**CURRICULAR MATERIAL
FOR
DIPLOMA IN ELEMENTARY EDUCATION (D.El.Ed.) COURSE
IN DIETs OF
ARUNACHAL PRADESH**

Course Code: 22

INFORMATION AND COMMUNICATION TECHNOLOGY (PEDAGOGY ACROSS CURRICULUM)

**STATE COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING
GOVT. OF ARUNACHAL PRADESH
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> The curricular material has been developed keeping in view the learning needs of the D.El.Ed Course trainees as per the current PSTE curriculum. While developing the material authentic textual/reference materials from various sources have been referred. As far as possible the content of the materials have been presented in an objective manner. The ideas and opinions as presented in the content of the materials are entirely of the developer of the material.

FOREWORD

The Diploma in Elementary Education (D.El.Ed.) curriculum for 2 year PSTE course of the DIETs in Arunachal Pradesh was revised and updated as an exercise deemed necessary in the context of National Curriculum framework-2005 and enforcement of Right to Education (RTE) Act-2009. The curriculum was revised on the basis of recommendations of the National Council for Teacher Education, National Curriculum Framework for Teacher Education (NCFTE) and the guidelines of Bordia Committee Report entitled "Implementation of RTE, Act and Resultant Revamp of SSA" (2010). Since 2013-14 the revised D.El.Ed Curriculum is being implemented in all the eleven DIETs of the state. However, in view of change in the structure and content of the revised curriculum, there has arisen a pressing need for content specific and contextualized curricular materials which could be handy for both teacher educators and student teachers of the DIETs in the state. Further Justice Verma Commission Report on Teacher Education-2012, constituted by the Hon'ble Supreme Court of India observed," our prospective teachers are educated through substandard readymade materials available in the form of 'guides' which are conceptually confusing and regressive in perspectives". Hence, the commission strongly recommended for development of learner friendly curricular materials for different types of teacher education courses.

The D.El.Ed curricular material has been developed in workshop situation with participation of Resource Persons from Department of Education, Rajiv Gandhi University, Itanagar and faculty members of SCERT and DIETs of the state.

I am immensely grateful to the Joint Director, SCERT, Mr. Gania Leij for his guidance, Professor Jaydev Sahu, Dept. Of Education, Rajiv Gandhi University, Itanagar for his academic support, members of SCERT Academic Team, Assistant Directors, Shri G.C.Baral, Sri S.Pradhan and Sri V.R.Sharma for supervision and finalisation of curricular materials. I am specifically thankful to the author on **Information and Communication Technology (Pedagogy Across Curriculum) Course Code-22, Sri A.K.Katiyar, Lecturer, DIET, Pasighat** for his efforts in writing the texts of the course materials as per the need of the syllabus.

Lastly, it is hoped that the curricular materials will be highly useful as reference materials for the teacher educators and student teachers of the DIETs of the Arunachal Pradesh.

Moto Nyori, Joint Director
SCERT, Itanagar

ACKNOWLEDGEMENT

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UNIT - 1

1. Concept of Information and Communication Technology (I.C.T)

1.1 : Meaning of I.C.T :-

ICT is a broad and comprehensive term, which comprises information technology and communication technology. Information technology includes radio, television, computer and internet, teleconferencing and mobile technology.

All these information technologies are powered by mainly two types of communication technologies.

These are **(i) Satellite based communication**

(ii) Terrestrial based communication

Satellite based communication is the communication, which takes place between sender and receiver through a communication satellite whereas terrestrial based communication is the communication , which takes place through a network of transmitters spread across a geographical area , a country, or a state. This type of communication is used in the transmission of radio and television programme in India, However, with a launch of series of satellites by Indian space research organization

(ISRO) , Satellite based communication is being used for telecommunication .

COMPONENTS OF I.C.T

1.2 Need of I.C.T :-

I.C.T. has great potential for improving the teaching – learning Process.It is needed to the education for the following purposes.

1**. Individualised Instruction** :- I.C.T. is very helpful in individualizing instruction by enabling us to make use of self instructionalprogrammes.

2. **Improvement in Quality education** :- I.C.T. assists in the improvement of teaching learning process by enabling us to use more variety and emotional emotionalprogrammes through T.V.and other media.

3. **Meeting the Problem of mass education**:- ICT helps in using programmes developed by experts for a large population of students with the use of computers and T.V etc.

4 **Equalising educational opportunities** :- ICT assists us in making efforts for equalizing opportunitiy irrespective of economic, social and geographical states of the learners.

5**. Provide continuing education** :- T.V. lessons and self instructional programmed materials sent to the learners or workers, help them to update their knowledge of the latest materials.

1.2 Scope of ICT:-

Scope of ICT / Educational technology is as wide as education itself. Its Scope ranges from the concrete educational process to most abstract and subtle ones. It includes the use of hardware and software and systems analysis in various educational operations. The possibility of using educational technology in almost all areas of education has been and is being explored.

(1) **Analysis of the process of Teaching and learning**:- ICT tries to discuss the concept of teaching, analysis of teaching processes, Variables of teaching, phases of teaching levels of teaching principles and maxims of teaching and concept of learning.

(2)**Development of Curriculum** :- This aspect of educational technology (E.T) is concerned with designing of a suitable curriculum for achievement of the stipulated objectives.

(3 **) Development of Teaching** – Learning Materials (TLM)s :- E.T.is concerned with development of production and development of suitable TLM's. It tries to discuss the essential techniques of developing software and instructional materials like programmed learning, computer assisted learning (C.A.L) , Individualised instruction and preparation of lesson plan.

(4 **) Development and selection of Teaching** – learning strategies :- Educational technology tries to describe the ways and means of discovering, selecting and developing suitable strategy of teaching in terms of optimum (maximum) learning and valuable teaching resources.

(5) **Development, selection and use of the appropriate teaching aids** :- E.T. covers the use of various types of teaching aids for educational purposes. Teaching aids are very important for effective teaching – learning process. E.T. has been providing its worth in our country by guiding, planning, implementing and evaluating various programmes of formal as well as non-formal education.

(6) **To provide essential feed- back and control through education** :- E.T. discusses the ways and means of suitable evaluation techniques, their planning, development, selection , and appropriate use in relation to the objectives of teaching- learning systems.

1.3 Technology of Education and Technology in education :-

Educational technology is broadly classified in two important points.

(1)Technology of education :- It refers to the application of behavioural sciences like psychologyof educational theories and practical teaching learning problems. It is concerned with the study of educational problems and the techniques to be used in solving the teaching- learning problems so that best result should be achieved. The technology of planning , financing and administration are also covered under the concept of technology of education. Techniques of curriculum planning, transacting and evaluating also comes under technology of education.

In technology of education we use principles of learning. Software approach is also used in technology of education.
In general, the following techniques are included in technology of education.

(i) Analysis of instructional programme.
(ii) Selection of instruments for evaluation.
 (iii) Selection of strategies to obtain desired result from the teaching – learning process.
(iv) Teacherbehaviour.
 (v) Programmed learning.
(vi) System analysis.

(2) Technology in education :- It implies the use of implements, tools, and machines in education in the same manner as we use these for development of agriculture and gardening and industry and in fact our everyday life to reap the fruit of scientific and technological development.

Under technology in education we include electronic media like projector film, radio, TV., computer and internet etc.

Technology in education refers to the application of engineering principles and technology in the process of education. Basically it is called hardware technology.

Silverman (1968) called this type of educational technology a" Relative Technology" and Technology of education as " Constructive educational Technology "

Difference in between Technology of Education and Technology in Education : -

There are two basic components of Educational technology termed as hardware and Software.

Hardware refers to the role of technology (use of equipment and media) in education while software refers to the psychological and behavioural aspects of educational process.The distinction between them can be summarized as below.

Technology of Education (Software Technology) :-

1. Applications of principles of Psychology of learning.
2. Follows the learner – centered approach and emphasizes behavioural aspects of teaching.
3. Improves the overall quality of communication.
4. Principles of learning are same for all the subjects.
5. Skills in behavioural sciences are needed .
6. Rerates to designing of and choosing the process of imparting instructions.

Technology in Education (Hardware Technology) :-

1. Application of Principles of Science and engineering.
2. Its origin is from Physical Science and technology.
3. Takes into account the technical aspects of teaching i.e. the resources.
4. Improves ht equality of teaching.
5. Hardware technology has to be choosen according to the subject to be taught.
6. Skilled People in hardware technology are needed.
7. Relates to choosing an equipment for instruction.

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UNIT – 2

2.1 CONCEPT,TEACHING AND LEARNING :-

Teaching involves verbal and non-verbal communication to make the students learn the specific subject matter. All acts on the part of the teacher are to help students in learning. How smoothly and efficiently the learning takes place depends upon the teaching skills.

Learning is a relatively permanent change in the behavior or response as a result of experience, practice or training on account of the interaction between the learner and the environment

(usually school and the teacher). As a result, some changes take place in the individual. The outcomes of learning from learning activities may be attitudes, Skills, Social competence and abstract and creative thinking.

Teaching :- In its simple meaning it refers either an occupation or profession of a community known as teacher.

Or

An activity or group of activities undertaken to help an individual to learn or acquire same knowledge , skills, attitudes or interest etc.

DEFENITIONS

(i)   **H.C.Morrison(1943**) :-According to H.C. Morrison, " Teaching is an intimate contact between a more mature personality and less mature one, which is designed to further the education of later."

(ii)   **B.O. Smith (1960**) :-According to B.O.Smith, " teaching is a system of action intended to produce learning."

(iii)   **Thomas F. Green (1971**) :-   According to Thomas F. Green," Teaching is the task of

teacher which is performed for the development of the child ."

Teaching is a relationship which is established among three points in education that is Teacher, Child, and subject or Content.

Teaching is a tripolar process involving a set of activities designed and manipulated primarily to bring about desired changes in the 9ehavior of student.

(iv)   **Edmund Amiden (1967**) :- " Teaching is defined as an interactive process primarily involving class room talk which takes place between teacher and the pupil and occur during certain definable activities "

(V)   **Clark (1970)** :-   According to Clark, " Teaching refers to activities that are designed and performed to produce change in the students 9ehavior "

4

Characteristics of Teaching :-

(I) Teaching is an tripolar process.

     1.   Teaching is an art and science both.
     1.   Teaching is the training of emotions.

(iv) Teaching is an interaction process.

(v)   Teaching is causing o learn.

(vi) Teaching is helping the child to adjust him / herself with environment.

(vii) Teaching is stimulating and encouraging.

(viii) Teaching is diagnostic and remedial both.

(ix)   Teaching provide appropriate opportunities for activities.

(x)   Teaching is co-operative, friendly, kind and sympathetic.

LEARNING :- Learning means acquisition, retention, modification, of experiences.It is also defined as a process of adjustment. The process of learning include --

(i)   Acquisition of new experiences.

     1.   Retention of old experiences.
     1.   Development and modification of experiences.
     1.   Synthesis and organization of old and new experiences resulting in a Novel pattern called learning .

DEFINITIONS

    (i)   **Gates**:-According to Gates, " Learning is the modification of behavior through experience and activity. "

    (ii)   **J.P. Guilford** :-According to J.P. Guilford , "Learning is any change in behavior resulting from experience "

       1.   **G.A. Kimble** :-According to G.A. Kimble," Learning refers to amore or less permanent change in behavior which occurs as a result of practice."

Thus, learning is a process by which an organism, as a result of its interaction with a situation , acquires a new mode of 10ehavior which tend to persist and affect the general 10ehavior pattern of an organism.

2.2 RELATIONSHIP BETWEEN TEACHING,LEARNING AND I.C.T. :-

Learning is influenced by various conditions of life at home and school. Best learning takes place when the teacher is successful in arousing the interest of the learners.

Using I.C.T , Learning environment can be created easily and subject matter can be explored and structured after identifying aims and objectives of learning. Through ICT , appropriate teaching strategies can be selected and effectiveness of learning system can be measured. ICT is both a Science and an art. As it includes principles of Science as well as art. Multimedia is a part of ICT that enables the teacher in making learning easy and interesting .ICT isInnovative. Teaching and learning theories can be formulated in a manner which makes the nature of teaching- learning easy to comprehend. Thus, teaching skills may be developed by using ICT in education.Teaching is an art that requires certain skills.

Teaching is an interactive process involving interaction between teacher and taught (child). Learning may be purely one sided activity needing interaction.

According to B.O. Smith- " Learning does not necessarily issued from teaching tha teaching is one thing and learning is quite another "Both Teaching and learning aim the one thing that bring change in the 11ehavior of child. So, it useless to keep them apart. A good teaching must always be designed and performed as to result in maximum learning.

The relationship between teaching and learning may be explained as –

1.   Who is to teach ?

Answer :- The teacher is to teach the learner.

1.   Who is to learn ?

Answer :- The learner is to learn from the teacher.

Education in its modern form, involving the instruction of pupils within specially designated school premises, emerged with the spread of printed materials and higher levels of literacy. The expansion of education in the 21st Century has been closely tied to the perceived needs for a literate and disciplined work force. The rise of mass media (ICT) and the rise of mass education are closely connected because of the latter's ability to read and write, to participate in public sphere.

Media are generally classified on the basis of their distribution channels. They are-

1.   **Print Media** :- For example - Books, Newspaper, Magazine, Direct mail etc.

(ii**) Electronic Media** :- For Example - Radio, Television, Films, Tape and Disc recording.

2.3 VARIABLES OF TEACHING:-

According to John Brubacher , A variable has been defined as ' Any response or 11ehavior which can take different degrees – For example , effect of various amounts of study on school performance.

A teaching process has three variables.

 (i)   **Independent Variables**
       eg. Teacher
 (ii)   Dependent variables
       eg. Pupil

(iii)   **Intervening variables**eg.

   Content , Teaching methods, nature of teaching materials.

          The concept of teaching may be further explained through a description about the different variable involved in the process of teaching.

   (I **) Independent Variables** :- In the process of teaching teacher has to plan , organize, lead and control the process of teaching, so that desirable outcome of his teaching may be properly obtained.

   He is free to act in the teaching process. In these way teacher play the role of Independent Variables.

(ii**) Dependent Variables** :- In the process of teaching, it is the student who is subjected to change it and bring development apart from the teacher and teaching process. Therefore, he acts as dependent variable. The student is required to act according to planning and organization of the teacher.

(iii) **Intervening Variables** :- In the process of teaching, the contents of teaching, methods and techniques of teaching tactics and strategies of teaching, management of teaching materials and teaching environment e.t.c. are responsible for bringing desirable changes in the 12ehavior of student. They are called intervening variable.

Functions of Variables ;- The following are the variables in the teaching process.

(i) Diagnostic function

(ii) Remedial function

(iii) Evaluation function

   1. **Diagnostic   Function :-** In diagnostic function the teacher decides about the pupils entering 12ehavior and the teaching objectives can be achieved on its basis. Hence, the teachers only two factors under the diagnostic function. These function are –

(I) The Pupil

   1. the Content

       First of all , teacher determines the previous knowledge of the people. Then, he arranges the elements of the contents to be taught in sequence by analyzing them logically so that the teaching activity may be performed in a psychological sequence. In this way, the diagnostic function is the foundation of the remedial aspect of the teaching.

       In this function, the teacher takes decisions – considering the following variables.

(i) Analysis of teaching Problems :- It is first variable of diagnostic aspect. Hence , the teacher should decide about the entering 12ehavior of the pupils while giving a thought to the problem related to that that content with far-sightedness and depth which is to be studied by the pupils.

   1. **Determining the entering behavior of student :-** For determining the entering 12ehavior of pupils, the teacher should prepare and use such evaluative questions keeping in view the contents, which should be reliable and valid.

1. **Individual difference: -** The principal of individual differences means that every pupil has different interests, attitudes, capacities, abilities and needs. Hence, keeping in view the individual differences of the pupils as the teacher should perform the teaching task at the average level on one hand, he should guide sympathetically the talented and backward pupils on the other hand .

(iv)Task analysis :- The teacher should analyse carefully the learning activities related to the contents.

(v) Analysis of content in view of type of learning :- The teacher should know the tactics and principles to be used in the various situations so that the teaching may become easy,clean, effective, understandable and scientific.

2. REMEDIAL PHASE :- In the remedial aspects, an effort is made to bring the desired changes in the behaviours of the pupils. Hence, the teacher should make decision regarding the use of teaching methods, strategies and tactics and mutual relationships between variables keeping in view the individual differences of the pupils.

Thus, in remedial aspect, the teacher should manage the teaching variables in such a way that the maximum teaching objectives are attained by deciding the teaching techniques and tactics. It has the following variables.

(I)**Selection of teaching strategies and tactics** :- The success of teaching and learning depends upon the appropriate selection and use of teaching strategies and tactics.

(ii) Arrangement of feedback devices :- The feedback is the soul of successful teaching because the feedback provides reinforcement to the pupils which in turn, provides motivation and encouragement for learning.

1. **EVALUATION PHASE :-** In this phase, the diagnostic aspect is evaluated. The criterion of evaluation is achievement of the objectives. If the objectives are achieved, the remedy by the teacher is correct, otherwise it is defective. If the teaching objectives are not achieved, the should not blame pupils for his failure. He should change the variables of diagnostic aspect so that the objectives may be achieved. This aspect is in accordance with the post active phase. It has the following important variables.

(i) Construction of Criterion Test :-It provides clear information regarding the changes brought in the pupils by remedial teaching. The main characteristic of the criterion test is its objectivity. It is reliable and valid. Its aim is to evaluate the determined objectives. Hence, the teacher should construct the criterion test with great care.

(ii) Evaluation of behaviouralchanges :- The should perform the evaluation of pupils behavioural changes on the basis of criterion test.

1. **Diagnostic phase** :- The diagnostic phase means to know the evaluation and the extend to which the teaching objectives have been achieved as a result of using the methods or strategies or tactics at the time of teaching. If teaching objectives have not been as a result of their use, then the planning, organization, leading and controlling of the teaching process should be repeated.

2.4 PRINCIPLES OF TEACHING AND LEARNING : -

For successful teaching, it is essential to know how the pupil learn and which method he learns. As the teaching methods are based on certain principles, it is essential for teacher follow these principles while teaching. There are two types of teaching principles –

1. General principles of teaching

(2) Psychological principles of teaching

GENERAL PRINCIPLES OF TEACHING :-

(i)   **The principle of aim** :- A teacher should have fixed aim of his lesson. Without aim even the best materials teaching would fail to achieve its desired result.Aim will make teaching and learning interestingly effective.

1. **Principles of motivation** :- Motivation is the key stone of successful teaching Motivation prepare the mind set- up and once it is done, the are ready to conduct anything. Motivation gets the learner ready for receiving new knowledge.

(iii) **Principle of activity or learning by doing** :- The child is active by nature, He has certain urge which impel to action. The learning by doing removes the dullness of the lesson and the student do not get bored . The more is the activity of learner, the more efficiency in teaching learning process.

(iv) **Principle of linking with life** :- As far as possible , learning should be linked with life as wellas other subjects.

(v) **Principle of planning** :- Efficient teaching is possible through planning. Teachers should visualize the problem of student and he should prepare the lesson plan in advance and in proper way.

(vi) **Principle of atmosphere** :- Class room atmosphere should be made inspiring through the display of attractive charts and models.

(vii) **Principle of interest**   :- It means to create interest of pupils in the subject matter in order to make the teaching useful and effective. When the interest of pupil is created, he acquires knowledge very conveniently. There are various methods to create interest in the pupil for example –

(a) Curiosity of the pupil should be aroused and the objective of the lesson should be made clear .

(b) A relationship of contents may be established with the pupils activities and objectives.

I The principles of learning by doing should be followed.

(d) The teaching should be linked with the active life of the pupil.

(viii)   **Principle of recognizing individual difference** :- Successful teaching requires the teacher to kind and sympathetic and he should be able to sort out the difficulties and doubts of students in the subject matter and other instances also.

(ix) Principle of diagnostic , remedial , and corrective:- Today, we have at our disposal, tools that help us diagnose the weakness, capabilities and intelligence of students . The teacher after assessing the students can provide remedial measures to overcome the disabilities or backwardness.

Effective teaching can also help in modifying and correcting lapses and lacunae identified.

PSYCHOLOGICAL PRINCIPLES OF TEACHING :- The psychological principles of teaching are used for making the learning process effective. These psychological principles are as the following –

1. Principle of motivation and interest

2. Principle of recreation

3. Principle of repetition and exercise.

4. Principle of encouraging creativity and self expression.

5. principle of remedial teaching.

6. Principle of sympathy and cooperation .

7. Principle of reinforcement.

8. Principle of imparting training to senses.

2.5 COOPERATIVE LEARNING IN GROUPS : -

Cooperative learning involves more than one students working together on a lab or field project. It requires teachers to structure cooperative interdependence among the students. These structures involve five key elements which can be implemented in a variety of ways. There are also different types of cooperative groups appropriate for different situations.

It is comprised of members of varying abilities may be formed to provide opportunity to students to converge with their peers about academic materials. Peer tutoring opportunities are to be provided to afford students the chance to interact with a peer at a more advance level of cognition who could provide the student assistance as he/she works in the zone of proximal development. Zone of proximal development is the difference between an individual's current level of development and his/her potential level of development.

Co-operative learning is a structured , systematic instructional strategy in which small groups of students work together towards a common goal.

Broadly, it is considered to be a sub- set of collaborative learning which encompasses a variety of group learning experiences such as peer tutoring , short term buzz (Team) groups and other techniques of teaching- learning.

Co- operative learning may also be defined as a teaching strategy involving learner's participation in small group learning activities that promotes positive interaction. In co-operative learning, the goal or aim of all students is common to attain " grade" or certificate of recognition.

Recently, Johnson and Johnson, Roper, Slavin among researchers/ Psychologists have been working extensively in this field. Their work showed that Co- operative learning is more effective method than the traditional form of instruction.

<u>Sailent Features of Co- operative learning Which distinguish it From other forms of instruction</u> :-

- The size of Co- Operative learning groups is relatively small (4-5 in number). The group should be heterogeneous, which may include children of different social backgrounds/culture/diverse groups.
- Appropriate/ equal distribution of task to group members.The appropriate assignment of work promotes improved attitudes towards persons of differing background.
- Role of teacher as a coach / facilitator in the group is more collegial so that group members are more interactive with one another and with teacher.
- It encourages the development of social skills among group members such as active listening, co-operative respect for others, team spirit etc.
- It emphasizes face to faceproblem solving behavior among group members. The independent work in the group for common goal encourages/ promotes critical thinking for life long learning.

UNIT – 3

TECHNIQUES OF TEACHING

3.1 MICRO – TEACHING :-

 (i)Introduction :--Micro-teaching was first introduced at the Stanford university, U.S.A.in 1963.

D.D.Tiwari was the first to take up a project on micro- teaching at government central Pedagogical Institute at Allahabad in 1967.

NCERT has conducted a series of researched projects and training sessions for teacher educators in all states and micro teaching is a part of D.El.Ed. & B.Ed., programme of nearly all the Indian Universities.

1. **Meaning of micro teaching** :- Micro teaching is a procedure in which a student teacher practices teaching with a reduced number of pupils in a reduced period of time with emphasis on a narrow and specific teaching skill.

Micro teaching is a scaled down teaching act, scaled down in terms of class size and class time. It is   essentially a skill based approach to teaching – education.

1. **Definition of micro teaching :-**

(a**) Allen and Eve** :- Defined micro teaching is a system of controlled practice that makes it possible to concentrate on specific teaching skills and to practice teaching under controlled conditions.

(b) **Clift and others** :- Micro teaching is a teacher training procedure which reduces the teaching situations to simpler and more controlled encounter by limiting the practice teaching to a specific skill and reducing the teaching time and class size.

Characteristic Features of Micro – teaching :-

(1) Micro- teaching is an experiment in the field of teacher education.

(2) it is a student teacher skill training technique and not a teaching technique.

(3) Micro teaching is micro or miniature in the sense that it scales down the complexities of real teaching with provisions of :

1. Practising one skill at a time.
(ii) Reducing the class size to 5 - 10 pupils.
1. Reducing the duration of lesson to 5 - 10 minutes.
1. Limiting the content to a single concept.
     It also incorporates the psychological basis that immediate feedback always helps in improving, fixing and motivating further learning. The students are provided immediate feedback in terms of peer group feedback, tape recorded / CCTV recorded version etc.

(4) Micro teaching is highly individualized training device permitting imposition of a high degree of control in practicing a particular skill.

MICRO –TEACHING PROCEDURE :-

  In a micro teaching procedure he student teacher is involved in a scaled down teaching situation – in terms of class size, class time, and teaching tasks. The task may include practicing and mastering of specific teaching skill such as explaining, questioning, introducing, flexibility, use of instructional materials, and class room management.

        The short lesion given to peer group students is recorded at least on an audio cassetts or a video tape if available and the student teacher get to hear or see for himself//herself the lesson immediately. The pupils who attend the lesson are asked to fill in rating questionnaires and evaluate the specific aspects of the lesson. The supervisor also records an suggests remedial measures. If asked to reteach , The student teacher re-plans his lesson and immediately re-teaches the lesson to another group of peer students which is observed, recorded, and feedback provided. This cycle continues until he/she masters the specific skill. The micro teaching cycle / spiral is represented as –

MICRO- TEACHING CYCLE –
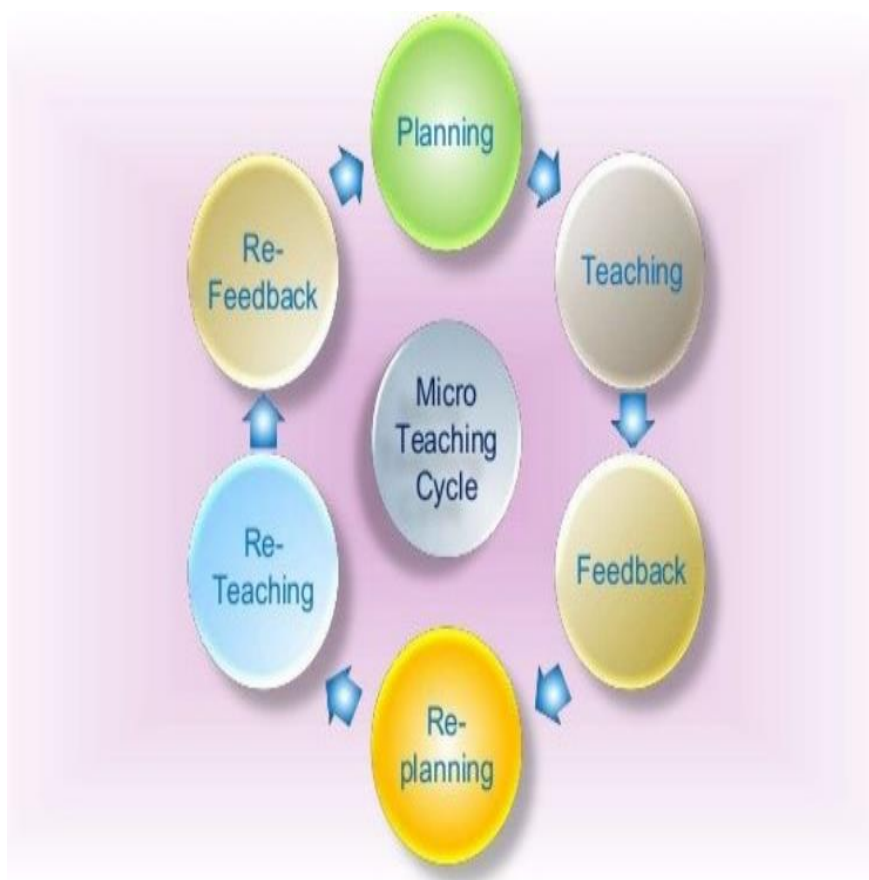
MICRO- TEACHING SPIRAL
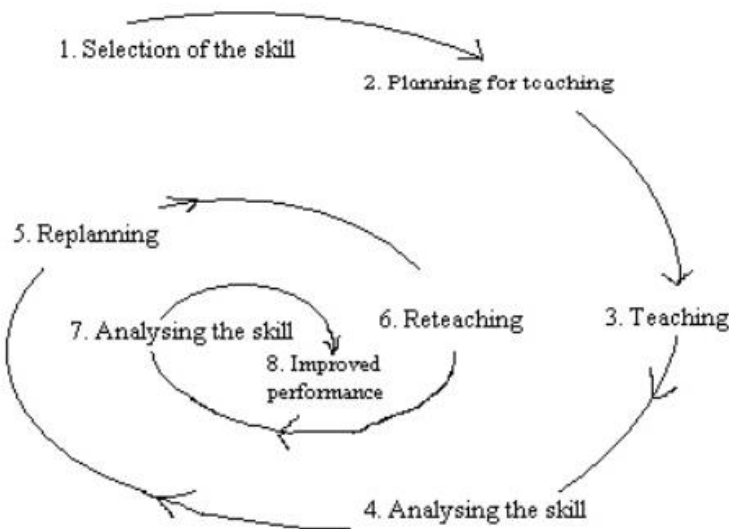
Merits of Micro teaching   :-

 1. It helps in easing the complexities of normal class room teaching.

2. it is more manageable than class room teaching due to small class size and reduced class time.

3. It focuses on particular skills to be demonstrated .

4. It operates ina conducive, healthy, atmosphere since it takes place in familiar class room among fellow students and supervisors.

5. It provides immediate feedback to the student teacher enabling him critical self analysis.

6. Modification of teacher 19ehavior and learning of specific tasks are the main outcomes of micro teaching.

LIMITATIONS OF MICRO TEACHING :-

 1. This method requires trained ,competent teacher educators who are ready to accept innovation.
 2. It conducted under laboratory conditions with audio-visual support whereas actual class room situation is different.
 3. Micro teaching is skill oriented and does not have any provisions for content orientation.
 4. It is time consuming and costly affair and requires costly media technology.
 5. Micro teaching alone is not sufficient. It should be integrated with other techniques like interaction, analysis, simulated teaching etc.

3.2 PROGRAMMED LEARNING :-

The term programmed learning has been coined from principle of operant learning , developed in psychological laboratories on the basis of experimental studies conducted on animals by B.F.Skinner of Harvard University .He wanted to improve the class room instruction and teaching.

MEANING OF PROGRAMMED LEARNING

1. **Smith and Moore** :- " Programmed instruction is the process of arranging the materials to be learned into a series of sequential steps usually it moves the students from a familiar background into a complex and new set of concept ,principles and understanding."

2. **Harold W. Bernard** :- " Programmed learning refers to the arrangement of instructional material in progressive sequence "

Objectives of Programmed Instruction :-

1. To help student to learn by doing.

2. To provide the situation to learn at his own pace.

3. To help student to learn without the presence of a teacher.

4. To present the content in a controlled manner ad in a logically related steps.

5. To study by himself and assess his own performance by comparing it with the given answer.

Characteristics of programmed learning :-

1. The subject matter of the programme is presented by breaking in small steps in a logical sequence.

2. Learning is done slowly and systematically.

3. A programmed test provides for immediate feedback information.

4. Immediate feedback reinforce learning.

SIMULATED TEACHING :- Simulation means process of pretending or role play or enacting.Simulated teaching implies a learning or training technique in which the process of teaching is enacted artificially .

Simulated teaching is a learning or training technique for helping the learner to bring desirable change in its 20 behavior through some systematic and organized learning experiences in simulated (artificial) lab like condition.

Steps in Simulation :-

(i) **Orientation :-** It should be given to student teacher about the concept of simulated teaching.
(ii) **Selection of theme (subject) for teaching :-** Topic, method, technique or skill used to planned in advance.
(iii) **Demonstration of lesson :-**It should be given by the student teacher.

(iv)   **Formation of groups :-** The groups of the student are formed .

(v)   **Assignment of role :-**Roles are assigned for teacher, pupil and observer .

(vi)   **Planning :-** Planning of various elements should be done in advance.

(vii)   **Execution of First Practice Session :-** practice lesson should be organized .

(viii)   **Follow- up :-** Follow- up work is taken up during subsequent practice lesson.

Importance of Simulated Teaching :-

1. It enables the learner to learn directly from experience.

2. It provides real life situation.

3. It provides feedback to student teacher.

4. It is very exciting and interesting for improvement of teaching.

3.3 TEAM TEACHING :-

Team teaching was first developed in 1955 at Harvard University, in Britain. It was developed by J. Ereeman in 1960. Gradually, its use was started in schools and colleges. In Chicago University, Facis chase used team teaching for effective teaching.

Definitions of Team Teaching :-

1**. Carlo Olson** :- " An instructional situation when two or more teachers possessing complementary teaching skills cooperatively plan and implement the instruction for a single group of students using flexible scheduling and grouping techniques to meet the particular instruction "

2**. David Warwick** :- " Team teaching is an organization ",in which teachers decide to post resources, interests and expertise in order to devise and implement the scheme of work suitable to the need of their pupils and facilities of their school."

Procedure of Team teaching :-The team teaching is organized according to objectives in the teaching learning process. A systematic procedure is followed through following steps or phases

1 .**Planning Objectives :-**

In order to prepare a plan of team teaching, the following objectives are remembered .

1. To write the objectives of team teaching in behavioural terms.

(ii) To decide the topics for teaching.

1. To determine the level of the instruction.
1. To decide the evaluation techniques.
1. **Organization:-**

Besides these objectives, the difficulties of the pupils and their needs are also kept in mind. Following activities are performed while organizing team teaching.

1. Teacher asks same initial questions to decide the level of he instruction only then he can set the level of the instruction.

(ii) keeping in view the pupils knowledge of the language, the communication technique is selected.

1. The teacher delivers lead lecture while the other member teacher of the team listen to it. They note down the important points specifically those which are difficult for the pupils to understand.

(iv) Then other teachers of the team also deliver lectures and clarify various elements.

(v) Pupils activities are reinforced. The teacher encourages the pupils.

3. Evaluation of the Results :- In this step it examined whether the objectives have been achieved or not. The following activities are performed in this step :

(I) Decision is taken regarding the achievement of objectives and performances of the pupils.

1. Necessary modifications are introduced in the planning and organization phase on the basis of evaluation.
1. The shortcomings and problems of the pupils are diagnosed and reminded.

(iv) For evaluation, oral and written questions and practical methods are followed. Each question evaluates some objective.

The results of the evaluation phase functionas reinforcement in the pupils and the teachers.

ADVANTAGES OF TEAM TEACHING :-

1. Team teaching helps in the improvement in the quality of instruction.

2. It is economical in terms of time and energy .

3. It also helps in maintaining the discipline in the class.

4. The pupils can gain the advantage of specific knowledge of the different teachers.

5. Team teaching also develops the professional status of the teachers.

6. Team teaching provides opportunities of developing human relations.

7. It develops strong will and responsibility of participating among pupils and teachers.

8. Team teaching helps in getting rid of traditional time- table.

9. Team teaching can be best utilized in evaluation. All the teachers get opportunity of evaluating the task of every teacher.

Limitations of Team teaching :-

1. Team teaching is costlier than the traditional teaching.

2. More rooms and furniture are required in team teaching in comparision to the traditional teaching.

3. Sometimes teachers hesitate to cooperate with other teachers.

4. No specific type of guidance can be imparted in team teaching because school staff can not function like a foot- ball team.

5. Being a new concept, team teaching lacks research work.

6. Diversification in the view of teachers..

7. There is always a possibility of conflict between new and traditional methods.

3.4 SKILLS OF TEACHING:-

(A) SKILL OF INTRODUCING THE LESSON

It is concerned with the lessons initiation. If the beginning of the lesson is effective, its success is almost definite.

ELEMENTS :- The following elements are necessary in order to prepare micro – lesson plan involving this skill.

(I**) Previous knowledge** :- Awareness of previous knowledge of the pupils is must before starting the teaching of new content. Previous knowledge should concern the same topic which is to be started for teaching. This will create interest in the pupil teachers for teaching new content.

(ii **)Proper sequence** :- While starting the lesson , proper sequence should be made among ideas, questions and statement to be used.

1. **Objectives and aids** :- Keeping in mind the objectives of the lesson , various aids are used. Monotonous teaching bores the pupils. This can be controlled by selecting proper and attractive use of audio- visual aids.

(iv **)Relationship between Contents, objectives and statements** :- While teaching the lesson, the statement to be used must have some relationship with the new contents to be taught

(v**) Duration of introduction** :- Introduction neither too lengthy nor too short. Its duration should restrict to the creation of interest and motivation in the pupils.

(vi)**Capacity of creating interest and motivation** :- The teacher should have the capacity of creating interest and motivation in the pupils.

(B) SKILL OF PROBING QUESTIONS

The skill of asking questions in the class room is very important. Probing questions are those which helps the pupils to think in depth about the various aspect of the problem. The teacher can use the probing questions in the following situations.

1. **Prompting :-** When a pupil expresses his inability to answer some questions in the class or his

answer is incomplete . The teacher can ask such questions whichpromp the pupils in solving the already asked questions.

(ii)   Seeking further information :-When the pupils answer correctly in the class but teacher wants to seek more information.

    1.   Refocussing:- Sometimes, the teacher can ask probing questions to concentrate the attention of the pupils. For the very same purpose , the teacher may ask the same question from other pupil. This is known as ' Re – focusing '

(iv)Redirection :- If the teacher wants to introduce the pupils with various aspects of the problem in class room then he can ask the same question after slight changes. This technique is known as 'Re-direction '.

(v) Critical awareness :- In order to develop reasoning power of he pupils in class, the teacher can ask questions bearing ' why', 'how' . By getting motivated from such questions,pupils involve themselves in the process of reasoning. This is known as ' Critical awareness' technique.

(C) SKILL OF STIMULUS VARIATION

 The chief aim of the teachers teaching in the class room is to make the lesson impressive. In order to attract the pupils, he may present various types of stimuli and can thus motivate them. The skillful changes in the stimuli is known as the skill of stimulus variation.

Components :-

(1) Body movements :- The physical movement of the teacher in class carry much importance. The teacher is like stone idol without these activities.

(2) Gesture :- Gesture also prove helpful in making the lesson effective in class room .These include facial gesture (laughing , raising eyebrows, emotions etc.) Signals of eyes , nodding, hand signals etc

(3) Change in speech pattern :- The pupils feel boredom with the speech at the same pitch, and they get deviated from the lesson . Teacher should bring fluctuation in his voice.

(4) Focussing :- It is used to concentrate the attention of the pupils on some specific points or event. It include verbal focusing, gesture, focusing and verbal or oral – gesture focusing.

(5) Change in interaction style :- Interaction between the teacher and   the pupils is very essential in the class room. Otherwise, the class room teaching becomes monotonous. Therefore , the style of interaction in the class room should go on changing.

(6) Change in audio- visual sequence :- A continuous change in the sequence of using audio- visual aids concentrates the attention of the pupils upon the teacher. He should use sometimes audio-aids.

(7) Pause:- As and when need arises the teacher should use pauses in his teaching process.

(D) SKILL OF PROMOTING PUPIL PARTICIPATION

This skill implies involving the students in the teaching- learning process. If postulates that the the teaching – learning process should be made a two way traffic. It should not remain dominated by teachers. Student should be made active participants in it.

For achieving these aims the teacher is to take following steps.

(I) Creating family environment in the classroom .

1. Asking questions to a large number of student.
1. Encouraging students to ask questions.

(iv) Asking students to prepare visual aids for the lesson.

1. Dividing class into groups and assigning some projects to them.

(E) SKILL INTEGRATING OF TEACHING SKILLS

Integrationof skill means bridging gaps between training in isolated skills and the real teaching situation. It implies forming and effective pattern for realizing the specified instructional objectives in a given teaching learning situation.

Following measures are usually followed for integrating skills :

(I) Lectures

(Ii) Demonstration of lesson

1. Diagnostic lesson : - To know the deficiency of teacher trainees of a particular skill.

(iv) Micro- lesson for practice.

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UNIT – 4

INFORMATICS

4.1 Definition and need for informatics :-

It is one of the fundamental and national resource, which is essential for development of society. The information , which is systematically organized ,collected and arranged insuch away that it can be retrieved easily, helps to develop resources of the country and such resources can be directed towards economic, social and cultural growth.

Information is a flow of message from one person to another. Information may be single isolatedfact or it may be a whole cluster of facts but it is a unit of thought.The and importace of information is many folds. It is unique resource and it is essential for our existence. Information is communicated from an origin to a recipient.

Linguistically, the meaning of informatics extends to encompass both the science of information and the Practice of information processing..

Thus, informatics is the displine of science which investigates the structure and properties of scientific information as well as the regularities of scientific information activity, its theories, history, methodology and organization.

Bloomington, Indianapolis - Informatics is defined as " the art of science and human dimensions of information technology " and " the study, application and social consequences of technology "

Need for Informatics :-

1. Increasing the effectiveness of teaching – learning process.
2. Developing to the maximum the cognitive, affective and Psychomotor aspect of the children.
3. Maximizing the output of learning.
4. Emphasizing the maximum use of available resources in the learning situations.
5. To help in making the teaching process objective, easy, clear, interesting and scientific.
6. To encourage learning by controlling the environment.
7. For desired change in the behavior of teachers and students.
8. To use measuring tools of it for the evaluation of learning outcomes.
9. To improve knowledge sharing and to encourage innovation.
10. To increase the efficiency and effectiveness in Planning and administration in education.

4.2 Process and modes of information transmission :-

Information Transmission:

Information transmission is the transfer of data (a digital bitstream or a digitized analog signal) over a **point-to-point** or **point-to-multipoint** communication channel. The data are represented as an **electromagnetic signal**, such as an electrical voltage, radiowave, microwave, or infrared signal.

Process of Information Transmission:

In the information transmission process, an optical circuit is formed flexibly between ports having functions of optical signal emission or reception. The information transmission process comprises a first step of establishing a communication path between the ports, and a subsquent second step of data transmission through the communication path to conduct intended information transmission.

Data is transferred in the form of bits (smallest unit of data in computer) between two or more digital devices. A bit has a single binary value, either a start or stop bit which is 0 and 1 respectively and one Byte is equal to the collection of 8 bits. Two ways to transmit data between digital devices are Serial transmission and Parallel transmission.

Serial Transmission:

Serial data transmission sends data bits one after another over a single channels in two directions. When data is sent or received using serial data transmission, the data bits are organized in a specific order, since they can only be sent one after another. The order of the data bits is important as it states how the transmission is organized when it is received. It is a reliable data transmission method because a data bit is only sent if the previous data bit has already been received.

Serial Transmission of 8-bit Data

There are two kinds of Serial transmission : Asynchronous and Synchronous.

Asynchronous Serial Transmission:
The time between sending and receiving data bits is not constant, so gaps are used to provide time between transmissions. Example: File transfer, email, World wide web etc.
The advantage of using the asynchronous method is that it is more cost effective method. A disadvantage is that data transmission can be slower.

Synchronous Serial Transmission:
Data bits are transmitted as a continuous stream in time with a master clock. The data transmitter and receiver both operate using a synchronized clock frequency; therefore, start bits, stop bits, and gaps are not used. This means that data moves faster and timing errors are less frequent because the transmitter and receiver time is synced. In comparison with asynchronous serial transmission, this method is usually more expensive.

Example: Video Conferencing, IP telephony, IP-TV etc.

Parallel Transmission:

Parallel data transmission sends multiple data bits at the same time over multiple channels. It means that data can be sent much faster than using serial transmission methods. Parallel Transmission can take place within a computer system through a computer bus or to an external device located nearby. Example: connection established between a computer and a printer.

As multiple bits are sent over multiple channels at the same time, the order in which a bit string is received can depend on various conditions, such as proximity to the data source, user location, and bandwidth availability.

Data Received Correctly: The data is sent and received in the correct order.
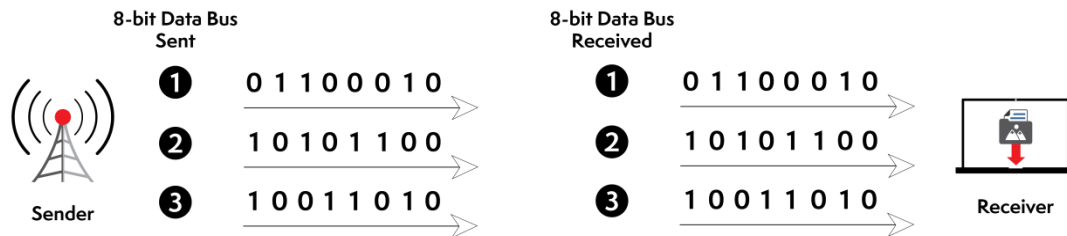
Example of Parallel Transmission- Data Received Incorrectly: The data is sent in the correct order, but some bits were received faster than others.
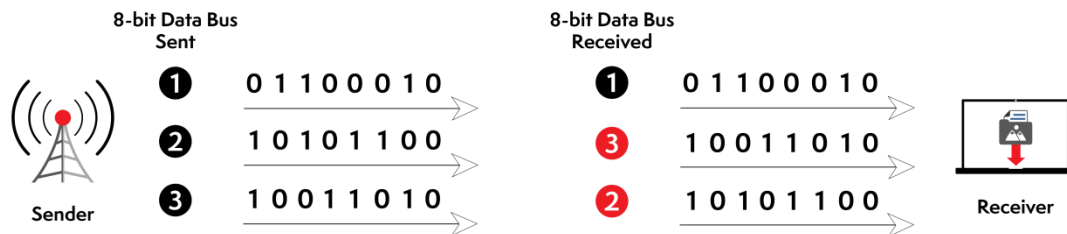
Mode of Information Transmission:

The term 'Transmission Mode' defines the direction of the flow of information between two communication devices. i.e. it tells the direction of signal flow between the two devices. There are three ways or mode of transmission:

i)   Simplex: In this communication network, Communication can take place in one direction connected to such a circuit are either a send only or receive only device. There is no mechanism for information to be transmitted back to the sender.

ii)   Communication is unidirectional. Television broadcasting is an example. Simplex transmission generally involves dedicated circuits. Simplex circuits are analogous to escalators, doorbells, fire alarms and security system. Another example of Simplex transmission is Loudspeaker system. An announcer speaks into microphone and his voice is sent through an amplifier and then to all the speakers.

iii)   Half Duplex: A Half- Duplex system can transmit data in both directions, but only in one direction at a time. It means that half duplex modes support two-way traffic but in only one direction at a time. e.g., a walkie-talkie, line-printers etc.

This is generally used for relatively low-speed transmission usually involving two-wire, analog circuits. Due to switching of communication direction, data transmission in this mode requires more time and processes.

Example: A walkie –talkie operates in half duplex mode. It can only send or receive a transmission at any given time. It cannot do both at the same time.

iv)   Full Duplex: A full duplex system can transmit data simultaneously in both directions on transmission path. Full duplex mode is used to transmit the data over a serial communication link.. Two wires needed to send data over a serial communication link layer. In full duplex transmission, the channel capacity is shared by both communicating devices at all times. The link may contain two separate transmission paths one for sending and another for receiving.

Example- Telephone networks operate in full duplex mode. When two persons talk on telephone line, both can listen and speak simultaneously.

4.3 CONCEPT, ROLE, AND   TYPES OF CONFERENCING IN TEACHING – LEARNING PROCESS :-

Teleconferencing is an electronic means which can bring together 3 or 4 people or more in two or more locations to discuss or share the use of two way or one way video, both full motion and show scane , computer graphic radio and satellite etc.

Educational teleconferencing can be valuable medium for interactive group communication by means of two way broad cast . The four main types of teleconferencing are :

1. Radio conferencing

2. Audio conferencing

3. Interactive conferencing

4. Computer conferencing

1.   Radio Conferencing :-   The most essential part of all teleconferencing is a good quality of audio to help immediate interaction among the participants   for information exchanges. Through radio persons receive information and immediate react / interact with other persons through telephone s for required information and suggestion. IGNOU every Sunday organize this type of programme between 4 – 6 pm through all India Radio Programme.

2. Audio Conferencing :- Audio conferencing requires a multi telephone line to receive and exchange or share information . Audio conferencing uses regular telephone lines provided by local public telephone companies. Telephone is an effective medium of communication. The cost for audio conferencing is relatively low and the quality of instructional material is high.

3. Interactive conferencing :- This teleconferencing system provides face to face interaction or teaching. It is very useful, when most of the students are widely scattered to a far flung area (remote area). The system provides the facility to the learners for immediate feedback and to covey their reaction to the tutors.

4. Computer conferencing :- The computer is a medium or tool for teaching learning process. The teacher can provide the curriculum on computers.Access to the world wide wave (WWW) offers participatory and decentralize environment that encourages and support enquiry oriented curriculum and helps to develop knowledge abilities. A computer or number of computers connected to the internet can bring the virtual world into the class rooms , thus, exponentially increasing the knowledge base for practical use in teaching and learning.

Indian space research organization (ISRO), IGNOU, NCERT, in India have undertaken some experiments for education purpose. They are using satellite on terrestrial circuits and one way T.V. and two way audio equipments.

In Arunachal Pradesh 40 Nos. of EDUSET center established to provide education. DIETs , Higher secondary schools, colleges, Polytechnique college are the important center where persons can receive information from experts through EDUSET.

Advantage :-

1. It provides effective support for remote learners.

2. It is very cost effective.

3. It is flexible system and can be adjusted for small or large group.

4. It is high quality instruction programme .

5. It provide immediate feedback.

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UNIT - 5

INFORMATION AND COMMUNICATION TECHNOLOGY RESOURCES

Man is highly enterprising being. He is always on the look out for inventing new innovations in all walks of life. You may be aware of the use of different technologies such as radio, television, computers etc. in the teaching learning process. In fact, all these technologies have transformed the teaching and learning process. Radio, television, and newer digital technologies such as computers and internet constitute information and communication technologies. They have been visualized as powerful enabling tools for educational changes. Different ICTs have potentiality to expand the access to education and enhance the quality of education.

5.1 (A) AUDIO – AIDS :- Audio – aids means those sources in which only hearing organs are used, i.e. knowledge gained mainly through the ears.

1. Radio :- Radio was born in 1885. Today it has become our need. It provides the knowledge of latest events and information simultaneously to all the pupils living at far off places. This arouses curiosity of learning new things. It provides various talks and speeches of eminent educationists to the pupils on national and international problems to hear. This develops international feeling among them . They are able to understand and solve the problems of daily life. When programmes of famous artists and musicians are broadcast from the radio, these provide education in music.

Thus, radio creates interest in the pupil regarding every nation and all the people of world. It broadens general knowledge . It has special importance in the field of modern education.

2. Gramophone and Lingua phone :- Pupils are given training for speech and music by gramophone while language is taught by correcting their pronunciation with the help of Lingua phone . Hence, the teacher should use both the devices during teaching as the need arises.

3. Tape recorder :- It is an instrument through which anybody can hear his recoded voice.This helps in improving their pronunciation and removal of errors regarding effects of the voices. Tape recorder is used to hear the ideas great men ,speeches of leaders and music and poem of famous artists on one side.

5.2 : VISUAL Aids:- Visual aids are those sources in which only visual organs (eyes) are used or applied.

1. Projected Aids :- The visual aids which can be projected as picture, filmstrips, over head projected (O.H.P) , slides etc. are called projected aids.

2. Non- projected aids :- The visual aids which cannot be projected as charts, black board, bulletin board, Photographs, Posters, Maps, Specimen, text book etc. are called non- projected aids.

3. Real objects :-Real objects means original objects. These motivate the sense organs of the pupils and develop their power of observation by providing the opportunities of supervision and testing.

When the pupils see real objects, touch them and test them, their visual taste, touch, and hearing powers develop. This helps in developing their power of imagination.

Eg. Table, chair, food, fruits, flower, thermometer, & Physical balance e.t.c.

4. Models :- Model are the miniature forms of real or original objects. These are used when the real objects are either beyond availability or these are of such huge size that it is impossible to exhibit them in the class, for example, an Elephant ,horse, railway engine, aeroplanee.t.c. Here models are presented to the pupils for the knowledge of such objects. Model are particularly advantageous I providing the knowledge of historical, geographical and Scientific facts. If ready- made models are not available, the teacher should prepare them himself.

5. Pictures:- Picture are used when neither the real objects nor their models are available. The real touch of the real objects does not occur in picture. Still these are useful in teaching. These are cheaper than model and real objects and easily available in the market. When the teacher impart knowledge with the help of picture the pupils attention remains focused on the lesson. This enables the teacher to achieve the objectives successfully . Hence, He must use pictures in lower classes.

If ready- made pictures are not available ,the teacher should prepare himself in order to clarify the things related to the lesson.

6. Maps :- The use of maps is essential to study the historical events ,geographical facts and places.

7. Sketches and diagrams : - If the teacher fails to acquire real objects, models, pictures, and maps , he/she should draw sketches and diagrams on the black board with colored chalks.

8. Graphs :- By using graph, knowledge regarding subjects like geography, history, Mathematics, and science e.t.c can be imparted conveniently . With the help of graphs the knowledge of climate, cultivation and population e.t.c. can be imparted in the lesson of geography. In history , it can be used in imparting the knowledge of the progress of freedom- struggle and development in the religious and political fields. Hence, While teaching various subjects, the teacher should draw graphs himself/herself as the need arises. He/she should get these graphs drawn from the pupils.

9. Charts :- The use of charts helps in achieving the teaching objectives. The charts can be used successfully in all the subjects. The teacher should himself prepare large sized charts and use them properly.

10. Black- Board :- Black- board is very useful for a teacher whether it wooden or cemented.

ADVANTAGES OF BLACK- BOARD :-

1. The blackboard is the cheapest of modern education . It is not possible to teach any part of the content conveniently without the help of black board.

2. By using black board, pupils understand the terms , facts, events, pictures and summaries e.t.c. written on the black board very easily.

3. Also, the teacher may assign the home work and teach the whole class at a time with the help of blackboard.

5.3   AUDIO – VISUAL   AIDS :-   Audio- visual material means in which both audio and visual senses are used.

1. Cinema :-   Cinema is second form of movie. Like silent films, actions are also shown with sound. Cinema is the cheap, easily available and mechanized source of education. Its use is more effective than radio and television.

Advantages of cinema :-

1. The knowledge acquired is more stable as compared to the knowledge acquired by other devices, because hearing and visual sense organs are active in it.

2. It provides knowledge to pupils regarding the situations of various countries,conditions and activities of their persons.

3. It also develops the imaginative and observation powers of the pupils.

4. In short, all types of pupils mentally retarded and highly intelligent , get entertainment and also acquire every type of education.

2. Documentary Film :- Documentary films are those by which pupils are educated insocial subjects. These provide news to the public / pupils, regarding country's political, religious, and social life, events and plans. These are shown to the pupils in the schools and at public places to enable every citizen to collect news about his country. Through documentary films, moral, religious and social education can be imparted in a very interesting and easy way.

3. Television :- Television is a powerful medium of communication. Through television, the ears and eyes of the pupils develop.

Television telecasts lessons of various subjects.

Advantages :-

1. T.V. can bring model of excellence to the students.

2. Television can display the world of reality in class room, through its screen.

3. It is very economical device that helps in saving time of both teacher and student.

4. It provide education to a large number of student and solve the problem of shortage of teachers, text books, class roomse.t.c.

4. Activity Aids :-   The aids that facilitates learning through sight, sound as well as doing are called activity aids. Eg. Dramatization, role play , experimentation, work shop e.t.c.

5.4 : Edger Dales Cone of experience :-

 A concept model of utilizing the learning experience is popularly known as " Cone of Experience " and was developed by Edger Dale . This model is based on a broad spectrum of educational method and media. It has been researched and established that :

People generally remember :-

- 10% of what they read
- 20 % of What they hear
- 30 % of what they see
- 50 % of what they see and hear
- 70 % of what they say and write (Participating in a discussion, giving a talk)
- 90 % What they and do

Our sense organs are the gateways to acquire knowledge. It has been proved by research That :-

We learn :-

- 1 % through taste
- 1.5 % through touch
- 3.5 % through smell
- 11.0 % through hearing
- 83.0 % through sight

Edgar Dale's Cone of learning Experiences : -

Dale proposed that learning is stimulated progressively from concrete (i.e. Hands on) experiences to abstract (i.e. verval and visual) symbols . The foundation for instruction reside in direct sensory experiences combined with purposeful interaction with stimuli sources. Dale's cone is most useful as a guide for introducing and building concepts. At the most basic and effective level of instruction, students are introduced to new material through an actual " hands on experience or doing the real thing" Students see, do and talk about the concept. Learning will be effectively completed if these conditions are fulfilled . At the top of the cone , or triangle is lecture and text. Dale's model suggests that these passive instructional modes are the least effective ways to introduce new concepts to students. Between the top and bottom of the cone, Dale has several other levels of instruction including giving a talk, watching, a demonstration, seeing a film or picture.
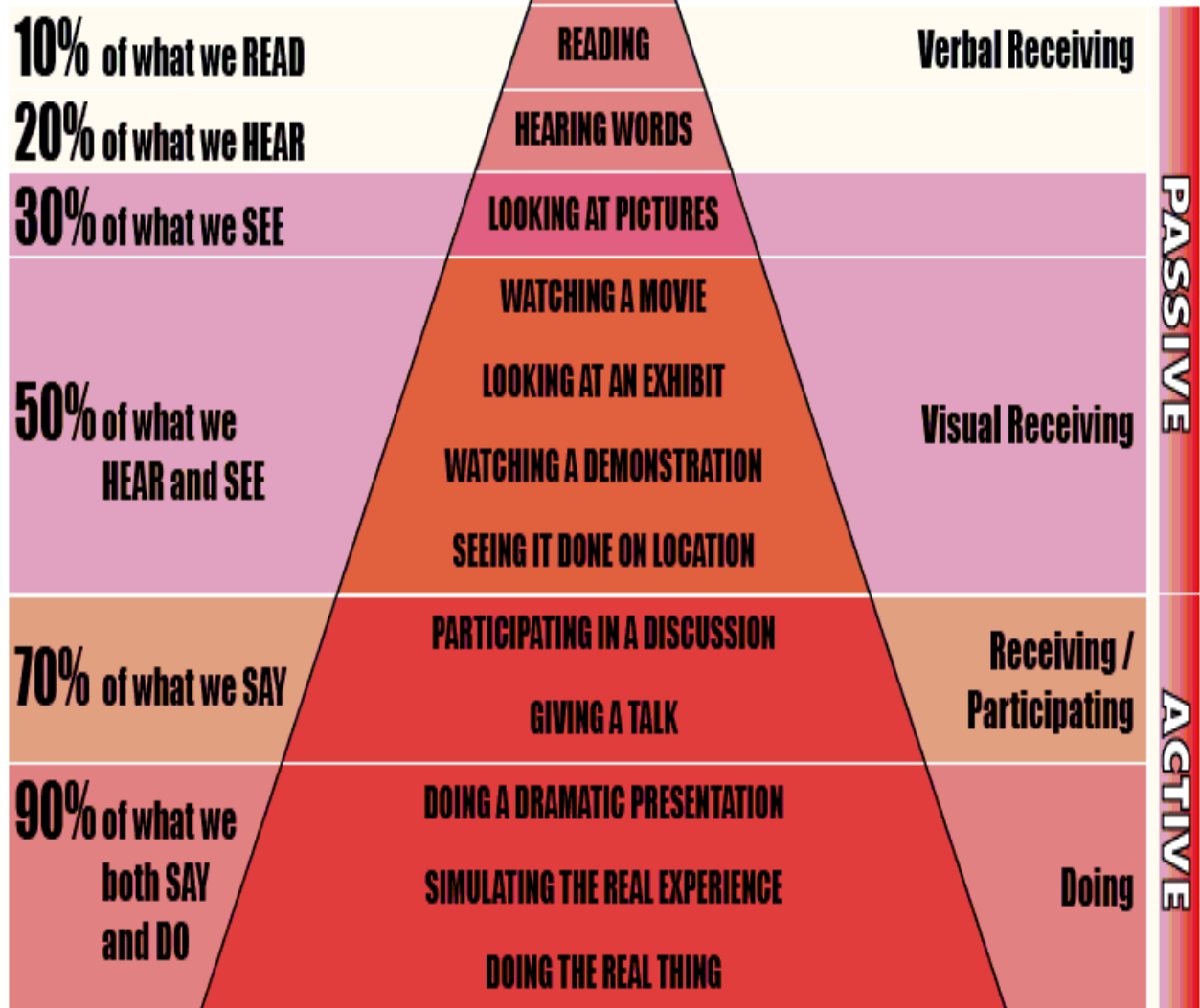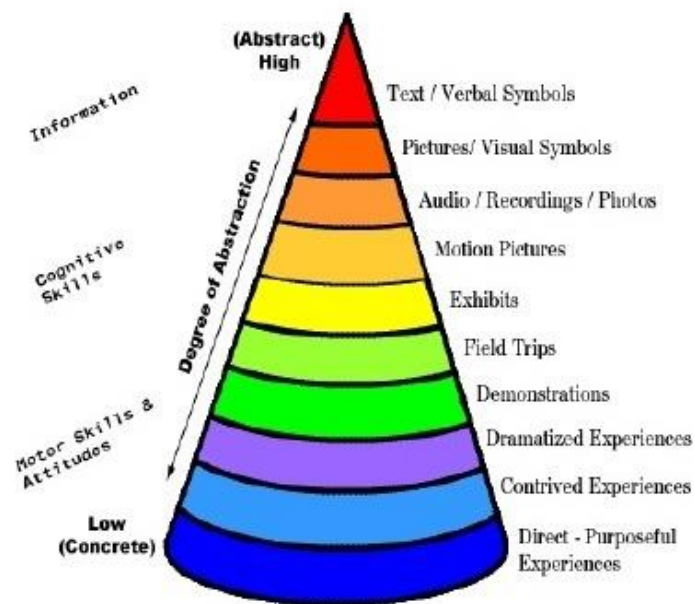
Dale's Cone of Learning Experience

Dale's Cone of Experiences :-

The " Cone of experience " as a model eleven bands. The model shows a progression of learning experience from " Direct purposeful experience to abstract verbal expression ".The progression suggest that the effectiveness of teaching increases from base to pinnacle. The verbal symbol provides the lowest amount of learning and direct purposefull experience provides better learning.

Interpretation of Edgar Dale's Cone of Experience :-

1. Lower level of the cone involve the student as a participant and encourage active learning.

2. Lower level include more stimuli and are richer with regard to natural feed back – the consequences of an action.

3. Higher levels comprises information and provide data faster for those who are able to process it.

4. Upper levels of cone need more instructional support than lower levels.

5.As we go up the cone, abstractness increases and is highest at the pinnacle i.gVerbal symbols.

6. As we go down the cone, concreteness increases and is maximum at the base. i.g. direct purposeful experiences .

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UNIT - 6

Communication

:Concept of communication :-

Meaning :- The word communication has been derived from Latin word ' Communis' which means to make common, to share, to impart and to transmit.

Thus communication is the sharing of ideas and feeling Effective communication is the key stone of instruction and education.

Communication is the means of achieving mutual understanding.

Definition of communication :-

1**. Louis A, Allen** :- " Communication is the sum of all the things one person does when he wants to create understanding in the mind of another. It is a bridge of meaning. It involves a systematic and continuous process of telling, listening and understanding."

2**. Fred G. Meyer** :- " Communication is the intercourse by words, letters or messages, intercourse of thoughts or opinions. It is act of making one's ideas and opinions known to other"

3**. Keith Davis** :-   " Communication is the process of passing information and understanding from one person to another "

Characteristics of communication :-

1. Communication involves at least two persons, a sender and a receiver. The sender is called communicator and receiver of the message is known as communicate.

2. A communication must convey some message.

3. Communication is written, oral or gestural.

4. It is two way process, it involves both information and understanding.

5. Its primary purpose is to motivate a response or influence human 37ehavior.

6. Communication flows downwards from a superior to subordinates and upwards from subordinates to superior. It also flows between two or more persons operating at the same level of authority.

7. It refers to the exchange of ideas, feelings, emotions, and knowledge and information between two or more persons.

PRINCIPLES OF COMMUNICATION:-

1.   **Clarity:-** The communication message should be clear ,simple, easy ,and commonly understood language.

2. Attention :- The recipient 's attention to the communicated message must be drawn to make the communication effective.

3. Consistency:- The communication should be consistent with the plans, policies, programmes and objectives of the enterprise. Better coordination is a achieved by consistent communication.

4. Adequacy:- Communication should be adequate and complete ,not broken or incomplete.

5. Proper time :- Information should be communicated at the proper time.wrong choice may not have the desired impact on the recipient.

6. Integration :- As far as possible the communication should be based on the policy of integration of efforts in order to avoid confusion and help in better understanding.

7. Informality :- The executive should try to remain informal in his behaviour with subordinates but in a certain situation, he may bid good bye to informality and become formal in his relations and conduct.

8. Feedback :- Communication is also termed as two way process. It follows the principles of 'give and take ' , It is meant for being communicated. The reactions should be calmly watched, sympathetically received and incorporate wherever and whenever necessary. Oral communication is regarded better as compared to written communication since the former provides more opportunity for feeding back than the latter.

6.2 :Form of communication :-

There are two modes of communication used in teaching process.

1. **Oral communication** :- This mode of communication employs speaking and teaching communication channel. The oral communication is largely oral and verbal interaction in classroom teaching. It is based upon ' audio lingual method '

   The teacher has to speak something orally the students have to listen the oral communications. It requires content first and expression on the part of teacher and students listen to expression first than the theme or content.

   The message (Content) conveyed by the teacher or educational media may be verbal or visual.

Verbal communication is dominated in class room teaching.

Barriers of Verbal communication :-

1. Inaudibility of speech.

2. Abnormal speed of speech.

3. Unfamiliar pronunciation of the teacher.

4. Use of unfamiliar words and technical terms without explanation.

5. Lack of understanding of the basic knowledge of the students.

6. Inattentiveness in students.

7. Unsystematic presentation of the subject matter.

8. Lack of scope of immediate feedback.

9. Lack of physical facility in the class room.

10. Socio- cultural and economic differences among the students.

 TEACHER AND STUDENT INTERACTION (Audio Lingual Method)

2. **Non- verbal or written communication :-**When the oral communication strategy does not ensure about the solution of the problem. Written communication ensures about the correct solution of the problem . It is based upon the cognitive code of method of teaching. An integration between teacher and students takes place through reading and writing activities.In writing, content comes first than expression and sequence is reverse in reading activities. Generally, communications are performed with the help of four activities , such as speaking and listening , writing and reading.

UNIT - 7

ROLE OF ASSESSMENT IN TEACHING AND LEARNING PROCESS

ASSESSMENT :-

The out comes of learning goes along with the teaching- learning process in a continuous manner. In order to undertake a holistic assessment , all aspects of learning need to be given due recognition. The manner and modalities however may vary, while teachers are regularly observing the process of students some periodicity would be necessary. It implies maintaining a profile for each student. This is required in order to reflect upon, derive feed back, plan and implement measures to enrich and enhance student's learning.

Thus assessment may be on –

1**. Daily basis** :- Interacting with student and continuously assessing them both in situations inside and outside the classroom.

2**. Periodic**:- Once in every 3 – 4 weeks, teachers may check and reflect on the information collected. This however should not be in form of a test or exam.

Methods of Assessment :-

There are four basic methods of organizing assessment, Namely

(a) Individual Assessment :- It focuses on one student while she/ he is doing an activity or task and thus recognizes individual work and accomplishments.

(b) Group assessment :- It focuses on the learning and progress of a group of students working on a task together with the objective of completing it. This method of organization is found to be more useful in order to assess social skills, co-operative learning processes and other value related dimensions of a student's behaviour.

(c)Self Assessment :-It refers to the student's own assessment of her/his learning and progress in knowledge, skills, processes, interests, attitude etc.

(d) Peer – assessment :- It refers to one student assessing other children. This can be conducted in pairs or in groups.

7.1 :Assessment for learning :- Assessment for learning involves teachers using evidence about student's knowledge, understanding and skills to inform their teaching. Some times referred to as " Formative assessment " It usually occurs through out the teaching and learning process to clarify student learning and understanding.

Assessment for learning is best described as a process by which assessment information is used by teachers to adjust their teaching strategies, and by students to adjust their learning strategies.

Assessment for learning is more commonly known as formative and diagnostic assessments. Assessment for learning is the use of a task or an activity for the purpose of determining student progress

during a unit or block of instruction. Teachers are now afforded the chance to adjust class room instruction based upon the needs of the students. Similarly, students are provided valuable feedback on their own learning.

Assessment of learning :-Assessment of learning is the use of task or an activity to measure, record and report on a student's level of achievement in regard to specific learning expectations . These are often known as summative assessments.

Assessment as learning :- It is the use of a task or an activity to allow   students   the opportunity to use assessment to further their own learning . Self and peer assessments allow students to reflect on their own learning and identify areas of strength and need. These tasks offer students the chance to set their own personal goals and advocate for their own learning.

7.2 : EVALUATION/ASSESMENT :-

Judgement made on the basis of a students performance.

Diagnostic assessment :- (Pre- assessment) Assessment made to determine what a student does and does not know about a topic. Assessment made to determine a students learning style or performances used to determine how well a student can perform a certain set of skills related to a particular subject or group of subjects occurs at the beginning of a unit of study used to inform instructions makes up the initial phase of assessment for learning.

Modes of Assesment :- There are two modes of assessment

Formative Assessment :-

 Formative or developmental evaluation refers to assessment of student's learning on periodical basis during instruction after the pre- instruction phase of placement evaluation is over. It is an evaluation to determine learning progress of learner and used to provide feedback re- enforcement of learning to correct errors .This may take the form of oral questions during teaching, school assignment written, oral unit test, home assignments etc. This is meant for diagnosing pupils difficulty and their progress . Focus is on adjusting and adapting the teaching – learning strategies for better instructional impact to improve students learning and achievement.

Summative Assesment :-

It is made at the end of the unit of study determine the level of understanding the student has achieved include a mark or grade against an expected standard.

     It determines the end of the term or course achievement when used for assigning grades or certifying mastery of instructional objectives. Teacher made survey test, dating scale etc. are common example of this test. Result o f such test can also be used for judging instructional effectiveness. These arejudgemental and used for certification for the promotion of pupil from one class to another. Half yearly examination, annual examination are the examples of summative test.

Continuous and Comprehensive Evaluation (C.C.E.) :-

 It is a developmental process of assessment which emphasis on two fold objective. These objectives are

continuity in evaluation on one hand, assessment of broad range of instructional out comes on other.

Continuous and Comprehensive Evaluation has three key words which needs explanation. The term continuous refers to continuity and regularity of assessment during the whole session. The frequency of class test, unit test and terminal test can make the evaluation regular and the test may be followed by the diagnosis of hard spots of learning and remedial intervention to correct them.

The second key word is Comprehensive and this refers to area of assessment which includes both scholastic and co- scholastic aspect of pupils growth helping all round development of the child.

The third important component is Evaluation. It is the process that deals with the collection of evidences regarding the change which occurs in the pupils behaviour during the instruction. On the basis of evidences, interpretation and judgement regarding the progress of the child are made and decisions are taken.

OBJECTIVES OF EVALUATION :- Evaluation must serve the following objectives –

1. Assist learner in their learning.

2. Diagnose learning difficulties of learners.

3. Determine readiness for new learning experiences.

4. Assist learners in their problems of adjustment.

5. Prepare reports of learner's achievement.

6. Assist teachers in adopting proper strategies of teaching – learning.

7. Full fill class room objectives of instruction.

MAIN FUNCTIONS OF EVALUATION :- The following are the main functions of evaluation process -

1. It ascertains that how for could learning objectives achieved.

2. It diagnosis the weakness of instructional procedures and provides the basis for remediation.

3. It provides the empirical evidences about the effectiveness of teaching strategies, tactics and aids and suggests some modification and improvement.

4. It gives refreshment and feedback to teacher and student.

5. It helps in developing a comprehensive criterion test.

The criterion test plays a significant role in the process of evaluation.

7.3 Understanding of Formative and Summative Assesment :-

(I) Formative Assesment :- Formative assessment is generally carried out Through out a course or academic session. Formative assessment is also referred to as "educative assessment ", is used to aid

learning. It can take the form of diagnostic, standardized tests, quizzes , oral question or draft work. It is carried out concurrently with instructions. The results may count. The formative assessment aim to see if the students understand the instruction before doing a summative assessment. If it designed only to enhance the teaching – learning process and not designed to make final judgements. Pupils weakness is diagnosed through class room teaching. Hence, Formative assessment is continuous feed back to both the teacher and the student, that determines success and failure of learning.

(II **) Summative Assesment** :- Summative assessment is generally carried out at the end of a course . It is evaluative. It is made to summarize what the students have learned , to know if they understand well.This type of assessment is graded and often counts, it can be a form of tests, final examination, projects e.t.c..This assessment is important because it decides the performance / ability to promote next classes..

Difference between Formative assessment and summative assessment :-

FORMATIVE ASSESMENT	SUMMATIVEASSESMENT
(1) The purpose of Formative assessment is to diagnose the strength and weakness of the Pupils.	(1) The Purpose is classification and Promotion of students.
(2) Evidences secured by it are used for further improvement of instruction.	(2) Its results are used for certification and passing judgement.
(3) It refers to continuous assessment by means of unit tes, assignments e.t.c.	(3) It refers to term tests, annual tests, external examinations.
(4) It is an integral part of teaching – learning process.	(4) It is treated as an end of the course activity.
(5) It is done during the course of instruction.	(5) It is done at the end of academic session / years.

7.4 Strategies for assessment :-

Assesment of performance is an integral part of any process of learning and teaching,As a part of sound educational strategy ,examinations should be employed to bring about qualitative improvement in education.

According to N.P.E., 1986, The term assessment is generally used to refer all activities, teachers use to help students learn and gauge student progress. Thus, Strategies for assessment should be for both Formative and Summative assessment.

(i)   **Formative assessment** :-
It isa continuous process. Thus it should be conducted at least four times in an academic year. e.g. FA-1, FA-2, FA-3, and FA- 4. To conduct the Formative assessment during the course of time, tools and techniques are needed. Observation technique, Anecdotal record, Rating Scale, interview, questionnaire, Objective type test e.t.c. will be planned to diagnose the students learning. These tools should be teacher made to test their students accordingly. After Formative assessment, remedial teaching if needed must be done by the teacher.

(ii)   **Summative Assesment** :-
It is made at the end of a unit of study to determine the level of understanding the

student has achieved. It should be at least two times in one academic year. It is called SA-1, SA-2 . For this purpose , necessary tools and techniques are needed. The tools and techniques of assessment are means of collective evidences about student's development in desirable directions. Thus test should be designed.

The main characteristics of good test are :-

(i)Objectivity :- (a) Objectivity of items.

(b) Objectivity in scoring

(ii) Reliability :- (i.g. accuracy and consistency)

(iii)Validity :- (actually measures what is supposed to be measured)

(iv) Discrimination :- (Pick out good and poor students)

(v) Usuability

(vi) Comprehensiveness

(vii) Diagnostic

(viii) Clearness.

There should be weightage to the instructional objectives (Knowledge, Understanding, Application, skill, analysis , synthesis) and also weightage to the content.It must be decided the duration of the test, Printing ,Formate, administration, scoring key and other mechanical aspects of the test. Blue – print of the test should be prepared.

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References :-

In developing this course material , material has been collected from various books, Internet and other reliable sources, the few are mentioned below –

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