers have to play a device role in bringing about a qualitative change in the lives of persons with disabilities. They have to imbibe the desired positive attitudes towards disability, viewing it as a special challenge to human ingenuity and resourcefulness and not a terrible affliction or obstruction. They have to understand the real meaning of inclusion-- a basic mindset, a philosophy of life and not just a matter of rhetoric or a cliché. And, of course, they have to acquire all necessary knowledge and skills for successful and efficient discharge of their onerous responsibilities.

The proposed Special Education B.Ed. course seeks to fulfill this important goal-preparing competent, creative, committed and confident teachers of children with disabilities.

2. Objectives of the Course

The B.Ed. (Special Education) programme aims to develop teachers for children with disabilities for various settings. The B.Ed. (Special Education) course will prepare human resources to enable them to acquire knowledge and develop competencies and skills to impart education and training effectively to all children including children with special needs.

- The B.Ed. (Special Education) programme aims to prepare the students for the following:
 - (i) To acquire knowledge about change in the prevailing and emerging Indian society in view of recent trends in education and national development.
 - (ii) To identify the special needs of children and develop confidence in them to realize their potentials and abilities to meet the national development with self respect, dignity and freedom.
 - (iii) To develop skills and competencies to cater to the needs of children with disabilities in general, and special class settings in particular, in cognitive, affective and skill domains.
 - (iv) To equip in various techniques of teaching and evaluation in special and inclusive set up.

3. General Framework of the Course:

The B.Ed special education course consists of theory papers as per the following scheme:

i. Common Papers: 4
ii. Specialization Papers: 3
iii. Methodology Papers or: 2
methods related to specialization

Universities follow RCI prescribed syllabi. In case of difficulty in deciding the number of

papers including the practicum, the course content provided in the RCI syllabi need to be incorporated. If needed, some units may be added or combined to satisfy the University requirements. Additionally, content areas to suit local / regional needs may be included without compromising with the minimum contents approved by RCI. The Universities may be permitted to offer specific core papers with the thrust on disability. The weightage for special education component (both theory and practical) in such a deviation from the RCI suggested model should be adequate as per the guidelines of RCI.

4. List of Specialization Areas

The following specialization areas are prescribed in the course

- (i) Hearing Impairment
- (ii) Learning Disability
- (iii) Mental Retardation
- (iv) Visual Impairment

5. Adequacy of the Special Education Syllabi

The syllabus prescribed at the B.Ed level is on the basis of minimum requirements and therefore, Universities and Colleges of Education implementing the B.Ed course can exercise flexibility in opting the number of papers without compromising on the adequacy and validity of the contents prescribed by the RCI.

6. Duration of the Course

The duration of the course is one academic year.

7. Distribution of Time for Theory and Practical Work

The course should be spread over a period of 220 days (minimum) with 1320 working hours in addition to the examination and admission days. The distribution of working hours for the theory and practical is suggested as follows:

S.No	Area	Hours	Marks
1	Common	18%	18%
2	Specialization	14%	13%
3	Methodology	09%	09%
4	Practicum	59%	60%
TOTAL		100%	100%

In the case of institutions offering specialization model only, the percentage of hours and marks allotted to methodology will be incorporated under specialization areas.

Weightage for marks will be as per the guidelines of the implementing Universities. Weightage in terms of hours suggested by RCI is as follows:

Theory Papers

Common Papers. 4x60 Hours.
 *Specialization. 3x60 Hours.
 Methodology or.. 2x60 Hours.
 Hours 120 Hours 120 Hours methods related to specialization

For specialization in Mental Retardation, one more paper has been included bringing the total to 4 specialization papers.

Practical Work 780 Hours

In the case of institutes following the prescribed pattern, there is no change in the weightage. However, in the case of Universities / Colleges offering non-semester system, the weightage for theory and practicum may be re-appropriated accordingly with the approval of RCI.

8. Eligibility for Admission

The eligibility for this B.Ed. course is B.A./B.Sc. or an equivalent degree at graduate level depending on the requirements for the particular course. The eligibility for admission is 45% aggregate in the qualifying degree examination. The regulations prescribed by the State Governments concerned with regard to minimum eligibility criteria and reservation policies may be taken into consideration. Admission procedure can be decided by respective university.

9. Course Pattern (Semester/Non-Semester)

The decision on Semester or non-semester nature of the course depends upon the pattern followed in the University concerned to which the College is affiliated.

10. Passing Minimum

The minimum marks for passing in the theory papers is 40% in each theory paper, 50% in practical and 50% in aggregate.

11 Nature of Evaluation

The institute implementing the course may decide on the internal or external or both the system of evaluation subject to the approval of the University concerned.

12. Reappearing facility

The student who fails in any paper may be allowed to appear in that particular paper only for a maximum of 3 times within three years. If the student fails to pass the examination after three appearances, he/she will be expected to undergo the course again.

13. Improvement of Marks

The student will also be given opportunities for improvement of marks in the particular examination by reappearing in the specific paper in the next examination. The examination pattern of the special education programmes may be as per the regulations of the implementing Universities/Colleges of Education. However, the guidelines pertaining to the examination procedure prescribed by the Rehabilitation Council of India may also be adopted.

14. Transitory Regulations

Whenever a course or scheme of instruction is changed in a particular year, two more examinations immediately following thereafter shall be conducted according to the old syllabus / regulations. Candidates not appearing at the examinations or failing in them shall take the examinations subsequently according to the changed syllabus / regulations.

15. Teacher-Student Ratio

The staff-student ratio in the area of B.Ed special education may be 1:8, as per the RCI norms. Considering the infrastructural facilities needed for Special Education and based on the tasks such as supervising practicum, a maximum number of 25 students may be admitted for the B.Ed Special Education course inclusive of 3 seats for foreign students. Additional intake should be approved by RCI. Qualifications required for teaching faculty are given on RCI website under the 'Norms for Appointment of Faculty for B.Ed. & M.Ed. Special Education'.

16. Infrastructural Facilities

Institutions / Colleges of Education / University Departments offering B.Ed Special Education course should have necessary infrastructural facilities such as the psychology laboratory, science laboratory, language laboratory, work experience laboratory, computer room, etc. In addition to the infrastructural facilities, aids and appliances necessary for the specialization concerned should also be available. The institution should have a model school for children with respective disabilities so that the student teachers can have practice teaching during the course. Until such a facility is made available in the premises of the institution, a model school in the locality can be adopted.

17. Certification as a Registered Professional

It is mandatory for every teacher of special education to obtain a "Registered Professional Certificate" from the Rehabilitation Council of India to work in the field of special education in India. As continuous professional growth is necessary for the renewal of the certificate, the teachers as well as educators in special education should undergo in-service programme periodically to update their professional knowledge. Amendments, if any, to the regulations of the course will be made periodically by the Rehabilitation Council of India.

Any deviation from the above regulations should have the prior approval of the Rehabilitation Council of India.

18. Award of Degree:

The affiliating Universities will award degree in B.Ed (Special Education) specialising in Hearing Impairment / Learning Disability / Mental Retardation / Visual Impairment. While issuing degree certificate, the Universities should clearly spell out the area of specialization.

SCHEME OF EXAMINATION AND SYLLABUS FOR B. ED (SPECIAL EDUCATION-MR) COURSE

PART I: THEORY (PAPERS I- IX)

(To be implemented from the session 2011-12)

PAPER	NOMENCLATURE	MAX. MARKS		TOTAL
		Theory	Internal/	HOUR'S
			Practicum/	(EXAM
			Sessionals	HOURS:
				MRAKS)
I	NATURE AND NEEDS OF VARIOUS	100		60 Hrs.
	DISABILITIES -AN INTRODUCTION			(3 HRS: 100)
II	EDUCATION IN INDIA: A GLOBAL	100		60 Hrs.
	PERSPECTIVE			(3 HRS: 100)
III	EDUCATIONAL PSYCHOLOGY AND	100		60 Hrs.
	PERSONS WITH DISABILITIES			(3 HRS: 100)
		100		6011
IV	EDUCATIONAL PLANNING AND MANAGEMENT, CURRICULUM	100		60Hrs.
	DESIGNING AND RESEARCH			(3 HRS: 100)
V	IDENTIFICATION AND ASSESSMENT	100		60 Hrs
	OF PERSONS WITH MENTAL			(3 HRS: 100)
	RETARDATION			
VI	MENTAL RETARDATION - ITS	100		60 Hrs.
	MULTIDISCIPLINARY ASPECT			(3 HRS: 100)
VII	CURRICULUM AND TEACHING			60 Hrs.
	STRATEGIES	100		(3 HRS: 100)

VIII & IX Teaching of School Subjects:

Note: Candidate is required to opt two 'Teaching of School Subjects' selecting one from any group.

Group - A				
Opt. i	Teaching of Hindi	100		60 Hrs (3 HRS: 100)
Opt ii	Teaching of English	100		60Hrs (3 HRS: 100)
Group - B				
Opt. i	Teaching of Mathematics	100		60 Hrs (3 HRS: 100)
Opt ii	Teaching Social Science	100		60 Hrs (3 HRS: 100)

PART II-PRACTICALS (PAPERS VIII- IX) Max. Marks: 200

(Examination would be conducted by an External Team consisting of one Coordinator (Head Examiner) and three members (Sub-examiners) **-PRACS TEAM** as appointed by the University for all Practicals from paper VIII - IX i.e School Experience Programme)

VIII	School Experience	80	20
	Programme (SEP-)		CBW/Preparation of
	Teaching Practice: School		Printed
	Teaching		teaching/learning
	Subject I		material(for Blind
	(This programme must help Pupil-		Students) will be
	teacher to learn to function as a		evaluated at the time
	Teacher) One lesson of each be		of skill in teaching
	delivered by Pupil-teacher, be		examination.
	evaluated by a team of experts		No sessional work will
	comprising One Coordinator		be required
	(Head-Examiner) and three		
	Members (Sub-examiners) –		
	A. Following Five Micro-		
	Teaching Skills with 1 lesson		
	each skill.		
	Use of Chalk Board including		
	Handwriting (Compulsory)		
	Use of Teaching Aids		
	(Compulsory)		
	1) Questioning		
	2) Introducing the Lesson		
	3) Use of Reinforcement		
	4) Stimulus Variation		

	5) Illustration with Examples		
	5) Illustration with Examples Micro Lesson-5		
	Mega Lesson-5 Discussion Lesson-2		
	Real Teaching 20 Lessons		
	Final Discussion-1		
	To be selected by the candidate		
	out of two teaching subjects.	0.0	• • • • • • • • • • • • • • • • • • • •
IX	School Experience Programme	80	20
	(SEP-)		CBW/Preparation of
	Teaching Practice: School		Printed
	Teaching		teaching/learning
	Subject II		material(for Blind
	(This Programme must help Pupil-		Students) will be
	teacher to learn to function as a		evaluated at the time
	Teacher) One lesson of each be		of skill in teaching
	delivered by Pupil-teacher, be		examination.
	evaluated by a team of experts		No sessional work will
	comprising One Coordinator		be required
	(Head-Examiner) and three		1
	Members (Sub-examiners) -		
	A) Following Five Micro-		
	Teaching Skills with 1 lesson		
	each skill.		
	Use of Chalk Board including		
	Handwriting (Compulsory)		
	Use of Teaching Aids		
	(Compulsory)		
	1) Questioning		
	2) Introducing the Lesson		
	3) Use of Reinforcement		
	4) Stimulus Variation		
	5) Illustration with examples		
	Micro Lesson-5		
	Mega Lesson-5		
	Discussion Lesson-2		
	Real Teaching 20 Lessons		
	Final Discussion-1		
	To be selected by the candidate		
	out of two teaching subjects.		

^{*} Each student will attend supervised teaching for 15 days.

B.Ed. (Special Education- M.R.)

PRACTICUM

PART III-SPL. ED. PRACTICALS (PAPERS X-XII (A&B)) Max. Marks: 300 (Examination would be conducted by an External Examiner who will be professional duly registered with Rehabilitation Council of India as per RCI norms and as appointed by the University for each practical separately for paper X, XI, XII (A & B).

Max. Marks: 100

Paper X: Training in Mental Retardation

(Assessment and Individualized Education Programme)

Objective: On completion of these practicals, the trainee shall:

Conduct special educational assessment for students with mental retardation including collection of background, information, plan and implement I.E.P. using appropriate T.L.M.

Co-ordinate with other professionals for intervention as required and prepare a report.

Procedure:

The trainee is expected to develop under supervision I.E.P. for 2 students of varying gender levels/degrees of mental retardation, implement and report.

Unit 1: Collect background information including family background, birth and development History, School History and any other significant information from parents.

Unit 2: Relate other report, if any, such as that of Psychologist, Therapist and Medical professionals for planning.

Unit 3: Choose the suitable educational assessment tool and conduct current level of assessment.

Unit 4: Select primary goals and specific objective for teaching

Unit 5: Plan and implement IEP for a specific duration, evaluation and report.

Note:

The master is expected to seek permission for doing I.E.P. from the parents of the cases and only on consent from the parents should be introduced to the special educator trainee.

List of materials for special educational assessment which the special educator trainee may use shall include:

Upanayan Scale (Early Intervention)

Portage Checklist (Pre-School)

Functional Assessment Checklist (School)

B.A.S.I.C. - M.R. (School)

50 hours of instructions and activity will be devoted for each case of IEP. The cases can be undertaken simultaneously as indicated in the paper.

Book Recommended

Bluma, S.M. Shearer, M.S. Frohman, A.M. & Hilliard, J.M. (1976) Portage guide to early education (revised edition), Wiseonsin Portage project.

Department of Special Education (1994). Functional Assessment checklist for Programming: (guidelines for using the checklist), Secunderabad: NIMH

Jayachandran, P & Vimla, V (1983) Madras developmental programming system. Madras: Vijay human service.

Peshawaria, R & Venkatesan, S (1992) Behavioural assessment scales for Indian children with mental retardation. Secunderabad. NIMH

Tumball, A.P. Srickland, B.B. & Brantlay, J.C. (1990) Developing and Implementing individualized education programme, London: Merrill

Paper XI: Training on Equipment related to Mental Retardation

Max. Marks: 50

Objectives:

To prepare or select appropriate TLM for IEP, Group Lesson both curricular and co-curriculum.

To develop methods of including music, dance, drama as part of curricular and co-curricular activities.

To carry out a project on a selected topic under supervision.

Unit 1: Concept of learning and functional Aids (NRT) types and use.

Unit 2: Assessment Tools – Norm Referenced Tests – Intelligence and achievement tests, Vocational Aptitude Tests, Criterion referenced tests and functional assessment tools, MDPS, FACP portage Guide, Vocational Assessment (VAPS)

Unit 3: Functional academics – reading, working and mathematics teaching special materials, generalization, (Time, Money, Measurement and functioned academics)

Unit 4: Adaptive equipments for teaching activities for daily living

Unit 5: Adaptations for domestic and prevocational activities.

Paper XII : Teaching practice in Mental Retardation

(A) Curricular Activities in Group Teaching Max. Marks: 75

Objective:

On completion of these practicals, the trainee shall:

Plan a lesson (i.e., select aim, objective, strategies, teaching aids, time and place) and convert the planned lesson into an instruction class for imparting knowledge to and/or develop skills in persons with mental retardation.

Evaluate the effect of teaching on the student and difficulties faced in imparting instructions and suggest changes for improving the programme.

The trainee is expected under supervision to develop 15 curricular lessons taking into account the varying current levels of the cases and covering all curricular areas and all levels of Mental Retardation.

Collect background information through educational assessment on all students of the class.

Select primary goals and specific objective.

Develop and implement the lesson plan with appropriate TLM.

Evaluate the effect of teaching on the student and prepare correct measures.

(B) Co-Curricular Activities in Group Teaching Max. Marks: 75

Objective:

Plan lesson (i.e. select aim, objective, strategies, teaching aids, time and place) in yogasana, physical training, music, drama, dance and movement arts and crafts and games and convert the planned lesson into an instruction class for developing appropriate skills used to enhance the adaptive repertoire of the child.

Evaluate the effect of teaching on the student and difficulties faced in imparting instructions and suggest changes for improving the effectiveness of the programme.

Procedure:

The trainee must be first trained in each of the Co-curricular areas by an expert following areas are to be taught to the trainees: Tadasana, Trikonasana, Rarsva Vttanasana, Utkatasana, Uttanasana, Dvipadapitham, Apanasana, Chakravakasana, Vajrasana, Adhomukha Saranasana, Janusisna, Paschi Matanasana, Salabhasana, Bhujangasana.

The 15 lessons of the Teacher Trainee must cover the Co-curricular areas as listed in objective.

Each lesson plan is to be submitted to the master trainees for approval. The trainee teacher will not be allowed to conduct the instruction class unless the lesson plan is approved by the master trainer.

COURSE CONTENT FOR PRACTICUM

1.	Educational assessment and program planning (IEP) for at least 2 children with MR	(120 Hrs.)
2.	a) 18 observations each for children in special schools & 18 observations for children in an inclusive set up b) Classroom teaching of children with mental retardation at various levels from preprimary, primary, secondary, prevocational levels. A total of 30 lessons should be taught including 12 curricular and 8 co-curricular lessons, using suitable methods and materials.	(150 Hrs.)
3.	Practical training in co-curricular activities (participatory learning) yoga, visual arts or performing arts (music, dance, drama), sports and games, art and craft recreation and leisure activities.	(100 Hrs.)
4.	Preparation of learning aids	(40 Hrs.)
5.	Skill training in Mental Retardation and additional disability areas such as Autism, Cerebral Palsy and sensory impairments (HI & VI).	(50 Hrs.)
6.	(a) Organization of Resource room (b) Resource room teaching of children with learning problems in regular schools. A minimum of 30 lessons (10 Maths, 10 English, 10 Regional Language/Hindi) must be taught, following educational assessment and suitable programming – methods and materials.	(120 Hrs.)
7	a) Organization of Resource room b) Resource room teaching of children with learning problems in regular schools or inclusive schools. A minimum of 15 lessons must be taught, following educational assessment and suitable programming - methods and materials.	(100 Hrs.)
8.	a) Observation in regular classrooms for language teaching b) Teaching language to regular primary classes (choice of language left to the students - English/Hindi/Telugu). A minimum of 10 lessons with suitable teaching learning materials. c) Teaching of 10 subject classes opted at graduation level.	(100 Hrs.)

GRAND TOTAL =

PAPER - 1 NATURE AND NEEDS OF VARIOUS DISABILITIES -AN INTRODUCTION

NOTE FOR PAPER SETTER

- (1) Paper setter will set 5 question in all
- (2) Q.No. 1 will be compulsory and will carry 20 marks. There will be 4 short-answer type questions of 5 marks each to be selected from the entire syllabus.
- (3) Four long answer type questions with internal choice will be set from the entire syllabus. Each question will carry 20 marks.
- (4) All questions will be compulsory.

Time: - 3 Hours Max Marks: - 100

60 Hrs.

Objectives

The student teacher is expected to acquire a basic knowledge on identification and characteristics of various disabilities such as

- 1. Blindness and Low Vision
- 2. Hearing Impairment
- 3. Mental Retardation and Mental Illness
- 4. Locomotor, Neurological and Leprosy Cured
- 5. Neuro-developmental Disorders
- 6. Multiple Disabilities, Deafblindness

Course Content

Unit 1: Blindness and Low Vision

- 1.1 Definition and Identification
- 1.2 Incidence and Prevalence
- 1.3 Characteristics
- 1.4 Causes and Prevention
- 1.5 Intervention and Educational Programmes

Unit 2: Hearing Impairment	09 Hrs.
2.1 Definition and Identification	
2.2 Incidence and Prevalence	
2.3 Causes and Prevention	
2.4 Types of Hearing Loss and Characteristics	
2.5 Modes of Linguistic Communication and Educational Programmes	
Unit 3: Mental Retardation	09 Hrs.
3.1 Definition and Identification of Mental Retardation and Mental Illness	
3.2 Incidence and Prevalence, Causes and Prevention	
3.3 Characteristics -Mild, Moderate, Severe, Profound	
3.4 Types and Classification of Mental Retardation and Mental Illness	
3.5 Intervention and Educational Programmes	
Unit 4: Leprosy Cured, Neurological and Locomotor Disabilities	07 Hrs.
4.1 Definition and Classification	
4.2 Incidence and Prevalence	
4.3 Causes and Prevention	
4.4 Types, Classification and Characteristics	
4.5 Intervention and Educational programmes	
Unit 5: Learning Disabilities	08 Hrs.
5.1 Concept and Definition of Learning Disabilities	
5.2 characteristics of LD	
5.3 Etiological Factors	
5.4 Types and Associated Conditions	
5.5 Intervention and Educational Programmes	
Unit 6: Autism Spectrum Disorders	09 Hrs.
6.1 Concept and Definition of Autism.	
6.2 Characteristics of Autism	

- 6.3 Etiological Factors
- 6.4 Types and Associated Conditions
- 6.5 Intervention and Educational Programmes

Unit 7: Multiple Disabilities and Various Combinations

- 7.1 Definition and Identification
- 7.2 Incidence and Prevalence
- 7.3 Causes and Prevention
- 7.4 Characteristics
- 7.5 Intervention and Educational Programmes

Reference books

- 1. Poremba, C. The adolescent and young adult with learning disabilities what are his needs? What are the needs of those abilities of children and youth. Tuisa The Association for Children with Learning Disabilities, 1967 pp. 142-148.
- 2 Byrne, M., Shervanian, C., Introduction to Communicative Disorders. New York Harper & Row, 1977.
- 3. Mani, M.N.G., Techniques of teaching blind children, New Delhi Sterling Publishers, 1992.
- 4. Jangira, N.K., & Mani, M.N.G., Integrated Education of the visually Handicapped, Management Perspectives. Gurgaon Academic Press, 1991.
- 5 Harely, R.K., and Lawrence, G.A., Visual Impairment in the Schools. Springfiel IL.
- Davis, (Ed.) Our forgotten children Hard-of hearing pupils in the schools.
 Minneapolis National Support Systems Project 1977.
- 7 Overton, T. (1992). Assessment in Special Education An Applied Approach. New York McMillan.
- 8 Vikash Panda, K.C. (1997). Education of Exceptional Children. New Delhi Publications.
- 9 Subba Rao, T.A. (1992). Manual on Developing Communication Skills in Mentally Retarded Persons, NIMH, Secunderabad.
- 10. Van Riper, C.A. and Emerick. L. (1990), Speech Correction-An introduction to speech pathology and Audiology. Eighth Edition, Prentice Hall.
- Taylor, R.L. (1993). Assessment of Exceptional Students Educational and Psychological Procedures. Boston Allyn Bacon.
- 12. Baine, D. (1988) Handicapped Children in Developing Countries, Assessment, curriculum and Instruction. University of Alberta, Alberta.
- 13 Longone, 3. (1990). Teaching Retarded learners Curriculum and Methods for improving instruction. Allyn and bacon Boston.
- 14. Narayan, & Kutty, A.T.T. (1989) Handbook for Trainers of the Mentally Retarded persons. Pre-primary level. NIMH, Secunderabad.
- 15. Peshwaria, R. and Venkatesan (1992) Behavioural retarded children A manual

- for Teachers. NIMH, Secunderabad.
- 16. Evans, P and Verma, V. (Eds.) (1990) Special Education. Past Present and Future. The Faimer Press.
- 17. Muricken, Jose S.J. and Kareparampil, G (1995). Persons with Disabilities in Society. Trivandrum Kerala Federation of the Blind.
- 18. Myreddi, V. & Narayan, J. Educating Children, Secunderabad, NIMH.
- 19. Narayan, J. Educating Children with Learning Problems in Regular Schools, Secunderabad, NIMH.

PAPER - 2 EDUCATION IN INDIA: A GLOBAL PERSPECTIVE

NOTE FOR PAPER SETTER

- (1) Paper setter will set 5 question in all
- (2) Q.No. 1 will be compulsory and will carry 20 marks. There will be 4 short-answer type questions of 5 marks each to be selected from the entire syllabus.
- (3) Four long answer type questions with internal choice will be set from the entire syllabus. Each question will carry 20 marks.
- (4) All questions will be compulsory.

Time: - 3 Hours Max Marks: - 100

60 Hrs

Objectives

After studying this paper, the student teachers are expected to realize the following

- 1. Explain the history, nature, process and philosophy of education.
- 2. Spell out the aims and functions of education in general and special education in particular.
- 3. Describe the various systems of education with reference to general and special education.
- 4. Discuss the various roles of educational agencies in India.
- 5. Analyze the role of educational system in the context of Modern Ethos like democracy, socialism and secularism.

Course Content

Unit 1: Definition, process and philosophy of education

- 1.1 Definition and Meaning of Education
- 1.2 Aims of Education
- 1.3 Functions of Education
- 1.4 Philosophies and includes idealism, naturalism, pragmatism humanism and constructivism
- 1.5 Historical perspective of Education in India and Abroad

Unit 2: Education and Various Commissions

10 Hrs.

- 2.1 Principles of education and special education and Inclusive Education
- 2.2 Aims, objectives and functions of special education and inclusive education
- 2.3 Direction and priorities of general and special education and inclusive education
- 2.4 Recent trends in Indian Education and special education and inclusive education
- 2.5 Education For All movement, Education through 21st Century, Various Commissions.

Unit 3: Education in the Social Context

10 Hrs.

- 3.1 Formal, Informal and Non-formal Education.
- 3.2 Functional literacy, continuous and Life Long Education.
- 3.3 Community Based Rehabilitation including education.
- 3.4 Open Learning, Distance Education with reference to General and Special Education and inclusive education
- 3.5 Value -Oriented Education.

Unit 4: Educational Agencies for the National Development

10 Hrs.

- 4.1 Educational challenges for economic and socio-political development.
- 4.2 Role of home, community school, society, and mass media.
- 4.3 Role of Governmental and non-governmental agencies in general and special education. Such as -NCERT, SCERT, RCI, NCTE.
- (a) Resource mobilization through funding agencies and concessions/facilities for the disabled. Education
- (b) Govt. Policies, Acts and Schemes such as NPE, 1986, POA, 1992, RCI Act 1992, IEDSS, Scheme, SSA 1992, PD Act 1995, National Trust Act, 1999, Biwako Millennium Framework and its implications.
- (c) International Legislation for Special Education

Unit 4.4 International organizations, National Institutes for Handicapped, UN Organizations and International Non-Governmental Organizations (INGOs) such as UNICEF, UNESCO, WHO, UNDP, Action Aid and CBM

Unit 4.5 International and national legislation including UNCRPD

Unit 5: Education and the Modern Ethos

10 hrs.

- 5.1 Democracy, socialism and secularism.
- 5.2 Constitutional provisions in human rights.
- 5.3 Equalization of educational opportunities.
- 5.4 Education and human resource development.
- 5.5 Planning and management of human resource development.
- 5.6 Environmental Education

Unit 6: Emerging trends in Special and Inclusive Education

- 6.1 Concept of impairment, disability (activity limitation) and participation restrictions and their implications
- 6.2 Concepts and principles of inclusion.
- 6.3 Inclusive Education a rights based model
- 6.4 Community linkages and partnership of inclusion
- 6.5 Role of special schools and special teachers/educators in facilitating inclusive education

Reference books

- 1. Anand. (1993). The Teacher & Education in Emerging Indian Society. New Delhi NCERT.
- 2. Saraswathi. T.S. (1999). Culture, Socialization and Human Development. Sage Publications.
- 3. Steven. B. (1998). School and Society. Sage Publications.
- 4. Suresh. D. (1998). Curriculum and child development. Bhargava.
- 5. Taneja. V.R. (1998). Educational Thoughts and Practice. Delhi University Publications.
- Weber. O.C. (1990). Basic Philosophies of Education. New York Holt, Rinehart and Winston.
- 7. Aggarwal. J.C. (1992). Development and planning of Modern Education. New Delhi Vikas Publishing House Pvt. Ltd.
- 8. Biswas. A. and Aggarwal, J.C. (1992). Education in India. New Delhi Arya Book Depot.
- 9. Bhat. B.D. (1996). Educational Documents in India. New Delhi Arya Book Depot.
- 10. Bhatia, Kamala and Bhatia, Balder. (1997). The Philosophical and Sociological Foundations. New Delhi Doaba House.
- 11. Biswas. A. (1992). Education in India. New Delhi Arya Book Depot.
- 12. Mohanty, Jagannath. (1993). Indian Education in the Emerging Society. New Delhi Sterling publishers Pvt. Ltd.
- 13. Sapra. C.L. and Ash Aggarwal, (Ed.,) (1987). Education in India Some critical Issues. New Delhi National Book Organisation.
- 14. Choudhary. K.C. and Sachdeva, L. (Eds) (1995). Total literary by 2000.. New Delhi IAE Association.

PAPER - 3 EDUCATIONAL PSYCHOLOGY AND PERSONS WITH DISABILITIES

NOTE FOR PAPER SETTER

- (1) Paper setter will set 5 question in all
- (2) Q.No. 1 will be compulsory and will carry 20 marks. There will be 4 short-answer type questions of 5 marks each to be selected from the entire syllabus.
- (3) Four long answer type questions with internal choice will be set from the entire syllabus. Each question will carry 20 marks.
- (4) All questions will be compulsory.

Time: - 3 Hours Max Marks: - 100

60 Hrs.

Objectives

After studying this paper, the student trainees are expected to realize the following objectives:

- 1. Explain the Concepts and principles of growth and development.
- 2. Describe the various theories of learning and their implications to the disabled.
- 3. Explain the concepts of intelligence and aptitude in general and with specific reference to the PWDs.
- 4. Explain the concept of personality and mental health and their implications to the PWDs
- 5. Define the meaning and techniques of guidance and counselling in general and with special reference to the PWDs

Course Content

Unit 1: Introduction to Psychology

- 1.1 Definition, Nature and Scope of Psychology.
- 1.2 Educational psychology: scope and relevance to general education.
- 1.3 Role of educational psychology in special education.
- 1.4 Theories of motivation, attention and perception and its application in education.
- 1.5 Implications of the above with regard to specific disabilities.

Unit 2: Growth and Development

10 Hrs.

- 2.1 Meaning, Definitions and Principles of Growth and Development.
- 2.2 Influences of heredity and environment.
- 2.3 Stages of Development with reference to children with disabilities.
- 2.4 Developmental needs from infancy through adolescents
- 2.5 Developmental delay and deviancies

Unit 3 Learning 10 Hrs.

- 3.1 Definition, Meaning of Learning and Concept formation.
- 3.2 Learning -Domains and factors affecting learning.
- 3.3 Theories of learning (behavioural, cognitive and social), and their application to special education
- 3.4 Memory and strategies for enhancing memory
- 3.5 Implications of the above with regard to various disabilities.

Unit 4: Intelligence, Aptitude and Creativity

10 Hrs.

- 4.1 Meaning and definition of intelligence and aptitude.
- 4.2 Theories of intelligence
- 4.3 Concept of Creativity, its process, characteristics of creative people, and teachers role in stimulating creativity.
- 4.4 Introduction to Psychological testing objectives, principles and tests of intelligence, aptitude and creativity (SFB, DMT, WISC-R, CPM/SPM, DAT/BLAT, DST)
- 4.5 Implications of the above with regard to various disabilities.

Unit 5: Personality

- 5.1 Meaning and Definition of personality.
- 5.2 Theories of personality
- 5.3 Frustration and conflict, defence mechanisms and behaviour deviations,
- 5.4 Mental health and signs and symptoms of maladjustment
- 5.5 Implications of disabilities in personality assessment.

Unit 6: Guidance and Counselling

- 6.1 Meaning nature and scope of guidance and counselling and role of home. .
- 6.2 Approaches and techniques of guidance and counselling with reference to various disabilities.
- 6.4 Vocational guidance, assessment, training, avenues and perspectives
- 6.3 Discipline and management of class room behaviour problems.
- 6.5 Yoga and other adjunctive aids.

Reference books

- 1. Adams J.A. (1992). Learning and memory An introduction. Homewood, Illinois Dorsey Press.
- 2. Brody. E.B. and Brody. N. (1996). Intelligence Nature, determinants and consequences. New York: Academic Press,
- 3. Butcher. H.]. (1993). Human Intelligence: Its nature and assessment. London Merhuen.
- 4. Gottfried. A.VV. (1995). Home Environment and Early cognitive Development. San Francisco.
- 5. Guilford. J.B. (1996). Fields of Psychology (ed.,) New York: Van Nostrand.
- 6. Hunter, Ian. M.R. (1994). Memory, London: Penguin Books.
- 7. Keller. F.S. (1997). The Definitions of Psychology (Ed.,). New York: Appleton century.
- 8. Munn. N.L. (1997). Introduction to Psychology. Delhi.
- 9. Petri. H.L. (1995). Motivation: Theory and Research, 2nd ed., Belmont, Cawadsworth.
- 10. Sawrey. J.H. and Telford. C. (1998). Educational Psychology (2nd ed.,) New Delhi Prentice Hall of India.
- 11. Simth, Mdaniel. (1998). Educational Psychology. New York: Allyn & Bacon.
- 12. Skinner. B.F. (1997). verbal Behaviour. New York: Appleton century Crofts.
- 13. Travers. R.M. (1993). Educational Psychology. New York: Macmillan,
- 14. Watson. LB. (1993). Psychology as a behaviourist views t Psycho. Rev., Vol. 20.
- 15. Woodworth. R.S. (1994). Experimental Psychology, New York: Hot
- 16. Barciey. J.R. (1993). Counselling and Philosophy. San Francisco.
- 17. Floelick. C.P. (1988). Guidance Services in Schools. New York: Allynn & Bacon.
- 18. Jones. A.P. (1994). Principles of Guidance. New York: Holt.
- 19. Traxier. A. .1. (1990). Techniques of Guidance New Delhi Prentice Hall of India.

PAPER - 4 EDUCATIONAL PLANNING AND MANAGEMENT, CURRICULUM DESIGNING AND RESEARCH

NOTE FOR PAPER SETTER

- (1) Paper setter will set 5 question in all
- (2) Q.No. 1 will be compulsory and will carry 20 marks. There will be 4 short-answer type questions of 5 marks each to be selected from the entire syllabus.
- (3) Four long answer type questions with internal choice will be set from the entire syllabus. Each question will carry 20 marks.
- (4) All questions will be compulsory.

Time: - 3 Hours Max Marks: - 100

60 Hrs.

Objectives

- 1. After studying this paper, the student teachers are expected to realize the following objectives:
- 2. Discuss the meaning, need and scope of educational management.
- 3. Define the concept and meaning of curriculum and instructional strategies.
- 4. Explain the concept, meaning, scope and types of educational technology.
- 5. Describe the need and scope of educational research.
- 6. Discuss the meaning, scope and types of educational evaluation.

Course Content

Unit 1: Educational Management

- 1.1 Definition, Meaning, Need, Scope of Educational Management.
- 1.2 Concept and Principles of Institutional Planning and Management, Admission with focus on zero rejection
- 1.3 Inspection, supervision and mentoring.
- 1.4 Institutional Organization, Administration and Evaluation.
- 1.5 Types of Leadership and Organizational Climate

Unit 2: Curriculum 10 Hrs.

- 2.1 Definition, Meaning and Principles of Curriculum,
- 2.2 Principles of curriculum development and disability wise curricular adaptations.
- 2.3 Curriculum planning, implementation and evaluation implications for disabilities and role of teacher.
- 2.4 Types and importance of co-curricular activities
- 2.5 Adaptations of co-curricular activities.

Unit 3: Instructional Strategies

10 Hrs.

- 3.1 Theories of instruction Bruner and Gagne.
- 3.2 Approaches to instruction -cognitive, behavioural, and eclectic.
- 3.3 Design instruction -macro design.
- 3.4 Organizing individual, peer, small group, large group instructions.
- 3.5 Teaching materials -aids and appliances, other equipment -development.

Unit 4: Educational Technology

10 Hrs.

- 4.1 Definition, meaning and scope of educational technology and Information & Communication Technology (ICT) and its impact on education.
- 4.2 Role and types of audio-visual aids in teaching and application of multi media in teaching and learning
- 4.3 Individualized instruction -Programmed instruction, computer assisted instruction and interactive learning.
- 4.4 Environmental modifications and use of assistive technology for persons with Disabilities & Barrier free environment.
- 4.5 TLM: Importance, need and guidelines on use of TLM with reference to various disabilities.

Unit 5: Educational Research

- 5.1 Definition, Need and scope of educational research
- 5.2 Principles of Research in Education.
- 5.3 Types of research fundamental, applied and action
- 5.4 Tools of research.
- 5.5 Overview of research studies in special education in India.

Unit 6: Educational Evaluation

- 6.1 Definition, Meaning, scope and types of evaluation.
- 6.2 Various types of tests.
- 6.3 Characteristics of a good test
- 6.4 Descriptive statistics measures of central tendencies (Mean, Median, Mode); Standard Deviation, Rank Order Correlation.
- 6.5 Presentation of data graphs, tables and diagrams.

Reference books

- 1. Cima M Yeole. (1991). Educational Technology. Cima Myeole.
- 2. Dipika Bhadresh Shah, (1991). Educational Technology for developing teaching competency Gavendra Prakashan.
- 3. Jaganath Mohanty. (1998). Studies in Educational Broadcasting. San subscription agency.
- 4. Mangal K. (1990). Fundamentals of Educational technology. Prakash Brothers
- 5. Ruhela Satyapal. (1991). Educational Technology, A systematic Text Book Associated Publishers.
- 6. Sita Ram Sharma & A.L. Vohra. (1993). Encyclopaedia of Educational Technology. Anmol Publications.
- 7. Tara Chand. (1992). Educational Technology. Anmol Publication.
- 8. Aggarwal. Y.P. (1992) Research in Emerging Fields of Education concepts, trends and prospects. New Delhi Sterling Publishers.
- 9. Aggarwal. Y.P. (1994). Better sampling. New Delhi Sterling Publishers.
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- 13. Martyn, Hammersley. (1996). case Studies in classroom research. Philadelphia Open University Press.
- 14. Shukla. S.P. (1996). Elements of Educational Research. Bombay Allied Publishers (P) Ltd.
- 15. Young, Pauline. V. (1992). Scientific Social Surveys and Research, Bombay Asia Publishing House,
- 16. D.ES, (1982). Handicapped Pupil and Special schools, Regulations. London HMSO.
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- 18. Evens, P. and Varma. V (1990). Special Education Past, Present and Future, The Falmer Press.
- 19. Zirpoli, T.J. & Mellor, K.J. (1993) Behaviour Management Application for Teachers and Parents Toronto Maxwell McMillan, Canada.

SPECIALIZATION

PAPER - 1 IDENTIFICATION AND ASSESSMENT OF PERSONS WITH MENTAL RETARDATION

NOTE FOR PAPER SETTER

- (1) Paper setter will set 5 question in all
- (2) Q.No. 1 will be compulsory and will carry 20 marks. There will be 4 short-answer type questions of 5 marks each to be selected from the entire syllabus.
- (3) Four long answer type questions with internal choice will be set from the entire syllabus. Each question will carry 20 marks.
- (4) All questions will be compulsory.

Time: - 3 Hours Max Marks: - 100

60 Hrs

Objectives:

After completing the paper the Teacher Trainees will:

- Comprehend historical perspective, nature and needs and characteristics of Persons with Mental Retardation
- Describe classification and other associated conditions with Mental Retardation
- Describe various assessment tools, procedures and evaluation techniques
- Develop competence for assessment of adaptive behavior among children with Mental Retardation
- Understand psycho-social implications of Mental Retardation.

Course Content

Unit 1: Mental Retardation - Nature, needs and Identification

10 Hrs

- 1.1 Historical perspective of the concept of mental retardation. Updating nomenclature regarding terminology in Mental Retardation
- 1.2 Definition of mental retardation ICD 10, AAIDD, WHO, Legal definition (PWD Act) in India used for certification; incidence and prevalence.
- 1.3 Classification of MR (medical, educational, psychological).

- 1.4 Characteristics of People with mild, moderate, severe and profound MR
- 1.5 Screening and identification of mental retardation in pre-school, school, adolescence and adulthood.

Unit 2: Additional impairments

10 Hrs

- 2.1 Introduction to associated conditions and educational implications
- 2.2 Sensory impairments vision, hearing
- 2.3 Motor impairments cerebral palsy, congenital deformities, muscular dysfunction
- 2.4 Epilepsy
- 2.5 Emotional disorders and Autism

Unit 3: Assessment and Evaluation

10 Hrs

- 3.1 Assessment: concept and definition, purpose
- 3.2 Tools of assessment: tests (NRT, CRT, teacher made) observation and interview
- 3.3 Areas of Assessment psychological, educational, behavioral ecological and clinical assessment for varied ages and severity levels (Pre-School, School Level & Vocational).
- 3.4 Evaluation methods formative and summative
- 3.5 Interpretation of assessment results and program, reporting.

Unit 4: Assessment of Adaptive Behaviour

10 Hrs

- 4.1 Tools for assessment of Adaptive Behaviour
- 4.2 Assessment tools with reference to Indian context
- 4.3 Documentation and recording
- 4.4 Assessment and interpretation of results in order to formulate a functional plan
- 4.5 Evaluation and Follow up

Unit 5: Mental Retardation - Social Perspective

- 5.1 Mental Retardation and Mental Illness Differences
- 5.2 Mental retardation and its Psycho-Social aspects exploitation, delinquency, Child Labour, child abuse
- 5.3 Rights and advocacy

- 5.4 Misconceptions and social practice
- 5.5 Sex Education and Marriage

Unit 6: Transitional and Vocational Assessment

- 6.1 Support Intensity Scale
- 6.2 Vocational assessment
- 6.3 Transition from School to Work
- 6.4 Vocational training
- 6.5 Employment Models: Supported, Sheltered, Home Based, Self Employment, Inclusive)

Reference books

- 1. Overton, T. (1992). Assessment in Special Education An Applied Approach. New York McMillan.
- 2. Panda, K.C. (1997). Education of Exceptional Children. New Delhi Vikas Publications.
- 3. Subba Rao, T.A. (1992). Manual on Developing Communication Skills in Mentally Retarded Persons, NIMH, Secunderabad.
- 4. Van Riper, C.A. and Emerick. L. (1990), Speech Correction-An introduction to speech pathology and Audiology. Eighth Edition, Prentice Hall.
- 5. Taylor, R.L. (1993). Assessment of Exceptional Students Educational and Psychological Procedures. Boston: Allyn & Bacon.
- 6. Baine, D. (1988) Handicapped Children in Developing Countries, Assessment, Curriculum and Instruction. University of Alberta, Alberta,
- 7. Longone, 3. (1990). Teaching Retarded learners Curriculum and Methods for improving instruction. Boston: Allyn & Bacon
- 8. Narayan, 3. & Kutty, A,T.T. (1989) Handbook for Trainers of the Mentally Retarded persons. Pre-primary level. NIMH, Secunderabad.
- 9. Peshwaria, R. and Venkatesan. 5. (1992) Behavioural retarded children A manual for Teachers. NIMH, Secunderabad.
- 10. Evans, P and Verma, V. (Eds.) (1990) Special Education. Past Present and Future. The Faimer Press.
- 11. Repp A.C. (1983) Teaching the Mentally Retarded, New Jersey, Prentice Hall
- 12. King-Sears, H.E. (1994) Curriculum Based Assessment in Special Education. San Diego Singular Publishing Group.
- 13. Pun, M. & Sen A.K. (1989) Mentally Retarded Children in India. New Delhi Mittal Publication.
- 14. Sharma, P. (1995). Basics on Development and Growth of a child, New Delhi Reliance.
- 15. Narayan, J. Myreddi, V. Rao, S. (2002). Functional Assessment Checklist for Programming, NIMH, Secunderabad.
- 16. Jeyachandaran, P. Vimala, V. (2000). Madras Developmental Programming System

- 17. Myreddi, V. & Narayan, J. FACP PMR, NIMH, Secunderabad.
- 18. Narayan, J. Graduate Level Assessment Device for Children with Learning Problems in Regular Schools, NIMH, Secunderabad.
- 19. Myreddi V. & Narayan J. (1998). Functional Academics for students with mild mental retardation, NIMH, Secunderabad.
- 20. Narayan J. (1990). Towards independence series 1 to 9. NIMH, Secunderabad.
- 21. Narayan J. (2003) Educating children with learning problems in regular schools NIMH, Secunderabad.
- 22. Video Films. (2002). Help them learn make it easy, NIMH, Secunderabad.

PAPER - 2 MENTAL RETARDATION - ITS MULTIDISCIPLINARY ASPECT

NOTE FOR PAPER SETTER

Paper setter will set 5 question in all

- Q.No. 1 will be compulsory and will carry 20 marks. There will be 4 short-answer type questions of 5 marks each to be selected from the entire syllabus.
- (3) Four long answer type questions with internal choice will be set from the entire syllabus. Each question will carry 20 marks.
- (4) All questions will be compulsory.

Time: - 3 Hours Max Marks: - 100

60 Hrs

Objectives:

After completing the paper the Teacher Trainee will:

- Comprehend the Physiological aspect of Mental Retardation
- Comprehend Motor Developmental aspects in Mental Retardation
- Develop competency in enhancing communication skills among children with Mental Retardation
- Demonstrate competency in working with multi-disciplinary team
- Narrate the procedure to provide refl, networking as well services to MR children

Course Content:

Unit 1: Physiological Aspects

- 1.1 Neurological aspects Autonomous Nervous System, Central Nervous System, Peripheral Nervous System.
- 1.2 Associated Impairments Cerebral Palsy, Epilepsy, ADD, ADDH, Autism.
- 1.3 Genetic aspects
- 1.4 Endocrinal influences
- 1.5 Preventive measures

Unit 2: Developmental and Behavioural Aspects in Relation to Mental Retardation 10 Hrs

- 2.1 Developmental stages Physical, social, cognitive, language, emotional and moral.
- 2.2 Developmental delays and their implications in the life cycle
- 2.3 Adaptive deficits self-help areas, emotional, social cognitive and language areas
- 2.4 Behaviour Management: Functional analysis and strategies for intervention
- 2.5 Management of behaviour problems in the home. Ethical Issues in behaviour management

Unit 3: Communication Aspects

10 Hrs

- 3.1 Language, Speech and Communication: Concept and Definition
- 3.2 Speech Disorders: Types and Intervention
- 3.3 Language: Components Disorders and Intervention
- 3.4 Communication: Prerequisite skills, process, and disorders and intervention
- 3.5 Modes of communication: Alternative and Augmentative

Unit 4: Motor Aspects

10 Hrs

- 4.1 Gross motor and fine motor development and impairments
- 4.2 Neuromotor, eye-hand, sensory motor, perceptual motor difficulties
- 4.3 Locomotor/mobility related problems
- 4.4 Physiotherapy, occupational therapy their implications and adaptations in classroom management
- 4.5 Activities to enhance motor functions in children with mental retardation

Unit 5: Working with multi-Disciplinary Team

- 5.1 Personnel and parents involved in multi-disciplinary team
- 5.2 Nature of coordination with multi-disciplinary team
- 5.3 Referral agencies, linkages, networking and follow-up
- 5.4 Empowerment of families and mobilization of support
- 5.5 Need for inter-departmental linkages at State and national levels in the services for mentally retarded children

Unit 6: Community Based Rehabilitation

- 6.1 CBR: concept and Definition
- 6.2 Scope of CBR
- 6.3 Models of CBR
- 6.4 Role of special educator/ family / community /person with disability/ in CBR
- 6.5 Challenges and implications

Reference books

- Overton, T. (1992). Assessment in Special Education An Applied Approach. New York McMillan.
- Panda, K.C. (1997). Education of Exceptional Children. New Delhi Vikas Publications.
- 3. Subba Rao, T.A. (1992). Manual on Developing Communication Skills in Mentally Retarded Persons, NIMH, Secunderabad.
- 4. Van Riper, C.A. and Emerick. L. (1990), Speech Correction-An introduction to speech pathology and Audiology. Eighth Edition, Prentice Hall.
- Taylor, R.L. (1993). Assessment of Exceptional Students Educational and Psychological Procedures. Boston: Allyn & Bacon
- 6. Baine, D. (1988) Handicapped Children in Developing Countries, Assessment, Curriculum and Instruction. University of Alberta, Alberta.
- 7. Longone, 3. (1990). Teaching Retarded learners Curriculum and Methods for improving instruction. Boston: Allyn & Bacon
- 8. Narayan, J. & Kutty, A.T.T. (1989) Handbook for Trainers of the Mentally Retarded persons. Pre-primary level. NIMH, Secunderabad.
- 9. Peshwaria, R. and Venkatesan. 5. (1992) Behavioural retarded children: A manual for Teachers. NIMH, Secunderabad.
- 10, Evans, P and Verma, V. (Eds.) (1990) Special Education. Past Present and Future. The Faimer Press.
- 11. Repp. A.C. (1983) Teaching the Mentally Retarded, New Jersey, Prentice Hall
- 12. King-Sears, H.E. (1994) Curriculum Based Assessment in Special Education. San Diego: Singular Publishing Group.
- 13. Pun, M. & Sen A.K. (1989) Mentally Retarded Children in India. New Delhi : Mittal Publication.
- 14. Sharma, P. (1995). Basics on Development and Growth of a child, New Delhi, Reliance.
- 15. Narayan, J. (1999). Skill Training Series 1-9, NIMH Secunderabad.
- 16. Myreddi, V. & Narayan, J. (2000). Functional Academics for Students with Mental Retardation, NIMH Secunderabad.

- 17. Myreddi V. & Narayan J. (1998). Functional Academics for students with mild mental retardation, NIMH, Secunderabad.
- 18. Narayan J. (1990). Towards independence series 1 to 9. NIMH, Secunderabad.
- 19. Narayan J. (2003) Educating children with learning problems in regular schools NIMH, Secunderabad.
- 20. Video Films. (2002). Help them learn make it easy. NIMH, Secunderabad

PAPER - 3 CURRICULUM AND TEACHING STRATEGIES

NOTE FOR PAPER SETTER

- (1) Paper setter will set 5 question in all
- (2) Q.No. 1 will be compulsory and will carry 20 marks. There will be 4 short-answer type questions of 5 marks each to be selected from the entire syllabus.
- (3) Four long answer type questions with internal choice will be set from the entire syllabus. Each question will carry 20 marks.
- (4) All questions will be compulsory.

Time: - 3 Hours Max Marks: - 100

60 Hrs

Objectives:

After completing of the paper the Teacher Trainees will:

- Develop curricular guidance and instructional methods for children with MR
- Select the appropriate content area for various age level and severity levels
- Formulate the IEP and apply suitable strategy for the given group of children with Mental Retardation
- Demonstrate competency to train children with Mental Retardation in different co-curricular activity
- Describe various educational provision available for Mental Retardation children

Course Content

Unit 1: Curriculum Development

10 Hrs.

- 1.1 Curriculum: Concept, Definition, and aims
- 1.2 Principles of Curriculum Development
- 1.3 Approaches to Curriculum: Developmental, Ecological and Functional
- 1.4 Adaptation of curriculum
- 1.5 Emerging trends in Curriculum Development.

Unit 2: Development of Educational program

10 Hrs.

- 2.1 Instructional Design
- 2.2 Individualized educational Plan: Need and components
- 2.3 Development of goals: Long term, short term and specific objectives
- 2.4 Evaluation of Goals and Maintenance of Records
- 2.5 Conducting an IEP meeting

Unit 3: Curriculum Content - Various Stages

10 Hrs

- 3.1 Infancy (0-3 years) Early intervention Preschool (3-6 years) Sensory motor, Self help skills, Motor training, Communication and Socialization, Pre-academic skills
- 3.2 Functional Academics
- 3.3 School Level(6-15years) Self help skills, Communication, Gross and fine motor skills, Functional academics, possibility of academic integration, concept of National Open School, functional communication, pre-vocation skills, social competency skills, pre-employment and occupational skills, domestic skills –
- 3.4 Prevocational (15-18) years National Institute of Open School, Prevocational skills
- 3.5 Severe and Profound Retardation: Self help, Mobility, Communication, Leisure and Recreational, Prevocational/Vocational

Unit 4: Teaching Strategies

- 4.1 Principles of Teaching in Special Education
- 4.2 Stages: in Learning: Acquisition Maintenance and Generalization, Concept Learning
 - Matching, Identification and Generalization
- 4.3 Teaching Approaches: Multi Sensory Approach VAKT, Behavioral Approach Task Analysis, Chaining, Modeling, Shaping, Prompting and fading Reinforcement, Cognitive Approach Cognitive Behavior Modification
- 4.4 Other Instructional Methods: Role play, Music, Art, Drama, Field trips
- 4.5 Teaching strategies for Severe and Profound Mentally Retarded: Task analysis,
 Positioning and handling, Adaptation of teaching learning materials, Re-structuring
 of the learning environment, use of Alternative and Augmentative devices

Unit 5: Co-Curricular Activities

10 Hrs

- 5.1 Relevance and Importance of co curricular skills
- 5.2 Visual Arts (arts and crafts) and stimulation material
- 5.3 Performing Arts (dance, music, drama, mimicry, **puppetry**)
- 5.4 Physical education, yoga, play, sports and games, Leisure skills and recreational activities
- 5.5 Emerging trends and activities Special Olympics, very special arts, special youth festivals, special national and international days

Unit 6: Educational Provisions

- 6.1 Concept of normalization, integration, mainstreaming and inclusive education their implications in educational program
- 6.2 Placement Options: Special schools, Residential schools, Special class in mainstream Settings, Itinerant and Resource Room
- 6.3 Vocational Training and Rehabilitation
- 6.4 Inclusive Model: SSA and NIOS
- 6.5 Social benefits and Schemes State and Central governments, NGOs.

Reference books

- Overton, T. (1992). Assessment in Special Education An Applied Approach. New York McMillan.
- 2. Panda, K.C. (1997). Education of Exceptional Children. New Delhi Vikas Publications.
- 3. Subba Rao, T.A, (1992). Manual on Developing Communication Skills in Mentally Retarded Persons, NIMH, Secunderabad.
- 4. Van Riper, C.A. and Emerick, L. (1990), Speech Correction-An introduction to speech pathology and audiology. Eighth Edition, Prentice Hall.
- 5. Taylor, R.L. (1993). Assessment of Exceptional Students Educational and Psychological Procedures. Boston: Allyn & Bacon.
- 6. Baine, D. (1988) Handicapped Children in Developing Countries, Assessment, Curriculum and Instruction. University of Alberta, Alberta.
- 7. Longone, J. (1990). Teaching Retarded learners Curriculum and Methods for improving instruction. Boston: Allyn & Bacon.
- 8. Narayan, J. & Kutty, A.T.T. (1989) Handbook for Trainers of the Mentally Retarded persons. Pre-primary level. NIMH, Secunderabad.
- 9. Peshwaria, R. and Venkatesan. S. (1992) Behaviour of retarded children: A manual for Teachers. NIMH, Secunderabad.
- 10. Evans, P and Verma, V. (Eds.) (1990) Special Education. Past Present and Future. The Faimer Press.
- 11. Repp. A.C. (1983) Teaching the Mentally Retarded, New Jersey, Prentice Hall
- 12. King-Sears, H.E. (1994) Curriculum Based Assessment in Special Education. San Diego Singular Publishing Group.
- 13. Pun, M. & Sen A.K. (1989) Mentally Retarded Children in India. New Delhi Mittal Publication
- 14. Sharma, P. (1995). Basics on Development and Growth of a child, New Delhi Reliance.
- 15. Narayan, J. (1999). Skill Training Series 1-9. NIMH, Secunderabad,
- 16. Myreddi, V. & Narayan, J. (2000). Functional Academics for Students with Mental Retardation, NIMH, Secunderabad.

- 17. Myreddi V. & Narayan J. (1998). Functional Academics for students with mild mental retardation, NIMH, Secunderabad.
- 18. Narayan J. (1990). Towards independence series 1 to 9. Secunderabad : NIMH, Secunderabad.
- 19. Narayan J. (2003) Educating children with learning problems in regular schools. NIMH, Secunderabad.
- 20. Video Films. (2002). Help them learn make it easy. NIMH, Secunderabad.

Paper-VIII (Group A) Opt. (ii): TEACHING OF ENGLISH

Max. Marks: 100 (Theory:80, Internal 20)

NOTE FOR PAPER SETTER

Time: 3 Hours

- i) Paper setters will set 9 questions in all, out of which students will be required to attempt 5 questions.
- ii) Q. No. 1 will be compulsory and carries 20 marks. It will be comprised of 4 shortanswer type questions of 5 marks each to be selected from the entire syllabus.
- iii) Two long-answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. Long-answer type questions will carry 20 marks each.
- iv) All questions will carry equal marks.

OBJECTIVES

Pupil-teachers would be able to-

explain the concept of English and its elements

define linguistic skills and process of development among pupils

conduct pedagogical analysis and develop teaching skills.

explain the concept of evaluation and methods of evaluating the performance of students.

critically explain various teaching methods.

demonstrate language competencies.

COURSE CONTENTS

UNIT-I

1) Language and distinctive features of English

Meaning, importance and functions of language

Linguistic characteristics of English

Linguistic Principles, and Aims and objectives of teaching English.

2) Pedagogical analysis- Objectives and Lesson Planning (Unit analysis)

Teaching of prose

Teaching of poetry

Teaching of composition and

Teaching of grammar (Micro and Mega Lesson)

UNIT-II

3) Learner centered approaches and Methods of Teaching

Difference between 'Approach' and 'Method'.

Direct Method, Bi-lingual method, Communicative Approach and Constructive Approach(co-operative Learning)

Teaching of prose, poetry and grammar- objectives and methodology

4) Instructional Material:

Importance and their effective use.

Tape Recorders, Television

Films, Filmstrips, OHP

Language Laboratory: An important Instructional aid

Concept

Components

UNIT-III

- 5) Developing Language Skills- Listening and Speaking
 - Features of English Pronunciation, elementary knowledge of English sounds.
 - Stress, Rhythm, Juncture, intonation, patterns and their implications.
- .6) Developing Language Skills Reading and Writing
 - Teaching mechanism of Reading.
 - Teaching reading to beginners
 - Teaching reading with comprehension.

UNIT-IV

- 7) Co-curricular activities related to English
 - Usefulness of language games, quiz, debates, group-discussions and other co curricular activities in the teaching and learning of English.
- 8) Remedial and Enrichment content
 - Meaning and significance of remedial teaching
 - Common errors in English and their removal through remedial teaching
- 9) Evaluation Procedure
 - Evaluation- Comprehensive and continuous, and Objective-type and Essay-Type Questions.
 - Digital Portfolio: Use of ICT in learning exercise for Language Competency.

SUGGESTED READINGS

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Paper-VIII (Group A) Opt (i): TEACHING OF HINDI

Time: 3 Hours Max. Marks: 100

NOTE FOR PAPER SETTER

- i) Paper setters will set 9 questions in all, out of which students will be required to attempt 5 questions.
- Q. No. 1 will be compulsory and carries 20 marks. It will be comprised of 4 shortanswer type questions of 5 marks each to be selected from the entire syllabus.
- iii) Two long-answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. Longanswer type questions will carry 20 marks each.
- iv) All questions will carry equal marks.

OBJECTIVES

Pupil-teachers would be able to

- o define the nature, need & principles of Hindi language
- o explain different methods of teaching Hindi
- o demonstrate the use of various audio visual aids
- o explain objectives and steps of teaching prose, poetry & grammar of Hindi
- o explain the meaning of evaluation and types of evaluating techniques

इकाई 1

हिन्दी-शिक्षक

1)

मातृ भाषा शिक्षण का अर्थ, स्वरूप महत्त्व एवं ब्लूम द्वारा निर्धारित
 अनुदेशत्मक उरेश्य ।

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- भाषाई कौशल का सामान्य ज्ञान
 - अ) श्रवण कौशल
 - आ) भाषण कौशल
 - इ) पठन कौशल
 - ई) लेखन कौशल

2)

- हिन्दी में उच्चारण शिक्षण, अक्षर-विन्यास एवं विराम-चिन्ह।
- हिन्दी शिक्षण में सूचना तकनीकी की उपयोगिता एवं प्रयोग।

इकाई 2

3)

- पाठ योजना का अर्थ, महत्त्व एवं रूप-रेखा।
- हिन्दी शिक्षण के अनुवाद का अर्थ, विशेषताएं, प्रशिक्षण, विधियां एवं अभ्यास।

4)

- कविता-शिक्षण रस पाठ एव बोध पाठ के रूप में)
- पद्य-शिक्षण

इकाई 3

5)

- व्याकरण शिक्षण औपचारिक एवं अनौपचारिक)
- रचना शिक्षण कहानी, पत्र एवं निबन्ध रूप में)

- हिन्दी पाठ्यक्रम निर्माण एवं समीक्षा।
- हिन्दी पाठ्यपुस्तक की विशेषताएं एवं समीक्षा।

इकाई 4

हिंदी में मूल्यांकन एवं गृहकार्य

- (अ) हिंदी में मूल्यांकन- अर्थ एवं स्वरूप
- (आ) विघाओं में मूल्यांकन प्रक्रियां
- (इ) हिंदी शिक्षण में गृहकार्य- स्वरूप एवं संशोधन
- 1 हिंदी पाठ्य वस्तु से अभिप्राय
- 2 हिंदी पाठ्य वस्तु का शिक्षा शास्त्रीय विश्लेषण

प्रयोगात्मक क्रियाऐं

- (अ) माध्यमिक कक्षाओं के हिंदी पाठ्यक्रम में से किन्हीं दो पाठों (गद्य, पद्य, निबन्ध, कहानी,नाटका आदि) का शिक्षा शास्त्रीय विश्लेषण
- (आ) निवंधात्मक, लघुत्तर एवं वस्तुनिष्ठ परीक्षा के लिए प्रश्न पत्रा निर्माण
- (इ) पाठशालाओं में हिंदी की पाठ्यक्रम सहगामी क्रियाओं की व्यवस्था करना

संदर्भ ग्रंथ सूची

शुक्ल, भगवती प्रसाद (1974) : हिंदी उच्चारण और वर्तनी, आर्य बुक डिपो, नई दिल्ली सुरिवया, के.के-(1976) : हिंदी ध्वनियां और उनका शिक्षण, रामनारायण लाल, इलाहाबाद

तिवारी, भोलानाथ तथा भाटिया, कैलाश चन्द (1980): हिंदी शिक्षण लिपि प्रकाशन, दिल्ली

सिंह, निरजंन कुमार (1971): माध्यमिक विघालयों में हिंदी शिक्षण, राजस्थान हिंदी ग्रंथ

बाहरीण, हरदेव(1972) : व्यावहारिक हिंदी व्याकरण लोक भारती प्रकाशन, इलाहाबाद

मंगल, अ मर(1991) : हिंदी शिक्षण, दहे ली, आय ' बुक डिपो पाण्डे, आर.एस-(1992) : हिंदी शिक्षण, आगरा, विनोद पुस्तक मिन्दिर सिंह सावत्री(1992) : हिंदी शिक्षण मेरठ, तायल बुक डिपो श्रीवास्तव, राजेन्द्र प्रसाद (1973): हिंदी शिक्षण दि मैकमिनन कम्पनी अंगाह ह

श्रीवास्तव, राजेन्द्र प्रसाद (1973): हिंदी शिक्षण दि मैकमिलन कम्पनी ऑपफ इंडिया लि, देहली

मैन्युक ही (1997) : हिंदी शिक्षण, दी एक्यूजीशन एंड डवलैपमैण्ड ऑपफ लैगवेज प्रिंटिग हाल

वैस्टन कैनिप (1973) : डवैलिपिंग सैकिड लैगवेज स्किल्स थरौरी एण्ड पैक्टिस रैप्स मैकलील

मंगल, उमा : टीचिंग ऑपफ हिंदी आर्य बुक डिपो

मिश्रा माया तथा जैन एसवी. : टीचिंग ऑपफ हिंदी विजया पिलकेशन

कौशिक जयनारायण : हिंदी शिक्षण हरियाणा साहित्य अकादमी, चण्डीगढ़

पांडेय रामशक्ल : हिंदी शिक्षण विनोद पुस्तक मन्दिर, आगरा

सपफाया रघुनाथ : हिंदी शिक्षण रस्तोगी पिल्लिकेशन, मेरठ

Paper-IX (Group B) Opt. (ii): TEACHING OF SOCIAL STUDIES

Time: 3 Hours Max. Marks: 100

NOTE FOR PAPER SETTER

- i) Paper setters will set 9 questions in all, out of which students will be required to attempt 5 questions.
- ii) Q. No. 1 will be compulsory and carries 20 marks. It will be comprised of 4 short answer type questions of 5 marks each to be selected from the entire syllabus.
- iii) Two long-answer type questions will be set
- iv) All questions will carry equal marks. from each of the four units, out of which the students will be required to attempt one question from each unit. Long-answer type questions will carry 20 marks each.

OBJECTIVES

Pupil-teachers would be able to-

- define the concept of Social Studies
- explain different methods to teach social Studies
- develop self-instructional material
- explain the concept of evaluation and use evaluation method with the students objectively as well as subjectively
- explain use of teaching aids effectively in the class-room
- develop lesson plan with the help of advanced technology
- explain challenging situations in the society

COURSE CONTENTS UNIT-1

1) Concept, objectives and values:

• Meaning, Scope, Importance and values of Teaching Social Studies.

- Aims and objectives of Teaching of Social Studies with special reference to present Indian School.
 - Bloom's Taxonomy of objectives
- Writing objectives in behavioural terms with particular reference to teaching of history/geography/civics.
- 2) Content & their Pedagogical analysis (From elementary to Secondary Level)
 - History of Freedom Movement.
 - Globe: General Information about Globe.
 - Indian Constitution.
 - Major issues facing Indian economy, today.

UNIT-II

- 3) A) Methods and Skills of Teaching Social Studies(History/Geography/Civics):
 - Project Method
 - Inductive and Deductive Method.
 - Assignment Method
 - Source Method
 - Story Telling Method
 - Lecture Cum Discussion Method

B) Skills

- Skill of Narration
- Skill of Probing Question
- Skill of Stimulus Variation
- 4) Development utilization of Instructional Material
 - Presentation of Lesson Plan with the help of Power Point.
 - Development of Self-Instructional Modules excluding Programme Learning.
 - Development of Self-Instructional Material.
 - Bulletin Board, Maps, Scrap Books, Computer.
 - Use of Community Resources.

• Designing of Social Science Lab.

UNIT-III

- 5) Development/Utilization of instructional aids-
 - Charts
 - Maps
 - Graphs
 - Models
 - Film strips
 - T. V.
 - Computers
- 6) Curriculum development and transaction
- 7) Development and utilization of instructional aids

UNIT-IV

- 8) Text Book: Importance and qualities of a good text book of Social Science i.e. History/Geography and Civics
- 9) Audio visual aids in the teaching of Social Science i.e. History/Geography and Civics
 - Preparation
 - Use

10) Evaluation

- Meaning, importance and Objective of Evaluation.
- Evaluation Devices
- Oral test
- Written Test
- Practical test
- Diagnostic testing and
- Remedial Measures
- Observation

• Rating Scale

SUGGESTED READINGS

Burton, W. H. (1972). Principles of History Teaching, London: Methuen

Chaudhary, K. P. (1975). The Effective Teaching of History in India, New Delhi:

NCERT

Dhamija, N. (1993). Multimedia Approaches in Teaching Social Studies, New Delhi: Harman Publishing House

Dixit, U. & Bughela, I. (1972). Itihas Shikshan, Jaipur: Hindi Granth Academy

Ghate, V. D. (1956). Teaching of History (English& Hindi), Mumbai: Oxford University Press

Hashmi, M. A. A. (1975). Tarikh Kaisey Parhhaen(Urdu) . New Delhi: Maktaba Jamia Ltd.

Khan, S. U. (1998). History Teaching-Problems: Prospective and Prospect, New Delhi: Heera Publications

PAPER-IX (Group B) Opt. (i): TEACHING OF MATHEMATICS

Time: 3 Hours Max. Marks: 100

NOTE FOR PAPER SETTER

- i) Paper setters will set 9 questions in all, out of which students will be required to attempt 5 questions.
- ii) Q. No. 1 will be compulsory and carries 20 marks. It will be comprised of 4 shortanswer type questions of 5 marks each to be selected from the entire syllabus.
- iii) Two long-answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. Long-answer type questions will carry 20 marks each.
- iv) All questions will carry equal marks.

OBJECTIVES

Pupil-teachers would be able to-

- define Meaning, Nature, aims and objectives of Mathematics
- explain the relationship of Mathematics with other subjects
- explain Historical development and contribution of Indian Mathematics.
- familiarize the pupil-teachers with the development of Curriculum in Mathematics
- differentiate between Methods and Techniques of Teaching Mathematics
- perform Pedagogical Analysis of various Concepts in Mathematics
- describe instructional planning and development of relevant material for the teaching of Mathematics
- demonstrate uses of I.C.T. in Teaching of Mathematics
- describe Continuous and Comprehensive evaluation, diagnostic testing and remedial teaching in Mathematics
- explain importance and uses of learning resources in Mathematics

COURSE CONTENTS

UNIT-I

- 1) Concept and aims of Mathematics
 - Meaning, Nature and Historical Development of Mathematics.
 - Assumption, postulates, axiom of Mathematics, and Fundamentals of logic namely: use of if and then, and If and only If.
 - Values to be taught through teaching of Mathematics.
 - Aims and Objectives of Teaching Mathematics at Secondary stage.
 - Writing objectives in terms of behavioural outcomes of students.
- 2) Diagnostic Testing and Remedial Teaching for
 - Gifted Learners
 - Slow Learners
 - Learners with Dyscalculia
 - Difficulties Faced by the Teacher in Teaching of Mathematics and Suggestive Measures to overcome them.

UNIT-II

- 3) Methods of Teaching Mathematics
 - Lecture-cum-Demonstration
 - Inductive-Deductive
 - Analytic-Synthetic
 - Problem Solving
 - Laboratory
 - Project
- 4) Techniques of Teaching Mathematics
 - Oral work
 - Written Work

- Drill-work
- Brain-storming
- Home Assignment
- Self-study
- Supervised Study

UNIT-III

5) Learning Resource

- 1. Importance and Organization of Mathematics Club
- 2. Recreational Activities of Mathematics Club:
 - Mathematics Fairs
 - Games
 - Quiz
 - Puzzles
 - Visits
 - Talks
- 3. Visits, Excursions, Math Exhibitions and Mathematics Fairs.
- 4. Importance and Setting up of Math Laboratories.
- 5. Importance of Support Material: Reference Material Encyclopedia, News Letters and Magazines.

On-line and off-line Resources.

- 6) Instructional Planning & Material Development.
 - Preparation of Micro Lesson Plan
 - Preparation of Simulated Lesson Plan.
 - Preparation of Classroom Lesson Plan.
 - Preparation and use of Audio-Visual Material and equipments.
 - Application of I.C.T in Teaching of Mathematics.

UNIT-IV

7) Unit Analysis

- Objectives Formulation.
- Learning Experience.
- Choosing Method and Material.
- Evaluation.
- 8) Pedagogical Analysis of any one of the following-
 - Central tendencies Mean, Median, Mode.
 - Congruency
 - Trigonometry
 - Area
 - Volume
 - Linear and Quadratic Equations
 - Ratio and Proportion

Following points should be followed:

Identification of concepts.

Listing behavioural Outcomes.

Listing Activities and experiences

Listing Evaluation Techniques.

9) Evaluation.

Continuous and Comprehensive Evaluation

Development of Test Items

- o Short-Answer Type
- Objective-Type

Diagnostic Testing and Remedial Teaching

Preparation of an Achievement Test.

Criterion and Norm Referenced Test.

SUGGESTED READINGS

Butler, C. H. & Wren, K. H. (1980). The teaching of Secondary Mathematics, New York: McGraw-Hill Book Comp.

Carey, L.M. (1975). Measuring and Evaluating School Learning, Boston: Allyn and Bacon.

Copeland, R.W. (1979). How Children Learn Mathematics, New York: McMillan Pub.Comp.

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