

VOCATIONAL HIGHER SECONDARY

TEACHERS' SOURCEBOOK

IST YEAR

PHYSIOTHERAPY



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Department of Education

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VIDYABHAVAN, POOJAPPURA, THIRUVANANTHAPURAM -12

KERALA

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Preface

Dear Teachers,

In Kerala, activity based and learnercentred pedagogy is being introduced in the VHSE. It becomes imperative to make significant changes in the learning process as well as in the evaluation system for its successful implement.

As far as the discipline Physiotherapy is concerned, its methodology of learning is genetically activity based. This unique feature of the subject itself will enthusiase the teachers to pass through different activities for the transaction of the concepts.

This source book has been designed in such a way to help the teachers to convey the concepts through different but relevant process.

For the preparation of the sourcebook SCERT Kerala has drawn expertise from different field including College of Physiotherapy and Vocational Higher Secondary sectors. While going through the contents the teacher can understand that this book provides proper guidance and opportunities for planning the activities as well as the reference books needed for the transaction of the curriculum. May I hope that our concerted efforts will make an upsurge in the field of education.

With regards,

Thiruvananthapuram
25-11-2005

Dr. E. Valsala Kumar
Director
SCERT, Kerala

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TEACHERS' SOURCEBOOK - HOW & WHY?

Textbook is one of the important learning aid to help the students to achieve the curriculum objective. A willful effort is expected from the part of the teachers to conceive the contents of the textbook and utilize the text. But science learning should not be limited to the textbook alone. It should suit to reinforce the enquiring tendencies of the students. To attain this goal, the teacher can utilize the sourcebook as a guideline. The teacher is expected to utilize all these alternatives to the maximum.

Sourcebook is to assist the teacher to transact the modified curriculum through learner centered and activity oriented strategies. Teachers are expected to approach it in the right perspective and to utilise it fully.

The sourcebook consists of three parts. Part I includes general and subject approach Syllabus, Planning. Part II includes Unitwise Analysis and explanation of various learning strategies to simplify the transaction of the lessons. Part III contain Evaluation and Sample questions. Though adequate care is taken during the preparation of sourcebook the concepts which may be missed in it, when compared to the syllabus or textbook . So teacher must take necessary steps to improve it. Each strategy presented for the transaction of a daily lesson is only a minimum package for learning activity. More effective and divergent forms of learning activities can be developed through the creativity and imaginative capability of the teacher. After conducting each learning activity, the teacher should ensure that the learner has acquired ideological clarity and developed various process skills. Necessary hints has been in the sourcebook for devising alternative transaction procedures for the topic.

The practical work is the part of learning activity and it should be recorded. In addition separate practical record should be maintained and it should contain all the necessary diagrams.

Teachers' sourcebook is viewed as a primary book, which can be used by the teacher to transact the curriculum objectives. The book contains enough scope to improve the proficiency of the teacher and to develop diversified teaching strategies.

I

GENERAL APPROACH

Introduction

The ultimate aim of education is human refinement. Education should enable the learner to formulate a positive outlook towards life and to accept a stand which suits the well being of the society and the individual as well.

The attitude and potential to 'to work' has determined the destiny, progress and cultural development of the human race. As we all are aware, the objective of education to form a society and individuals having a positive work culture. The educational process expected in and outside our formal schools should concentrate upon inculcating concepts, abilities, attitudes and values in tune with these 'work culture.' Hence vocationalised education cannot be isolated from the main stream of education. In another sense, every educational process should be vocationalised. However, due to our inability to utilise the resources wisely, scarcity of job opportunities is a severe issue of the present society. For overcoming this deep crisis, emergent techniques have to be sorted out and appropriate researches have to be seriously carried out. It is in the sense that the content and methodology of vocational Higher Secondary Education have to be approached.

The Vocational Higher Secondary course was envisaged as a part of the National Policy on Education with the noble idea of securing a job along with education. The relevance of Vocational education is very great in this age of unemployment. This education system, which ensures a job along with higher education, stands aloof from other systems of education.

A learning environment which ensures vocational aptitude, vocational training, basic life skills, competencies related to different subjects, appropriate values and attitudes and existential readiness has to be provided here.

The curriculum should be one which recognises the specific personality of the learner and should develop it in a desirable way. It should provide opportunity to imbibe novel ideas to follow a critical approach and for learning through experiences.

The competency to transform one's own resources for the betterment of the society and the individual is to be ensured in each individual. Training in the sense of equality, democratic sense, environmental consciousness and devotion to the constitution is an inseparable factor of the curriculum.

The need of a systematic curriculum is prevailing in vocational subjects. A scientifically structured curriculum incorporating the unique features peculiarity of Kerala ensuring the possibility of higher education and utilising the national and international possibilities of employment is required.

The new curriculum should be capable of assimilating the life skills, scientific temper, attitude of co-existence, leadership qualities and mental health to face the challenges of life. It should be capable of strengthening the competencies imbibed by the learners up to the tenth class.

A curriculum for selecting vocational areas according to the aptitude of the students, learning it in depth, acquire general awareness in the basic areas and to secure jobs has become the social need of the day. A learner centred, process oriented, need based vocational curriculum is envisaged.

What is learning?

- Learning is construction of knowledge and so it is a live and continuous mental process.
- Learning is a process of advancement through adding and correcting in the light of comparing the new issue with the previously learned concepts.
- Learning takes place as a part of the effort to solve problems.
- Learning takes place by assimilating bits of knowledge into ones own cognitive structure.
- Learning is not a linear process. It is a spiral process growing deeper and wider.
- Learning is an intellectual process rather than the mere memorisation of facts. Learning is a conglomeration of a variety activities like problem analysis, elucidation, critical thinking, rational thinking, finding out co-relations, prediction, arriving at conclusions, applications, grouping for other possibilities and extracting the crux. When opportunities are provided for intellectual processes learning will become effective and intellectual ability will get strengthend.

Theoretical foundations of learning

Education is the best device that can be adopted for creation of a new society. It should be democratic in content and process and should acknowledge the rights of the learner. It should also provide opportunity for better citizenship training. The concept of equality at all areas should get recognition in theory and practice.

There should be consious programme of action to develop nationality, humaness and love and against the enchroachment of the sectarianism of caste and religion.

The learner should be able to take firm steps and deferred against the social crisis like privatisation, liberalisation, globalisation etc and against all kinds of dominations.

They should develop a discrimination to use the acquired learning as a liberative weapon.

They should be able to view education and life with the perspective of social well being.

They should get opportunity to recognise that co-operation is better than competition and that co-operation is the key to social life and culture.

A basic awareness of all the subjects needed for life essential for all students.

The remnants of perspectives formed in us during the colonial period still influence our educational philosophy. The solution to the present day perplexities of the society which approaches education on the basis of competitions and marketisation is only a comprehensive view of life.

It is high time that education was recognised on the basis of the philosophy of human education. The human approach to education has to reflect in its content, learning process and outlook. The perspective of 'learning to be ' and learning to live together as expressed by the UNESCO and the concepts of existentialist intelligence intrapersonal and interpersonal intelligence.

The basis of new approaches on curriculum, teaching- learning process are derived from the developments place in the east and west of the world.

When we begin to see the learner at the centre of the learning process, the teaching process has to be changed timely. It is the result of the rapid growth and development of Science and Technology and Pedagogy. If we want to undergo the changing process, we have to imbibe the modern hypothesis regarding learner, they have;

- Great curiosity
- Good imagination
- Numerous other qualities and interests
- Independent individuality
- Interest in free thinking and working in a fearless atmosphere.
- Have interest in enquiring and questioning.
- Ability to reach conclusions after logical thinking.
- ability for manifest and establish freely the conclusions arrived at.
- Interest for recognition in the society.
- Determination to face the interference of society and make components which is a part of social life.

When we consider the learning system, the domains to be stressed in education according to the modern development becomes relevant.

The **knowledge** domain consists of

- Facts
- Ideas

- Laws
- The temporary conclusions and principles used presently by scientists.

The learning is a process. The continuous procedures we undergo to reach a particular goal is process. The skills which are parts of the process to analyse the collected ideas and proofs and come to a conclusion is called *process skills*. Some important **process skills** are,

the skills;

- To observe
- To collect data and record
- To classify
- To measure and prepare charts
- To experiment
- To predict
- To recognise and control the variables
- To raise questions
- To generalise
- To form a hypothesis and check.
- To conclude
- To communicate
- To predict and infer
- To use tools.
-

Observation is the process of acquiring knowledge through the senses. It is purely objective oriented. Learning experiences which provide the opportunity to use all the senses may be used.

The process of grouping is known as **classifying**. Starting from simple groupings of data, it can extend to the level of classification into minute sub-groups.

In addition to this, consider the skills related to **creative domain** also, they are skills:

- To visualize
- To connect facts and ideas in new ways
- To find out new and uncommon uses of objects
- To fantasize
- To dream
- To develop creative isolated thoughts

<p>Creativity is an essential component of process and activities. The element of creativity is involved in finding out problems, formation of hypothesis, finding 'solutions' to problems etc. Through activity oriented learning experiences, opportunities to express creativity can be created.</p>
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Again, the following factors consisting in the **Attitudinal domain** are also important as;

- Self confidence
- Love for scientific knowledge
- Attitude to know and value history
- Respect human emotions
- Decide with reasonable present problems
- Take logical decisions regarding personal values

'Hypothesis' is a temporary conclusion drawn using insight. Based on knowledge and experiences relating to the problems the causes and solutions can be guessed.

As regards the **application domain** the important factors are the ability to:

- observe in daily life examples of ideas acquired.
- take the help of scientific process to solve the problems of daily life.
- choose a scientific life style
- connect the ideas acquired with other subjects.
- integrate the subjects with other subjects.

Some basic stands have to be taken on the new scientific knowledge about intelligence learning and teaching. When such basic concepts are accepted changes are required in the following factors.

- The vision, approach, structure and content of the curriculum.
- The vision, approach, structure and content of the textbooks.
- Role of the teacher and the learner.
- Learner atmosphere, learning materials and learning techniques.

Some scientific perspectives accepted by modern world in educational psychology are given below.

Constructivism

This approach puts forward the concept that the learner constructs knowledge. New knowledge is constructed when ideas are examined and practiced in new situations relating them with the previously acquired knowledge and experience. That is assimilated into the cognitive structure of one's knowledge. This method which gives priority to critical thinking and problem solving provides opportunity for self motivated learning.

Social Constructivism

Social constructivism is a sub section of constructivism. Knowledge is formed, spread and imbibed and it becomes relevant in a social environment. Interactive learning, group learning, co-operative participatory learning, all these are concepts put forward by social constructivism.

The main propounders of constructivism are piaget, vygotsky and Bruner.

Discovery learning and interactive learning have prime importance. Learning takes place as a part of the attempt for problem solving. The activities of a learner who confronts cognitive disequilibrium in a learning situation when he tries to overcome it leads to the renewal of cognitive structure. It is through this process construction of new knowledge and the assimilation of them that learning takes place. Observation and enquiry are unavoidable factors. The learner advances towards new areas of acquisition of knowledge where he tries to compare his new findings with the existing conceptions.

Learning is a live mental process. Rather than the ability for memorisation of facts cognitive process has to be given emphasis. The process of problem analysis, elucidation, critical thinking, rational thinking, finding out co-relation, prediction, hypothesis formation, application, probing for other possibilities, extracting the crux and other processes are of critical importance in learning.

Constructivism gives greater predominance to co-operative learning. Social and cultural factors influence learning. Sharing of knowledge and experience among learners, collective enquiry, assessment and improvement, group activity and collaborative learning, by sharing responsibilities with the objective of public activity, provide opportunity for effective learning.

In learning internal motivation is more important than external motivation. The learner should have interest and initiative in learning. Learning situation should be capable of forming a sense of ownership in of the learner regarding the learning process.

Learning is not a linear process. It progresses in a spiralled way advancing deeper and wider.

Learner-his nature and features

The learners in standard XI has undergone a learner centered and process oriented learning experience up to X standard. He is adequately competent to select vocational subjects according to his aptitude and interest and to acquire higher education and profession as he wishes. The aspirations about future life is framed in this particular age foreseeing national and international job opportunities. Some of the peculiarities of the learner at this stage are:

- Physical, intellectual and emotional planes are intensive changes during this age and their reflections can be observed.
- Ability to enquire, discover and establish cause-effect relationship between phenomena.
- Readiness to undertake challenges.
- Capacity to shoulder leadership roles.
- Attempt to interpret oneself.
- Susceptibility to different pressures.
- Doubts, anxieties and eagerness about sex.
- Longing for social recognition.

Needs of the learner

- To make acquaintance with a job through vocational education.
- To acquire more knowledge in the concerned area through higher education.
- To recognise and encourage the peculiar personality of the later adolescent period.
- To enable him to defend against the unfavourable circumstances without any help

Role of the Learner

- Active participant in the learning process.
- Acts as a researcher
- Sharer of information
- Sharer of responsibilities
- Collects information
- Takes leadership
- Involves in group work
- Acts as a co- participant
- Observes his environment
- Experiments and realises
- Makes interpretations and draws inferences.

Role of the Teacher

The teacher should;

- consider the 'Stress and strain' of the teenagers
- understand the socio- economic and cultural background of the students.
- promote and motivate the students to construct knowledge.
- arrange proper situations to interact in and outside of the classroom.
- guide the students by explanations, demonstrations etc.
- promote opportunity for co-operative learning and collaborative learning.
- facilitate interpersonal and intra-personal interactions.
- act as a democratic leader.
- act as a problem solver
- effectively guide the students for the selection and conduct of various continuous evaluation elements.
- continuously evaluate the progress of the learners.
- gives scaffolding/support wherever necessary.
- motivate for learning
- promote divergent thinking.
- act as a democratic group leader.
- act as a co-learner
- gives variety of learning experiences.
- be a constant student

Eg: According to the performance in class and class test form different peer groups. Each group contains 5-6 students. Select a group leader. Evaluate the performance bi weekly.

6 Zone of proximal development (ZPD)

According to Vygotsky , there is a level achievement that can be reached by learners on their own, and another higher level which can be achieved through help from teachers or peers. While any learning activity can be successfully completed by many learners, with the help of knowledge, elders all can reach a higher level. Those who complete the activity only in parts can complete it with the help of the teacher. If appropriate help is received, all learners proceed to better performances. The area between the level achieved with the help of others is called as zone of proximal development by Vygotsky.

7. Scaffolding

It is only natural that many learners are unable to complete the learning activities if help is not received in time. The students needs help from the teacher in many learning activities. Here help does not mean taking over and completing the work for the student. But making the student herself completes it. Teacher may provide hints, examples, evidences, or ask questions to direct the thought to specific part. In some situations the students may be asked to examine how other have approach the problem. What is important in providing this scaffolding is to bear in mind that the student must gradually we equipped to take up and complete the task. The concept of scaffolding highlights the important role the teacher in learner centred education.

8. Learning and active mental process

Learning being a cognitive process, the teacher needs to know cognitive processes to facilitate the creation of the learning of opportunities. Learnign can be effectively by providing learning experiences involving mental processes like.

- Retrieves /recollects/retells information.
- Readily makes connections to new information based on past experiences and formulates initial ideas/concepts.
- Detects similarities and differences.
- Classifies/categorises/organises information appropriately
- Translates/transfers knowledge or understanding and applies them in a new situation.
- Establishes cause - effect relationships
makes connection/relates prior knowledge/understanding through different media.
- Imagines/fantasies/designs/predicts based on received information
judges/appraises/evaluate the merits or demerits of an idea develops own

- facilitate for reference/data collection
- have a clear understanding about the age, needs, peculiarities, abilities, nature, aptitude etc. of the learner.
- have the ability to motivate the learner in order to acquire and enrich their knowledge.
- be a guide to the learner in developing insights and creating responses on current affairs.
- be capable to lead the learner into a variety of learning methods and process based on curricular objectives.
- be a link between school and community.
- be a good organiser, guide, friend, philosopher and co-learner.
- have an inter disciplinary approach in learning activities.
- be able to guide the learner in his/her career prospects based on his interest aptitude and ability.
- be impartial and democratic.
- provide ample experiences to attain the basic values and objectives of the curriculum.

New Concepts of Learning

1. Discovery Learning

The teacher has to create a motivating atmosphere for the learner to discover concepts and facts, instead of listening always. Creating occasion to progress towards discovery is preferred. Instead of telling everything before and compelling to initiate the models, situations are to be created to help the children act models as themselves.

2. Learning by discussion

That discussion leads to learning is Burner's theory. Here discussion is not opposing each other. It is a sharing on the plane of ideas. New ideas are arrived at by seeking explanations, by mutual giving and taking of ideas and by problem solving.

3. Problem solving and learning

Only when the learner feels that some thing is a problem to be solved that he takes the responsibility of learning it. It is an inborn tendency to act to solve a problem that causes cognitive disequilibrium in a particular area. It is also needed to have confidence that one is capable of doing it. The problems are to be presented in consideration of the ability and level of attainment of the learner.

4. Collaborative learning

This is the learning in which the responsibilities are distributed among the members of the group keeping common learning objectives. The common responsibility of the group will be successful only if each member discharges his duties. All the members will reach a stage of sharing the result of learning,

equally through the activity with mutual understanding. The teachers who arrange collaborative learning will have to make clear the responsibilities to be discharged. This is possible through the discussion with the learners. Collaborative learning will help to avoid the situations of one person working for the whole group.

5. Co-operative learning

This is the learning in which the learners help one another. Those who have more knowledge, experience and competency, will help others. By this exchange of resources the learners develop a plane of social system in learning also. As there are no high ups and low ones according to status among the learners they can ask the fellow students doubts and for helps without any hesitation or in hesitation Care should be taken not to lead this seeking of help to mechanical copying. It should be on the basis of actual needs. So even while encouraging this exchange of ideas among the members of the group cautions acceptance is to be observed as a convention. There should be an understanding that satisfactory responses should come from each member and that the achievement of the group will be assessed on the basis of the achievement of all the members

6 Zone of Proximal Development

Vygotsky observes that these is a stage of achievement where a learner can reach by himself and another higher zone where he can reach with the help of his teachers and peers and elders. Even though some can fulfil the learning activity by themselves there is the possibility of a higher excellence. If appropriate help is forth covering every learner can better himself.

7 Scaffolding

It is natural that the learner may not be able to complete his work if he does not get support at the proper time. The learner may require the help of the teacher in several learning activities. Here helping means to make the learner complete the activity taking responsibility by himself. The teacher has to keep in mind the objective of enabling the learner to take the responsibility and to make it successful.

8 Learning: a live mental process

Learning is a cognitive process, only a teacher who has an awareness as to what the cognitive process is alone can arrange learning situations to the learner to involve in it. Learning can be made effectively and intellectual sharpness can be improved by giving opportunity for the cognitive processes like reminding, recognising compromising, co- relating, comparing, guessing, summarising and so on. How is cognitive process considered in language learning? Take guessing and prediction for example.

- Guessing the meaning from the context.
- Guessing the content from the heading.

- Predicting the end of the story.
- Guessing the incident, story from the picture.
- Guessing the facts from indications.
- and other such activities can be given the following activities can be given for the cognitive process of summarisation.
- Preparation of blue print.
- Preparation of list.
- Preparation of flow chart.
- Epitomising in one word.
- Giving titles and so on.
- Symbols, performance of characters indications, lines of a poem, tables, pictures, concepts, actions, body language and such things can be given for interpretation. Process based language given for interpretation. Process based language learning has to give prime importance to the cognitive process.

9 Internal motivation

Internal motivation is given more importance than external motivation. The teacher has to arouse the internal motivation of the learner, A person internally motivated like this alone can immerse in learning and own its responsibility. How motivating is each of the activities is to be assessed.

10 Multiple intelligence

The Theory of Multiple Intelligence put forward by Howard Gardener has created a turning point in the field of education. The National curriculum document has recommended that the curriculum is to be designed taking into consideration of this theory.

Main factors of the intellect :

1. Verbal/linguistic Intelligence

Ability to read and write, making linguistic creations , ability to lecture competence effective a communication , all these come under this . This can be developed by engaging in language games and by teaching others.

2. Logical /mathematical Intelligence

Thinking rationally with causes and effect relation and finding out patterns and relations come under this area, finding out relations and explaining things sequential and arithmetical calculations are capable of developing this area of intelligence.

3. Visual /spatial Intelligence

In those who are able to visualise models and bringing what is in the imagination into visual form and in philosophers, designers and sculptors this area of intelligence is developed. The activities like modelling using clay and

pulp, making of art equipments, sculpture, and giving illustrations to stories can help the development of this ability.

4 Bodily Kinaesthetic Intelligence

The activities using body language come under this. This area of intelligence is more developed in dancers and actors who are able to express ideas through body movements and in experts in sports, gymnastics etc.

5 Musical Intelligence

This is an area of intelligence which is highly developed in those who are able to recognise the different elements of music in musicians and in those who can hear and enjoy songs. Playing musical instruments, initiating the songs of musicians, listening silently to the rhythms and activities like this are capable of developing this area of intelligence.

6 Interpersonal Intelligence

Those in whom this area of intelligence is developed show qualities of leadership and behave with others in a noble manner. They are capable of understanding the thought of others and carrying on activities like discussion successfully.

7 Intrapersonal Intelligence

This is the ability to understand oneself. These people can recognise their own abilities and disabilities. Writing diaries truthfully and in an analysing way and assessing the ideas and activities of others will help developing this areas of intelligence

8 Naturalistic Intelligence

A great interest in the flora and fauna of the nature, love towards fellow beings interest in spiritual and natural factors will be capable of developing this area.

9. Existential Intelligence

The ability to see and distinguish ours own existence as a part of the universe, ability to distinguish the meaning and meaninglessness of life, the ability to realise the ultimate nature of mental and physical existences, all these are the peculiarities of this faculty of intelligence.

Emotional Intelligence

The concept of emotional intelligence put forward by **Daniel Golman** was used in framing the new curriculum. The fact that one's **Emotional Quotient (E.Q)** is the greatest factor affecting success in life is now widely accepted. The teacher who aims to focus on improving the emotional intelligence of students need to concentrate on the following.

i) Ability to take decisions

Rather than imposing decision on students while planning and executing activities, the students may be allowed to take part in the decision making process. Taking decisions through open discussion in the class, inviting students suggestions on common problems etc. are habits to be cultivated.

ii) Ability to reach consensus

- When different opinions, ideas and positions arise the students may be given the responsibility to reach a consensus.
- Imagining what would be the course of action in some situations, allowing to intervene in a healthy way in problems between individuals.

iii) Problem solving

- Developing the idea that there is reason and solution to any problem.
- Training in finding reasons for problems.
- Suggesting solutions through individual or group efforts.
- Discussing social problems.
- Analysing the shortcomings in methods to solve problems.

Whether plastic can be banned within school premises can be given as a problem. Group discussion will provide reasons and solutions. Problems which can influence classroom learning and for which the learner can actively contribute solutions need to be posed.

- Self criticism, evaluation
- Ability to face problem-situation in life
- Thinking what one would do if placed in the situation of others, how one would respond to certain experiences of others - All these foster the growth of emotional intelligence.

iv) Life skills

Life skills need to be given a prominent place in education. W.H.O. has listed ten skills required for success in life.

- Self awareness
- Empathy
- Inter personal relations
- Communication
- Critical thinking
- Creative thinking
- Decision making
- Problem solving
- Coping with emotion
- Coping with stress

The new curriculum addresses these areas.

Knowing the characteristics of the learner, role of the teacher and how to use the teachers handbook help the teacher to plan and effectively implement learning activities.

Objectives of the Vocational Higher Secondary Curriculum.

- To facilitate higher education while giving opportunity to enter in the field of employment.
- To develop environmental awareness, sense of national integration, tolerance and human values so as to ensure social and cultural improvement.
- To enable the learner to find on his own employment.
- To inculcate mental courage in the learner to face unfavourable situations.
- To make human resource development possible.
- To enable the learner to understand social problems and to react appropriately.
- To develop the learner to identify and develop his own competencies.
- To develop vocational aptitude, work culture and attitude in the learner so as to provide useful products and services to the society.
- To create an awareness about mental and physical health.
- To acquire awareness about different job areas and to provide backgrounds for acquiring higher level training in subjects of interest.
- To develop possibilities of higher education by creating awareness about common entrance examinations.
- To provide situation for the encouragement of creative thinking and organising training programmes in each area, creative abilities and to develop artistic talents.

Nature of Approach

The learning device is to be organised in the selected vocational subjects in such a way that adequate practical experience should be given, making use of the modern technology. The development in each area on the basis of information technology is to be brought to the learner. The work experience in the respective fields(OJT, Field trip, Production/Service training, Survey, Workshop, Exhibition, Youth festival, Physical fitness etc.) are to be adjusted suitable to the learning and evaluation process. The participation and leadership of the students in planning and execution is to be ensured through this kind of activities. Social service is to be made a part of the course.

Approach towards Vocational Higher Secondary Education

The learning methodology has to be organised so as the learning provide adequate practical thinking on the opted vocational subject utilising the new technology. The development of information technology should be made available in each sector. Work experience, OJT, Field trip production, Service cum training

centre, Survey, Workshops, Exhibitions, Youth festivals, Physical fitness etc should be systematised well appropriate to learning and evaluation. Learner participation should be ensured in the planning and implementation of these activities. Social service should be a part of the course. If a learner has to change his school, he should be provided an opportunity to continue his studies in the new school. While considering criteria for admission to higher courses, grades of vocational subjects should also be given due weightage. In tune with the changes in the Vocational Higher Secondary Education changes should be ensured in the field of higher education.

The teachers have to take special care in arranging learning activities for the development of all the faculties of intelligence.

Learning activities and learning atmosphere.

A proper learning atmosphere is essential for the betterment of learning activities.

They are:

- Proper physical environment
- Healthy mental atmosphere
- Suitable social atmosphere
- Active participation of PTA, Local bodies and SRG
- Reference materials and visual media equipments.
- Academic monitoring
- School Resource Group (SRG)





SUBJECT APPROACH

A. Paramedical Subject Approach

Modern developments in the field of medical science and information technology have caused a methodological upliftment in medical education. Vocational education in Kerala has been following the activity based learning to a certain extent. Is the new learner centred and process oriented pedagogy is widely accepted it echoes in the paramedical education of VHSE also. Thus the education system is undergoing a sea change from passive learning to active process oriented learning.

In this scenario the teacher's role is not just one of a knowledge provider but of an efficient facilitator who helps the learner to acquire knowledge. So the learner centred approach provides opportunities to develop and utilise the innate qualities in the learner to construct new concepts through modern and advanced activities, especially in the field of modern medicine.

Introduction

The aim of paramedical courses of Vocational Higher Secondary Education is to make learners capable enough to achieve better health care on the basis of modern medical sciences. There are six paramedical courses under new curriculum:

- Medical Laboratory Technician Course
- Maintenance and Operation of Biomedical Equipment Course
- ECG and Audiometric Technician Course
- Domestic Nursing
- Dental Technology
- Physiotherapy

Objectives

- To familiarise the latest technologies of modern medicine
- To make learners able to use new and updated diagnostic methodologies
- To make learners capable enough of adopting the methods of recovery and

improving health with a service approach

- To make learners capable enough to adopt the methods of recovery and improving health with a service approach.
- To make learners aware of the fact that the paramedical stream help the physician in accurate diagnoses and better treatment.
- To make aware learners the people of the important social issues connected with health.

Learning Approach

- The learning process has to be learner centred and activity oriented enabling learners to acquire skills and efficiency
- The learning process must enable learners to acquire more operational skills based on previous knowledge and experience
- It should assimilate the up to date technological developments in the field of modern medical science
- Learning approach shall enable the learner to develop multiple intelligence

Contents

Course details of each and every one of the six paramedical courses are prepared to meet the needs of their particular course. This also is in tune with the objectives of each course.

Learning Techniques

The learning techniques and means that could be used in paramedical courses are as below:

1. Project
2. Assignment
3. Seminar
4. Group discussion
5. Practical experiments
6. Demonstration
7. Debate
8. Collection
9. Internet/IT
10. Quiz
11. Role play
12. Field visit
13. Reference- books, journals
14. Discussion
15. Models
16. Charts

17. Vocational survey
18. Exhibition
19. Production cum training
20. OJT
21. Viva
22. CD/Slide show
23. Slide show in OHP
24. Brain storming

Evaluation

- Continuous and comprehensive evaluation is envisaged.
- Evaluation methods are to be transparent, flexible, valid, reliable and practicable.
- Evaluation indicators are to be practicable.
- New curriculum should always be kept in mind for evaluation.
- Evaluation methods will have to motivate learners to develop multiple intelligence.

Planning

There is a year plan, term plan, and lesson plan.

Support Mechanism

Financial management, infrastructure development including acquisition of equipment and maintenance of all assets could be thorough the support mechanism consisting of

- School PTA
- Local and collaborative institutions
- Local bodies
- VHSE regional office
- VHSE directorate
- NGO's
- Government support
- Staff support
- Local community
- Public library etc.

B. SUBJECT APPROACH -PHYSIOTHERAPY

Introduction

Physiotherapy is a branch of modern medicine. Its primary purpose is promotion of optimal human health and function through the application of scientific principles to identify, prevent, assess, correct and alleviate acute

or prolonged movement disfunction.

Physiotherapy is the care and services provided by or under the direction and supervision of a physiotherapist. In history it has its roots in the after effects of second world war-in the nursing care after injuries and other problems. It gradually developed in to a separate branch of medicine.

In the past medical and surgical care was directed only towards the treatment of diseases. Now it is well recognised that attention needs to be paid also towards the aftereffects of diseases. It is widely accepted that by using treatment techniques and facilities

- recovery of a patient can be speeded up
- the period of convalescence can be reduced
- and in certain cases permanent disability resulting from disease can be prevented or minimised.

This new concept has been the key factor to the development of a new branch of medicine i.e. rehabilitation medicine.

Today physiotherapy has emerged as a popular branch of medical management. For the progress and rapid expansion it has made, it has become a chief component of Rehabilitation medicine.

General aims of physiotherapy are

1. Relieving and reducing pain.
2. Maintaining or improving mobility.
3. Maintaining and increasing strength and endurance of muscles.
4. Re-educating muscles for correcting posture and carrying out effective movements of the body and its parts.
5. Preventing contracture and deformity
6. Maintaining and improving vital capacity of the individual and thus improving ventilation.
7. Facilitating of healing of wounds and ulcers and certain skin conditions.

Aims of the Course

To enable the students of acquire knowledge of anatomy and physiology of human being, acquire the knowledge on Relevant medical conditions, to develop skills and mental attitudes for helping in the practice of the arts and science of physiotherapy. It should also enable the students to assist the therapists to evaluate, assess and deliver treatment.

General Objectives

On completing the Ist year programme the student will demonstrate beginning activity and skills to carry out basic knowledge of simple physiotherapy procedures.

Learning Techniques

The learning process has to be learner centred and activity oriented enabling learners to acquire new skills and efficiency. The activities given to the learners should relate to the existing environment of learners so as to enable them to analyse and develop new concepts and ideas. Participation of learners must be ensured in all kinds of learning activities.

Activities

- Project
- Assignment
- Seminar
- Group discussion
- Practical experiment
- Debate, symposium
- Field visit.
- Exhibition, Vocational Survey
- Capacity building (OJT, PCT)

Support Mechanism

Financial management, infrastructure development including library, acquisition of equipment and maintenance of all assets could be thorough the support mechanism consisting of School PTA, collaborative institutions, local bodies, Panchayat, Government, Vocational Higher Secondary department, Regional Office of VHSE, etc.

Evaluation

Evaluation consists of Continuous Evaluation (CE) with a weightage of 20 Score and Term end evaluation (TE) with a weightage of 80 Score

Practical Evaluation (PE) - 150

Vocational Competency Evaluation (VE) - 50

Monitoring

School level committee for monitoring

1. Principal
2. Academic Head
3. Vocational Lecturers

Regional Level

1. Assistant Director
2. Vocational lecturer for the concerned subject (Representative)

3. Representatives from vocational lecturers' associations.

State Level

1. Director
2. Deputy Director (curriculum)
3. Assistant Director (curriculum)
4. Representatives from vocational lecturers' associations

Seminar

Stages:

- **Planning**
 - Selection of Topics
 - Dividing into subtopics
 - Assigning subtopics to the members of the group
 - Assigning of group activities
 - Fix presentation, venue, date and time
 - Selection of guide
 - Data collection and reference
 - Discussion with the guide
 - Presentation of the seminar paper
- **Execution (paper presentation)**
 - Venue arrangement
 - Paper presentation by each member of the group
 - Raising questions and discussions
 - Recording
- **Report presentation (summing up deliberation)**
 - l All members of the group should collect all points from various subtopics presented by the group members and prepare a detailed seminar report. Then it should be submitted for evaluation by facilitator.
- **While presenting seminar paper all the learner are directed to note necessary details of their references about topics.**

Evaluation

Stages:

- Planning and organising
- Data collection
- Paper presentation/participation in discussion, raising questions and answering

- Preparation of seminar paper
- Seminar report

Project Work

Stage - I

Planning

- Feeling the problem
- Definition of objectives
- Formulating hypothesis
- Methods and tools
- Codification of information
- Analysis
- Making inference

Preparation of Project Report

- Heading (Title)
- Introduction (Relevance and Background)
- Aims and objectives
- Methods and tools of study
- Result of the study- (Ordering of the findings)
- Analysis
- Inference
- Suggestions
- References (Source used)
- Thanks
- Appendix

Presentation of the Report

- Selection and arrangement of venue
- Work-out materials (charts, tables, slides, graphs, pictures etc.)
- Use of modern equipment if possible (OHP, TV, LCD....)

Evaluation

- Planning
- Data collection
- Analysing capacity
- Report and Project Diary
- Presentation and involvement

Assignment

Various Angles

1. Preparatory Assignment

- For evaluating previous knowledge
- Environment creation for new curriculum objectives

2. Study Assignment

- Self learning process
- Involvement of the student for acquiring more data

3. Revision Assignment

- Practising and recurrence
- Self assignment

4. Remedial Assignment

- Self improvement process
- Scaffolding to poor children

Various Stages of Assignment

Selection of Topics.

- Data collection and inference
- Individual or group work

Execution

- Data sharing
- Refinement of figures and facts
- Preparation of assignment
- Submission of assignment

Evaluation

- Understanding the topic.
- Content
- Structural and graphical/language representation
- Self observation, evaluation, suggestion
- Allotted time

Collections

Various stages

Planning

- Selection of Topics
- Data collection, reference

- Individual/group work

Execution

- Preparation of collections
- Submission of collections

Evaluation

- Collection linked with curricular objectives
- Goodness of Activities/Attractiveness
- Completion of content area
- Involvement
- Responsibility
- Allotted time

Records

Various stages

Planning

- Selection of Topics
- Data collection, reference
- Individual/group work

Execution

- Preparation of records
- Submission of records

Evaluation

- Collection linked with curriculum objectives
- Goodness of Activities/Attractiveness
- Completion of content area
- Involvement
- Responsibility
- Allotted time

Debate

Various stages

- Selection of topics
- Selection of groups
- Selection of a moderator
- Collection of information
- Conducting the debate
- Conclusion

Basis of Modern Curriculum

When a modern curriculum is framed, due consideration must be given to

- Multiple intelligence
- Constructivism
- Emotional Quotient (EQ)

3.1 Multiple Intelligence

Modern studies about intelligence is highly pertinent in science learning. Traditional teaching method has the notion that intelligence is innate and remains unchanged. Hence there exists a thinking that certain children are low in rationality, arithmetic operations and analytical skill and they will be backward in learning science. But under favourable circumstances intelligence can be enhanced through hard work and continued attempt. Multiple Intelligence Theory proposed by Howard Gardner is a cognitive model that tries to describe how individuals use their intelligence to solve problems and fashion products. According to this theory of intelligence (An Education for the Future, 1983), human intelligence has multiple factors, These factors, are present in all people though not in equal measure. Some factors are stronger in some persons.

3.1.1 Factors of Intelligence

a. Verbal/Linguistic Intelligence

Abilities to read, write, bring out literary products, and to communicate fruitfully come under this factor. This domain can be improved/developed through language games and teaching others.

b. Logical/Mathematical Intelligence

Abilities like rational thinking and finding patterns and relationships come under this factor. Finding mutual relationship, explaining things in an ordered way and arithmetical operations improve this factor.

c. Visual/Spatial intelligence

This factor is strongly potent in designers and architects. Modelling, using clay/pulp, making artistic material and picturisation for stories are helpful in the growth of this factor.

d. Bodily- Kinaesthetic Intelligence

Dancers and actors who express various moods through body movements, sports/ gymnasts – come under this. Dancing, aerobics, sports, games related to learning etc. help to develop this factor.

e. Musical Intelligence

Ability to distinguish different music, aspects of music, and the ability to hum or enjoy music denote this factor. Using musical instruments, singing along with singers and attending to the rhythm silently help to grow this factor.

f. Interpersonal Intelligence

Those in whom this factor is well developed express leadership quality and mix with others in better ways. They can understand the thinking of others and carry out discussion for compromise successfully. Role play, watching group working and training can develop this factor.

g. Intrapersonal Intelligence

Ability to know oneself is the basis of this factor the learners should be able to recognize their strength and weakness and do soul searching. True and analytical diary writing, critically evaluating others' ideas and actions etc. will develop this factor.

h. Naturalistic Intelligence

Interest in plants and animals and spiritual phenomena are characteristic of those high in this factor. Observing and enjoying nature increases this factor.

- Each person possesses all eight intelligences
- Most people can develop each types of intelligence to an adequate level of competency.
- Intelligences usually work together in complex ways i.e., intelligences are always interacting with each other.

Activities are to be based on the combination of different factors of multiple intelligence in the learning process of all subjects. Some such activities are given below. Use appropriate ones or combinations for forming learning activities.

Verbal /Linguistic

- Creative writing
- Formal speaking
- Humour /Jokes
- Extemporaneous speaking
- Journal /Diary Keeping
- Poetry
- Reading
- Story telling /Story creation
- Verbal Debate
- Vocabulary

Logical/ Mathematical

- Abstract symbols / Formulas
- Calculation
- Deciphering codes
- Forcing relationships
- Graphic /Cognitive Organizers
- Logic /Pattern Games
- Number Sequences/Patterns
- Outlining
- Problem solving
- Syllogisms

Visual/ Spatial

- Active Imagination
- Colour /Texture schemes
- Drawing
- Guided imagery / Visualizing
- Mind mapping
- Montage /Collage
- Painting
- Patterns / Designs
- Pretending /Fantasy
- Sculpting

Musical/ Rhythmic

- Environmental sounds
- Instrumental Sounds
- Music Composition / Creation
- Music performance
- Percussion vibrations
- Rapping
- Rhythmic patterns
- Singing / Humming
- Tonal patterns
- Vocal sounds / Tones

Interpersonal

- Collaborative skills teaching
- Cooperative learning strategies
- Empathy practices
- Giving feed back

- Group projects
- Intuiting others' feelings
- Jigsaw
- Person - to-person communication
- Receiving feed back
- Sensing others' motives

Naturalist

- Archetypal pattern recognition
- Caring for plants/animals
- Conservation practices
- Environment feed back
- Hands -on-Labs
- Nature encounters/ field trips
- Nature observation
- Natural world simulations
- Species classification (organic / inorganic)
- Sensory / stimulation exercises.

Bodily /Kinaesthetic

- Body language / physical gestures
- Body sculpture / tableaux
- Dramatic enactment
- Folk / creative dance
- Gymnastic routines
- Human graph
- Inventing
- Physical exercise / marital Arts
- Role playing / mime
- Sports games

3.2 Intrapersonal

- Altered states of consciousness practices
- Emotional processing
- Focusing / concentration skills
- Higher - order reasoning
- Independent studies / projects
- Know thyself procedures
- Metacognition techniques
- Mindfulness practices

- Silent reflection methods
- Thinking strategies

Developing one's Multiple Intelligence

A teacher can use an integration of various strategies listed above for teaching. If a teacher does not have ideas for bringing music into the classroom, consider getting help from a colleague. In a classroom the teacher is committed to developing student's Multiple Intelligence, using expertise in all eight intelligences.

Students can often come up with suitable strategies and demonstrate expertise in areas where teachers may be deficient.

Eg:

- Pupils may be able to do some picture drawing on the board.
- Provide musical background for a learning activity.

School's technical resources can be used to convey information.

Eg:

- CD recordings of music.
- Video tapes for picture orientation

Constructivism

The research regarding the teaching learning process done by L.Vygotsky, Jean Piaget and Bruner has contributed much in this field. These contributions are as follows:

- a. Learning process is the construction of knowledge.
- b. Learning through problem solving
- c. Cognitive structures changes through the process of adaptation, assimilation and accommodation. Learning process is done through this change in cognitive structure.

The constructivist theory proposes

- Discovery learning - Teacher should guide the learner to discover the facts. He should act as a facilitator and arrange the possible means.
- Learning through Debate - In debate the ideas of learners are shared. Learning is affected through interaction and final report.
- Problem solving learning - When a learner feels a problem, he prepares to solve the same and take responsibility of learning. Teacher should deliberately create such problems, but this must be done by considering the learners stage and ability.
- Collaborative learning - The responsibilities are delegated to the group members having common objectives. Each members of the group should successfully fulfil the responsibility. Through open discussion the findings are shared by everyone in the group and the objective can be achieved. Here

we can ensure the active participation of the group.

- Co-operative learning - Here the learners are grouped and their knowledge and experience are shared in the group. But we should make sure that it is not a copying. The achievements of the members can be considered as that of the group.
- Zone of proximal development (ZPD) - ZPD theory states that -
 - (i) Cognitive developments is limited to a certain range at any given stage.
 - (ii) Full cognitive development requires social interaction or adult guidance. Here as a part of social interaction teacher should direct the learner for achieving the potential level of learning.
- Scaffolding - At a certain stage, the learner cannot attain the expected level of learning. In such cases the teacher should bring him/her to that level by giving proper guidelines.
- Learning (A continues mental process) - Learning is a cognitive process, hence the teacher should be aware of the different cognitive processes for directing the students to achieve the goal. Such processes include recognition, comparison, interpretation, selection, arrangement, rational thinking, divergent thinking, summation, assimilation, questioning, experiments formulation of concepts, conclusion etc.
- Intrinsic Motivation - Constructivism emphasises intrinsic motivation. Only those learners who have intrinsic motivation can take the responsibility of self learning. The teacher should frame proper strategies for getting intrinsic motivation.

3.3 Emotional Quotient

Emotional quotient is a new concept which should be considered while revising the curriculum. The concept of emotional quotient was developed by Dannel Goalmen and got popularised throughout the world because of its crucial role in the success of an individual irrespective of his intelligent quotient.

To develop the emotional quotient of each student, the teacher should inculcate-

- Ability to take decision - By ensuring the pupils participation in planning and execution of activities, the ability to take decisions can be developed Discussion, opinion calling etc., are desirable
- Ability to reconcile - Allow students to interact with one another having different opinion, ideas and attitude and compromising the difference will generate the ability to reconcile. Imaginary situations or positions may be assigned to the students to respond in a desired manner.
- Problem solving ability
 - There is a cause and remedy for every issues
 - Training to investigate the cause of issues
 - Group discussions for finding out the means of problems solving

- Discussion on social problems/issues
- To accelerate the weakness of different means of remedies

4. ROLE OF THE TEACHER

In the activity based learner centered class the role of the teacher should be

- a. Facilitator - should encourage the students to identify the problems and to solve them enthusiastically.
- b. Motivator - should motivate the students to inculcate special interest in the various tasks in the learning process.
- c. Democratic leader - should be a democratic leader while dealing with learners. His knowledge and authority should be shared.
- d. Friend - should create a friendly atmosphere in and outside the classroom, especially in the areas of academic issues.
- e. Resource person - should be resourceful and have full conviction in the modern trends in education so as to monitor students in the right direction in different learning activities.
- f. Scaffolder - should support those below average students to reach at par with others.
- e. Evaluator - should evaluate the different stage of the learning activities and should encourage them to attain their maximum performance.
- f. Co-learner - should be a co-learner in the constructive learning process.
- g. Researcher - Should acquire practical knowledge in their own way to solve the classroom problems and address the problems in a scientific manner.
- h. Problem presenter - should solve the issues faced by the learner especially in the learning process.
- k. Lifetime learner - should update the knowledge and skill through experiments, experiences and periodicals and journals.

5. ROLE OF THE LEARNER

- Active participants in the learning process
- Formulating concepts of their own
- Engaging in group activities
- Mutual sharing of information/knowledge
- Sharing of responsibilities
- Leadership
- Acting as a co-participant
- Experiments and realiser
- Initiative
- Making interpretation and drawing influences
- Identifying similarities and dissimilarities

6. Features of Learning Activity

- Involving mental process which facilitates
- Constructing ideas/information
- Attaining curriculum objectives
- Possibility of observation and experiment
- Active involvement
- Possibility of learner - learner, learner - teacher, learner - material interaction.
- Motivating for further studies and inequality
- Time- bound
- Healthy and eco-friendly
- Importance of multiple intelligence
- Possibilities of curriculum evaluation.
- Updating
- Objective- based
- Process- oriented
- Promoting divergent thinking
- Interesting
- Motivating
- Ensuring involvement
- Scope for creativity
- Relating to real life situation
- Promoting constructive thinking

Materials for Learning Activity

- Textbook, LCD
- OHP
- Newspaper, periodicals
- Journals
- Brochures
- Models
- CD, VCD, video collections
- Lab
- Slides
- Reports, photos
- Internet
- Reference books

7. LEARNING ENVIRONMENT

Physical Environment

- There should be a lab, library, internet, LCD and resource room in the school.
- Classrooms must be well- furnished.
- Playground, auditorium etc. must be in the school.

Psychological Environment

- Ensure the co-operation of the management, principal, teacher, students, parent and society
- Good academic atmosphere to encourage studies
- Facilities for counselling and guidance

Social Environment

- The access of locally available researchers, scientists, professors and son on to the school
- Active support of PTA, local bodies, social workers etc.

8. TRANSACTION STRATEGY

- Related with the acquired knowledge and skill of learner.
- Focus on experiments and observation
- Accepting intelligence process
- Ensuring democratic values
- Considering the social background of the learner
- Ensuring comprehensive development of the learner

9. MODERN LEARNING METHODS AND THE SCOPE

- Problem- solving
 - Practical
 - Project
 - Assignment
- Discovery learning
 - Project
 - Field trip
 - Industry visit
 - Assignment
- Co-operative learners
 - Discussion
 - Field trip
 - Debate
 - Seminar

- Inquiry learning
 - Reports
 - Surveys
 - Interviews
 - Library work
 - Research
- Collaborative learning
 - Group discussion
 - Group analysis
 - Group dynamics





LEARNING STRATEGIES

The explosion of knowledge has resulted in a new vision of knowledge. Earlier, it was thought that the most effective method was the transmission of knowledge by teacher to the student. However, the modern view is that the student has the responsibility and the right to construct knowledge. The teacher of modern times hence has to use instructional approach that motivates the students to construct knowledge by his own.

Instructional strategies should be viewed as a social skill which is part of the educational environment and not as a technique to be mastered. They are to be considered as important components of teacher-student interaction and not as teacher activities alone. While instructional methods are planned the social and psychological aspects of the learner need to be taken into consideration.

Let us examine here some instructional strategies helpful in bringing out the curricular objectives of Physiotherapy

Project

is one of the most suitable methods of instruction for learning. It is a method of self instruction using the method of science and useful in the development of a number of process skill and hence it is essential to use projects in science education right from the primary stage to higher level of education.

What is a project?

When a problem is fact, data regarding the problem is collected. The collected information is summarised and analysed. The conclusions that are obtained from analysis is used to solve the problem - these steps reflect the essentials of a projects - the students are given the opportunity to train in the method of knowledge. In doing so, the students acquire problem solving ability which helps to tide over problematic situations in life and progress in life.

Stages of a project

1 Feeling the problem

The project topic should not be arbitrarily created. It should reflect a real problem in the learning situation and which requires a solution to proceed further.

Project topics arise when discussions relating to lessons are held on the class. It is important that the student has an internal urge to find out a solution to the particular problem. When the topic is presented the teacher must ensure this.

2 Defining the aim

If the student is to tackle the problem in a way suitable to his/ her abilities, thinking skills and available facilities, the aim of the project need to be defined precisely. To state the aims of the project simply and clearly, the students need the help of the teacher.

3 Planning

a Hypothesising

Drawing temporary conclusion on the basis of information available at the time is known as hypothesising.

b Methods and instrument

Study methods and instruments are to be selected based on the aims of the project and the hypothesis drawn. The nature of the topic, instruments used and the scientific approach followed should be correlated. Some methods and instruments are listed below.

- *Survey*

One survey method is selected, where, when and how to conduct the survey must be decided. What will be the sample and who are to be contacted for data will also be considered. Questionnaires and survey forms are to be discussed in detail. Teacher must interact with the students, give suggestions and ensure the instructions are suitable and effective.

- *Experimentation*

When experimental method is to be used, it must be considered whether necessary equipment is available. If not can these be improvised? How can materials and instruments be made available? These questions must be considered.

C. Tabulation of data

- What information is to be collected?
- What method can be used for collecting information?
- When should observations be made?

- How to tabulate data?
- Are pictures, samples and working model required?
- Are checklists, rating scale and score cards needed?
- The method of analysis should be decided in advance keeping to schedules, honest collection of data, accuracy of data and precision are important.

D Analysis

The collected and tabulated data can be analysed to examine the validity of the hypothesis. The collected data need to be classified and compared. Comparison with standard information may also be required.

Graphic and similar representation will make the analysis easier.

E. Conclusion

Based on similarities, differences and relationships evident from analysis of data, the validity of hypothesis may be examined. Those found invalid are rejected and others are accepted as conclusions.

4 Evaluation of the project

An outline of the project based on the components discussed above may be drawn up. The project activities may be carried out according to this plan with necessary modifications at the appropriate stages. Difficulties faced during execution of the project data obtained and information collected, are to be entered in the project diary. This all be helpful during report working.

Visits during the conduct of the project, experiments, arranging equipment, recording data and analysis should be supervised by the teacher. Teacher must take care to conduct discussions with students frequently to evaluate the progress of the project.

Application

The suggestions that arise from the project must be used for problem solving where it is applicable.

5 Project report

A model for project report is given below. Report is to be prepared by the students themselves. The structure of the report should be finalised through discussion with the students. It must be ensured that it is not too complex and hinders activities.

The cover page may show title of the project name of the student/ members of the group and school address.

1 The report may contain

- 1 Title
- 2 Introduction

- 3 Hypothesis/ Aims
- 4 Method of study
- 5 Collected data
- 6 Analysis and conclusions
- 7 Suggestions (if any)
- 8 Reference (if any)
- 9 Appendix (questionnaire, observation schedule, checklist, etc.)

The project diary should be made use of to prepare the project report. The aims and method of study of the project would be recorded in the project diary during the time of doing the project. The credibility of the project and data can be established with the help of project diary. Teacher may given necessary directions to prepare the project diary. At frequent intervals the teaching must check wheather the recordings are made in the diary.

- A project diary should be maintained by the learner which is considered as the product of the authenticity of the work done.
- It should contain all the activities for the learner in detail.
- It should be recorded along with each process of project work.

6 Project presentation

The project can be evaluated and the work done be assessed when the project is presented. Ideas can be communicated and shared with others through presentation of the project.

The project can be presented in

- Class it self.
- Science club meeting.
- Science fairs.
- School annual day meeting.
- PTA meeting
- Other selected forums During presentation, bear in mind:
 - Sufficient preperation must be done.
 - Make appropriate use of charts/ pictures/ articles/ transparencies.
 - Doubts raised must be cleared convincingly
 - Presentation must be brief and simple.

When learning takes place in the class in the project way, the topic must be discussed and activities planned systematically information must be recorded in an ordered way and analysed objectively to draw appropriate conclusions. Collected information must be shared with others. The learning process in complete only when the relevant information is summarised efficiently.

The project method helps to train the students in the method of science to familiarise them with self study habits and to find solutions for local problems. We must take care to cultivate this as an important method of study in our schools.

Seminar

Report is core component of learning of ECG. In seminar data relating to a specific topic is collected analysed and presented as paper for the benefit of others. It helps the learner to improve his/ her communications skills and provide opportunities for collection of secondary data and for drawing conclusions. It is useful in cultivating interests and attitude in science, topics and in personality development. Topics chosen for seminars may be contemporary and should have social relevance.

Organisation of seminar

- Topic presentation
- Finding out subtopics or different areas
- Group formation
- Assigning sub topics to different groups.
- Discussion by each group on the assigned information can be gathered from area or sub-topic (books, magazines, internet, institutions, place and persons)
- Organising ideas
- Paper writing
- Seeking the opinion of the teacher
- Presentation
- Discussion
- Summarising

The teacher may provide reference materials and gave directions at all stages.

- Paper writing
- The paper may include new information gained through data collection, conclusions and findings.
- The information collected by all the member may be included.
- Tables, charts, books and other source materials may be included.

Teacher may examine the paper at different stages and provide guidelines. The activities and participation of each student in the group may be assessed.

Paper presentation

- Teacher may function as the moderator during the initial stages, but it is better to assign this role to students themselves.
- The paper to be presented must be written out completely.

- All the group members must be present in the ideas during presentation and must actively participate in the discussion after presentation by the leader.
- Questions from the audience are to be answered by group members taking turns.
- Teacher may intervene when necessary to provide instructions and help.
- When sub topics are presented, after all the presentation are over general discussion may be held. Teacher may summarise the discussion.
- A summarised version of the report may be recorded in the science diary.
- Seminar papers and reports may be kept in the information corner.

How to conduct class room discussions.

Discussion is the most commonly used medium for communication. This is a very good activity that can be used in the learning process. Effective discussion will stimulate the intelligence of the student. It will make the absorption of the knowledge easier. Discussion is neither merely asking questions and answering nor explanations given by teachers. Class room discussions will become effective only if it is systematically organised. The following points are to be considered while conducting a discussion.

- There should be a problem or a question or a topic that requires clarification or a decision.
- If possible the topic of discussion should be informed in advance. Books for reference can also provide. Then the students get an opportunity to think about it and study.
- Information about the discussion should be given an opportunity. This is not possible for discussions that are planned there itself. Then each person can be given a chance, or chose who express a desire at that time to take part can be given an opportunity. Those who keep quiet also should be brought forward by asking them to give their opinion or according to their turn.
- If many people are participating in the discussion. Strategies can be used to make effective use of the available time.
- When everyone has to speak, speak briefly limit may be specified for time, numbers of points or sentences. Write down the important points that are mentioned in the discussion. Repetition of the same points are to be discouraged. Through this, methods of expressing ideas briefly. Clearly and precisely may be familiarised. More than one round of discussion can be had of there is time.
- It is good to have a chair person to control the discussion.
- Allow only one person to talk at a time and others should listed carefully. Some students may feel like responding during this time. But they should wait till they get their turn. They should participate in the discussion when they get an opportunity. Only good listeners can react properly.
- One or two people can be given responsibility to write down the opinions that are understanding arrived in the discussion should be noted down.

- Students should be trained to stick to the timing themselves.
- Very different opinions may arise in the discussion. Responses should be healthy and in a democratic spirit. Opposition or support should be only to the opinion expressed it. The discussion should be taken forward through mutual respect.

Debate

Debate is a 'hot' and interesting learning activity. A debate can be organised only on a topic on which there is difference of opinion. Therefore a topic suitable for debate has to be found.

Debate can be on relevant topic that is different and interesting to the students and relevant to society. Students with different opinions have to be identified for the discussion. Those who have similar opinion should join together to form a side. Those who hold the opposite view will form the other side. It would be good to write down the topic of the debate on the blank in advance. There should also a person to control the debate.

Students should be given opportunity to absorb the ideas obtained from discussions and debate, develop the ideas through reading and study, and to express them through writing or other means.

How to organise a quiz in the class room.

Quiz is an activity that is very much helpful for self learning. Students should be instructed to read and classify the ideas, technical terms, methods of activity definitions, different procedures, etc. discussed in the textbook. This can be given as an assignment to be done at home. Quiz can be conducted in different ways as follows.

Team Quiz

Divide the class in to two equal teams. The teams may be named A and B, or one and two. The points they receive can be marked on the black board in two ways. For instance, a member from team A asks a question aloud and members of team B is specified to answer the question. If he/ she fails, this can be continued up to four other members. When all the five fail, any one from team B answer the question will have to give the answer and 5+ marks will be added to team A (5 marks for defeating five students). If no one from team B answers the question, then team A gets one more 'plus' (total 6 + marks). If the first student of team answers correctly, then team A gets no points. If the answer given by the student of team A who asked the question is not correct, then also team A get no points. The next question is asked by team B by which they can get their marks.

Team quiz can be conducted in another way also. Here, when a student asks a question, it is the teacher who identifies the student who has to give

the answer. Therefore the teacher will control the quiz. In the other case, all questions will be directed towards the weaker children in the opposite team. This will spoil the interest in the quiz.

It may also be stipulated that only the children sitting next to the student who was first asked can be given subsequent chances to answer the question. Then also the above problem arises. That has to be avoided. The method and rule of conducting the quiz can be devised in consultation with the students.

Group quiz

Divide the class in to convenient groups. A group can consist of students sitting on one or two benches. Let group A ask a question and group B thinks and answer the question. In group quiz marks go to the group that answers the question. If group B gives the answer, then.

Practicals

Practicals familiarise the students with the method of technique and develops the process skills. It serves the following aims.

- Development of process skill.
- Ability to handle equipment.
- Development of interest in technique, sense of responsibility, aptitude and attitude.
- Providing direct experience.

Points to note

- Introductory discussions must help the learner to understand the need and aims of procedure. The learner should develop an idea about what variable are to be controlled. Similarly they should decide on what to observe. They are also to be instructed on the manner of recording and safe handling of equipment.
- The practicals must be interesting to the learner
- Practical must proceed according to instructions given.
- It must be ensured that measurements are accurate.
- Observations must be recorded immediate.
- Time limits must be maintained.

Evaluation

- Record book containing observations and conclusions.
- Quality control, discipline and use of process skill.
- Handling of equipments in proper way.

Teachers must be present during all stages of the practicals to provide necessary instructions.

Out door learning

As Physiotherapy course is in paramedical stream the activities which has to be performed is not limited in the class room. To fulfill the curricular objectives the learners must be exposed to outdoor learning activities such as OJT and hospital visit.

OJT and hospital visit help the students.

- To develop a vocational skill in the subject.
- To develop personal qualities.
- To develop values, attitudes and interests.
- To direct learning experiences are gained.
- Helps to apply their knowledge in real situations.
- Helps to evaluate the development of emotional domains.

Community level programmes

Since it is a service oriented field the teacher can participate the students in conducting medical camps and community awareness programmes with the help of local authorities and skilled professionals.

Assignments

Assignments are learning activities helping to achieve the curriculum objectives and also lead the students from the present level to a higher level of learning.

Assignments may be of the type writings, drawings, construction of models, etc. The discussion and planning may be carried out in classroom to complete the assignments in time. Clarifications may be given about the sources. Teacher may provide the sources if needed.

Observation book.

The student carries out a number of activities as a part of learning observations, collections, data organisations in tables, analysis, diagram drawing and reports are some of these. So the student should record all the activities in an observation book. It is useful to the student as well as to other who want to evaluate the students work and progress.

Library

Effective learning of Physiotherapy may require activities that need extensive time for collection of secondary sources, analysis and drawing of conclusions. Materials that facilitate learning may be collected for the library. Library should contain reference books in anatomy, physiology, electronics and biomedical instrumentation. Journal and CDs in the subject can also help the student in

collecting advanced data. A library committee may be constituted under the leadership of the teacher in charge of the library and including teachers from all subjects.

Multimedia Room

To provide appropriate learning experiences in the new curriculum, advances in science and technology may be made use of setting up a multimedia room in each school would help in this aim. The multimedia room may have the following equipment.

- Over Head Projector
- Computer & Internet
- Liquid Crystal Display (LCD) projectors

Media like TV, VCD, DVD and tape recorders may also be utilised appropriately. Educational programme in channel is also important.



IV

CURRICULUM OBJECTIVES

Curriculum Objectives

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

- To describe in general the structure and function of human body through demonstration discussion and analysis of charts and specimens. Prepare and present notes with labelled diagrams.
- Describe the basics of pathology and understand aetiology, pathogenesis and clinical features of relevant diseases through observation, discussion assignments and data collections of relevant literatures.
- To acquire basic knowledge of elements of applied physics related to physiotherapy and various treatment modalities through Brain storming. Discussions, preparation of notes, observation, interpretation and analysis.
- To understand the concept of Rehabilitation different branches and levels of Rehabilitation, the concept of Rehabilitation team and their functions through Discussion , Observation preparation and presentation of notes.
- To understand the basics of physiotherapy its components, its historical aspects aims and scope of physiotherapy and duties of physiotherapy assistant through discussion, observation and assignments.
- To understand basic principles of movement muscle power abnormalities of muscle function, fundamental positions, breathing exercise and an overall idea of various equipment used in exercise therapy through observation, discussion, analysis and interpretation.
- To acquire basic knowledge of electrotherapy, different types of currents use in electrotherapy, connections their checking and repair and safety measures for patient and electrotherapy equipment through demonstration discussion and assignments.

- To describe basic ideas of occupational therapy its aims scope, different modalities used in occupational therapy and duties of an occupational therapy assistant through demonstration. Discussion , preparation of notes and presentation and assignments.
- To describe and understand the way people behave in society nature of society family and community. Sociocultural effects on behaviour, personality intelligence and psychometry, sociological aspects of disability, social relief, measures for persons with disability and general knowledge in PWD act 1995, and different factors affecting them with relation to health and illness through discussion, debate and assignments.
- To describe in general different emergency health situations and demonstration of skills in giving first aid care at home, environment and hospital, through demonstration, discussion observation and assignments.
- A general understanding of Rehabilitation nursing programme, methods of bed positioning and its importance, skin bladder and bowel care, nutritional aspects and feeding care through discussion demonstration and assignments.
- Describe concepts of Remedial gymnastics methods of Remedial gymnastics. Importance of gymnastics for people with disabilities and sports and recreation for people with disabilities.





SYLLABUS

FIRST YEAR THEORY

I. Anatomy and Physiology (40hrs)

1. Introduction

- a. Definition and branches
 - Macroscopic or Gross Anatomy
 - Microscopic Anatomy or Histology
 - Regional Anatomy
 - Systemic Anatomy
- b. Different systems and parts of human body
- c. Definition of terms, Anatomical position, common anatomical terms, planes and movements.
- d. Organisation of the body-Cells structure and function, Tissues-Definition and classification of each.
- e. Epithelial tissue- simple and compound
 - Muscular tissue
 - Connective tissue
 - Nervous tissue

2. Locomotor system

Introduction

- a. Osteology - Definition and division
 - Axial
 - Appendicular-Upper limb and Lower limb
 - Classification of bones- long, short, flat, irregular sesamoid bones.
- b. Important features of axial skeleton

- Skull
 - Vertebrae-Cervical Thoracic Lumbar and Sacral
 - Sternum
 - Ribs
 - Bones of upper limb and shoulder girdle
 - Bones of lower limb and pelvic girdle
- c. Joints: Definition and Classification of each-immovable, partially movable and movable
- Fibrous, Cartilaginous and synovial
 - Shoulderjoint
 - Elbowjoint
 - Wristjoint
 - Hipjoint
 - Kneejoint
 - Ankle joint
- } Type Articular Surface and movements

Mention about the joints of shoulder girdle, radio-ulnar joint of hand, pelvic girdle, Foot and vertebral joint

- d. Skeletal muscles- definition structure belly tendon, origin, insertion etc.
- Important muscles of shoulder regions
 - Arm
 - Forearm
 - Hand
 - Gluteal region
 - Thigh
 - Leg and foot

Physiology

Muscle contraction-isometric and isotonic contraction, power, tone, plasticity, rigidity

3. Circulatory system

- a. Definition of Cardiovascular system and lymphatic system
- b. Structure of Heart Blood vessels and nerve supply of Heart, Blood vessels- Arteries, Veins, Capillaries

Physiology

- a. Function of heart
Cardiac cycle-Brief description of events
Systemic, Pulmonary, Portal and Coronary Circulation
Definition of cardiac output, Heart beat, pulse, Blood pressure , ECG
- b. Blood - Composition and general functions
Cellular components and plasma
- c. Lymph- Composition and functions

4. Respiratory system

Anatomy

- Definition and Gross anatomy
- Respiratory tract Upper and Lower
- Pleura, lungs and lobes

Physiology

- a. Respiration, definition and Mechanism of Inspiration- expiration
Pulmonary ventilation
Intra pulmonary gas exchange
Diffusion
Perfusion
Types- External and internal
Definition of Tidal volume, vital capacity
Control of respiration
- b. Effects of exercise on cardio vascular and respiratory system- Brief description

5. Nervous System

Definition and classification- anatomical physiological

Anatomy

- a. Central Nervous System
 - Meninges
 - Position structure and different parts of brain-Fore brain cerebrum
Diencephalon
 - Mid brain

- Hind Brain : Cerebellum
 - : Pons
 - : Medulla oblongata
 - Spinal Cord - Structure
- b. Peripheral Nervous system
- Cranial Nerves- Names and major function
 - Spinal Nerves Dorsal root and Ventral root
- c. Brief structure of eye, ear, Nose, Tongue and skin

Physiology

CSF and its function

Definitions of stimuli and response

Brief idea about functions of cerebrum

- Deferent lobes
- Cerebellar functions
- Basal ganglia

Sensory pathway - UMN lesion

motor pathway - LMN lesion

Reflex arc

Sympathetic and parasympathetic system

Physiology of vision and hearing

6. Digestive system

Anatomy

A brief description of Digestive organs

- Mouth and pharynx
- Salivary Gland
- Oesophagus, Stomach-different parts
- Intestine-different parts
- Liver and Gall bladder
- Spleen and pancreas

Physiology

- Mastication
- Deglutition
- Function of stomach, Digestion of food, absorption and defaecation.

7. Endocrine Glands

- Definition and name of Endocrine glands
- Major hormones
- Mention endocrine disorders

8. Reproductive System

- Name and brief structure of primary and accessory sex organs of male and female.
- Name the secondary sexual characters in male and female
- Function of ovary, ovulation, action of ovarian hormones and menstruation
- Function of testis, sperm, Testosterone

II. Basic Pathology

1. Definition and branches

2. Definition of Normal cell, Normal Homeostasis, Cellular adaptation-

- Atrophy. Hypertrophy Hyperplasia and Metaplasia
- Reversible cell injury, irreversible cell injury and cell death
- Necrosis and apoptosis
- Infarction and Gangrene

3. Causes of cell injury

- Hypoxia, physical agents, Chemical agents, infectious agents, immunologic reactions.
- Genetic derangements nutritional imbalances and aging

4. Inflammation - Definition and types

- Acute inflammation- Definition, signs and major events
- Chronic inflammation definition and major events.
- Granulomatous inflammation

Repair by connective tissue (fibroses)

5. Wound Healing- Brief description

Primary and secondary Healing

6. Disease- Definition and classification with examples

7. Edema definition, types -localized and generalized

8. Nutritional deficiency diseases introduction to Osteomalacia and Rickets

9. Immunity , Definition and pathological types

- Hyper sensitivity
- Auto immunity
- Deficient state congenital and Acquired

Natural Immunity, Artificial immunity, Active and passive immunity

10. Anaemia- Definition and Classification
11. Hemostasis- Definition and major steps
 - Vasoconstriction
 - Platelet plugg formation
 - Blood coagulation
12. Thrombosis - Definition Thrombogenesis
 - Edothelial injury
 - Alteration in blood flow
 - Hypercoagulability
 - Fate of thrombus
13. Embolism- Definition andTypes
14. Haemorrhae- Definition Type Internal and External Definition of haematoma, Haemarthrosis, Petechiae, Purpura etc.
15. Shock- Definition, types and stages

III. Elements of Applied physics

(15hrs)

a. Mechanics

1. Idea of force, momentum, impulse and movement
2. Fundamental concepts of planes and exercises of human body
3. Work and energy
4. Principles of stability and posture
5. Motion and principles

b. Simple mechanics

- Levers , pulleys and inclined plane

c. Gravitaion

- Law of gravitation and acceleration due to gravity

d. Hydrostatics

- Pressure at a point, resultant thrust on a surface immersed in a fluid, center of buoyancy, principles of Archimedes.

e. Sound

- Production of sound, ultrasonic waves

f. Heat

- Definition of heat, temperature
- Measurement of heat
- Physical effect of heat
- Transmission of heat
- Wave length, velocity and frequency, characteristics and types of radiation, visible, infrared, position of UV radiation in electromagnetic spectrum.

g. Structure of Matter

- Definition of molecule, atom, proton, neutron and electron and structure of atom

h. Electrostatics

- Electron theory of electric current, production of electric charge
- Electrostatic force

i. Current Electricity

- Electric current, EMF intensity of current resistance
- Ohms Law

IV. Basic Orientation of Rehabilitation Philosophy (5hrs)

Introduction to Rehabilitation , Definition, Medical and sociovocational Rehabilitation.

Medical

- Preventive
 - Curative
 - Rehabilitation
 - Various Disciplines
 - Community based rehabilitation
 - Institution based rehabilitation
2. Introduction to impairment , disability and handicapped
 3. Rehabilitation Team members and their functions
 4. Vocational rehabilitation
 - Prevocational

- Vocational development stage
- Employability Developmental stages

V Basic physiotherapy

(25hrs)

1. Introduction to physiotherapy

- Definition and branches
- Historical development
- Aims and objectives
- Scope
- Record writing and keeping
- Duties of physiotherapy assistant

2. Rehabilitation Nursing

- Definition
- Bed positioning
- Importance of positioning
- Care of skin and prevention of sores
- Care of bladder
- Care of bowel

3. Exercise Therapy-I

Introduction Definition and aims

Basic orientation of Muscles grades

- Muscle power
- Tone- hyper and hypotonia
- Flaccidity
- Spasticity, Rigidity
- Relaxation
- Definition and Techniques

Movements- Definition , classification, principles. Techniques effects and uses of

- Passive movement
- Active movement

Posture- Definition and types

- Inactive
- Active- Static and Dynamic

Patterns of posture

- Good posture- Definition and factors affecting good posture
- bad posture - Definition and factors affecting bad posture
- ideal segmental alignment

Examples of good and bad posture and correcting exercise

fundamentals positions and its derived positions:

- Standing
- Kneeling
- Sitting
- Lying
- Hanging

Breathing Exercise

- Diaphragmatic
- Segmental

Description and application of various terms and apparatus used in exercise therapy to

Improve joint rangeand

Muscle power

Suspension therapy

Weight and pulley

Shoulder wheel

Delorim boot

CPM machines

Spring

Whole body mobiliser

Dumbbells

Pulley

Sand bag

Static cycle

Electrically operated machine

Others:

Wheel chair: Tilt table , Trolley, Drill bar etc.

4. Electrotherapy

- Introduction
- Definition and Nomenclature of equipment
- Low frequency, medium frequency and high frequency equipment
- Basic knowledge of electric connections and their checking , repair material used for making pads and electrode.

- Preparation and safety measures for patient and equipment during electrotherapy

VI Basic Occupational Therapy (5hrs)

Introduction

- Definition
- aims
- Scope

Modalities of occupational therapy

- Human activity
- Extrinsic adaptation
- Splints and pressure gradients
- Occupational Therapist
- Environment
- Teaching and learning process.

Duties of Occupational Therapy assistant.

VII General Psychology (10hrs)

- Nature , Definition and scope
- Mental health, characteristic of a mentally healthy persons, psychology of human behaviour , factors influencing human behaviour
- Nature of intelligence and psychometry
- Personality, physiological , psychological and sociological function
- Heredity and Environment
- Motivation and Learning

VIII Sociology (10hrs)

Definition and scope

Man and society, society and community, socialization

- Family - types of family, basic needs of family, culture and patterns, mode of living, eating , housing, marriage, language, religion related, social security
- Effects of illness on family members
- Rural and urban community
- Traditional and modern society

IX First Aid

(10hrs)

Definition

- Simple first aid kit, materials, bandages and splints
- Control of bleeding
- Shock, coma and management
- Splinting a patient
- Transportation of acutely injured
- cardiopulmonary Resuscitation

X. Sports and Remedial Gymnasitcs

(5hrs)

- Concept of remedial gymnastics
- Corrective remedial gymnastics
- Basic principles of gymnastitcs
- Relation between handicapped and gymnastics
- Sports and recreation for the disabled

FIRST YEAR PRACTICAL

Anatomy and Physiology

(420hrs)

1. Demonstration of parts of the body
2. Skeletal system- identification of bones- axial and appendicular
3. Demonstration of interior throat with organ in situ
4. Demonstration of respiratory system and pleura
5. Demonstration of heart and great vessels
6. Pulse rate and exercise
7. Blood pressure measurement
8. Study of microscope
9. Demonstration of thin blood smear and differential leucocyte count
10. Demonstration of haemoglobin
11. Demonstration of ESR
12. Blood group
- 1e. Study of cardiopulmonary changes and exercise
14. Artificial respiration
15. Demonstration of brain
16. Demonstration of spinal cord
17. Demonstration of reflex action- Tendon jerk
18. Demonstration of various organs in abdomen
19. Surface anatomy of heart and lung
21. TPR chart

Pathology

(10hrs)

- Demonstration of bleeding time
- Demonstration of clotting time

Occupational therapy

(20hrs)

- Visit to home and work place of disabled
- Demonstration of coir work, printing, tailoring, bookbinding etc

Psychology

Demonstration of psychometry (10hrs)

First Aid (55hrs)

1. Identification of simple first aid kit, materials, bandages, splints, etc.
2. Control of bleeding
3. Splinting
4. Transportation of acutely injured
5. Cardiopulmonary resuscitation
6. Safety and precautionary measures of burns
7. Shock and giddiness
8. Preparation of patient and equipments for electrotherapy
9. Maintenance of records

Rehabilitation Nursing

- Bed positioning and importance of position
- care of skin and prevention of sores

Exercise therapy (135hrs)

1. Muscle power grades
2. Passive movements
 - Shoulder girdle
 - Shoulder
 - Elbow and wrist
 - hand -joints
 - hip joints
 - Knee and ankle joint
 - Joints of foot
3. Demonstration of active movement
4. Resisted exercise all joints
5. Normal and abnormal postures
6. Fundamental positions
 - Standing
 - Kneeling
 - Sitting
 - Lying

- Hanging
- 7. Breathing exercise
- 8. Demonstration and description of equipments like
 - Weight and pulley
 - Delorm boot
 - Spring
 - Dumbells
 - Sand bag
 - Static cycle
 - Electrically operated machines
 - Suspension therapy
 - Shoulder wheel
 - Quadriceps table
 - Wheel chair
 - Tilt table
 - Trolley

Electrotherapy

- Identification of component of electric equipments
- Procedure of handling and cleaning of equipments
- Training of handling in repair of light and power plugs

Field Visits

1. Visit to Anatomy Department of Medical college.Museum
2. Visit to home / soek place of disabled
3. Visit to Dept. of physiotherapy
4. Visit to special school
5. Visit to Rural Rehabilitation Centre
6. Visit to TB Hospital.



VI

PLANNING

YEAR PLAN - THEORY

Unit	Name of Chapter	Time and Period	Months when plan to Teach	Activity/Strategy
I	Anatomy And Physiology	40	June, July, August	Brain storming, Demonstration Discussion Diagram, Drawing
II	Basic Pathology	25	August, September, October	Observation, Brain Storming Discussion, Assignments Data Collection
III	Elements of Applied Physics	5	October	Brain Storming, Discussion Observation Interpretation & Analysis
IV	Basic Orientation to Rehabilitation Philosophy	5	October	Discussion, Preparation and Presentation of Notes Observation
V	Basic physiotherapy including Exercise therapy and Electrotherapy	25	November and December	Discussion, Observation Assignments, Demonstration
VI	Basic Occupationaltherapy	5	January	Discussion, Assignments Demonstration
VII	Psychology	10	January	Discussion, Debate, Assignments
VIII	Sociology	10	February	Discussion, Debate, Assignments
IX	First Aid and Rehabilitation Nursing	10	February- March	Demonstration, Discussion Assignment
X	Sports and Remedial Gymnastics	5	March	Discussion, Assignments, Demonstration

YEAR PLAN - PRACTICAL

Unit	Name of Chapter	Time in hours	Month	Activity
1.	Anatomy and Physiology	190	June, July, August, September , October	Demonstration
2.	Pathology	10	October	Demonstration
3.	Occupational Therapy	20	October	Fieldvisit Visit, Demonstration
4.	Psychology	10	November	Demonstration
5.	First Aid	43	November- December	Demonstration Fieldvisit Visit
6.	Rehabilitation Nursing	12	December	Demonstration
7.	Exercisetherapy	77	December January, February	Demonstration Fieldvisit Visit
8.	Electro Therapy	12	February	Identification- Demonstration
9.	Field Visit	46	February-march	Field Visit

UNIT PLAN- THEORY
Unit.1- ANATOMY AND PHYSIOLOGY

Objectives	Concepts/Ideas	Process skills	Activity	Materials	Evaluation	Hours
<ul style="list-style-type: none"> To understand the basic structure of human body, methods of study of anatomy and physiology. Common anatomical terms and types of tissue 	<p>Discussion of anatomy</p> <p>Anatomical terminology, cells, and different tissue</p>	<p>Observation</p> <p>Communication</p> <p>Inferring</p> <p>Participation</p>	<p>Demonstration</p> <p>Discussion</p> <p>Diagram drawing, Assignment</p>	<p>Specimens</p> <p>Charts</p> <p>Slide, OHP</p> <p>Reference book</p>	<p>Records</p> <p>Participation</p> <p>Perfection</p> <p>Questioning</p> <p>Class test</p>	<p>5 hours</p>
<ul style="list-style-type: none"> To understand anatomy and physiology of different systems of the body 	<p>Structure and functions of the different system</p> <p>respiratory system</p> <p>circulatory system</p> <p>locomotor system ,</p> <p>Nervous system, Endocrine system, Digestive system, Uro genital system</p>	<p>Observation</p> <p>Classification</p> <p>Analysis,</p>	<p>Discussion</p> <p>Diagram drawing</p> <p>Demonstration</p> <p>Assignment</p> <p>Seminar</p>	<p>Specimens</p> <p>Charts</p> <p>OHP</p> <p>Reference book</p> <p>LCD</p>	<p>Records</p> <p>Participation</p> <p>Questioning</p> <p>Class Test</p>	<p>35 hours</p>

UNITPLAN
UNIT. 2- BASIC PATHOLOGY

Objectives	Concepts/Ideas	Process skills	Activity	Materials	Evaluation	Hours
<ul style="list-style-type: none"> To understand the definition of disease and underlying pathology of different diseases 	Etiology Pathogenesis Clinical features Classification of diseases	Communication Observation Participation	Discussion Demonstration Brain Storming	Charts Reference books Slides	Participation Records Questioning	7 hour
<ul style="list-style-type: none"> To understand normal homeostasis cellular adaptation responds to injury and diseases. 	Normal homeostasis Cellular adaptation Cell injury Inflammation Wound healing	Communication Comparison Discussion	Discussion Demonstration	Reference book OHP LCD	Class Test	8
<ul style="list-style-type: none"> To understand common Hemodynamic disorders- definition causes and consequences and prevention. 	Hemodynamic-disorders Immunity Prevention of diseases	Communication Comparison Observation	Assignment Discussion Demonstration	Reference Book Chart Slide	Class Test	10

UNIT PLAN
UNIT 3- ELEMENTS OF APPLIED PHYSICS

Objectives	Concepts/Ideas	Process skills	Activity	Materials	Evaluation	Hours
<ul style="list-style-type: none"> To understand the structure of matter, Electrostatics and current electricity 	Definition of molecule Structure of atom Elevation theory of electric current Production of electric charge Electrostatic force Electric current EMF Intensity of current Ohms law various frequency of current	Participation inferring	Discussion Chart preparation Assignment Demonstration	Black board Models of atomic structure	Assignment Class Test Questioning	2 hours
<ul style="list-style-type: none"> To understand the laws of gravitation/ hydro statics the basis of sound and hearing 	Laws of gravitation Acceleration due to gravity, bourance, A r c h i m e d i s principles, Sound and production of sound	Observation Participation Presentation	Introductive talk Discussion Assignment	Reference Book Black Board Tunning Fork	Participation Class Test Questioning Assignment	1 hour
<ul style="list-style-type: none"> To understand the structure of matter, Current electricity and electro statics 	Concept of structure of Atom, Protone, Nutrone, electrone, Electric Charge, Electric current, Electro static force, EMF, Intensity of Current, Ohms Law, Various frequencies of current	Participation Inferring	Discussion Chart Preparation Assignment	Reference Book Black Board Chart	Class Test Questioning	2 hour

UNIT PLAN
Unit. 4 - BASIC ORIENTATION OF REHABILITATION PHILOSOPHY

Objectives	Concepts/Ideas	Process skills	Activity	Materials	Evaluation	Hours
<ul style="list-style-type: none"> To Explain the concept of rehabilitation, types of rehabilitation and process of rehabilitation 	Rehabilitation Impairment Disability Handicapped	Communication Records keeping Participation	Discussion Preparation and presentation of notes Observation	Reference book OHP Charts	Participation Records Perfections	3 hours
<ul style="list-style-type: none"> To understand functions of rehabilitation team and functions of each members 	Medical and vocational rehabilitation Community based rehabilitation Institution based rehabilitation	Communication Records keeping Participation of basic interest	Discussion Preparation and presentation of notes	Reference book Chart	Participation Questioning	2 hours

UNIT PLAN
UNIT. 5 - BASIC PHYSIOTHERAPY INCLUDING EXERCISE AND ELECTROTHERAPY

Objectives	Concepts/Ideas	Process skills	Activity	Materials	Evaluation	Hours
<ul style="list-style-type: none"> To understand the concept of physiotherapy, branches development, its scope, aims and objective 	<p>Physiotherapy Physical agents</p>	<p>Participation Communication Observation</p>	<p>Brain Storming Chart preparation Group discussion</p>	<p>Charts Reference book OHP</p>	<p>Records Performance Presentation</p>	<p>1 hours</p>
<ul style="list-style-type: none"> To understand duties of physiotherapy assistant and importance of record & keeping 	<p>Physiotherapy assistant</p>	<p>Perfection Participation Communication</p>	<p>Assignment Group discussion</p>	<p>Reference book OHP</p>	<p>Records Presentation Perfection</p>	<p>1 hours</p>
<ul style="list-style-type: none"> To understand the concept of exercise therapy, muscle postures and body movements. 	<p>Exercisetherapy body movements muscle power spasticity Rrigidity, flexibility, relaxation, passive movement, postures.</p>	<p>Observation Analysis Organising Presentation</p>	<p>Demonstration Group discussion Assignment Seminars Charts</p>	<p>Models Chart OHP LCD Reference book</p>	<p>Power of expression Presentation Perfection Basic interest</p>	<p>11 hours</p>
<ul style="list-style-type: none"> To understand breathing exercise and methods 	<p>Ideal segmental alignment. Fundamental and decreased position, Breathing exercise Types of breathing exercise</p>	<p>Observation Participation Performance</p>	<p>Demonstration Group Discussion</p>	<p>Models OHP Reference book</p>	<p>Presentations Questions Class Test</p>	<p>1 hour</p>

Objectives	Concepts/Ideas	Process skills	Activity	Materials	Evaluation	Hours
<ul style="list-style-type: none"> To demonstrate and understand various equipments used in exercisethrapy 	<p>Suspension therapy shoulder wheel weight and pulleys delome boots dumbols. Sand bag, static cycle, wheel chair, Trolley etc.</p>	<p>Presentation Observation Participation</p>	<p>Demonstration Group discussion Assignment</p>	<p>Models (working) Reference book</p>	<p>Records Question Presentation</p>	<p>5 hours</p>
<ul style="list-style-type: none"> To understand Electrotherapy, its type and basic knowledge of electric connection and material used and various safty measures 	<p>Concept of Electrot herapy, low frequency, high frequency, medium frequency, Pads and electrodes</p>	<p>Presentation Observation Comparison</p>	<p>Demonstration Assignment</p>	<p>Reference book Working models Charts</p>	<p>Records Class test Perfection</p>	<p>4 hours</p>

UNIT PLAN
UNIT 6- BASIC OCCUPATIONAL THERAPY

Objectives	Concepts/Ideas	Process skills	Activity	Materials	Evaluation	Hours
<ul style="list-style-type: none"> To Describe basic ideas of occupational therapy its aim, scope different modalities used in occupational therapy and duties of occupational therapy asistant. 	Definition of occupational therapy aims, scope and various modalities in occupational therapy duties of occupational therapy asistant	Observation Participation	Discussion Demonstration Field visit Collections	Chart Models Text book Vedioes	Presentation Participation Class Test	5 hours

UNIT PLAN
UNIT- 7 GENERAL PSYCHOLOGY

Objectives	Concepts/Ideas	Process skills	Activity	Materials	Evaluation	Hours
<ul style="list-style-type: none"> To understand the nature, definition and scope of psychology 	Nature, definition scope of psychology and its importance in physiotherapy	Participation Communication	Discussion Debate Brain storming	Reference book Chart	Participation Class Test	1 hours
<ul style="list-style-type: none"> To understand about the mental health and its characteristics psychology of human behaviour and about various factors influencing human behaviour 	Mental health behaviour and its various determinants	Observation Participation Communication	Lecture cum discussion field visit Group Discussion	Reference book Chart	Participation Questioning Class test	2 hours
<ul style="list-style-type: none"> To understand the nature of intelligent and various methods to measure the intelligent (psychometry) motivation and learning process 	Intelligent Psychometry Motivation Learning	Participation Presentation	Group Discussion Seminar Brain Storming	Reference book OHP LCD Chart	Participation Record Class test Questioning	4 hours
<ul style="list-style-type: none"> To understand the concept of personality and development of personality and to understand the heredity and environment, motivation and learning 	Personality Heridity and Environment	Participation Presentation Communication	Debate Group Discussion Assignment Field Visit Brain Storming	Reference book Charts	Participation Class test Presentation	4 hours

UNIT PLAN
UNIT 8- SOCIOLOGY

Objectives	Concepts/Ideas	Process skills	Activity	Materials	Evaluation	Hours
<ul style="list-style-type: none"> To understand the definition and scope of sociology, the way of people behave society, nature of society, family and community, socio cultural effect on behaviour 	Definition, scope, Concept of society Nature of society and Family Community Socio cultural effect on behaviour	Presentation Participation Communication	Introductory talk Group Discussion	Charts Reference Books OHP LCD	Class Test Participation Questioning	1 hours
<ul style="list-style-type: none"> To understand the behaviour and relation between man and society, society and community and socialisation 	Society Community Socialisation	Presentation Participation Communication	Introductory talk Brain storming Group Discussion	Charts Reference Books OHP LCD	Class Test Participation Questioning	2 hours

Objectives	Concepts/Ideas	Process skills	Activity	Materials	Evaluation	Hours
<ul style="list-style-type: none"> To understand the family and its type basic needs, culture and patterns mode of living and other various life maintaining practices and family related illness 	<p>Family Types needs Various activities and family related illness</p>	<p>Identification comparison Participation</p>	<p>Group Discussion Role play Collections Survey</p>	<p>Reference Book OHP Vedioes</p>	<p>Oral test Participation in discussion and role play Questioning record</p>	<p>4 hours</p>
<ul style="list-style-type: none"> To understand the rural and urban community and traditional and modern society 	<p>Rural and urban Community and Traditional and modern society</p>	<p>Observation Comparison Participation</p>	<p>Field Visit Group discussion Assignment</p>	<p>Reference Book Case studyformat</p>	<p>Oral test Submission of assignment Participation</p>	<p>3 hours</p>

UNIT PLAN
UNIT 9 - FIRST AID AND REHABILITATION NURSING

Objectives	Concepts/Ideas	Process skills	Activity	Materials	Evaluation	Hours
<ul style="list-style-type: none"> To understand the important of first Aid 	First aid definition first aid unit	Comprehension skill in preparing first aid unit	Discussion Demonstration Assignment	First unit Reference book	Assignment Participation Questioning	1 hours
<ul style="list-style-type: none"> To understand the demonstration skill in giving first aid in emergency situation 	First aid in emergency situation Control of bleeding, shock, comasplinting of a patient. Transportation of acutely injured Cardiopulmonary Resistation	Skill of managing emergency situation	Demonstration Assignment	First aid kit model	Return of demonstration	9 hours
<ul style="list-style-type: none"> To understand the basics of mechanics and simple mechanics 	Force, momentum, Impulse movement work, energy principles of stability and posture. Levers pulleys and inclined plane	Observation Participation	Lecture cum discussion Demonstration Group Discussion	Black board Reference book	Class Test Questioning	2 hours
<ul style="list-style-type: none"> To understand the laws of gravitation, Hydrostatics, the basics of sound and 	Laws of gravitation acceleration due to gravity buoyancy, Archimedes principle, sound, production of sound,	Observation Presentation	Demonstration Lecture cum discussion Assignment	Black board Tunning fork	Participation Class Test Questioning Assignment	1hours

UNIT PLAN
UNIT 10- SPORTS AND REMEDIAL GYMNASTICS

Objectives	Concepts/Ideas	Process skills	Activity	Materials	Evaluation	Hours
<ul style="list-style-type: none"> To understand the concept of remedial gymnastic and basic principles of gymnastics 	Concept of remedial gymnastics Principles of Remedial gymnastics	Participation Presentation	Discussion Demonstration Brain storming Seminar	Black Board Equipments	Report of discussion Participation Class test	2 hours
<ul style="list-style-type: none"> To understand the corrective remedial gymnastics. Relation between Handicapped and gymnastics & also to understand the sports and recreation for the disabled. 	Corrective remedial gymnastics Handicapped and gymnastics Sports and recreation for the disabled	Observation Participation	Discussion Demonstration Assignment Field Visit	Black Board Equipment	Participation Assignment Class test	3 hours
<ul style="list-style-type: none"> To understand the definition and scope of sociology. The way of people behave in society nature of society family and community socio cultural effect on effect and social behaviour 	Concept of society and Nature of society Family and community Socio cultural effect on behaviour	Presentation Participation Communication	Lecture cum discussion Group discussion	Charts Reference book OHP LCD	Class Test Participation Questioning	1 hours
<ul style="list-style-type: none"> To understand the definition and scope of sociology behavior and relation between man and society community and socialisation 	Definition Scope Society community Socialisation	Participation	Lecture cum discussion Basic storming Group Discussion	Reference book Black Board	Participation and Oral test	2 hours

**UNITPLAN - PRACTICAL
UNIT1- ANATOMY AND PHYSIOLOGY**

Sl.No	Name of the topics	Time in hours	Month	Activity
1.	Demonstarion of the parts of the body	4	June,	Demonstration
2	Skeltel system- Identif ication axial and appendicular skelten	98	June,July, August	Demonstration
3.	Demonstration of interior thorax with organ insitu	4	August	Demonstration
4.	Demonstration of respiratory system and pleura	4	August	Demonstration
5.	Demonstration of heart and great vessels	4	August	Demonstration
6.	Pulse rate and Exercise	4	August	Demonstration
7.	Blood Pressure measurement	8	August	Demonstration
8.	Study of Microscope	4	August	Demonstration

UNIT PLAN - PRACTICAL
UNIT I - ANATOMY AND PHYSIOLOGY

Sl.No	Name of the topics	Time in hours	Month	Activity
9.	Demonstration of thin bloods smear and differential leucocyte count	4	August	Demonstration
10.	Demonstration of hemoglobin	2	August	Demonstration
11.	Demonstration of ESR	2	August	Demonstration
12.	Blood Group	8	August- September	Demonstration
13.	Study of cardio pulmonary changes and exercise	4	September	Demonstration
14.	Artificial Respiration	6	September	Demonstration
15.	Demonstration of Brain	8	September	Demonstration
16.	Demonstration of Spinal Cord	4	September	Demonstration

Sl.No	Name of the topics	Time in hours	Month	Activity
9.	Demonstration of Reflex action - Tendon jerk	4	September	Demonstration
10.	Demonstration of various organ in abdomen	4	October	Chart Demonstration
11.	Demonstration of Male and Female genital system	2	October	Chart Demonstration
12.	Surface Anatomy of Heart and Lungs	8	October	Demonstration
21.	TPR Chart	4	October	Demonstration

UNIT PLAN- PRACTICAL
UNIT 2- PATHOLOGY

Sl. No	Name of the topics	Hours	Month	Activity
1	Demonstration of bleeding time	5	October	Demonstration record writing
2.	Demonstration of clotting time	5	October	Demonstration record writing
UNIT PLAN- PRACTICAL UNIT 3- OCCUPATIONAL THERAPY				
1.	Visit to home and work of disabled	10	October	Field visit observation
2.	Demonstration of coir work, printing tailoring binding etc.	10	October	Field visit observation
UNIT PLAN- PRACTICAL UNIT 4- PSYCHOLOGY				
1.	Demonstration of Psychology	10	Novemeber	Demonstration

**UNIT PLAN - PRACTICAL
UNIT 5- FIRST AID**

Sl. No	Name of the topics	Hours	Month	Activity
1	Identification of simple first aid kit, materials, namdages, splint etc:	7	November	Identification and demonstration
2.	Control of bleeding	10	November	Demonstration
3.	Splinting	10	November	Demonstration
4.	Transporatopm of acutely injured	6	November-	
5.	Cardiopulmonary Resuscistation	10	December December	Demonstration Demonstration
	UNIT PLAN- PRACTICAL UNIT 6- REHABILITATION NURSING			
1.	Bed positioning and importance of Positioning	6	December	Demonstration
2.	Care of skin and prevention of sores	6	December	Demonstration

UNIT PLAN - PRACTICAL
UNIT 7- EXERCISE THERAPY

Sl. No	Name of the topics	Hours	Month	Activity
1.	Muscles power grades	4	December- January	Demonstration
2.	Passive movements	2	January	Demonstration
	Shoulder Girdle	6	January	Demonstration
	Shoulder	4	January	Demonstration
	Elbow and wrist	2	January	Demonstration
	hand- joints	4	January	Demonstration
	hip joints	4	January	Demonstration
	Knee and ankle joints	4	January	Demonstration
	Joints foot	2	January	Demonstration
3.	Demonstration of active movement	4	January	Demonstration
4.	Resisted exercise- all joints	4	January	Demonstration
5.	Normal and abnormal postures	2	January	Demonstration
6.	Fundamental positions	5	January	Demonstration
7.	Breathing Exercise	8	January	Demonstration
8	Demonstration and description of equipments like			
	Weight and pulley	2	February	Demonstration
	Declorm boot	2	February	Demonstration
	Spring	2	February	Demonstration
	Dumbbells	2	February	Demonstration
	Sand bag	2	February	Demonstration
	Static cycle	2	February	Demonstration

Sl. No	Name of the topics	Hours	Month	Activity
	Electrically operated machine Suspension therapy Shoulder wheel Quadriceps table Wheel Chair Tilt table Trolley	2 2 2 2 2 2 2	February February February February February February February	Demonstration Demonstration Demonstration Demonstration Demonstration Demonstration Demonstration
	UNIT PLAN - PRACTICAL UNIT 8- ELECTRO THERAPY			
1.	Identification of compound of electric equipment	2	February	Identification demonstration
2.	Procedure of handling and cleaning of equipments	2	February	Demonstration
3.	Training of handling minor repair of light and Power plugs	2	February	Demonstration
4.	Safety and precautionary measures of burns	2	February	Demonstration
5.	Shock and giddiness	2	February	Demonstration
6.	Preparation of patient and equipments for electrotherapy maintenance of records	2	February	Demonstration and Identification

UNIT PLAN - PRACTICAL
UNIT 9- FIELD VISIT

Sl. No	Name of the topics	Hours	Month	Activity
1.	Visit to anatomy department of medical college Museum	10	February	Observation
2.	Visit to Home /work place of disabled	8	Feb- March	Observation
3.	Visit to dept. of Physiotherapy	8	March	Observation
4.	Visit to special school	4	March	Observation
5.	Visit to rural rehab. centre	8	March	Observation
6.	Visit to TB Hospital	8	March	Observation



EVALUATION

Evaluation helps to assess the rate of the students and to recognise to what extent each student has achieved the specified capabilities. These evaluation results are the basis on which the students, teachers, parents and society can assess the educational progress.

Written examination based on the text book alone is not of much use. An evaluation that comprehensively assesses the abilities (practical skills) envisaged in the curriculum is required. Therefore continuous evaluation (CE), Practical Evaluation (PE), Terminal Evaluation (TE) and Vocational Competency Evaluation (VCE) are required in Physiotherapy. Written examinations for evaluating knowledge and practical examination for evaluating practical abilities are required in terminal evaluation. Practical examination consists of doing certain specified activities or developing an application within a specified time. Vocational Competency Evaluation judiciously evaluates the required value addition and the consequent capacity building in the selected vocational skills.

Continuous and Comprehensive Evaluation

Most of our traditional evaluation methods are related only to the area of knowledge. There are criticisms about their comprehensiveness and usefulness precisely because of that. It is a weakness of our evaluation method that practical capabilities are not being assessed in any subject. It is to rectify this deficiency that the evaluation method is being changed to include assessment of practical capabilities, attitudes, products associated with study and so on. It is through continuous evaluation that the knowledge related fields and products are evaluated. This is possible only that way. Through this, every learning activity that takes place within an year can be subjected to continuous evaluation. Evaluation should be done not by the teachers alone. Students can evaluate themselves. Classmates can evaluate one another. These should be considered as means of improving education. Activities in class room like discussion quiz, seminar, worksheet, preparation, symposium, debate, preparation of observation notes and preparation of subject diary should be evaluated by children also, along with the teacher. For this, evaluation rubric can be developed by the students themselves. Observe some indicators given below for this.

Discussion

- Presentation of ideas that are new, different and original (that gives clarity to the topic of discussion)
- Presenting one's own opinions in clear language.
- Waiting for one's turn and making use of it
- Listening carefully to what others say
- Speaking with mutual respect in respectable and moderate language.

Quiz

- Preparation of questions in the work book ensuring quality and comprehensiveness of the questions.
- Giving correct answers
- Obeying rules

Notes

- Comprehensiveness (inclusion of all important materials)
- Clarity (clear language, clear writing)
- Doing correctly according to instructions

Debate

- Speaking relevantly with out deviating from topic
- Presenting opinions with clarity in ideas
- Presenting logical arguments in friendly languages
- Accepting agreeable parts of opposite view points.

The items with the concerned indicators, to be considered for recording in continuous evaluation (CE) are given in a table in the coming section.

Curriculum Committee Decision on Evaluation

The terminal Evaluation of Physiotherapy is conducted by a public examination which consists of theory aspects . For Terminal Evaluation(TE) the maximum score is 80. In addition, there will be continuous evaluation (CE) for a maximum of 20 scores. The details of CE items are as follows.

Evaluation Activities for CE

The continuous evaluation may include the following activities;

1. Class Test
2. Assignment
3. Seminar/Symposium
4. Project
5. Collection/Records
6. Group discussion/Debate

CE items that has to be recorded for Physiotherapy course are;

1. Class test
2. Assignment
3. Seminar/Project

You can conduct any number of assignments and seminars/projects. But record any one of the assignments and seminars/projects for CE.

1. Class Test

The unit test or quarterly examinations are considered and the average marks obtained by the students are converted into 20 scores. Those who are absent in a list may be given a chance on his/her request, if it is found genuine.

2. Assignment

Assignment is an activity to achieve the curriculum objectives undertaken by the students, in continuation with activities carried out in the class. It is a self learning cum Evaluation activity and it should ensure that the work is completed within a stipulated time according to the teacher's direction by utilising the maximum capabilities of the students and Exploring maximum possibilities . If same topic is given to all the students, the involvement of the students in his/her work should assure using some tools like viva-voce. If different tasks are assigned, the level of task should be uniform and evaluation indicators should be specified in advance. The activity begins in the classroom with proper planning and preliminary discussion and carried out completely outside the class. The document containing the activities should be submitted in time for the completion of evaluation. The document may be shared if it is relevant and there is demand if a student delivers more than one seminar the best is taken for CE reporting . Every student should be given a chance as it reflects his/her CE score.

3. Seminar

Seminar is a very effective self learning activity which helps to go deeper into the different aspects of a particular topic in the syllabus. The information collect from various sources with the guidance of teacher are systematically organised and presented in the class so that the information is shared among the student. The students from the audience side can raise doubts and questions regarding the content and even contribute to.

The topic and subtopics are to be emerged during discussion in the class room as a need to know more about the topic. If there are sufficient content for the subtopics each of them can be assigned to each student, but they should work in a collaborative manner. A seminar paper or notes is prepared and submitted to the teacher for verification and authentication. When the seminar is presented the other students record the points in their note books and each student prepare his/her own seminar paper of the same topic. At the same time the student who presents the paper also modifies his/her paper reflect the points emerged during the discussion. All the paper are compared and evaluated to ensure the uniqueness of the efforts made by each student to acquire the information

regarding the topic.

4. Project

In the case of physiotherapy the project begins with identifying the application area and the associated problems. The elements involved in designing are recognised and procedure or steps are derived. The students explore possibilities of cooperative and collaborative learning and apply their problem solving skill .

Once the group is formed, it is intimated to the teacher and initial planning is done in consultation with the teacher. The students are constantly in touch with the teacher throughout the stages of project work . A project diary is to maintained by each group and the activities are to be recorded, which will be helpful in preparing project report.

After designing it should be verified by the teacher and preparation of project report with the specified format is begun. Each of the group member should have a copy of the report and one copy should be submitted to the teacher which will be kept in the library for reference. While setting the CE, the teacher may conduct a viva-voce to ensure the involvement of the student in this activity.

Structure of Project Report

1. Cover Page (Project title, Name of Students, Course and Duration)

2. Certificate

3. Preface/ Abstract

4. Content

 Introduction

 Aims (Objectives)

 Problem study/ Analysis

 Development Tools and Facilities used

 Source Code/ Procedure/Steps

 Outputs

 Conclusion

5. Annexure (Sample data, data sheet etc.)

3. Bibliography

CE Item	Evaluation Indicators	Weightage	Score
1. Class Test	Average marks of all tests including Mid-Term and Quarterly (minimum three) converted into 20.		20
2. Assignment	1. Awareness of the content	4/3/2/1	
	2. Comprehensiveness of the content	4/3/2/1	

	3. Systematic and sequential arrangement	4/3/2/1	
	4. Observation/suggestions/Views Judgements/ Evaluation	4/3/2/1	
	5. Timely Submission	4/3/2/1	20
3. Seminar	1. Ability to plan and organise	4/3/2/1	
	2. Skills in the collection of data	4/3/2/1	
	3. Awareness of the content (presentation of the paper, participation in discussion, ability to substantiate the ideas and views)	4/3/2/1	
	4. Ability to prepare the report		
	(sequence in the presentation the concepts, authenticity and clarity of ideas/views/concepts	4/3/2/1	
	5. Quality of Seminar Document	4/3/2/1	20
4. Project	1. Ability to plan (Selection of the method for solution of the problem, identifying suitable tools, planning the various activities to be carried out in each stage)	4/3/2/1	
	2. Ability to collect data (sufficiency and Relevance of data. Classification and arrangement of data for analysis, reliability and authenticity of the Collected data.)	4/3/2/1	
	3. Ability to analyse the elements and procedure (Structuring of elements and developing logic. Efficiency in using the package/tool. Recognising design errors and correcting them)	4/3/2/1	
	4. Ability to prepare the project report (Reflection of the process skills. Communicability and authenticity of the report in relation with the Project diary	4/3/2/1	
	5. Viva Voce (Knowledge of the content and Process)	4/3/2/1	20

CE item calculation

Subject		item: Assignment					Total Score (20)
Sl. No	Name	Evaluation Indicators					
		I (4)	II (4)	III (4)	IV (4)	V (4)	
1	Anand	2	3	4	4	4	17
2	Shibu	4	3	4	4	4	19

Total CE calculation

Sl. No	Name	CE Items			Total (60)	Total CE Out of 20
		1 Class Test (20)	2 Assignment (20)	3 Seminar/ Project (20)		
1	Anand	18	17	19	54	18
2	Shibu	20	19	18	57	19

Terminal Evaluation (TE)

Terminal Evaluation is in written form. The test should not be aimed to test the memory alone. The terminal evaluation questions give more emphasis on application level, analysis and synthesis. The questions are framed so that the students are able to apply their different mental process. The maximum score is 80 and the minimum score of TE is 24 (30%).

Subject Consolidation

Sl. No	Name	CE (20)	TE (80)	Total CE+ TE (100)	Grade

The maximum score of CE + TE is 100 and the minimum score is 30(30%)

Practical Evaluation (PE)

The scholastic area includes those area in which the learner attain knowledge and skills based on the curriculum. This leads to create more interest on certain area of a subject. Emphasis should be given to each topic for learning activity and develop skills. In the practical Examination, the external Examiner is able to evaluate the skills that are attained by learning experiences. The practical Examination question paper is always activity based.

Practical Evaluation

Common split up

The following aspects are identified for PE.

Total	-	150marks
Record	-	15%
Viva	-	10%
Experiments		
Proceedure to to practical	-	10%
Handles of equipments	-	10%
Observation, Tabulation	-	20%
Interpretation, Inference	-	10%
Resulr	-	10%
Identification	-	15%

Split up for Physiotherapy

Item score	Percentage	Score
1. Identification/Spoting	20%	30
2. Record	10%	15
3. Experiments	60%	90(45x2)
4. Viva-voce	10%	15
Total		150

Split up for Experiment- Physiotherapy

Physiotherapy	Exercisetherapy	Electrotherapy
1. Collection of materials used	5	5
2. Positioning of the patient	5	5
3. Instructions to the patient	5	5
4. Correct proceedure	15	5
5. After care of patient and articles	5	5
6. Spot viva	10	10
Total	45	45

Vocational Competency Evaluation (VCE)

Being a vocational course, a system to judiciously evaluate the required value addition and consequent capacity building in the selected vocational subject is highly essential. As the other evaluation components like CE, PE and TE cannot assess the vocational competencies and professional skills acquired by the students, an internship evaluation (IE) component has been introduced to meet this requirement.

Internship evaluation should be done based on the following components.

I. Regularity and punctuality.

A regular presence and habit of time bound completion of task is a must for attaining maximum efficiency.

II. Value addition

Value addition can be evaluated through conducting field visits/survey. The experiences gained through field visit and survey increases the level of intrinsic motivation and positive attitude towards the vocational field and there by increase his value as a skilled semi- professional.

III. Capacity building

Capacity building can be evaluated through conducting the following activities.

1. OJT/Simulated experiment
2. Performance- Camp/ Exhibition/ Clinic.
3. Performance- Production/Service cum Training centre.

These components helps the students to practice the acquired skills in the real situation and there by increasing self confidence and promoting self reliance.

I. Regularity and Punctuality can be evaluated by 5 point grading system.

Rating scale

		1	2	3	4	5
1	Regularity	Never regular	Often regular	Usually regular	Most of the time regular	Always regular
2	Punctuality	Never Punctual	Often Punctual	Usually Punctual	Most of the time Punctual	Always Punctual

Regularity and punctuality can be assessed by using attendance of the student and time bound completion of tasks.

VCE Item	Evaluation Indicators	Weightage	Score
1. Regularity and Punctuality			10
2. Value addition	<p>Field Visit</p> <p>1. Attitude and readiness towards the task. 4/3/2/1</p> <p>2. Capacity for observation. 4/3/2/1</p> <p>3. Data collection. 4/3/2/1</p> <p>4. Application of ideas. 4/3/2/1</p> <p>5. Documentation/ recording. 4/3/2/1</p> <p style="text-align: center;">OR</p> <p>Survey</p> <p>1. Planning. 4/3/2/1</p> <p>2. Data collection. 4/3/2/1</p> <p>3. Consolidation of data and analysis. 4/3/2/1</p> <p>4. Drawing inference. 4/3/2/1</p> <p>5. Reporting. 4/3/2/1</p>		20
3. Capacity building	<p>OJT/ Simulated Experiment</p> <p>1. Involvement/ Participation. 4/3/2/1</p> <p>2. Skills in doing work/ Communication skill. 4/3/2/1</p> <p>3. Time bound action. 4/3/2/1</p> <p>4. Capacity for observation, analysis and innovation. 4/3/2/1</p> <p>5. Documentation, Recording and display. 4/3/2/1</p> <p style="text-align: center;">OR</p> <p>Performance in camp/ Exhibition/ clinic</p> <p>1. Ability for planning and organising. 4/3/2/1</p> <p>2. Mastery of subject. 4/3/2/1</p> <p>3. Ability for communication. 4/3/2/1</p>		20

VCE Item	Evaluation Indicators	Weightage	Score
	4. Innovation. 5. Involvement/Social commitment. OR Performace in production/ service cum training centre (PSCTC)	4/3/2/1 4/3/2/1	
	1. Mastery of vocational skills. 2. Managerial capacity. 3. Promoting self confidence. 4. Innovative approach. 5. Promoting self - reliance.	4/3/2/1 4/3/2/1 4/3/2/1 4/3/2/1 4/3/2/1	

Vocational Competency Evaluation(VCE) Items (Internship Evaluation)

Items	Score
Regularity & Punctuality	10
Field visit/survey(any one)	20
OJT/simulated experiment Performance- Camp/exhibition/ Clinic Performance- PSCTC (any one)	20
Total	50

A minimum of 80% attendance is required for promotion to the second year. Those who have shortage of attendance should repeat first year. Those who have 80% and above attendance but failed to achieve 30% of internship evaluation (IE) will be promoted to the second year. He has to improve the component in which he performed poor. He has to attain the minimum by improving the particular component to get eligible for appearing second year public examination.

Government of Kerala

Board of Vocational Higher Secondary Examinations

Reg: No.

Thiruvananthapuram

Dated : _____

Evaluation Sheet

Sri./Smt. _____ is awarded Scores/grade as detailed below in the First Year Vocational Higher Secondary Examination held in _____

Name of School : _____ Admission No : _____

Name of Vocational Course : _____

Subject	Score Obtained					Positional Grade	Grade in words
	CE 20	TE 80	PE 150	IE 50	Total		
Part- I							
English			—	—			
General Foundation Course			—	—			
Part- II Vocational Subjects							
Vocational Theory			—	—			
Vocational Practical	—	—		—			
Vocational Competency	—	—	—				
Part- III Optional Subjects							
	20	60	20				
Physics				—			
Chemistry				—			
	20	80					
Mathematics			—	—			

CE- Continuous Evaluation, TE- Term End Evaluation, PE- Practical Evaluation, IE- Internship Evaluation.

Grades	A+ 90% and Above Outstanding	A	80- 89%	Excellent.
	B+ 70 - 79% Very Good	B	60- 69%	Good
	C+ 50 - 59% Above Average	C	40- 49%	Average
	D+ 30 - 39% Marginal	D	20- 29%	Need improvement
	E Below 20% Need improvement			

Marks Entered by _____

Marks checked by _____

Supdt/ T. O _____

SECRETARY

PART II
UNITWISE ANALYSIS



UNIT- 1

ANATOMY AND PHYSIOLOGY

Introduction

Students have some previous knowledge of the structure of cells, different types of cells and tissues. They also have the knowledge about the various systems and some diseases that affect the body system. After completing this unit students will study different branches of anatomy, methods of study of anatomy and anatomical terminology, structure and function of different types of tissues

Curriculum Objectives

- To understand the definition and branches of anatomy
- To understand the parts of human body and different systems
- To understand the different body movements and definition, anatomical positions, different planes and movements
- To understand the organisation of body and its structure and function
- To understand about tissue and various types of tissue

Syllabus

Macroscopic and microscopic anatomy, regional Anatomy, systemic anatomy, parts of human body, different systems of human body, anatomical position, anatomical terms, planes, and movements, cell definition structure, function and time. Tissue definition and types.

Suggested Activity- Demonstration, Discussion, diagram drawing, Assignment

Demonstration

Demonstration of anatomical structure by using specimen (macroscopic anatomy), microscopic structure by using slides with the help of microscope.

Demonstration of chart and OHP to study of anatomical position

Diagram Drawing

Ask the students to draw labelled diagram of cell, different types of tissue on separate papers or note book.

Discussion

Divide the students into 5 groups and enable them to discuss the microscopic and regional and systemic anatomy. Parts of human body and different systems of body, anatomical positions, anatomical terms, planes and movements. Every day one or two topics will be discussed. At the end of the discussion the group leader will present the main points. Consolidate the points of all the groups by one of the students.

Discussion Point

Differences between macroscopic and microscopic anatomy, Difference between regional and systemic anatomy, anatomical position planes and movements of body parts.

Assignment

Ask the students to collect the picture and draw the diagrams of tissues from various sources and make an assignment.

Consolidation

- Anatomy is the study of structure of body through dissection
- Anatomical position and terms
- Cell is the basic unit of life
- Tissue is the groups of cells which is specialised to performs a single function
- The types of tissues are
 1. Epithelial tissue
Simple Epithelial Tissue and Compound epithelial tissue
 2. Connective tissue
 3. Muscular tissue
 4. Nervous tissue

LOCOMOTOR SYSTEM

Introduction

Students may have previous knowledge about the names of bones, total number of bones in the body and some diseases affecting bones. After completing this Unit they can identify each bone, describe the parts of each bone and different types of bones. They can also explain the structure and types of joints movements and muscles responsible for the movements. They can also name each muscle, its nerve supply and action of different muscle groups.

Curriculum Objectives

- To understand the definition of osteology and its divisions, important features of axial skeleton and appendicular skeleton
- To understand the concept of joint and their classification and different joints of upper limb and lower limb
- To describe the anatomy of skeletal muscles, names of important muscles, basic ideas of muscle contraction and the terms such as muscle power, muscle tone, spasticity and rigidity.

Syllabus

- Axial skeleton Appendicular skeleton, classification of bone.
- Important features of axial skeleton
- Joints concept and classification, types, articular surface and movements of major joints of upper limb and lower limb.
- Skeletal muscle-concept and structure, name of important muscles of shoulder region, arm, forearm, hand, gluteal region, thigh leg and foot.
- Muscle contraction- isometric and isotonic, power, tone, spasticity and rigidity.
- Muscles and their action on joints.

Suggested Activity- Demonstration, Discussion , diagram drawing ,

Demonstration

Demonstration of each bone of appendicular and axial skeleton .Diagrams of cell , different types of tissues in separate paper or note book.

Discussion

Divide the students into four or five groups and asks them to discuss the bones of appendicular skeleton and axial skeleton the parts of the bone, side determination etc. For this discussion students can have previous reference. At the end of the discussion, the leader of each group can present the core points of the discussion . Finally one of the students can consolidate the points of different groups.

The teacher can give the same group the topic from joints muscle, muscle contraction. Students can discuss and present the discussed points.

Point of Discussion

- Osteology, its definition and discussion
- Types of bones, long, flat, irregular sesumoid, General features of skull, vertebrae, sternum and ribs
- Bones of upper limb. Lower limb including their parts, important features side determination, types etc.
- Joints, definition, types of joint
- Various types of joint in upperlomb lower limb

- Muscles around the joints their action producing movement in joint and their nerve supply.
- Muscles of upper limb and lower limb
- Muscle contraction, power, tone, rigidity and spasticity.

Diagram drawing

Ask the students to draw the diagram of the demonstrated bone on the next day in separate sheet. After the chapter sheet is binded and make a recorded. Also ask to draw the muscle structure belly and tendon and the joint structure like shoulder joint, elbow joint, hip and knee joint.

Consolidation

- Study of bone is called osteology
- There are different types of bone , long bone, short bone, and irregular bone, long bone has upper end, lower and shaft.
- Joints are the articulation between two or more bones
- There are immovable, partially movable and completely movable joint fibrous cartilaginous and synovial joints
- Names of the major upper and lower limb muscles and their action on joints.
- Two types of muscle contraction
- Isometric and isotonic

CIRCULATORY SYSTEM

Introduction

Students may have the basic knowledge about blood from the previous classes. They may have the knowledge of the chambers of the heart, regarding the major blood vessels, components of blood and function of the blood. By studying this chapter the students will be acquire the knowledge of structure of heart, blood supply and nerve supply of the heart blood vessel attached to the heart, functions of heart-cardiac cycle pulmonary systemic, coronary and portal circulation and the detailed knowledge of the component, of blood and their function, blood pressure, blood coagulation, blood grouping etc:-

Curriculum Objectives

- To understand the anatomy of circulating system
- To understand the physiology of cardiovascular system
- To study the different types of circulation the cardiac output, heart, heart beat, pulse blood pressure and ECG.
- To study the components of blood and lymph and its function

Syllabus

Anatomy

- Definition of cardio vascular system and lymphatic system
- Structure of heart, blood vessels and nerve supply of heart, blood vessels- arteries, veins capillaries.

Physiology

- Functions of heart
- Cardiac cycle
- Circulation
- Blood- composition and general functions
- Lymph- composition and functions

Suggested Activity- Demonstration, Discussion , Assignment, Seminar, Collections ,

Demonstration

Demonstration of the specimen of heart its chambers, blood vessels, attached to the heart also demonstrate the charts of heart showing the structure of heart. Components of blood and their picture of blood cell.

Discussion

Divide the students into five groups and ask them to discuss about the cardio vascular system, functions of heart, pulmonary and systemic circulation and components of blood and lymph and their functions etc. Each topic will be discussed in each day . At the end of each discussion the group leader can present the core points. One of the student can consolidate the points of all groups, the topic of discussion can be given the previous day of discussion so that the students can have reference.

Assignment

After the discussion regarding cardio vascular system, ask the students to draw the diagram of heart, blood vessels attached to the heart and brief description of each in the next class.

- Ask the students to write an assignment on cardiac cycle
- After the discussion regarding the components of blood ask the students to write an assignment on components of blood and their functions.

Seminar

Divide the students to four groups and give different types of blood circulation to each group. The group members can collect relevant information regarding the topic and they can present in the class .

Collection

Ask the students to collect relevant information of blood components and various blood disorders from newspaper magazines website etc. and stick this collection on scrap book.

Consolidation

- Concept of Cardiovascular system and function
- Structure of heart
- Major blood vessel
- Nerve supply of heart
- Pulmonary circulation
- Systemic circulation
- Portal and coronary circulation
- Cardiac cycle
- Pulse, blood pressure , ECG
- Components of blood
- Composition and functions of lymph.

RESPIRATORY SYSTEM

Introduction

Students have a superficial idea about the structure and function of respiratory system. After studying this unit they will acquire the knowledge of anatomy of respiratory system, Mechanism of respiration, stages and types of respiration (Internal and external) and concept about lung volumes and capacities.

Curriculum Objectives

- To study the anatomy of respiratory system. To understand physiology of respiration to understand types of respiration and stages of respiration
- To understand the effect of exercise on cardiovascular and respiratory system.

Syllabus

- Definition and gross anatomy
- Division of respiratory tract

Upper

Lower

- Pleura lungs and lobes
- Respiration definition and mechanism
- Inspiration, expiration
- Pulmonary ventilation
- Intra pulmonary gas exchange
- Diffusion
- Perfusion

- External and internal respiration
- Tidal volume
- Vital capacity
- Control of respiration
- Brief description of effort of exercise on cardiovascular and respiratory system.

Suggested Activity- Diagram Drawing, Demonstration, Discussion , Assignment, Collections ,

Diagram Drawing

Briefly explain the anatomy of respiratory tract as an introductory lecture. Ask the students to refer the book and draw the diagram of the respiratory tract.

Discussion

Divide the students into four or five groups ask the group members to discuss about the anatomy respiratory system, Definition of respiration, mechanism of respiration. Stages of respiration types , volume and capacities of respiration and effects of respiration. Every day one or two topics can be discuss. The topic can be given in advance to the students so that students can come after preparation. At the end of discussion the group leader can present the core points. The points of all the group can be consolidate by one of the student.

Point of discussion

- What is respiratory system?
- What are the parts of respiratory tracts?
- Structure of lung and lobes
- What is respiration?
- Mechanism of respiration
- Types of respiration
- Stages of respiration
- Volume and capacities of lungs
- Effects of exercise on respiration

Collection

Instruct the students to collect the relevant information regarding respiratory system from reference book health magazine etc. The collected information can be changed into scrape book by pasting the paper cutting on a note book. Students can present there collection in the class room.

Assignment

Divide the students into three groups . Three separate topics are given for each group.

- Group I : Mechanism of Respiration and capacities
- Group II : Types of respirations and volumes
- Group III : Effect of exercise on cardio vascular and respiratory system

Demonstration

Demonstration of the specimen of lungs and respiratory tract in the lab. Also demonstrate the charts of respiratory system. By using one model it is possible to demonstrate the mechanism of respiration and types of respiration.

Consolidation

- Definition and gross anatomy
- Upper and lower respiratory tract
- Lungs lobes and pleura
- Respiration is the process by which oxygen from the lung is carried by blood to the tissue and CO_2 from the tissue is carried by the blood to the lungs and expired out.
- Inspiration is the process by which air is taken into the lungs and expiration is the process by which air is expelled out of the lung.
- Stages of respiration are
 - Pulmonary ventilation
 - Intrapulmonary gas exchange
 - Diffusion
 - Perfusion
- Types :- External and Internal respiration
- Volumes and Capacities of lungs
- Effects of exercise on cardiovascular and respiratory system.

NERVOUS SYSTEM

Introduction

Students will have a previous knowledge of different parts of nervous system brain and spinal cord and their function.. They also will have the ideas about peripheral nerves, structure of eye and ear, CSF, Reflex arc; sympathetic and parasympathetic system. After studying this chapter the students can acquire the knowledge of broad classification of nervous system.

Anatomy of central nervous system including parts, position, of brain, spinal cord, peripheral nerves, structure of eye and ear. Students will also have the knowledge of the functions of the parts of brain, sensory and motor pathway, reflex action sympathetic and parasympathetic system, physiology of vision and hearing.

Curriculum Objectives

- To understand the definition and classification of nervous system
- To understand the anatomy of central nervous system
- To understand the peripheral nervous system and special sense
- To understand the physiology of nervous system
- To understand the function of cerebrum
- To understand the sensory pathway and motor pathway
- To study about UMN and LMN Lesion
- To understand about the autonomic nervous system.
- To understand the physiology of special senses.

Syllabus

- Definition and classification - Anatomical and physiological
 - a. Central nervous system
 - Meaning
 - Position, structure, and different parts of brain,
Fore brain- cerebrum- Diencephalon, midbrain,
Hind brain- Cerebellum, Pons, Medulla oblongata.
Spinal cord- Structure
 - Peripheral Nervous system
 - Cranial nerves- Names and major function
 - Spinal nerves- Dorsal root and ventral root
 - Brief structure of eye and ear, Skin, Tongue and Nose
 - Physiology
 - CSF and its function
 - Definitions of stimuli and response
 - Brief idea of functions of cerebrum
 - Different lobes
 - Cerebellar functions
 - Basal ganglia
 - Sensory pathway
 - Motor pathway- UMN Lesion, LMN Lesion
 - Reflex arc

Sympathetic and parasympathetic system

Physiology of vision and hearing, Touch, Taste and Smell

Suggested Activity- Diagram Drawing, Brain Storming, Discussion , Assignment, Collections ,

Discussion

Divide the students into four or five groups and ask the students to discuss about anatomical and physiological classification of nervous system, coverings of brain, structure of brain spinalcord peripheral nerves, Structure of eye and ear. CSF and its function, cerebrum, sensory pathway,motor pathway . Refles arc, sympethetic and parasympethetic system. Each topic can be discussed in separate section. At the end of each discussion the group leader can present the core point. Consolidate the points of all the group by one of the student.

Point of Discussion

- Anatomical physiological classification of nervous system
- Central nervous system
- meninges
- Position, structure and different parts of brain
- Structure of spinal cord
- Peripharal nervous system
- Structure of eye and ear
- CSF and its function
- Functions of each parts of brain
- Sensory and motor pathway.
- Refles arc
- Sympathetic and parasympathetic system.

Assignment

- After the discussion ask the students to make an assignment regarding the anatomical and physiological classification of nervous system.
- Ask the students to collect information regarding central nervous system then to make an assignment on central nervous system.
- After the discussion ask the students to make an assignment on functions of nervous system.

Collection

Ask the students to collect the relevant information regarding nervous system.

Brain Storming

Ask the students how can we classify nervous system. All the students are encouraged to answer the question in their own way. Write all the

answers of the students on the black board. Analysis each answer at the end the students will reach at a conclusion . After this show the chart showing the correct classification of the nervous system.

Diagram Drawing

After the discussion ask the students to draw the diagrams of brain sensory and motor pathway .

Dissection

Collect the specimen of eye of animals and do the dissection in the lab.

Consolidation

- Concept of nervous system
- Classification of nervous system
- Concept of central nervous system
- Concept of meninges
- Parts of brain
- Structure of eye and ear
- Concept of CSF and functions
- Concept of stimuli and response
- Functions of cerebrum, cerebellum, basal ganglia
- Sensory and motor pathway - UMN and LMN lesion.
- Parts of reflex arc
- Difference between sympathetic and parasympathetic nervous system
- Concept of vision and hearing.

DIGESTIVE SYSTEM

Introduction

Students may have the idea about the parts of digestive system, mouth, Pharynx, esophagus, stomach small and large intestine, liver and gall bladder. But all this idea will be very brief and superficial . After completing this chapter they will get a detailed idea about the anatomy and physiology of digestive system.

Curriculum Objectives

- To understand about the anatomy of digestive system,
- To describe the about the anatomy of abdominal organs
- To understand the physiology of digestive system

Syllabus

- A brief description of organs
 - Mouth and pharynx
 - Salivary glands
 - Oesophagus, stomach- different parts
 - Intestine- different parts
 - Liver and gall bladder
 - Spleen and pancreas
- Physiology
 - Mastication
 - Deglutition
 - Functions of stomach, digestion of food, absorption and defecation

Suggested Activity- Diagram Drawing, Discussion , Assignment, Collections ,

Diagram Drawing

Ask the students to draw neat labelled diagram of Alimentary tract in a separate sheet.

Discussion

Divide the students into four or five groups and ask the students to discuss about the parts of digestive system mastication deglutition digestion, absorption and defaecation of food, liver and gall bladder, pancreas at the end the group teacher will present the core of the points is being discussed. The student can consolidate all the points of different group.

Assignment

Divide the students into two groups give separate topics to each group to write assignment

1. Anatomy of digestive system
2. Physiology of digestive system

Collection

Ask the students to relevant information regarding anatomy-physiology of digestive system and disorders of digestive system.

Consolidation

- Structure of mouth and pharynx
- Concept of salivary glands
- Functions of oesophagus - stomach- different parts of intestine

- Parts of functions of liver, gall, bladder, spleen, pancreas and intestine
- Concept of mastication
- Concept of digestion
- Functions of stomach - Digestion, absorption, defaecation

ENDOCRINE GLANDS

Introduction

Students will have the previous knowledge about important endocrine glands and exocrine glands. They also have some ideas about the important endocrine disorders like gigantism, diabetes etc.

By studying this chapter students will acquire the knowledge about
Concept of Hormone

Name of endocrine glands and their function and important endocrine disorders.

Curriculum Objectives

- To understand different endocrine glands and the term hormone
- To understand important hormones, and important hormonal disorders.

Syllabus

- Definition
- Major hormones
- Mention endocrine disorders

Suggested Activity- Discussion, Assignment, Collections,

Discussion

Divide the students into three groups and give each topic.

Endocrine glands

Important Hormones

Important Hormonal disorder

At the end of discussion the group leader will present the core points. One of the student will consolidate the points of all group.

Collection

Ask the students to collect related materials from news papers, magazines etc.

Assignment

After the discussion about endocrine glands, hormones and disorders give assignment about them.

Consolidation

- Concept of hormones and Endocrine glands
- Names of gland and major hormones
- Important endocrine disorder

GENITO-URINARY SYSTEM

Introduction

The students will have a previous knowledge of primary sex organs, name of sex hormone and basic function, and also have the knowledge about the structure and function of urinary system. On completing this chapter students will get an overall idea of primary and accessory sex organ of male and female and secondary sexual character. Ovary, ovulation functions of ovarian hormone and menstruation function of testis sperm and testosterone.

Curriculum Objectives

- To understand the structure and function of urinary system
- To understand about the reproductive system
- To understand about the primary and secondary sexual characters
- To understand about function of male reproductive organ
- To understand about function of female reproductive system

Syllabus

- Name and brief structure of primary and secondary sex organs of male and female
- Name the secondary sexual characters in male and female
- Function of ovary, ovulation, action of ovarian hormones, and menstruation
- Function of testis sperm, testosterone structure and functions of kidney and urinary system.

Suggested Activity- Group discussion, Assignment

Discussion

Divide the students into four or more groups and each group is given the topics to discuss

Point of Discussion

- Functions of urinary system

- Primary and secondary sex organ
- Primary and secondary sexual character
- Function female sex organ ovulation and menstruation
- Function of testis sperm and testosterone

Assignment

After the discussion students will write an assignment about the primary and secondary sex organ and sexual characters. List out the secondary sexual characters of male and female.

Consolidation

- Male and female sex organ
- Primary and secondary sex characters
- Testis, sperm and testosterone
- Ovary ovulation and menstruation
- Glomerular filtration, Tubular reabsorption and secretion micturition



**UNIT ANALYSIS-
DAILY PLANNING**
Unit 1 - ANATOMY AND PHYSIOLOGY

Objectives	Content	Activity	Material required	Evaluation	Time
<ul style="list-style-type: none"> To understand the definition and branches of anatomy 	Macroscopic anatomy Microscopic anatomy Regional anatomy Systematic anatomy	Demonstration Discussion Diagram Drawing	Specimen chart Slide Reference Book	Record Participation Questioning Class Test	1hour
<ul style="list-style-type: none"> To understand the parts of human body and different systems 	Parts of human body Different systems of human body	Demonstration Diagrams Charts preparation	Specimen charts Slide Reference Book	Records Perfection Questioning Class Test	1hour
<ul style="list-style-type: none"> To understand the different body movements and definition, anatomical position, different planes and movement. 	Anatomical positions Anatomical terms Planes and movements	Demonstration Discussion Brain Storming	Specimen chart	Questioning Class Test	1hour
<ul style="list-style-type: none"> To understand the organisation of body and its structure and function 	Cell definition Structure Function,	Demonstration Record, Diagram Drawing	Microscope, Slide Chart, Specimen Reference book	Records Perfection Questioning, Class Test	1hour
<ul style="list-style-type: none"> To understand about tissue and various types of tissue 	Tissue definition & type Epithelial tissue Connective tissue Nervous tissue	Demonstration Diagram, Drawing Assignment	Charts Micro Scope Reference book	Records Questioning Class Test Assignment	1hour

Objectives	Content	Activity	Material required	Evaluation	Time
2 • To understand the definition and division of osteology	Axial Skelton Appendicular skelton Classifications of bones	Demonstration Discussion Diagrams and Drawing	Specimen, chart OHP Reference Book	Record Participation Questioning Class Test	1 hour
• To understand the important features of axial skelton and appendicular skelton	Skull, Vertebra Sternum, ribs Bones of upper limb and lower limb	Demonstration Discussion Diagram drawing	Specimen, Charts OHP Reference Book	Records Participation Questioning Class Test	1 hour
• To understand the definition and classifications of upper limb joints and its type according to movement and structure	Shoulder joint Elbow joint Wrist joint	Demonstration Discussion Diagram drawing	Specimen, charts OHP Reference Book LCD	Records Participation Questioning Class Test	1 hour
• To understand the definition and classifications of lower limb joints and its type according to movement and structure.	HP Joint Knee Joint Ankle joint	Demonstration Discussion Diagram drawing	Specimen, charts OHP Reference book	Records Participation Questioning Class Test	1 hour
• To understand the anatomy of skeletal muscle.	Definition of skeletal muscle Structure, Belly Tendon, Origin Insertion	Demonstration Discussion Diagram drawing	Specimen, slides Charts Reference book	Records Questioning Class Test Assignment	1 hour

Objectives	Content	Activity	Material required	Evaluation	Time
2 • To understand the important muscles of upper limb	Muscles of shoulder Arm Forearm Hand	Demonstration Discussion	Charts Reference Book	Questioning Class Test	1 hour
• To understand the important muscles of lower limb	Muscles of gluteal region Thigh leg, Foot	Demonstration Discussion	Charts Reference Book	Questioning Class Test	1 hour
• To understand the muscle contraction. Power, tone, spasticity and rigidity	Isometric contraction Isotomic contraction Muscle power tone, spasticity and rigidity	Demonstration Discussion	Reference Book Model Knee hammer	Questioning Class Test	1 hour

Objectives	Content	Activity	Material required	Evaluation	Time
<p>3</p> <ul style="list-style-type: none"> To understand the anatomy of circulatory system. 	<p>Definition of cardio vascular system Lymphatic system Blood supply of heart Blood vessel veins and capillaries</p>	<p>Demonstration Discussion Assignment</p>	<p>Specimen Charts Reference Book LCD</p>	<p>Questioning Class Test Identification</p>	<p>1 hour</p>
<ul style="list-style-type: none"> To understand the Physiology of cardio vascular system 	<p>Function of hear Cardiac cycle</p>	<p>Discussion Assignment</p>	<p>Specimen chart</p>	<p>Assignment Participation</p>	<p>1 hour</p>
<ul style="list-style-type: none"> To study the different types of circulation cardiac out put heart beat, pulse blood pressure and ECG. 	<p>Pulmonary systemic portal and coronary circulation</p>	<p>Discussion Seminar</p>	<p>Specimen chart B P apparatus ECG</p>	<p>Presentation Participation Questioning Class Test</p>	<p>1 hour</p>
<ul style="list-style-type: none"> To study the Components of blood and lymph and its function 	<p>Cellular components and plasma of blood Function of blood composition and function of lymph</p>	<p>Assignment Discussion Collections</p>	<p>Reference book Micro scope Slide ESR tube</p>	<p>Participation Assignment Relevance of collection Questioning Class Test</p>	<p>1 hour</p>

UNIT ANALYSIS -
DAILY PLANNING

Objectives	Content	Activity	Material required	Evaluation	Time
<p>4</p> <ul style="list-style-type: none"> To study the anatomy of respiratory system 	<p>Definition and Gross anatomy Respiratory tract pleura, lungs and lobes</p>	<p>Diagram drawing Identification Discussion Collection</p>	<p>Specimen Charts Reference Book</p>	<p>Diagram Participation Class test Questioning Relevance of collection</p>	<p>1 hour</p>
<ul style="list-style-type: none"> To understand the physiology of respiratory system 	<p>Definition of respiration Mechanism of respiration intra pulmonary gas exchange and pulmonary ventilation</p>	<p>Discussion Assignment Demonstration</p>	<p>Model Reference book Chart</p>	<p>Assignment Participation Class test Questioning</p>	<p>1 hour</p>
<ul style="list-style-type: none"> To understand the types of respiration diffusion, perfusion volume and capacity of lungs 	<p>External and internal respiration diffusion and perfusion. Control of respiration tidal volume and vital capacity</p>	<p>Discussion Demonstration Assignment</p>	<p>Specimen chart LCD Reference book Chart</p>	<p>Assignment Participation Class test Questioning</p>	<p>1 hour</p>
<ul style="list-style-type: none"> To understand the effect of exercise on cardiovascular and respiratory system 	<p>Effect of exercise on cardio vascular system</p>	<p>Discussion Assignment</p>	<p>Reference book Static cycle Treadmill</p>	<p>Participation Assignment</p>	<p>1 hour</p>

Objectives	Content	Activity	Material required	Evaluation	Time
5 • To understand the effect of exercise on cardiovascular and respiratory system	Anatomical and physiological classification	Lecture cum discussion Assignment Brain storming	Chart Reference book Specimen	Participation Assignment	1 hour
• To understand the anatomy of central nervous system	Meninges structure of brain Spinal cord	Lecture cum discussion Assignment Collections of data	Chart Specimen Reference book	Participation Assignment Relevance of collection	1 hour
• To understand the peripheral nervous system and special senses	Cranial Nerves Spinal nerves Autonomic nervous Eye and Ear	discussion Assignment Brain storming	Specimen Reference Book LCD OHP Charts	Participation Assignment Questioning	1 hour
• To understand the physiology of nervous system	CSF and its function Stimuli and responses	Discussion Assignment	Specimen Reference Book	Participation Assignment Class Test Questioning	1 hour
• To understand the functions of cerebrum	Different lobes Cerebellar function Basal ganglia	Diagram, Drawing Collections Discussion	Specimen Chart Reference Book	Participation Relevance of Collection	1 hour
• To understand the sensory pathway motor pathway	Sensory pathway Motor pathway	Diagramdrawing Discussion	Chart Reference Book	Participation Diagram	1 hour

Objectives	Content	Activity	Material required	Evaluation	Time
5 <ul style="list-style-type: none"> To Study about the UMN and LMN lesion 	LMN and UMN lesion	Group discussion Assignment	Reference Book LCD	Participation Assignment	1 hour
<ul style="list-style-type: none"> To understand about the Anatomy of nervous system 	Sympathetic and parasympathetic nervous system	Discussion	Reference book	Participation	1 hour
<ul style="list-style-type: none"> Physiology of special sense 	Vision and Hearing	Discussion Group discussion Assignment	S p e c i m e n Reference Book	Participation Assignment Perfection	1 hour
6 <ul style="list-style-type: none"> To understand about the Anatomy of digestive system 	Mouth and pharynx Salivary gland Oesophagus stomach Intestine parts	Diagram Drawing Discussion, Assignment Collections	S p e c i m e n Reference Book	Participation Assignment Class Test Questioning	1 hour
<ul style="list-style-type: none"> To understand about the abdominal organ anatomy 	Liver and gall bladder Spleen and pancreas	Diagram, Drawing Collections Discussion	Specimen Chart Reference Book	Participation Revelence of Collection	1 hour
<ul style="list-style-type: none"> To study about the physiology of digestive system. 	Mastication, Digestion Stomach function Digestion of food Absorption and defecation	Discussion Assignment Lecture cum discus sion, Collections	Charts Reference Book LCD OHP	Participation Assignment	1 hour

Objectives	Content	Activity	Material required	Evaluation	Time
6 • To Study about the Endocrine gland	Definition Name of endocrine gland	Discussion Collections Assignment	Charts Reference book LCD, OHP	Relevance of collections Assignments Participation	1 hour
• To study about the secretions of endocrine gland	Hormones Endocrine disorder	Discussion Collections	Reference book	Participation Collections Class test	1 hour
• To understand about the reproductive system	Primary and Secondary sex organs of male and female	Diagram drawing Discussion Collections	Text book Charts LCD	Discussion Participation Collections	1 hour
• To understand about the Secondary sexual characters in male and females	Secondary sexual characters in male and female	Discussion Collections	Chart Reference book	Participation Collections	1 hour
• Functions of reproductive organ of female	Ovary Ovulation Menstruation	Group Discussion Collections	Reference book	Participation Collections	1 hour
• Functions of male reproductive organ	Testis Sperm Testosterone	Group Discussion Collections	Reference book	Participation Collections	1 hour

UNIT- 2

BASIC PATHOLOGY

Introduction

Students will have a previous knowledge about the cells tissue and a general idea about different systems of body and different types of diseases mainly infective diseases. They will also have the concepts about immunity different types of immunity and blood coagulation.

On completing this unit students will get the concept of diseases and underlying Pathology of different diseases. They will also acquire the normal Homoeostasis and cellular adaptations in response to injury and diseases and also will get the basic idea of common Haemodynamic disorders.

Curriculum Objectives

- To understand the definition of disease and underlying pathology of different diseases
- To understand normal homoeostasis cellular adaptations and response to injury and diseases.
- To understand common hemodynamic disorders its definition causes, consequences and prevention.

Syllabus

- Definition and branches
- Definition of normal cell, normal homeostasis cellular adaptation
Reversible and irreversible cell injury and death
Necrosis and apoptosis
- Infarction and Gangrene
- Causes of cell injury
- Inflammation, Definition and type
- Repair by connective tissue
- Wound healing primary and secondary
- Disease. Definition and classification with examples

- Edema Definition and types
Introduction to osteomalacia and rickets.
- Immunity: Definition and pathological type Natural Immunity, Artificial immunity , Active and passive immunity
- Anemia definition and classifications
- Hemostasis, definition and major steps
- Thrombosis, definition and thrombogenesis and fate of thrombus.
- Embolism. Definition and types
- Haemorrhage, Definition, Types
- Shock, Definition, types and stages.

Basic Pathology Concept and branches

Suggested Activity- Introductory talk and brain storming

Introductory talk

Introductory talk should include the concepts and fundamentals of the basic pathology

Brain Storming

After acquiring the concept and fundamental of basic pathology the learner should say about the different branches by using brain storming activity.

Definition of Normal cell, Normal hemostasis , Cellular adaptation

Suggested Activity- Discussion, Assignment, Analysis of chart

Discussion using chart

Elicit students previous knowledge about normal cell, normal homeostasis

Points of discussion

Cellular adaptation- Atrophy, hypertrophy

Hyperplasia and metaplasia

Assignment

Reversible and irreversible cell injury and death

Necrosis and apoptosis

Infection gangrene

Consolidation

- Normal cell and its functions
- Different adaptations of cells under stress.

- When the cellular adaptation fails if it will go for cell injury reversible or irreversible
- Irreversible cell injury causes cell death neurosis, apoptosis, infarction and gangrene

Causes of Cell injury

Suggested Activity- Group Discussion

Group discussion

Students have learned that when the cells go beyond adaptation it caused cell injury and that can be reversible or irreversible . Then the students will discuss about various agents which causes cell injury and the mechanism.

Points discussion

- Hypoxia
- Physical agent
- Infections agent
- Immunologic reaction
- Nutritional imbalances
- Genetic rearrangement and aging

Consolidation

- Concepts of cell injury
- Various agents causing cell injury
- Mechanisms of cell injury

Inflammation : Definition and types, and repair by connective tissue

Suggested Activity- Introductory talk and group discussion, Assignment

Introductory talk and group discussion

Students have learned cell injury due to different pathological stimuli then a brief idea of the method of response against such pathological stimuli either acute or chronic

Points discussion

- Acute inflammation
- Concepts , signs and major events cellular and vascular events

Chronic inflammation and the types

Assignment

Assignment on differences between chronic and acute inflammation

Repair by connective tissue.

Wound healing

Suggested Activity- Introductory talk and Brain storming, Assignment

Introductory talk and Brain Storming

Give a brief idea of tissue repair and phased and types wound healing ask the questions about the healing by

Ist intention

IInd intention

Fibrosih

Assignment

Difference between primary wound healing and secondary wound healing.

Consolidation

Process of wound healing

Different steps

Importants

Disease

Suggested Activity- Discussion, Brain Storming

Discussion points

Give a brief idea about the concept of disease and ask the questions about the types of disease. Collect the points of discussion and form the relevant definition brain storming.

After acquiring the concept and the major type form the list of diseases that affect the individual in each type (acquired congenital) by brain storming.

Consolidation

1. Concept of disease
2. Major classification

3. List of diseases under each class

Edema

Suggested Activity- Discussion, Brain storming

Fresh up the previous ideas about the edema, then ask the learners about the concept of edema causes and of edema. Allow the learners to discuss about the causes groupwise. Collect the relevant discussion points and list out the major causes and classify the edema by using brain storming.

Consolidation

Concept of edema

Major causes

Classification of edema

Nutritional deficiency diseases

Suggested Activity- Discussion, Brain Storming Collection

Brain Storming and discussion

Fresh up the previous knowledge about the nutritional deficiency diseases. List out the major deficiency diseases by using brain storming . Then allow the learners to discuss about the causes of deficiency disease.

Collection

Collect the data, picture and studies about the osteomalacia and rickets form various sources like reference book magazines and daily.

Consolidation

Concept of nutritional deficiency

Causes of nutritional deficiency diseases

Osteomalacia and rickets

Immunity

Suggested Activity- Discussion, Brain Storming Collections, Assignment

Discussion

Before starting the discussion fresh up the previous knowledge about the immunity and form the relevant concept about the immunity by using brain storming. Then give the discussion points.

Ask the learners to discuss about the pathological types of immunity.

Higher sensitivity auto-immunity , cogential and acquired immunity.Natural artificial active and passive immunity.

Collections

Ask the learners to collect the informations about the immunization and immune disorders from Reference book magazines and daily and prevent if with the collected data in classroom.

Assignment

Ask the learners to write about the various types and process of immunity with relevant information that collected from reference book and from other sources.

Consolidation

- Concept of immunity
- Types of immunity
- Concept of immune deficient disease

Anemia

Suggested Activity- Discussion, Brain Storming Collection

Brain Storming and discussion

Fresh up the previous knowledge and ask the learners to discuss about the classifications of immunity.

Collect the relevent informations from the various sources like magazines and daily

Assignment

Instruct the learner to submit the assigned about the definition and classifications of Anemia according to the given format.

Consolidation

- Concept of anemia
- Classification of anemia

Hemostasis

Suggested Activity- Discussion, Assignment

Discussion

Discussion about the concept of hemostasis and major steps of hemostasos . After giving the introductory talk.

Assignment

Instruct the learner to submit the assignment about the hemostasis with the help of reference book the assignment should be in the form of given strategy.

Consolidation

Concept of hemostatin
Vasoconstruction
Platelet plugg formation
Blood Cougulation

Thrombosis

Suggested Activity- Group discussion , collections

Groupdiscussion

Discussion about the stages of thrombogenesis after giving the concept about the thrombus and thrombogenesis.

Collections

Collect the data about the thrombogenesis from the Reference book and other sources like magazine and daily and discuss about the collection in the class room.

Consolidation

Concept of thrombus and thrombosis
Various caused of thrombogenesis

Embolism

Suggested activity - Brain storming, Discussion, Assignment

Brain Storming

Discuss about the concept and process of emblosim , and the after effect of embolism after giving the introduction.

Assignment

As the given strategy

Consolidation

Concept of embolism

Various types of embolism

Hemorrhage

Suggested activity : Brain storming, discussion, collection

Brain Storming and discussion

Fresh upto the previous knowledge and give the introduction. Instruct the learners to discuss about the types of Haemorrhage.

Collection

Collection from the reference book magazines and daily the

Consolidation

Concept of haemorrhage

Types of haemorrhage

Hematoma

Haemarthrosis

Patechiue

Purpura etc.

Shock

Suggested activity : Discussion, collection, Assignment

Discussion

Discuss about the concept and types of shock and stages after giving the introduction and describe about the points of discussion is needed.

Collection

Collected the relevent data from various sources like reference book discuss about the collected data.

Assignment

Topic of assignment

Types and stages of shock

Consolidation

Concept of shock

Type

Stages of shock

**BASIC PATHOLOGY
DAILY PLAN**

Objectives	Content	Activity	Material required	Evaluation	Time
<ul style="list-style-type: none"> To understand the introduction of basic pathology and to study about the normal cell functioning 	Definition and branches Homeostasis Cellular adaptation	Discussion Collections Assignment	Reference book	Relevance of collections Assignments Participation	1 hour
<ul style="list-style-type: none"> To understand about the cellular adaptation 	Atrophy Hypertrophy Hyperplasia Metaplasia	Discussion Collections Assignment Brain storming	Reference book Black Board	Participation Collections Assignment	1 hour
<ul style="list-style-type: none"> To understand about the cell injury 	Reversible cell injury Irreversible cell injury Cell death	Discussion Assignment	Reference book	Participation Assignment	1 hour
<ul style="list-style-type: none"> To understand about the necrosis and apoptosis 	Necrosis and Apoptosis Infarction and gangrene	Discussion Collections	Reference book	Participation Collections	1 hour
<ul style="list-style-type: none"> To understand about the causes of cell injury 	Hypoxia Physical agent Chemical agent Immunologic reactions Genetic derangements Nutritional imbalances Aging	Group Discussion Collections	Reference book	Participation Collections	1 hour

Objectives	Content	Activity	Material required	Evaluation	Time
<ul style="list-style-type: none"> To understand about the inflammation and acute inflammation 	Definition and types Definition, Signs and major events of Acute inflammation	Group Discussion Collections Assignment	Reference book	Collection Class Test Assignments Participation	1 hour
<ul style="list-style-type: none"> To understand the process of chronic inflammation 	Definition and major events	Group Discussion Collections	Reference book	Participation Collections Class Test	1 hour
<ul style="list-style-type: none"> To understand the granulomatous inflammatory and repair 	Definition and major events at chronic inflammation fibroses	Discussion Assignment	Reference book	Participation Assignment	1 hour
<ul style="list-style-type: none"> To understand the wound healing 	Brief Description	Discussion Assignment	Reference book	Assignment Class test Questioning	1 hour
<ul style="list-style-type: none"> To understand types of wound healing 	Primary and secondary wound healing	Discussion Assignment	Reference book	Participation Assignment Questioning	1 hour
<ul style="list-style-type: none"> To understand about the disease 	Definition and causes Classification	Brain storming Discussion	Reference book Black board	Participation Class test	1 hour

Objectives	Content	Activity	Material required	Evaluation	Time
<ul style="list-style-type: none"> To understand about the Edema 	Definition Types	Brain storming Discussion	Reference books Black board	Participation Class test	1 hour
<ul style="list-style-type: none"> To Study about the deficiency diseases 	Ostomalacia Rickets	Discussion Collections	Reference book	Participation Collections Class Test	1 hour
<ul style="list-style-type: none"> To understand about the process of immunity and its importance 	Definition Types	Brain storming Discussion Collections Assignment	Reference books Black board	Participation Assignment Collections	1 hour
<ul style="list-style-type: none"> To study about the classification of immunity 	Natural immunity Artificial immunity Active and Passive immunity	Brain storming Discussion Collections Assignment	Reference books Black board	Participation Collection Assignment	1 hour
<ul style="list-style-type: none"> To study about the Anemia 	Definition and Classification	Brain storming Discussion Assignment Collections	Reference books Black board	Participation Assignment Collections	1 hour
<ul style="list-style-type: none"> To study about the the Hemostasis 	Definition and major steps	Assignment Discussion	Reference books	Participation Assignment	1 hour

Objectives	Content	Activity	Material required	Evaluation	Time
<ul style="list-style-type: none"> To understand about the Process of thrombosis 	Definition thrombogenesis	Collections Group discussion	Reference book	Participation Collection	1 hour
<ul style="list-style-type: none"> To understand about the process of embolism 		Brain storming discussion Assignment	Reference book Black board	Participation assignment	1 hour
<ul style="list-style-type: none"> To understand about the Haemorrhage 	Definition Types	Brain storming Discussion Collections	Reference book Black board	Participation Collections	1 hour
<ul style="list-style-type: none"> To understand the Haematoma, Haemarthrosis, Petechiae Purpura. 	Haematoma Haemarthrosis Petechiae Purpura	Brain storming Discussion Collections Assignment	Reference book Black board	Participation Collection Assignment	1 hour
<ul style="list-style-type: none"> To understand about the shock 	Definition Type	Discussion Assignment Collections	Reference book	Participation Assignment Collections	1 hour
<ul style="list-style-type: none"> To understand the different stages of shock 	Stages of shock	Discussion Assignment	Reference book	Participation Presentation	1 hour

LESSON PLAN
EMBOLISM

Name of teacher : X Name of the school : Rahmaniya VHSS Subject : Physiotherapy Unit : Basic Pathology Topic : Embolism	Class : XI Division : A Strength : 30 Average Age : 16 Duration : 1 hour
<p>Curriculum Objectives</p> <ul style="list-style-type: none"> To understand the term embolism types of embolism and their consequences and presentation of embolism. <p>Concepts and ideas</p> <ul style="list-style-type: none"> Definition of embolism, formation of embolism, Types, Thromboembolism, air embolism, Fat embolism, aministic fluid embolism, pulmonary embolism and methods of presentation of embolism. <p>Activities / Strategies</p> <p>Introduction After establishing report with students ask some questions regarding blood clot formation in the circulating fluid, fate of thrombosis, blood vessel obstruction, can we predict the consequences of such obstruction- direct the student to write the possible answers and to present it.</p> <p>Presentation</p> <p>Activity- I Brain Storming: Ask the student what will be the consequences of blood clott formation in the infact circulation . All the students are encouraged to answer the questions in their own words and write</p>	
<p>Process Skills</p> <p>communication, observation and inferring</p> <p>Previous Knowledge</p> <p>Systemic bhod circulation, pulmonary blood circulation. thrombosis. Amniotic fluid etc.</p> <p>Materials required</p> <ul style="list-style-type: none"> Reference book Charts OHP Slids <p>Responses/ Feed back</p>	

each answer on the black board. Analyse each points and at the end student reach a conclusion on the consequence of a following blood clott. After this present chart showing the causes of the blood obstruction in embolism.

Activity- II

Group Discussion: Divide the students into five groups and enable them to discuss the different possible ways of embolism and its possible consequences and presentive methods. At the end each group leader presents the core points. consolidate the points of all the group by one of the student.

Activity- III

Based on the introduction one of the student can list down the different types of embolism and consequences and teacher help to find the correct ideas.

Discussion Points

- What is embolism ?
- What are the types of embolism ?
- Consequences of embolism
- Methods of presentation

Consolidation

- Thrombosis can lead to embolism
- The various types of embolism
- Thromboembolism, amniotic fluid embolism, Air embolism, fat embolism.
- When palmonary artery is blocked by thrombic cause pulmanry embolism
- Embolism can cause infarcts eg: Cerebral or cardiac
- Methods of Prevention

- Participation
- Answering

- Participation
- Presentation of the prepared notes.

- Assignment on embolism

UNIT- 3

ELEMENTS OF APPLIED PHYSICS

Introduction

Students may have the brief ideas about the mechanics, simple mechanics, Gravitation and Hydrostatics sound , leaf structure of matter. Electro sticks and current electricity. By completely this chapter they will acquire the detailed knowledge of these elements of physics and their relationship with physiotherapy

1. Mechanics and Simple Mechanics

Curriculum Objectives

- To understand the basic of mechanics
- To understand the basics of simple mechanics.

Suggested Activity- Introductory talk and Discussion

Introductory talk

Give brief description about the basic of mechanics and simple mechanics

Discussion

Points of discussion

- What is force, momentum, impulse and movement
- Fundamental concept of planes and exercise of human body
- What is work and energy and its relation with physiotherapy
- Principles of stability and posture
- Motion and its principles
- Levers-Ist order, IInd order and IIIrd order level . Examples of body levers
- Pulleys, concept, advantages
- Inclined plane.

Consolidation

- Concept of force, momentum. Impulse and movement
- Concept of planes and exercise of human body
- Concept of work and energy and its relation with physiotherapy
- Concept of stability and posture
- Concept of motion , its principles
- Ist order lever concept and example from the body
- Fulcrum, Effort and weight
- IInd order lever- concept and example from body and advantages.
- IIIrd order lever concept, examples and disadvantages
- Concept of pulley and its advantages
- Concept of inclined plane

2. Gravitation , hydrostatics and sound.

Curriculum Objectives

- To understand the gravitation, hydrostatics and sound

Suggested Activity- Introductory talk, discussion, Assignment

Introductory Talk

It includes the concept of gravitation. Hydrostatics and sound

Discussion

Points of discussion

- What is the law of gravitation and acceleration due to gravity
- Pressure at a point, resultant thrust on a surface immersed in a fluid
- What is buoyancy
- Archimedes principles

Assignment

Ask the learners to write an assignment on the production of sound and ultrasonic waves.

Consolidation

- Concept and expression of law of gravitation
- Acceleration due to gravity
- Pressure at a point, resultant thrust on a surface immersed in a fluid
- Concept of buoyancy

Principles of Archimedes

concept of sound production and ultrasonic waves

3. Heat, structure of matter, Electrostatics and current electricity

Curriculum Objectives

- To understand the heat, electromagnetic spectrum, structure of matter
- To understand the electrostatics and current electricity

Suggested Activity- Discussion, Chart Preparation, Assignment

Discussion

Points of discussion

- What is heat and temperature
- How can we measure the heat
- What are the physical effect of heat
- How do the heat get transmitted
- What is atom, molecule and sub atomic particles- protone, electrone, and neutrone
- What is electricity
- Production of electrone
- EMF, Ohm Law
- Various frequencies used

Chart Preparation

Ask the students to prepare a chart of electromagnetic spectrum

Assignment

Topic : Production of electric charges

Consolidation

Concept of heat and temperature

Measurement and physical effect of heat

Electromagnetic spectrum and various frequencies and the length of different waves

Concept of atomic, molecule and structure of atom, including the charges electrone, protone and neutrone

Concept of nucleus and its charges

Concept of electrone theory of electric current

Production of electric charges

Concept of electrostatics force, electric current, EMF, Intensity of current resistance

Ohms law and its expression

Various frequency of current

Law frequency. High frequency and medium frequency.



UNIT- 4

BASIC ORIENTATION TO REHABILITATION PHILOSOPHY

Introduction

After completing this unit the learner acquire the knowledge about the co concept of rehabilitation and the various types of rehabilitation. They deeply acquire the knowledge about the medical rehabilitation and the different phases of medical rehabilitation. He also acquire the knowledge about the CBR and IBR and about the rehabilitation team and duties of every rehabilitation members.

1. Rehabilitation

Curriculum Objectives

- To understand the meaning of rehabilitation and medical and socio vocational rehabilitation, CBR and IBR

Suggested Activity- Discussion, Fieldvisiting

Points of discussion

- Concept of rehabilitation
- What is medical rehabilitation
- Importance and scope of medical rehabilitation socio vocational rehabilitation and the importance and scope
- Difference between CBR and IBR and advantage and disadvantage field visiting
- Visit the medical rehabilitation centre and socio vocational rehabilitation centre and observe their activities

Consolidation

Concept of rehabilitation

Phases of medical rehabilitation

Preventive phase

Curative phase

Rehabilitation phase

Community based rehabilitation

Institution based rehabilitation

2. Impairment disability , Handicapped

Curriculum Objectives

- To understand about the concept of impairment disability and handicapped

Suggested Activity- Discussion,

Points of discussion

- Difference between impairment disability and handicapped
- Disability act
- Rights of handicapped

Consolidation

Impairment

Disability

Handicapped

3. Rehabilitation team and team members

Curriculum Objectives

- To understand the rehabilitation team and duties of rehabilitation team members

Suggested Activity- Discussion,

Points of discussion

- Name the rehabilitation team professionals
- Duties of rehabilitation team members
- Importants of rehabilitation team

Consolidation

Rehabilitation Team

Team leader

Functions of team members

Team work

4. Vocational rehabilitation

Curriculum Objectives

- To understand about vocational rehabilitation

Suggested Activity- Discussion, Field Visit

Points of discussion

- Concept of vocational rehabilitation
- Importance and scope

Different stages of vocational rehabilitation

Points of discussion

Visit the nearest vocational rehabilitation centre and observe their activities and make a detailed report in observation book.

Consolidation

Prevocational rehabilitation

Vocational development stage

Employability development stage



UNIT- 5

BASIC PHYSIOTHERAPY INCLUDING EXERCISE AND ELECTROTHERAPY

Introduction

Students have previous ideas about the concept of muscle contraction and joint movements. They may also have some ideas about the physiotherapy treatment. Some of them may also have visited the physiotherapy department for the treatment.

On completing this unit learners acquire the knowledge about the physiotherapy and about the various exercise and electrotherapy modalities and the basis of the treatments.

1. Introduction of physiotherapy

Curriculum Objectives

- To understand the concept and branches of physiotherapy and the historical development
- To understand the objectives and scope of physiotherapy
- To acquire the basic knowledge about the record writing and keeping D-To
- To understand about the duties of physiotherapy Consistants

Suggested Activity- Discussion, Seminar

Discussion

Points of discussion

- Concepts of Physiotherapy
- Aims and objective of physiotherapy
- Duties of physiotherapy constituents

Seminar

Historical development of physiotherapy

Modern concept of physiotherapy

Role of physiotherapy in rahabilitation

Importance of record writing and keeping

Physiotherapy and world war

2. Exercise therapy Introduction definition and scope

Suggested Activity- Discussion,

Points of discussion

- Concepts of exercise therapy
- Scope of exercise therapy in various fields

Consolidation

Concepts of exercise therapy

Importance of physiotherapy in medical rehabilitation and sports field

3. Basic orientation of muscle grade

Suggested Activity- Demonstration

Demonstration

Demonstrate the various grades of muscle power by using models, and chart.

Consolidation

concept of muscle power

Tone, and tone abnormalities

Flaccidity, spasticity

Relaxation concept definition

4. Movements

Suggested Activity- Demonstration by using chart and models, Assignment

Demonstration

Demonstrate the passive and active movement by using models and chart

Assignment

Passive movement and active movement

Consolidation Points

Definition

Classifications of movement

Principles

Techniques

Effects and uses

Consolidation

Concepts of movements

Volentry and involentry movements

Passive and active movement

Principles of various types of movement

Effects and uses of all movements

5. Posture

Suggested Activity- Discussion, Assignment, Demonstration

Discussion

After giving the introductory talk about the concept of posture ask the learner to classify the posture in to a various types (Active and inactive) and the factors determining one's posture.

Demonstration Assignment

Correcting exercise for bad posture should include

Difinition

Types of posture

factors influence one's posture

Good and bad posture

Ideal plub line alignment

Consolidation

Concepts of posture

Physiological and psychological factors

Muscular weaknes, and posture

Ideal segmental alignment

Good and bad posture

Corrective exercise for bad posture

6. Fundamental and derived positions

Suggested Activity- Discussion, Demonstration

Point of discussion

Concept of fundamental and derived position

Discuss about the types

Demonstration

Demonstrate the various positions like

Standing

Kneeling

Sitting

Lying

Hanging

By using models and draw the next diagram in observation book

Consolidation

Concepts of fundamental and derived position

Various positions and its important in exercise therapy

Demonstration of different types of fundamental and derived positions.

5. Breathing Exercise

Suggested Activity- Demonstration

Demonstration

By using models demonstrate the diaphragmatic and segmental breathing exercise.

Points of demonstration

Position of the patient

Methods of percussion and vibration

Huffing and cuffing

Postural drainage

Clearance of the airway

Consolidation

Concepts of breathing exercise

Conditions which give breathing exercise

Importants of breathing exercise

Procedure of breathing exercise

Precautions while taking breathing exercise

Indication and contra indications of breathing exercise

6. Various apparatus used in Exercise therapy Description and applications.

Suggested Activity- Demonstration

Demonstration points

- Name the apparatus
- Applications of apparatus
- Various parts of apparatus
- Working of the apparatus
- Various modifications of appartus

Consolidation

- Apparatus used to improve joint range
- Apparatus used to improve muscle power
- Apparatus used for ambulation

7. Introduction of electrotherapy

Curriculum Objectives

- To understand about the introduction of electrotherapy

Suggested Activity : Discussion chart making

Points of discussion

- Concept of electrotherapy
- Nomenclature of equipment based up on frequency chart making.
Make a chart of equipment based up on the frequency of current

Consolidation

- concept of electrotherapy
- Frequency- Low frequency
- High frequency
- Medium frequency
- Current duration
- Name of equipment based on the duration of the current.

8. Bsic knowledge of electric connection:

Curriculum Objectives

- To understand about the electric connection, checking repair and materials used for making pads and electrode

Suggested Activity : Demonstration

Demonstration Points

- Checking of the electric circuit
- Precaution while checking the circuit
- Repairing of the electric circuits
- Materials used for making pads and electrode

Consolidation

Earthing

Precautions from electric shock

Safety measures

Pads and electrode

Repairing of the circuit

Methods to check the electrotherapy

Equipments



UNIT- 6

BASIC OCCUPATIONAL THERAPY

Introduction

Students may or may not have the previous knowledge about the occupational therapy. so students will be more interested while discussing about the occupational therapy. After completing this unit students will have the concept, goals, importance and various, modalities used in occupational therapy. they also will have the ideas of the duties of occupational therapy .

1. Definition aims and scope of occupational therapy

Curriculum Objectives

- To understand the basics of occupational therapy

Suggested Activity- Introductory talk.

Discussion

Points of discussion

- What is occupational therapy
- Aims of occupational therapy
- Importance of occupational therapy

Seminar

Learner present a seminar on importance of occupational therapy

Consolidation

Concept of occupational therapy

Aims of occupational therapy

Scope of occupational therapy

2. Modalities of occupational therapy

Curriculum Objectives

- To understand the modalities of occupational therapy

Suggested Activity- Demonstration, Discussion, field visit

Demonstration

Demonstrate various modalities used in occupational therapy like split Extrinsic and intrinsic adaptation.

Points of discussion

- Human activity
- Extrinsic and intrinsic adaptation
- Environment, teaching and learning process

Field Visit

Arrange a visit to an occupational therapy unit.

Consolidation

Modalities used in occupational therapy

Splint-types of splint

Occupational therapist

Occupational therapy centre and the apparatus used in the centre

Human activity

Extrinsic and Intrinsic adaptation

Environment teaching and learning process

3. Duties of occupational therapy assistant

Curriculum Objectives

- To understand the duties of occupational therapy assistant

Suggested Activity- Discussion, Seminar

Points of discussion

duties of occupational therapy assistant

Seminar

A seminar on the duties of occupational therapy assistant.

Consolidation

Duties of occupational therapy assistant.



UNIT- 7

GENERAL PSYCHOLOGY

Introduction

Students may have some ideas about the psychology, either from the class room or from the talk. And also have some ideas about the psychological tests.

After completing this unit students give the knowledge about the definition scope and nature of psychology human behaviour , factors determines the human behaviour, mental health, personality, intelligents, motivation and learning and about the psychological tests.

1. Nature definition and scope of Psychology

Curriculum Objectives

- To understand the nature definition and scope of psychology

Suggested Activity- Introductory talk and discussion

Introductice Talk and Discussion

Give an introduction about the psychology in ancient and modern age and the origin and evolution of psychology. After this discuss about the scope of psychology groupwise.

Consolidation

Various definitions and scope of psychology

Branches of psychology

Nature of psychology

2. Mental health characteristic of mentally healthy person, psychology of human behaviour factors influencing human behaviour

Suggested Activity- Discussion

Discussion

At first give the introduction of mental health and the human behaviour. Then ask him to discuss about the characteristics of mentally healthy persons

and the factors influencing the human behaviour.

Discussion points

- What are the characteristics of mentally healthy person
- What are the factors influencing the human behaviour

Consolidation

Mental health characteristics
Genetic and environmental
Factors influencing behaviour

3. Nature of intelligence and psychometry

Suggested Activity- Discussion

After giving the introduction about the intelligence ask the learners to discuss about the various methods to assess the intelligence

Discussion points

- Meaning of intelligence
- Psychometry of the intelligence

Consolidation

Definition of intelligence
Intelligence test- Aims and procedure

4. Personality

Curriculum Objectives

- To understand the psychological and sociological functions of personality

Suggested Activity- Group Discussion, Debate, Seminar

Points of Discussion

- What is the personality
- Factors determining the personality

Debate

Which factors mere influence up on the personality
Physiological factors
Psychological factors
Sociological factors

Seminar

Seminar on personality development
What is its aims important and scope

Consolidation

- Concept of personality
- Factors of that determines
- The personality
- Personality development

5. Herdity and environment

Suggested Activity- Group Discussion, Debate,

Group Discussion

- Concept of herdity and environment

Debate

which factor mere influence the ones behaviour and personality (Herdity or environment).

Consolidation

- Concept of heredity and enuronnement
- Its importants on one's behaviour

6. Motivation and learning

Curriculum Objectives

- To understand about the importance of motivation and process of learning according to various theories.

Suggested Activity- Discussion and Seminar

Points of Discussion

- Concept of motivation and learning
-

Seminar

Theories of learning

Consolidation

- Concept of motivation - Motives, Drive, goal
- Concept of learning- Theories of learning



UNIT- 8

SOCIOLOGY

Introduction

Students have previous ideas about the different societies and their norms and culture from the previous classes.

On completing the chapter learners should acquire the concept of sociology and its scope and various social systems and he acquire the concept of community and the types of community.

Curriculum Objectives

- To understand the definition and scope of sociology and the socialization
- To understand the social behaviour and the relation between man and society.
- To understand the difference between society and community and different types of community.
- To understand the various social systems, norms and culture

1. Definition and Scope of Sociology

Suggested Activity- Discussion

Discussion point

concept of sociology

Seminar Topic

Scope of sociology in various concepts

Consolidation

Concept of sociology and scope in educational field, vocational field medical and rehabilitation field

2. Man and society , society and community socialization

Suggested Activity- Discussion, Seminar

Discussion point

- Man as social animal and its importantants

- concept of society and community

Seminar Topic

Child development and stages of socialization

Importants of socialization

Consolidation

Concept of society and community

Social life

Socialization process, and its importants

3. Family

Suggested Activity- Discussion, Debate

Discussion points

- Concept of family amd the family activities
- What is the meaning of socail security and its important

Debate Topics

- Types of family based on the number of members and modenity
- Which is mere acceptable and beneficial divide total learners in to two and give each topic and conduct the debate.

Consolidation

Family , concept

Importants

Culture

Patterns

Mode of living etc.

Types of family

Social security

4. Effects of illness on family members

Suggested Activity- Discussion

Points of Discussion

- Physical -mental illness and cogenital acqiired illness of the individual. That may leads to permanant or temporary disability. what are the medical conditions that affect the family members in various dimentionis

Consolidation

- Physical illness and mental illness
- Congenital and quired illness

- Effects of illness of family members.

5. Rural and Urban Community

Suggested Activity- Debate,

Debate

Difference between rural and urban community in various aspects like. Culture, economic social and education etc.

Consolidation

Difference between rural and urban community in various dimensions.

6. Traditional Modern Society

Suggested Activity- Debate

Topic of Debate

Difference between traditional and modern society and the main caused of the modernization of society

Consolidation

Traditional society concept

Modern society concept

Factors influencing the modernization



UNIT- 9

FIRSTAID AND REHABILITATION NURSING

Introduction

Students will have a basic knowledge about the first aid. They may or may not have ideas about the rehabilitation nursing. After completing this unit the learner will acquire the knowledge of concept of first aid, first aid list, and procedure of various first aid. They will also acquire the knowledge of concepts of Rehabilitation nursing. Bed positioning, care of bladder and bowels and nutritional aspect of feeding.

1. Definition and first aid

Curriculum Objectives

- To understand the curriculum objectives
- To identify the materials used in first aid kit.

Suggested Activity - Introductory talk, Discussion, Demonstration

Introductory talk

Discussion points

- Concept of first aid
- First aid list
- Materials of first aid kit.

Demonstration

Demonstrate the materials of first aid kit.

Consolidation

- Concept of first aid
- Materials of simple first aid kit
- Bandage splints etc.

2. Procedure of various First aid curriculum objectives

Curriculum Objectives

- To understand the procedure for the first aid of control of bleeding, shock and coma
- To understand the concept of splinting
- To understand about the transportation of acutely injured
- To understand about the cardio pulmonary Resuscitation

Suggested Activity- Demonstration, Discussion

Demonstration

Demonstrate the procedure for the first aid of control of bleeding, shock, coma, splinting, transportation of acutely injured patient and cardio pulmonary Resuscitation

Discussion

Points of Discussion

Concept of cardio pulmonary Resuscitation

Importance of cardio pulmonary Resuscitation

Consolidation

- Blood clotting
- Anti coagulants
- Pressure application
- Concept of coma and shock
- Immobilization, positioning
- Concept of CPR
- Procedure of CPR
- Importance of CPR

3. Rehabilitation nursing

Curriculum Objectives

- To understand the introduction about the rehabilitation nursing

Suggested Activity- Discussion

Points of Discussion

- What is rehabilitation?
- Skin care prevention of sore
- Bed sore
- Urinary collector

- Bladder and bowel care
- Nutritional aspect of feeding care

Consolidation

- Concept of Rehabilitation nursing
- Skin care
- Bed sore
- Urinary Caleter
- Bladder and bowel care
- Nutritional aspect feeding care



UNIT- 10

SPORTS AND REMEDIAL GYMNASTICS

Introduction

Students will have the previous knowledge about the different sports and the term gymnastic and they also have the knowledge of the disadvantages of the disabled person to perform those activities. By completing this unit the students will have the concept of remedial gymnastics, methods of remedial gymnastics, importance of gymnastics for people with disabilities and sports and recreation for people with disabilities.

Curriculum Objectives

- To understand the concept of remedial gymnastics
- To understand the methods of remedial gymnastics
- To understand the importance of gymnastics for people with disabilities and sports and recreation for people with disabilities.

Syllabus

- Concept of remedial gymnastics
- Corrective remedial gymnastics
- Basic principles of gymnastics
- Relation between handicapped and gymnastics
- Sports and recreation for the disabled.

Concept of remedial gymnastics

Suggested Activity-Introductory talk

Introductory talk

The introductory talk includes the concept of remedial gymnastics and principles.

Principles of Remedial Gymnastics

Suggested Activity-Introductory talk, Discussion

Introductory talk

The introductory talk include the principles of remedial Gymnastics.

Discussion

Ask the students to discuss about the principles of remedial gymnastics after the introductory talk.

Points of Discussion

- Principles of rhythmicity
- Principles of equal emphasis
- Principles of Gradation
- Principles of gradual stretch
- Flow principle

Assignment

Divide the students into two groups give separate topics to each group to write assignment

1. Anatomy of digestive system
2. Physiology of digestive system

Collection

Ask the students to relevant information regarding anatomy-physiology and disorders of digestive system.

Consolidation

- Structure of mouth of pharynx
- Concept salivary glands
- Functions of accessory - stomach- different parts
- Parts of functions of liver, gall, bladder, spleen, pancreas and intestine.
- Concept of mastication
- Concept of digestion
- Functions of stomach - Digestion, absorption, defecation

Relation between handicapped and Gymnastics

Suggested Activity : Introductory talk, Brain storming

After acquiring the concept of handicapped and gymnastics through the introductory talk the students should say about the relation between handicapped and gymnastics.

Introductory talk

It includes the concept of Gymnastice and handicapped

Correlative remedial gymnastics and sports and recreation for people with disabled

Suggested Activity: Intrductory talk, Assignment, Field Visit.

Introductory talk

It includes the concept of corrective remedial gymnastics and sports and recreation for people with disabled. After this introductory talk the lerner will get some ideas about the correcrive remedial gymnasics and sports and recreating for the disabled.

Field Visit

Arrange a field visit to a special school for the studetns. During the visit the students can observe the probeldms of handicapped studetns and the sports in which they are engaging. Ask the studetns make available information from school by discussing with teachers and parents of the dissabled students. At the end of the visit students will make a diary of visit.

Assignment

Based on the information acquiared from the introductory talk and Field visit ask the student to write an assignment of the corrective remedial gymnastic and sports and recreation for the disabled.



**UNIT ANALYSIS -
UNIT 10- SPORTS AND REMEDIAL GYMANSTICS**

Objectives	Content	Activity	Material required	Evaluation	Time
<ul style="list-style-type: none"> To understand about the remedial gymnastics 	Concept	Introductory talk	Black board Reference book Magazines	Participation Practical skill Presentation	1 hour
	Principles	Discussion Introductory talk	Blackboard Equipments	Participation Content of assign ment	1 hour
	Relation between handicapped and gymnastics	Brain storming Introductory talk	Black board	Participation	1 hour
	Natural immunity Artificial immunity Active and Passive immunity	Discussion Demonstration Brain Storming Collection	Black board Chart Models Equipments	Participation Content Relevance of collection	1 hour
	Corrective remedial gymnastic	Demonstration Assignment Filed visit	Model, chart Equipments Multimedia	Participation Practical skill Content Acquired concepts	1 hour
	Sports and recreation for people with diabled		Reference books	Participation Assignment	1 hour

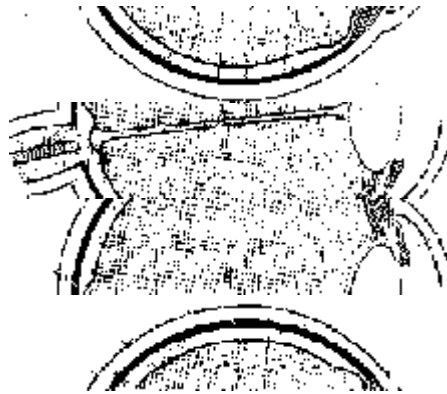
PART III

IX

SAMPLE QUESTIONS

1. A high school student ask you" How we made up of ". How you simply explain it points are
Cells, functions of cellular components
Tissue: Types and function
Organ
Organ system
Body
2. Without bones there is no body shape and movements. Is this statement correct or not? explain
3. Circulatory system is a body cleaning system. What is your opinion
Pulmonary circulation
Renal circulation
Lymphatic circulation
4. Veins always carry deoxygenated blood is this statement correct. If not what is the reason.
5. After prolonged running you cought by your friend. While catching your respiratory rate increased 40 per minute is it normal? What are the other changes you observed?
6. While Raju ironing his dress unexpectedly his hand touch on iron box. What will happen and explain the caused behind it.
7. After medical checkup doctor warned a drunkard if he continued drinking his liver will be stop it's function with in one month. If so happens what are the physiological changes you would expect?
8. Why the government compell the peoples to use iodide salt. Is it essential in all areas?
9. You are living in a rural area of poor hygene. Medical officer of your area ask you to give health eduction to peoples in area. How do you perform.

10. A physiotherapist advice a patient to apply hot pack on the painful area of the body. Can you predict the effect of heat advantage of heat application.
11. Suppose you visit the near by rehabilitation centre and you observe the facility and the members of the rehabilitation centre and their duties. Make a report on that visit.
12. Wheather herdity or environment determines ones behaviour. Justify
13. Make a speech about sports, and remedial gymnastics for disabled in order to deliver while visiting a disabled school.
14. Socialization determines the unique characteristics of an individual justify.
15. Label the given diagram



16. With arrow mark show the flow of blood through heart and major blood vessel





REFERENCE BOOKS

1. *Human Anatomy* - BC Chourasia's
2. *Hand book of Osteology* - S Poddar
3. *Concise Medical Physiology* - Chaudhuri
4. *Anatomy and Physiology of Student nurses* - Evely pearce
5. *Manual of Practical Physiology* - BK Srivastjava and NL Das
6. *Tidy's Physiotherapy* - Ann Thomson and Alison Skinn
7. *An Introduction to Sociology* - Vidhya Bhushan and Dr Saji. D
8. *Pocket Companion to Robbins Pathologic basis of Diseases*
9. *Aids to under graduate pathology* - Dr A Chandhurvedi
10. *Psychologocal Foundation of Education* - S K Mangal
11. *The principles exercise therapy* - M Dena Gardiner
12. *Electrotherapy Explained Principle and Practice* - John Law and Ann Reed
13. *Clayton's Electro Therapy Theory and Practice* - Forster and palastanga
14. *Cash's Textbook of Neurology*

- for Physiotherapist* - Patricia A. Doconie
15. *Cash's Textbook of Chest, Heart and Vascular Disorder* - Patricia A Doconie
16. *Cash's Textbook of Chest,Heart and vascular disorder patricia* - Patricia A Doconie
17. *Cash's Textbook of General Medical and Surgical Conditions* - Patricia A Doconie
18. *Natarajan Text book of Orthopaedic and Traumatology* - M. Natatajan and Mayilvab
19. *Essentail of Orthopedic and applied Phsiotherapy* - Jayath Joshi & Prakash Kotw
20. *First Aid Manual* - St. Johns Ambulance
British Red Cross Society
21. *Concepts of Occupational Therapy* - Reed K.L and Sandersan S.N
22. *Occupational Therapy and Activities to Health* - Cynkin S. Robinson A.M
23. *Therapeutic Exercise Foundation and Techniques* - Carolyn Kisner
24. *Park's Textbook of preventive and Social Medicine* - K.Park
25. *Lecture Note on Rehabilitation* - L. Sundar
26. *Aids to Physiotherapy* - Jennifar M. Lee
27. *Physical Rehabilitation Assessments and Treatment* - Susan O. Sullivan
28. *Disabled Village Children* - David werner

