PROPOSED SYLLABUS BOT NON – SEMESTER (2014)

The Tamil Nadu

Dr. M.G.R. Medical University

Chennai – 600 032

Regulations & Syllabus
(Non – Semester)
2014

Bachelor of Occupational Therapy
(B.O.T)

THE TAMIL NADU DR. M.G.R MEDICAL UNIVERSITY

CHENNAI

REGULATIONS OF THE UNIVERSITY

In exercise of the power conferred by Society 44 of the Tamil Nadu Dr. M.G.R Medical University, Chennai Act, 1897(Tamil Nadu Act 37 of 1987), the Standing Academic Board of the Tamil Nadu Dr. M.G.R Medical University Chennai hereby makes the following regulations.

SHORT TITLE AND COMMENCEMENT

These regulations shall be called “THE REGULATIONS FOR THE BACHELOR OF OCCUPATIONAL THERAPY (B.O.T) DEGREE COURSE OF THE TAMIL NADU DR.M.G.R MEDICAL UNIVERSITY”, CHENNAI.

They shall come into force from the academic year **2014 – 2015** session onward except the regulation, relating to the eligibility criteria, which came into effect from **1992 – 1993 session.**

The Regulations and Syllabus are subject to modification by the Standing Academic Board from time to time.

REGULATIONS

1. ELIGIBILITY

Candidates belonging to all categories for admission to the Bachelor of Occupational Therapy course should have passed **in all the subjects of the** qualifying examinations **of the H.Sc conducted by Tamil Nadu state or equivalent examination** (Academic Stream) with the following subjects of Physics, Chemistry and Biology / Botany and Zoology.

2. AGE LIMIT FOR ADMISSION

A candidate should have completed the age of 17 years at the time of admission or would complete the age on or before 31st December of the year of admission to the B.O.T degree course.

3. PHYSICAL FITNESS CERTIFICATE

Every candidate before admission to the course should be certified as medically fit to undergo the course.

4. ELIGIBILITY CERTIFICATE

Candidates who have passed any qualifying examination other than the Higher Secondary Course Examination conducted by the Government of Tamil Nadu shall obtain an Eligibility Certificate from the University by remitting the prescribed fees along with the application form before seeking admission to any one of the affiliated institution.

5. REGISTRATION

A candidate admitted to the course in any affiliated colleges shall register with this University by remitting the prescribed fee along with the application form for registration duly filled and forwarded to this University through the Head of the Institution within the stipulated date.

6. DURATION OF THE COURSE

The duration of certified study for the Bachelor of Occupational course shall extend over a period of four academic years and six months of compulsory internship.

7. MEDIUM OF INSTRUCTIONS

English shall be the Medium of institutions for all the subjects of study and for examinations of the Bachelor of Occupational Therapy Degree Course.

8. CURRICULUM

The curriculum and the syllabus for the course shall be as prescribed by the Standing Academic Board form time to time.

9. COMMENCEMENT OF THE COURSE

The Course shall commence from 1st August of the Academic year.

10. COMMENCEMENT OF EXAMINATIONS

Regular examinations - 1st August
Supplementary examinations - 1st February

If the date of Commencement of Examination falls on Saturdays, Sundays or declared Public Holidays, the examination shall begin on the next working day.

11. CUT – OFF DATES FOR ADMISSION TO EXAMINATIONS

The last date of admission to B.O.T. course shall be the 30th of September of the academic year.

12. WORKING DAYS DURING A SEMESTER

Each **year** shall consist of not less than **240** working days

13. ATTENDANCE REQUIRED FOR ADMISSION TO EXAMINATION

a. No candidate shall be permitted to appear in any one of the parts of B.O.T Degree Course unless he/she has attended the course in the subject for the prescribed period in an affiliated institution recognised by this University and produces the necessary certificate of study, attendance and satisfactory conduct from the Head of the institution.

b. A candidate is required to put in minimum **85%** of attendance in both theory and practical separately in each subject before admission to the examination.

c. A Candidate lacking in the prescribed attendance and progress in any one subject in theory and practical in the first appearance shall not be permitted for admission to the entire examination of that year.

14. INTERNAL ASSESSMENT MARKS

a. A minimum of **3** written examinations shall be conducted in each subject during a **year** and the average marks of the **3** performances shall be taken into consideration for the award of sessional marks.

b. A minimum of **3** practical examinations shall be conducted in each subject (wherever Practical have been included in the curriculum) during a year and an average of the **3** performances shall be taken into consideration for award of sessional marks.

b. A failed candidate in any subject shall be provided an opportunity to improve his sessional marks by conducting a minimum of two examinations in theory and Practical separately.

d. If a failed candidate does not appear for any improvement mark examinations in the failed subject(s) the internal marks awarded for the previous examination shall be carried over for the subsequent appearance(s)

e. The internal assessment marks shall be submitted to the University endorsed by the Head of the institution 15 days prior to the commencement of the theory examinations.

15. MARKS QUALIFYING FOR A PASS

A candidate shall be declared to have passed the examination if he/she obtains the following qualifying marks:

a. 50% of marks in theory in the subjects where University examinations are conducted and aggregate of 50% marks in University theory examination and internal evaluation taken together in the subject.

b. 50% of marks in the University examinations and 50% marks in University Theory, Oral and Internal evaluation marks taken together .

c. 50% of marks in the university examination, 50% of marks in university practical examinations and 50% aggregate in theory, practical, oral and internal assessments marks together.

16. CARRY OVER OF FAILED SUBJECTS

a. Candidates should have passed all first year subjects before appearing for 3rd year examinations.

b. Candidates should have passed all 2nd and 3rd year subjects before appearing for the 4th year examinations

17. REVIEW OF ANSWER PAPERS OF FAILED CANDIDATES

As per the regulations prescribed for review of answer papers of this University

18. RE ADMISSION AFTER BREAK OF STUDY

a. Candidates having a break of study of 5 years and more from the date of admission and more than **two spells of** break will not be generally considered for a re-admission.

b. The five years period of break of study shall be calculated form the date of first admission of the candidate to the course from the subsequent spells of break of study.

c. Candidates having break of study shall be considered for re-admission provided that they are not subjected to any disciplinary action and no charges are pending or contemplated against them.

c. All re-admissions of candidates are subject to the approval of the Vice-Chancellor.

e. The candidates having break of study upto 5 years shall apply for re-admission in the prescribed form and remitting the stipulated fee for condonation to the Academic **O**fficer of this **U**niversity. The candidates may be re- admitted in the corresponding course of study at the commencement of the session and shall undergo a minimum period of study of 3(three) months and after fulfillment of the regulations of this University be admitted for the examination. **T**he candidates shall be granted exemption in the subjects they have already passed.

19. MIGRATION / TRANSFER OF CANDIDATES

a. Migration / Transfer of candidates from one recognized institution to another institution of this University or from another University shall not generally be considered.

b. However, under extraordinary circumstances, the Vice- Chancellor shall have the powers to place any migration / transfer he deems fit in the Governing Council and get its approval for grant of permission of migration / transfer to candidates undergoing course of study in affiliated Institutions of this university.

20 COMPULSORY INTERNSHIP

Every candidate admitted to Bachelor of Occupational Therapy Degree Course shall undergo Six (6) months of compulsory internship in the institution he has studied after successful completion of the final examination.

21. AWARD OF DEGREE

The Degree shall be awarded by the University only after the completion of the compulsory Internship.

22. AUTHORITY FOR ISSUE OF INTERNSHIP COMPLETION CERTIFICATE

The Heads of Institutions shall issue a certificate of successful completion of internship to each candidate after satisfying that the candidate has completed the training programme and has acquired the skills to function independently.

23. AUTHORITY TO ISSUE TRANSCRIPT

The University shall be the Authority for issuing Transcript after remitting the prescribed fee.

Scheme for Examinations

Sl No	Year	Subject	Examination	Duration (Hours)	Internal mark	Theory	Practical	Oral	Total
1	One	General Psychology And Sociology	Examination	3	50	100	Nil	Nil	150
2	One	Anatomy	Examination	3	50	100	Nil	50	200
3	One	Physiology	Examination	3	50	100	Nil	50	200
4	One	Basic Principles of Occupational Therapy	Examination	3	50	100	100	50	300
5	Two	Medicine Surgery And Paediatrics, ENT, Ophthalmology, Pharmacology*	Examination	3	50	100	Nil	Nil	150
6	Two	Biomechanics, Applied Anatomy and Applied Physiology	Examination	3	50	100	Nil	50	200
7	Two	Clinical Orthopaedics.	Examination	3	50	100	Nil	50	200
8	Two	Clinical Neurology	Examination	3	50	100	Nil	50	200
9	Two	Fundamentals for Occupational Therapy Practice	Examination	3	50	100	100	50	300

***NOTE:**. Medicine Paediatrics & Pharmacology – Section A Essay from Medicine and Paediatrics only: Section B ENT, Ophthalmology & Surgery – Essay from Surgery only.*

*Fundamentals for Occupational Therapy Practice: Viva on Section I and II ; Practical on section II **only***

Sl No	Year	Subject	Examination	Duration (Hours)	Internal mark	Theory	Practical	Oral	Total
10	Three	Community Medicine, Basic Nursing and First Aid	Examination	3	50	100	Nil	Nil	150
11	Three	Health Psychology, Clinical Psychology Clinical Psychiatry	Examination	3	50	100	Nil	Nil	150
12	Three	OT in Psychiatry	Examination	3	50	100	100	50	300
13	Three	OT in Orthopaedics and Neurology	Examination	3	50	100	100	50	300
14	Three	OT in Paediatrics	Examination	3	50	100	100	50	300
15	Four	Clinical Cardio Respiratory And Work Physiology	Examination	3	50	100	Nil	50	200
16	Four	Rehabilitation Medicine	Examination	3	50	100	Nil	Nil	150
17	Four	Organization and Administration In OT	Examination	3	50	100	Nil	Nil	150
18	Four	OT in Rehabilitation	Examination	3	50	100	100	50	300
19	Four	Group Process In OT	Examination	3	50	100	Nil	Nil	150
20	Four	Project, Research Methodology and Biostatistics	Examination (viva only)	Nil	50	Nil	Nil	50	100

RECOMMENDED CLOCK HOURS OF INSTRUCTION FOR EACH SUBJECT

Sl.No	Subject	Theory Hours	Clinical / Practical Hours
1st YEAR			
1	General Psychology	55	-
2	Sociology	50	-
3	Anatomy Surface Anatomy	250	 10
4	Physiology	150	-
5	Basic Occupational Therapy	60	-
6	Analyzing Occupations and Activities	-	60
7	Basic Nursing and First Aid	40	-
8	Medical terminology	20	-
9	OT - Orientation	-	30
10	Goniometry	-	30
11	Muscle testing	-	30
12	Seminar (OT)	10	-
13	2nd year & 3rd Year subjects	80	-
2nd YEAR			
14	General Medicine, Surgery and Paediatrics	140	-
15	ENT, Ophthamology, Radio diagnosis, Pharmacology	35	-
16	Biomechanics and Applied Anatomy	100	-
17	Applied Physiology	30	-
18	Clinical Orthopaedics	55	-
19	Clinical Neurology	55	-
20	Fundamentals for Occupational Therapy practice	60	40
21	OT Clinical Placements (Peadiatrics, Psychiatry, Orthopedics and Neurology)	-	600
22	3rd Year Classes	125	-
3rd YEAR			
23	Health Psychology	35	-
24	Clinical Psychiatry	35	-
25	Clinical Psychology	35	-
26	Community Medicine	55	-

Sl.No	Subject	Theory Hours	Clinical / Practical Hours
27	Occupational Therapy in Psychiatry	75	250
28	Occupational Therapy in Paediatrics	100	250
29	Occupational Therapy in Orthopaedics and Neurology	110	250
	4th YEAR		
30	Research Methodology And Bio statistics	30	-
31	Rehabilitation Medicine	55	-
32	Clinical Cardio Respiratory	50	-
33	Work Physiology	50	-
34	Occupational Therapy in Rehabilitation including Bio- Engineering (CBR, Cardio Respiratory)	110	540
35	Organization and Administration in Occupational Therapy	70	10 (Industrial visit)
36	Group Process in Occupational Therapy	40	40
37	Project Work	-	170

Recommended clock Hours per year (Miscellaneous)

1	**Library Hours**	**100**
2	**Physical education**	**35**
3	**Seminars / Case Discussion (Except 1st year)**	**50**
4	**Internal Assessment**	**70**
5	**Guest Lecture / CME/ Conference (Except 1st year)**	**20**

Recommended Hours for Clinical work and Internship

Clinicals(1st year to 4th year)	**1960**
Internship	1150
Total Hours	3110

First Year

Subjects

1. General Psychology and Sociology
2. Anatomy
3. Physiology
4. Basic Principles of Occupational Therapy

GENERAL PSYCHOLOGY

Examination at the end of 1st year **Instruction hours: 55**

COURSE DESCRIPTION

This course will enable the student to understand specific psychological factors and effects in physical illness and thus help them to have a holistic approach in their dealings with patients during admission, treatment, rehabilitation, and discharge.

COURSE OBJECTIVES

The objective of this course is that after 55 hours of lectures and seminars, the student will be able to recognize and help with the psychological factors involved in disability, pain, disfigurement, unconscious patients, chronic diseases, death, bereavement and medical – surgical patients / conditions. They should also understand the elementary principles of behaviour for applying in the therapeutic environment.

In addition the student will be able to fulfill the following objectives of the course.

Psychosocial assessment of patients in various developmental stages.

Explain the concept of stress and its relationship to health, stress and one's profession.

Identify ego defense mechanisms and learn counseling techniques to help those in need.

Help them to understand the reasons of non-compliance in patients and improve compliance behaviour.

A. DEFINITION OF PSYCHOLOGY

1. Definition of psychology, basic information in relation to following schools methods and branches.

    a. Schools: Structuralism, functionalism, behaviourism, psychoanalysis, gestalt psychology.

    b. Methods: Introspection, observation, inventory and experimental method.

    c. Branches: General, child, social, abnormal, industrial, clinical, counseling, education.

B. HEREDITY AND ENVIRONMENT

Twins, Relative importance of heredity and environment, their role in relation to physical characteristics, intelligence and personality, nature-nurture controversy.

C. DEVELOPMENTAL THEORIES AND GROWTH BEHAVIOUR at

Infancy, Early childhood, Middle childhood, Puberty (physiological and psychological changes), adulthood, middle age, and old age.

D. INTELLIGENCE

Definitions: IQ, Mental Age, List of various intelligence tests – WAIS, WISC, Bhatia's performance test, Raven's Progressive Matrices test, Binet Kamat Test of Intelligence and Malins Intelligence Scale

E. MOTIVATION

Definitions: Motive, drive, incentive, and reinforcement. Basic information about primary needs: hunger, thirst, sleep, elimination activity, air, avoidance of pain, attitude to sex.
Social motives: Information, security, self – esteem, competence, love and hope.

F. EMOTIONS

Definition, Differentiate from feelings, physiological changes of emotion Role of RAS, hypothalamus, cerebral cortex, sympathetic nervous system, adrenal gland, heredity and emotion, and control of anger, fear and anxiety.

G. PERSONALITY:

1. Definition, list the components: Physical characteristics, abilities, temperament interest, and attitudes.

2. Discuss briefly the role of heredity, nervous system, physical characteristics, abilities, family, and culture on personality development.

3. Basic concepts of Freud: Unconscious, conscious, id, ego, and superego. List and define the oral, anal, and phallic stages of personality department. List and define the 8 stages as proposed by Erickson, 4 concepts of learning as proposed by Dollard and Miller; drive, cue, response and reinforcement.

4. Personality assessment; interview, standardised, non- standardised, exhaustive and stress interviews, list and define inventories BAI, CPI and MMPI. Projective tests: Rorschach TAT and sentence completion test.

H. LEARNING:

List the laws of learning as proposed by Thorndike. Types of learning: Briefly describe classical conditioning, operant conditioning, insight, observation and Trial and Error type.

List the affective ways to learn: Massed Vs. Spaced. Whole Vs. Part, Recitation Vs. Reading, Serial Vs. Free recall, Knowledge of results, Association, Organization, Mnemonic methods, Incidental Vs Intentional learning, role of language.

I. THINKING

Definition, concepts, creativity, steps in creative thinking; problem solving, decision making, list the traits of creative people, delusions

J. FRUSTRATION

Definition sources, solution, conflict; Approach - approach, avoidance-avoidance, and approach – avoidance, solution

K. SENSATION, ATTENTION, AND PERCEPTION

1. List the senses: Vision, Hearing, Olfactory, Gustatory and Cutaneous sensation, movement, equilibrium and visceral sense. Define attention and list factors that determine attention; nature of stimulus, intensity, colour, change, extensity , repetition, movement, size, curiosity, primary motives.

2. Define perception and list the principles of perception : Figure ground, constancy, similarity proximity, closure, continuity, values and interest, past experience context, needs, moods, religion, sex and age, perceived susceptibility, perceived seriousness, perceived benefits, and socio-economic status.

3. Define illusion and hallucination.

4. List visual, auditory, cutaneous, gustatory, and olfactory hallucination.

L. DEMOCRATIC AND AUTHORITARIAN LEADERS:

Qualities of leadership: Physical factors, intelligence, self-confidence, sociability, will and dominance. Define attitude, change of attitude by: Additional information, changes in-group affiliation, enforced modification by law and procedures that affect personality. (Psychotherapy, Counseling and religious conversion).

M. DEFENCE MECHANISMS OF THE EGO

Denial rationalization, projection, reaction formation, identification, repression, emotions, insulation, undoing, introjection, acting out, depersonalization.

Evaluation : Internal - Theory
University –Theory

Recommended Book(s) for Reference include:

1. Introduction to Psychology by Morgan and King

2 Psychology for Physiotherapists by Thangamani Ramalingam and Dibyendunarayan Bid

S O C I O L O G Y

Examination at the end of: 1st year **Instruction Hours: 50**

COURSE DESCRIPTION

This course will introduce to the students the basic sociological concepts, principles and social process. Social Institutions (In relation to the individual, family and community) and the various social factors affecting the family in rural and urban communities in India will be studied.

COURSE OBJECTIVES

The objective of this course is that after 50 hours of lectures, seminars, the student will be able to demonstrate an understanding of the role of socio-cultural factors as determinants of health and behaviour in health and sickness. They will be able to relate this to therapeutic situations in the practice of physiotherapy and occupational therapy.

In addition the student will be able to fulfill the following objectives of the course.

A. Understand the role of family and community in the development of human behaviour.

B. Develop a holistic outlook toward the structure of the society and community resources.

C. Identify the subtle influence of culture in the development of human personality, the role of beliefs and value as determinants of individual and group behaviour.

D. Understand the social and economic aspect of community that influence the health of the people

E. Learn to assess the social problem and participate in social planning.

F. Identify Social Institution and resources.

G. Understand the significance of social interaction in the process of rehabilitation.

H. Appreciate the role of therapist as a member of society and the

interdependence of individuals and society.

COURSE OUTLINE

A. INTRODUCTION

Definitions of sociology, sociology as a science of society, uses of the study of sociology, application of knowledge of sociology in physiotherapy and occupational therapy.

B. SOCIOLOGY AND HEALTH

Social factors affecting health status, social consciousness and perception of illness, social consciousness and meaning of illness, decision making in taking treatment. Institutions of health, their role in the improvement of the health of the people.

C. SOCIALIZATION

Meaning of socialization, influence of social factors on personality, socialization in hospitals, socialization in the rehabilitation of patients.

D. SOCIAL GROUPS

Concept of social groups, influence of formal and informal groups on health and sickness, the role of primary groups and secondary groups in the hospital and rehabilitation settings.

E. FAMILY

Influence of family on human personality, discussion of changes in the functions of a family, influence of the family on the individual's health, family and nutrition, the effects of sickness on family, family and psychosomatic disease.

F. COMMUNITY

Concept of community, role of rural and urban communities in public health, role of community in determining beliefs, practices and home remedies in treatment.

G. CULTURE

Components of culture, impact of culture on human behaviour, cultural meaning of sickness, response of sickness & choice of treatment (role of culture as social consciousness in moulding the perception of reality) Culture induced symptoms and disease, sub-culture of medical workers.

H. CASTE SYSTEM

Features of the modern caste system and its trends

I. SOCIAL CHANGE

Meaning of social change, factors of social change, human adaption and social change, social change and stress, social change and deviance, social change and health programmes. The role of social planning in improvement of health and in rehabilitation.

J. SOCIAL CONTROL

Meaning of social control, role of norms, folkways, customs, orals, religion law and other means of social control in the regulation of human behaviour, social deviance and disease.

K. SOCIAL PROBLEMS OF THE DISABLED

Consequences of the following social problems in relation to sickness and disability; remedies to prevent these problems:

Population explosion,
Poverty and unemployment
Beggary
Juvenile delinquency
Prostitution
Alcoholism
Problems of women in employment

L. SOCIAL SECURITY

Social security and social legislation in relation to the disabled.

M. SOCIAL WORKER

The role of a medical social worker

EVALUATION:

Internal - Theory
University - Theory

Recommended Book(s) for reference include:

Introduction to Sociology by Dr. Sachdeva Vidya Bhushan
Sociology for Nursing and Allied Heath Sciences by Madhusudan, Tara

ANATOMY

Examination at the end 1st year **Instruction hrs: 260**

COURSE DESCRIPTION

The study of Anatomy will include identification of all gross anatomical structures. Particular emphasis will be placed on description of bones, joints, muscles, the brain, Cardio-pulmonary and nervous systems, as these are related to the application of Physiotherapy and Occupational Therapy in patients.

COURSE OBJECTIVES

The objectives of this course is that after **260** hours of lectures, demonstrations, and practical, the student will be able to demonstrate knowledge in human anatomy as is necessary for the study and practice of Physiotherapy and Occupational Therapy.

In addition, the student will be able to fulfill the following objectives of the course.

A. INTRODUCTION

1. Define Anatomy and mention its subdivisions.
2. Name regions, cavities and systems of the body.
3. Define anatomical positions and anatomical terms

B. CELL

1. Define a cell.
2. Mentions the shape, size and parts of a cell.
3. Name and give functions of organs. Names of cell bodies.
4. Define chromosomes, genes
5. Review mitosis and meiosis. Mention the main events, but stages not necessary.

C. TISSUES

1. Classifies tissues. Give examples for each type of tissue.

D. CARDIO-VASCULAR SYSTEM

1. a. Comprehends the external and internal features of the structure of the

heart and their implications.

b. Mentions position of the heart.

c. Identifies and name, the chambers of the heart, surface and borders of the heart.

d. Identify the venae cavae, pulmonary trunk and aorta.

e. Mentions the internal features of the chambers of the heart.

2. a. State the basic features of the blood supply & nerve supply of the heart.

b. States the basic arrangement of the pericardium

c. Identify the coronary artery and coronary sinus.

d. Names the parts of the conducting system of heart.

3. a. Mentions the position and general distribution of major arteries and major veins and name their main branches.

b. Name the types of arteries and veins; give examples.

E. LYMPHATIC SYSTEM

1. Comprehends the general and regional arrangements of the lymphatic system.

2. Name the lymphatic organs and mention their location.

3. Illustrates the basic structural features of lymphatic vessels, lymph nodes, thymus, spleen and tonsils.

4. Assign functional roles to the lymphatic system.

5. State the position and immediate relations of spleen.

F. RESPIRATORY SYSTEM

1. a. List the parts of the respiratory system.

b. Comprehends the functional anatomy of the parts of the respiratory system.

c. Mention the basic feature of innervations of bronchi and lungs

2. a. States the position, extent and gross structure of the parietal pleura

b. Comprehends the arrangements of pleura. Mentions the parts, and position of the parietal pleura.

c. Names the recesses of pleura.

d. Identifies the trachea and bronchi.

e. Identifies the right lung and left lung.

f. Name the components of the hilum of lung.

g. Name the bronchopulmonary segments

h. Identify the borders and surfaces of the lung on the specimen.

G. DIGESTIVE SYSTEM (n.b. no. details are required)

1. a. List the parts of the digestive system
b. Mention the boundaries and features of the mouth
c. Classifies teeth.
d. Mention position, extent, subdivisions, communications, internal features and muscles of pharynx.
e. Name the tonsils and defines fauces.
f. Identifies internal features of the mouth and pharynx on the specimen.

2. a. States the position, course and extent of oesophagus
b. Identifies oesophagus on the specimen
c. States the basic nerve supply.

3. a. Mentions the position and gross structure of the stomach.
b. Identifies the stomach and its borders, the surfaces and subdivisions.
c. Enumerates the immediate relations of the stomach.
d. States the basic nerve supply of the stomach.

4. a. Name the subdivisions of the intestine and mention their positions.
b. Mention the differences between small and large intestine.

5. a. Name the arteries arising from the abdominal aorta. Name the organs supplied by these branches

b. Awareness of the name and position of the principal autonomic visceral nerve plexus in the abdomen and pelvis, and the organs supplied by them.

6. Mentions the positions and gross features of the liver and biliary system.

7. Names the position and subdivisions of the pancreas

8. a. Names the major salivary glands
b. Indicate their positions.
c. Mentions the site of openings of their ducts.

H. GENITO - URINARY SYSTEM (n.b. no details are required)

1. a. Comprehends the basic functional implications and the basic structure of the kidney and ureter.
b. Mentions the position, size and shape of kidney.
c. Name the immediate relations of the kidney.
d. Indicate the cortex, medulla, pyramids, sinus, calyces, and pelvis of ureter in a macro section of the kidney.
e. Illustrates the structure of a nephron.
f. Identifies the ureter and indicate the position of the ureter.

2. a. States the anatomy of the bladder and urethra.
b. Mention the position, shape and size and surfaces of the bladder.
c. Indicate the immediate relations of the bladder.
d. Mention the basic innervations of the bladder
e. Name and identify the subdivisions of the male urethra.
f. Mentions the position, extent and immediate relations of male urethra.
g. Locate and identify the female urethra.
h. Mentions the position, extent and immediate relations of the female urethra.
i. Name the sphincters of the urethra.

3. a. Lists and locate the parts of the male reproductive system. State the anatomy and functional considerations of the testis, male accessory organs of reproduction and external organs.
b. Name the constituent structures of the spermatic cord.
c. Mention the position of the inguinal canal.
d. Name the component structures and parts of the penis

4. a. List and locate the parts of female reproductive system. States the anatomy and functional considerations of ovary, uterine tubes, uterus, vagina and female external genitalia.
b. Mention the basic features of parts of the female external genitalia.
c. Enumerates the factors responsible for the maintenance of the position of

the uterus and anatomy of its prolapse.

d. Mentions the position, extent and gross structure of the female breast.

5. Name the common, internal, and external iliac arteries.

I. NERVOUS SYSTEM

1. a. Define the subdivisions of the nervous system. Define central, peripheral and autonomic nervous system and name their subdivisions.
Comprehend the position and form of the spinal cord, its structure and function in terms of neuronal connections.

b. Indicates the position and extent of the spinal cord.

c. Illustrates the principal features shown in a transverse section of spinal cord.

d. Specifies the basic features of a mono and multisynaptic spinal reflex pathway.

e. Illustrate the white and gray matter, and anterior, lateral and posterior columns of the spinal cord.

f. Mentions the origin, termination and position of important ascending and descending tracts, site of crossing of fibres of these tracts, and function of each tract.

g. State the main consequences of spinal cord transaction and hemi section, and explains the rationale of cordotomy.

h. Indicates the blood supply and meninges of spinal cord.

2. a. Names the subdivision of the brain. Identifies and mentions the external features of parts of the brain.

b. Mention the internal structure and basic features of parts of the brain stem and name the nuclei and fibre tracts with special emphasis on cranial nerve nuclei.

c. Identify and mention parts of the cerebellum.

d. Mention the external features and internal structures of the cerebellum and name its various afferent and efferent tracts and their termination.

e. Mention the features of the gross components of the cerebrum.

f. Mentions and identifies the location of gyri, sulci and cortical areas.

g. State and identify association, commissural and projection fibres.

h. Define and identify basal ganglia, thalamus, hypothalamus, internal capsule, corpus callosum, olfactory bulb and olfactory tract.

i. Predict the result of damage to internal capsule.

j. Outlines sensory and motor pathways and is able to trace these pathways.

k. Names sensory and motor nerve endings with functions

l. Defines pyramidal motor system and names its tracts

m. Defines upper and lower motor neurons

n. Names the parts and tracts of the extra - pyramidal system and indicate the functions.

3. Outlines the basic structures of sensory organs: - Nose, tongue, eye, ear, and skin.

4. Briefly outline the nature and basis of muscle tone.

Mentions the anatomical pathway involved in the production and maintenance of muscle tone.

5. a. States the formation, circulation and drainage of CSF.
b. Locate and identify the ventricles
c. Identify and name the meninges and spaces around and locate the cistern.
d. Define lumbar puncture and cisternal puncture.
e. States the features of the meninges.
f. Recognizes the differences between extradural, subdural and subarachnoid haemorrhage.

6. a. Outlines the arrangement of major blood vessels around the brain and spinal cord.
b. Mentions the arteries forming the Circle of Willis.
c. Name the branches of major arteries supplying the brain and spinal cord and mention the parts of their supply.
d. Predicts the result of blockage or rupture of central deep branches.
e. Predicts the result of occlusion of cerebral arteries.
f. Predicts the result of occlusion of vertebral or basilar arteries.
g. Identifies and mentions the connections of dural venous sinuses.
h. Names and identifies the parts of the limbic system. Mention their function in emotion and behaviour.

7. a. Mention the position and structure of the autonomic nervous system.

b. Mentions the sites of origin and termination of the preganglionic and postganglionic sympathetic and parasympathetic fibers.

c. Names and locates the sympathetic and parasympathetic ganglia.

d. Summarizes the functional differences between the sympathetic and parasympathetic systems.

8. a. Enumerates the cranial nerves in serial order.

b. Mentions the nuclei of origin & termination and indicates the site of attachment to brain / brain stem.

c. Explains the general distribution of the cranial nerves and the course of the VIIth nerve.

d. Predicts the result of injury to cranial nerves.

9. a. Anatomy of spinal cord - review.

b. Name the groups of spinal nerves.

c. Explain the formation and branches of the spinal nerves and distribution of anterior and posterior rami.

d. Locate and name the plexuses of nerves.

e. Indicate the course and distribution of branches of the plexuses of the nerves.

J. ENDOCRINE SYSTEM

1. a. List the endocrine organs and mentions their position.

b. Mention the hormones produced by each endocrine organ.

K. INTRODUCTION TO BONES (Osteology)

1. a. Defines skeleton.

b. Mention the subdivisions of the skeleton. Name the bones in each subdivision. Knows the number of bones in each subdivision and total number of bones.

c. Classify the bones and give examples.

d. Enumerate the common surface features of bones.

e. Defines ossification. Explains the types of ossification and give examples. Defines ossification centre. Explains the growth of long bone in length and width.

f. Indicates blood supply and nerve supply of a bone.

2. When regional anatomy is taught:

a. Identifies, names and correctly orients the bones.

b. Identifies surfaces, borders and all other surface features.

c. Marks and indicates the muscular and ligamentous attachments on the bone.

L. INTRODUCTION TO JOINTS (Syndesmology / Arthrology)

1. a. Defines a joint or articulation.
b. Classifies the joints and gives examples for each type. Defines each type of joint.
c. Mentions the basic features of a synovial joint.
d. Defines the axis and movements possible in a synovial joint.
e. Defines range of movement and limiting factors.
f. Indicates the blood supply and nerve supply in general.
g. Defines stability of a joint. Demonstrates common movement.

2. When regional anatomy is taught:-

a. Mentions the type, the articular surfaces, ligaments, movements, axes of movements. Chief muscles producing the movements, limiting factors and nerve supply and blood supply of all individual joints.

b. Mentions the factors for stability.

c. Articulates the bones correctly.

d. Indicate applied anatomy for all joints

M. INTRODUCTION TO MUSCLES (SKELETAL MUSCLE)
(Myology)

1. a. Defines a skeletal muscle.
b. Defines faciae, tendon, aponeurosis.
c. Classifies the skeletal muscles by shape etc, and gives examples.
d. Defines origin, insertion, muscle work (contractions), types of muscle work, range of muscle work, group actions - protagonists, antagonists, synergists and fixators; shunt and spurt muscles; types of levers with examples.

2. When Regional anatomy is taught:

a. Mentions the position, origin, insertion, nerve supply and actions of the skeletal muscles. (For the skeletal muscles of soft palate, pharynx and larynx, position, action and nerve supply may be sufficient).

b. Indicates groups of muscles by position and action, group action and nerve supply of groups of muscles.

c. Indicates segmental innervation of muscles.

d. Predicts the result of paralysis of individual and groups of muscles.

N.UPPER EXTREMITY

1. Pectoral region:-

a. Outlines the features of the pectoral region.

b. Names, identifies and correctly orients the sternum, clavicle, scapula and humerus. c. Outlines the main features of the bones of shoulder girdle

d. Identifies the parts, borders and surfaces of sternum. Mentions its other features.

e. Identifies the ends, surfaces, curvatures and other features of clavicle.

f. Identifies the borders, angles surfaces, processes, fossae and other features of scapula. g. Identifies the ends, head, greater and lesser tubercles and anatomical and surgical necks of humerus; also the capitulum, trochlea, and radial, coronoid and olecranon fossae and epicondyles.

h. Locates and identifies the muscles of pectoral region. Mentions their origin, insertion, nerve supply and action.

2. Scapular region:

a. Comprehends the main features of the muscles in the scapular region.

b. States the layered arrangements of the muscles of the back.

c. Names and identifies the muscles of the scapular region. Mentions their origin, insertion, nerve supply and actions.

d. Demonstrates the bony land marks of scapula, humerus and clavicle.

3. Axilla:

a. Mentions and identifies the boundaries and contents of axilla. Names the branches of axillary artery. Names and identifies the cords and branches of brachial plexus and mentions their root value.

b. Illustrates the formation of brachial plexus.

4. Shoulder girdle:

a. Comprehends and applies to function the main features of joints of the shoulder girdle. Names the joints of shoulder girdle. Identifies the articular surfaces and names the ligaments and movements of sternoclavicular and acromioclavicular joints. Mentions the types of the joints.

b. Demonstrates and names the movements of scapula. Mentions the chief muscles producing these movements. Correlates movements of scapula.

c. Assigns functional roles of the articular disc and costoclavicular ligament of sternoclavicular joint and coracoclavicular ligament.

5. Shoulder joint:

a. Mentions the type, articular surfaces and ligaments of the shoulder joint.

b. Defines and demonstrates the movements of shoulder joint.

c. Names and identifies the chief muscles producing these movements. Analyses these movements and mentions limiting factors.

d. Mentions the blood supply and nerve supply of this joint.

e. Analyses the association of movements of scapula and movements of the shoulder joints.

f. Mentions the limiting factors and the factors for its stability. Indicates applied anatomy.

6. Upper arm

a. Names and identifies the muscles at the front and back of the upper arm.

b. Names and identifies the ends, borders, surfaces and features of the humerus.Identifies the head, anatomical neck, tubercles, surgical neck, bicipital groove, condyle, capitulum, trochlea epicondyles, radial, cornonoid and olecranon fossae

c. Mentions the origin, insertion, nerve supply and actions of the muscles of the front and back of the upper arm.

d. Indicates the course, relations and distribution of radial and musculo-cutaneous nerves.

7. **Elbow joint:**

a. Mentions the type, articular surfaces and ligaments of elbow joint.

b. Defines and demonstrates the movements possible and names the chief muscles producing these movements.

c. Mentions the factors for stability and limiting factors

d. Indicates the applied anatomy.

e. Mentions the blood supply and nerve supply. f. Explains the carrying angle.

8. Forearm, wrist and hand:

a. Mentions the bones of forearm, identifies the ends, borders, surfaces and features of radius and ulna.

b. Identifies the head, neck, tuberosity and styloid process of radius. Identifies the coronoid process, olecranon process, trochlear notch, tuberosity, head and styloid process of ulna. Also the radial notch of ulna and ulnar notch of radius.

c. Names and identifies the carpal bones, metacarpal bones and phalanges in an articulated hand.

d. Identifies the muscles of front and back of the forearm

e. Mentions the position, origin, insertion, nerve supply and action of these muscles.

f. Indicates the course, relations and distribution of median, ulnar and radial nerves

g. Mentions the type, articular surface and ligaments of radioulnar joints. Defines the movements of supination and pronation. Mentions the axis and muscles producing these movements. Analyses these movements and applies to functional role in routine day to day actions.

h. Mentions the position and distribution of ulnar and radial arteries and ulnar, median and radial nerves

i. Names and locates the carpal bones. Mentions the type, articular surface and ligaments of wrist joint. Defines and demonstrates the movements and mentions the muscles producing them. Mentions its blood supply and nerve supply. Mentions the visible tendons around the wrist and their synovial sheaths

j. Predicts the result of paralysis of muscles of the forearm.

k. Mentions the functional implications of prehension in the structure of hand.

l. Indicates the arrangement of tendons of the digits, retinaculae, fibrous flexor sheaths, and synovial sheaths.

m. Evaluates the hinge type of interphalangeal joints, ellipsoid type of metacarpophalangeal joints and saddle type of carpometacarpal joint.

n. Names and identifies the small muscles of the hand. Mentions their position, origin, insertion, nerve supply and action.

o. Mentions the types of bones forming and ligaments of the joints of the hand. Defines the movement and the muscles producing these movements. Predicts the results of paralysis of the small muscles of hand.

p. Demonstrates different types of grip.

9. Nerves of upper limb:-

a. Comprehends and applies the knowledge of position and distribution of nerves

of upper limb.

b. Mentions the root value of the nerves.

c. Identifies the nerves and mentions the position, course, relations and distribution of nerves of upper limb.

d. Predicts the result of injury to these nerves.

10. Blood vessels of upper limb:

a. Comprehends and applies the knowledge of the position and distribution of blood vessels and lymph nodes.

b. Traces the main arteries and veins.

c. Indicates their position and names the main branches and tributaries.

d. Names and locates the lymph nodes

11. Cutaneous Nerves of upper limb:

a. Names the cutaneous nerves and illustrates the areas of their distribution.

b. Illustrates the dermatomes

O.LOWER EXTERMITY

1. a. Names, identifies and orientates to hip bone, femur, tibia, fibula and patella.

b. Identifies the components and features of hip bones. Identifies the ends, borders, surfaces, head, neck, trochanters, condyles and epicondyles of femur and the features of the tibia and fibula.

c. Identifies and mentions the origin, insertion, nerve supply and action of the muscles in the front of thigh.

d. Mentions the boundaries and contents of femoral triangle and subsartorial canal.

e. Indicates the position, course and distribution of femoral nerve.

f. Indicates the course and main branches of femoral artery and mentions the blood supply of neck of femur.

g. Indicates the position of femoral vein.

2. Medial side of thigh:

a. Names and identifies the muscles of the medial side of thigh. Mentions their origin, insertion, nerve supply and action.

b. Indicates the course, relations and distribution of obturator nerve

3. **Back of thigh:**

a. Identifies and mentions the position, origin, insertion, nerve supply and action of the hamstring muscles.

b. Indicates the position, course, relation and distribution of sciatic nerve

4. Gluteal region:

a. Identifies and mentions the position, origin, insertion, nerve supply and action of the muscles.

b. Names and mentions the position and course of the nerves found there and names the arteries there.

5. Hip joints:

a. Mentions the type, articular surface and ligaments.

b. Defines the movements and names the chief muscles producing the movements

c. Mentions the blood supply, nerve supply, factor for stability and limiting factors

d. Indicates applied anatomy.

6. Knee joint:

a. Mentions the type, articular surfaces, and ligaments. b. Defines the movements and names the chief muscles for the movements. c. Analyses the movements. d. Knows the blood supply and nerve supply. e. Indicates applied anatomy. f. Defines locking and unlocking of the joint.

7. **Popliteal fossa:**

a. Indicates the boundaries and contents

b. Mentions the position and branches of tibial and common peroneal nerves.

8. **Front of leg and dorsum of foot:**

a. Names and identifies the tarsal bones, metatarsal bones and phalanges in an articulated foot.

b. Names and identifies the muscles.

c. Mentions the positions, origin, insertion, nerve supply and action of the muscles.

d. Position and distribution of deep peroneal nerve

e. Indicates the position and attachments of extensor retinaculae.

f. Mentions and identifies the features of the tibia and fibula.

9. Lateral Side of leg:

a. Names and identifies the muscles.

b. Mentions the position, origin, insertion, nerve supply and action of muscles.

c. States the position, course and distribution of superficial peroneal nerve.

d. States the position and attachment of peroneal retinaculae.

10. Back of leg and sole of foot:

a. Name and identifies the features of the bones of the foot.

b. Names and identifies the muscles of back of leg.

c. Mentions the position, arrangement, origin, insertion, nerve supply and action of the muscles.

d. States the position, course and distribution of tibial nerve.

e. States the position, and distribution of posterior tibial artery.

f. Mentions the position, and attachment of flexor retinaculum.

g. Mentions the arrangement, origin, insertion, nerve supply and action of muscles of the foot.

h. Indicates the types of formation, and factors for the maintenance of the arches of foot. i. Mentions the type, articular surface, ligaments, movements, chief muscles for the movement, axes of movements and applied anatomy of tibiofibular joints, ankle joints, subtalar joints, M.P. joints and I.P. joints. j. Palpates and identifies the tendons around the ankle and dorsum of foot.

11. Nerves:

a. Indicates the position, formation and branches of lumbar and sacral plexuses.
b. Mentions the root value of the nerves.
c. Mentions the position, course, relation and distribution of the nerves.
d. Predicts the result of injury to the nerves
e. Illustrates cutaneous innervation of dermatomes

12. Blood vessels:

a. Indicates the position of arteries and their main branches.
b. Indicates the position of veins and their main tributaries.
c. Indicates the position of lymph nodes.

P.TRUNK - THORAX – ABDOMEN

Vertebral Column:

1. States the basic osteology of vertebral column.

2. Identifies the parts of a typical vertebra. Identifies and states the main features of typical vertebra of each group of vertebrae. Identifies a typical vertebrae.

3. States the form, structure and movements of joints of the vertebral column. Mentions the movements and the muscles producing them.

4. Identifies the intervertebral disc and mentions its parts.

5. States the formation and ligaments of the intervertebral joints.

6. Names and identifies the curvatures of the vertebral column and indicates deformities.

7. States the contents of vertebral canal.

THORAX:

1. a. States the main features of the bones and joints of thoracic cage. Mentions the boundaries

b. States the parts and features of sternum.

c. Defines true, false and floating ribs. Mentions the parts and features of typical ribs. Knows the main features of a typical rib.

d. Mentions the type and formation of the joints between rib and vertebrae, between costal cartilage and sternum, and between costal cartilages.

e. Mentions the type and formation of joints between parts of sternum. Indicates the importance of sternal angle.

f. Analyses pump handle and bucket handle movements of ribs.

g. Palpates bony land marks such as jugular notch, sternal angle, xiphisternum and spines of thoracic vertebrae.

2. a. Defines intercostal space and lists the contents. Mentions the course and branches of typical intercostal nerve. Names the muscles of thorax. Mentions the origin, insertion, nerve supply and action of intercostal muscles and diaphragm.

b. Names the structures passing though the diaphragm and mentions the orifices in the diaphragm.

3. a. Defines the boundaries and subdivisions of the mediastinum and lists the contents. Identifies the contents. b. States the features of thoracic parts of sympathetic trunk

Abdomen:

1. a. Mentions the main features of lumbar vertebrae, sacrum and coccyx.

b. Mentions the formation and subdivision of the bony pelvis. Lists the features of the female bony pelvis and their roles.

c. Mentions the type, articular surfaces, ligaments and movements of the joints of pelvis.

2. a. Defines abdominal cavity.

b. List the layers of anterior abdominal wall. Names and mentions the origin, insertion, nerve supply and action of the muscles and the features of these muscles.

c. Explains the formation of rectus sheath and lists it contents.

d. Defines inguinal canal and knows its position, extent, formation and contents. Indicates its clinical importance. Defines inguinal hernia.

e. Names and identifies the muscles of posterior abdominal wall. Gives their origin, insertion, and action. Lists the organs on the posterior abdominal wall. Names the blood vessels on the posterior wall.

f. Mentions the position and formation of lumbar plexus. Names its branches.

g.States the anatomy of lumbar region. Understands the disposition of muscles of the back in layers. Mentions the arrangement of lumbar fascia. dentifies the muscles in lumbar region. Understands the lumbar roots to abdomen.Identifies and mentions the attachments and actions of the large muscles of back. (at least the ones ending capitis)

h. Distinguishes abdominal cavity and peritoneal cavity.

i. Mentions the features of lumbar part of sympathetic trunk and other sympathetic ganglia.

j. Mentions the branches and distribution of the abdominal aorta and iliac arteries.

k. States the inferior vena cava and iliac veins and mentions their tributaries.

Q. PELVIS

1. States the main features of subdivision, boundaries, walls and floor of pelvis.

2. Mentions the features of the pubic symphysis and sacro-iliac joints.

3. Distinguishes and mentions the major differences between the male and female pelvis.

4. Identifies the muscles of the pelvic floor and mentions their attachments, actions and nerve supply.

5. Mentions the structures of the urogenital diaphragm.

R. HEAD AND NECK

Musculo skeletal and neurovascular features. Identifies the anterior and

posterior triangles of neck. Names the subdivisions.
List the contents.

1. a. States the main features of the skull and the facial skeleton.

b. Identifies the large skull bones and their parts.

c. Identifies the cranial fossae and hypophyseal fossa.

d. Identifies the internal and external auditory meatuses. Foramen magnum and stylomastoid foramen and names the main structures passing though them.

e. Identifies and names the main muscles of the face. Mentions their nerve supply and action.

f. Predicts the results of paralysis to the facial muscles and sequel of injury to the facial nerve (VII nerve)

g. Maps the cutaneous distribution of the three divisions of the trigeminal (Vth) nerve on the face.

2. a. Identifies the general feature of a typical cervical vertebra, atlas, axis and seventh cervical certebra.

b. Identifies the erector spinae, sternomastoid and scalene muscles geniohyoid. Mentions their attachments, actions and nerve supply.

c. Identifies the phrenic, accessory and vagus nerves. Mentions their distribution.

d. Identifies and states the position, distribution and root values of the nerves of cervical and brachial plexuses.

e. Demonstrates the action of sternomastoid.

f. Mentions the type, articular surfaces, ligaments, movements, and muscles producing these movements, at the atlanto-occipital and atlanto-axial joints. Demonstrates these movements and the movements of the cervical part of vertebral column.

3. a. Identifies the subclavian, vertebral and carotid arteries. Mentions the position and extent of these arteries.

b. Identifies the components of the Circle of Willis. Mentions the distribution of internal and external carotid and vertebral arteries. Predicts the sequelae of occlusion of these arteries.

c. Identifies the internal jugular and subclavian veins. Mentions their position, formation and termination.

4. a. States the basic organization of the autonomic nervous system.

b. States the sites of craniosacral and thoracolumbar outflows.

c. Defines the modes of distribution of pre and postganglionic efferent neurons in sympathetic and parasympathetic nervous system.

d. Names the cranial nerves containing parasymphathetic fibres and mentions their distribution.

e. Distinguishes between sympathetic and parasympathetic systems in relation to their functions.

Eye:

1. States the position of the lacrimal apparatus, the functional implications of structure of the eye and the lacrimal apparatus.

2. Names and illustrates the coats, their subdivisions, the refractive media, the chambers of the eye and the optic nerve.

3. Mentions the structure of retina and optic pathway.

4. Has a basic understanding of the light and accommodation reflex. (omitting the pathway).

5. Mentions the distribution of the three divisions of trigeminal (Vth) nerve

6. Names and states the nerve supply and simple actions of the extraoccular muscles.

7. Predicts the results of lesions of 3^{rd}, 4^{th} and 6^{th} cranial nerves.

Nose:

1. Names the bony components of the nose.

2. Mentions the parts and boundaries of the nose.

3. States the main features of the nasal cavity.

4. Names and identifies the para nasal air sinuses and locates their openings.

Temporo mandibular joint:

1. States the type, articular surface, ligaments, possible movements, muscles performing the movements and nerve supply of the temporomandibular joint.

2. Palpates and identifies the joint and its articular surfaces.

3. Identifies and names the muscles of mastication. Mentions their actions and nerve supply.

Mouth:

1. States the main features of the mouth cavity, tongue, palate, salivary glands, teeth and gums.

2. Mentions the sensory and motor innervation of the tongue.

3. Identifies the salivary glands.

4. Demonstrates movements of the tongue and palate.

5. Tests and produces the swallowing (gag) reflex.

6. Predicts the sequelae of lesions of the VIIth and XIIth cranial nerves.

Pharynx:

1. States the position and extent of the pharynx.

2. States the three subdivisions and features of each subdivision.

3. Names the muscles of pharynx and their action.

4. Mentions the sensory and motor innervation of the pharynx.

Larynx and trachea:

1. Identifies the hyoid and states its parts.

2. Identifies the larynx and names the laryngeal cartilages.

3. States the boundaries of laryngeal inlet and glottis.

4. Identifies the vocal and vestibular folds.

5. States the movement of the laryngeal cartilages. Names the laryngeal muscles and mentions their attachments, action and nerve supply.

6. Defines the position, extent and gross structure of the trachea.

7. States the mechanics of phonation and speech, production of sound voice and speech.

Ear:

1. States the basic structural plan of the organs of hearing and equilibrium.

2. Mentions the three subdivisions of the ear.

3. Mentions the nerve endings for hearing and equilibrium

Cranial nerves:

1. Enumerates the cranial nerves in serial order.

2. Relates and interprets the number to the names.

3. Indicates the nuclei of origin of the cranial nerves.

4. Mentions the attachments to the brain and the cranial exit

5. State the sensory and motor distribution.

6. States the position and course of VII nerve.

7. Predicts the sequel of lesion.

EVALUATION

Internals : Theory and Oral
10 marks For Anatomy Record to be included in internals.
University: Theory and Oral

PHYSIOLOGY

Examination at end of 1st year Instruction hours: **150**

COURSE DESCRIPTION

This course which runs concurrently with the Anatomy course helps the student to understand the basis of normal human physiology with special emphasis on the functioning of the cardio-vascular, musculo-skeletal and nervous systems.

COURSE OBJECTIVES

The objectives of this course is that after **150** hours of lectures, demonstrations and practicals the student will be able to demonstrate an understanding of elementary human physiology. (Deleted and Clinics)

The student will be able to fulfill the following objectives of the course.

LECTURE OUTLINES

A. CELL INTRODUCTION

Outline basic cell structure, functions of components; transport across membranes

B. HOMEOSTASIS AND FEEDBACK SYSTEMS

Describe the concept of maintenance of internal environment. Recognize that negative feedback is the most common type of physiological control. State and describe examples of negative feedback. State and describe instances of positive feedback in human physiology.

C. BODY FLUIDS

- List the different body fluid compartments. Total body water.
- Describe the Starling's forces that govern fluid exchange across the membranes separating the various compartments.
- Describe oedema and its causes in terms of Starling's forces.

D. MEMBRANE TRANSPORT

Classify transport mechanisms as passive and active and differentiate between them.

Describe the passive transport processes:

- Simple diffusion of respiratory gases through lipid film
- Diffusion of ions through ion channels
- Facilitated diffusion -Glucose transporters (GluTs)
- Osmosis

Describe the active transport processes:

- Primary active transport: sodium-potassium pump
- Secondary active transport: sodium-glucose co-transport, sodium-amino acid co-transport

E. MEMBRANE POTENTIAL

Describe the mechanisms involved in genesis of the resting membrane potential (RMP) in a prototype cell .Describe Action potentials in neuron, skeletal muscle cell

F.BLOOD

Blood Composition:

Describe the normal composition of blood. Describe the composition of plasma State the difference between plasma and serum.

Plasma proteins, Erythrocyte Sedimentation Rate (ESR):

State the site of production, normal range and describe the functions of Plasma Proteins.

Albumin: Discuss causes for decrease in serum Albumin levels with specific examples of disease conditions

Explain what plasma oncotic pressure is

Define and state normal values for ESR in men and women.

Describe the factors influencing ESR (fibrinogen particularly)

Red Blood Cells and Erythropoiesis:

Describe the physical characteristics of red blood cells .State the normal RBC count Explain the functions of RBCs sites of erythropoiesis, list the major changes that take place during the stages of erythropoiesis. Describe the factors regulating/affecting erythropoiesis, Discuss the normal life span and destruction of RBCs Define Packed Cell Volume (PCV)/Hematocrit and state normal range for men and women

Hemoglobin:

State the components of Hb, the vdietaryarious types of Hb and normal range of Hb in men and Women State what is reduced hemoglobin Define and describe cyanosis Describe abnormal hemoglobins and list diseases associated with abnormal Hemoglobins. Describe the process of breakdown of Hb

Anemia:

Define anaemia Classify anaemia based on aetiology and morphology

Polycythemia:

Define what is Polycythemia

Platelets:

State the normal platelet count Describe the functions of platelets. Discuss the causes and effects of thrombocytopenia.

Hemostasis:

Describe the processes involved in hemostasis such as:

Vasoconstriction

Platelet plug formation

Clotting or coagulation pathways

Clot retraction

List anticoagulants and their mechanism of action

List tests of hemostasis such as platelet count, Prothrombin Time, Activated Partial Thromboplastin time and clotting factor assays.

Blood groups and blood banking:

Describe the importance of blood groups

Explain the genetic determination of blood groups

Describe the ABO system of blood grouping

State the frequency of different blood groups

Describe the Rh system of blood grouping

Explain the mechanism and consequence of ABO and Rh incompatibility

Explain the condition Erythroblastosis Fetalis, state preventive measure and treatment option for the same. Discuss the presence of other minor blood group systems

Blood grouping/typing; Cross match

White blood cells:

State the normal Total and Differential count; Classify types of WBC as granulocytes, agranulocytes Describe the functions of neutrophils, eosinophils, basophils, mast cells; Lymphocytes, monocytes.

List conditions in which total leucocyte counts is increased or decreased

Describe the various cells that constitute the monocyte - macrophage system and state their function

G. IMMUNITY

Classify immunity and state the differences between innate and acquired

immunity. Discuss the cells and mechanisms involved in innate immunity .Name the lymphoid organs in the body and outline the development of T and B cells Classify acquired immunity and mention the cells involved in acquired immunity .Describe the cells and mechanisms involved in cell mediated immunity .Describe the cells and mechanisms involved in humoral immunity Classify immunoglobulins and state their functions Explain primary and secondary immune response

H.LYMPH

Describe the formation and composition of lymph

Illustrate the lymphatic circulation.

Discuss functions of lymph

Discuss the pathophysiology of lymphedema.

I. GASTRO INTESTINAL SYSTEM

Salivary Glands:

List the salivary glands; describe the functions of saliva .Describe the regulation of salivary secretion

Gastric Secretion:

Describe the composition and functions of gastric Secretion State the role of chief cells and parietal cells describe the mechanism of gastric acid secretion. Discuss the regulation of gastric secretion .Describe the different phases of gastric secretion Explain the importance of mucus-bicarbonate barrier .Explain the physiological basis for the use of proton pump blockers and histamine receptor blockers for peptic ulcers. Explain causes for acid peptic disease

Gastric Motility:

Explain the process of mixing of food in the stomach Explain the factors influencing gastric motility and gastric emptying .Describe the mechanism of vomiting

Pancreatic Secretion:

Name the pancreatic enzymes, state how they are activated and list their functions

State the role of enterokinase

State the reason for the alkaline pH of pancreatic secretion and its importance

Explain the regulation of pancreatic secretion

Small intestine:

Describe the secretions of small intestine and their functions. Describe the regulation of small intestinal secretion

Movements of small intestine:

Describe what is Peristalsis, state the stimuli for peristalsis and factors influencing peristalsis

Movements and function of large intestine:

Describe what is Peristalsis, state the stimuli for peristalsis and factors influencing peristalsis

State what is segmentation contractions or mixing contractions.

Describe the functions of large intestine and formation of faeces.

State the importance of dietary fibre

Illustrate the Defecation reflex

Liver:

Describe the functions of liver. Describe the composition and functions of Bile

Explain Micelle formation and function. Explain what emulsification of fat is

Gall bladder:

Explain the function of Gall Bladder. State the factors regulating bile secretion

Gastro intestinal hormones:

State the source; describe the functions and regulation of secretion of Gastrin, Cholecystokinin and Secretin

Enteric nervous system:

State the location and components of the enteric nervous system. Explain the functions of the Myenteric plexus and Meissner's plexus Explain the effect of the autonomic nervous system on the enteric nervous system

J. MUSCLE

Morphology:

Describe and draw the structure of sarcomere marking actin filament, myosin filament, I band, A band, H band, Z line and sarcomere Describe the functions of contractile and regulatory proteins involved in muscle contraction

Sarco-tubular system:

Draw and describe the structure of the sarco-tubular system

Neuromuscular junction

Draw and describe the structure of the neuromuscular junction

Neuromuscular transmission:

Describe the events involved in neuromuscular transmission

Excitation-contraction coupling Contraction Relaxation Types of contraction:

Describe the events involved in excitation contraction coupling Describe the sliding filament theory of muscle contraction Describe the role of ATP and calcium pumps in the mechanism of relaxation of the muscle Describe the difference between isotonic and isometric muscle contractions

Muscle Metabolism:

List the energy sources for muscle contraction

Motor Unit:

Define a motor unit

Denervation:

List the features of denervation like atrophy and fasciculations

Structure:

Compare structural differences and similarities between skeletal, cardiac and smooth muscle

Types:

List the differences between unitary and multi-unit
smooth muscle

Factors modulating smooth muscle contraction:

List the various factors that modulate smooth muscle contraction like stretch, sympathetic nervous system, parasympathetic nervous system, circulating substances etc.

Properties

Describe special properties of smooth muscle like latch-bridge mechanism and plasticity

XI ENDOCRINE

Classify and list the hormones based on chemical nature

Describe negative and positive feedback regulation of hormone release

Describe the mechanism of action of hormones including the receptors and second messengers list the various modes of transport of hormones in the blood

Hypothalamus:

Describe the relationship between hypothalamus and pituitary including the hypothalamo hypophyseal tract and the hypothalamo hypophyseal portal circulation list the various releasing and inhibiting hormones released by the hypothalamus.

Pituitary Gland

List the various hormones secreted by the anterior and posterior pituitary

List the important actions of growth hormone, its effects on growth and metabolism

Growth hormone

Recognize that insulin-like growth factor (IGF) or Somatomedin is the mediator for the actions of growth hormone

Describe the regulation of growth hormone secretion

List the important stimuli that can increase or decrease growth hormone secretion

Abnormalities of growth hormone secretion:

Describe the physiological basis and important features of growth hormone abnormalities like gigantism, pituitary dwarfism and acromegaly

Prolactin:

Describe the actions of prolactin and regulation of prolactin secretion

Antidiuretic hormone:

List the important actions of ADH

List the important factors that increase or decrease ADH secretion

Describe the causes and features of Diabetes Insipidus

Oxytocin:

List the important functions of oxytocin and stimuli for secretion

Thyroid Gland:

Describe the transport of thyroid hormone

List the important functions of thyroid hormones

Pathophysiology of thyroid hormones:

List the causes and describe the features of hypothyroidism and cretinism

List the causes and describe the features of hyperthyroidism

Describe the various thyroid function tests

Adrenal Gland:

List the hormones secreted by the different layers of the adrenal cortex

Glucocorticoids:

List the major functions of glucocorticoids

Describe the regulation of glucocorticoid secretion

Diseases related to glucocorticoids:

The student must be able to list the causes and features of Cushing's syndrome

Mineralocorticoids:

List the important actions of mineralocorticoids

List the major factors that can regulate the secretion of mineralocorticoids

Disorders of mineralocorticoid secretion

List the features of primary hyperaldosteronism or Conn's syndrome

Adrenal insufficiency:

List the causes and features of Addison's disease

Adrenal medulla:

List the physiological effects of epinephrine and nor-epinephrine on various systems of the body and the factors that regulate the secretion of adrenal medullary hormones

Parathyroid hormone:

List the major actions of parathyroid hormone

Describe the regulation of parathyroid hormone secretion

Hyperparathyroidism:

List the features of hyperparathyroidism/tetany

Hyperparathyroidism:

List the features of primary hyperparathyroidism

Vitamin D and Vitamin D Deficiency:

Describe the important actions of vitamin D

List the features of vitamin D deficiency in children and in adults

Calcitonin:

The student must be able to list the actions of calcitonin

Pancreas:

Name the different cells in the pancreatic islet and their secretions

Insulin:

List the important actions of insulin

List the various factors that regulate insulin secretion

Diabetes Mellitus:

Compare and contrast Type I and Type II Diabetes

Mellitus and their complications

Hypoglycemia:

List the feature of hypoglycemia and the counter regulatory hormones

Glucagon:

List the important actions of glucagons

Renin-angiotensin system:

List the important actions of angiotensin II

Describe the regulation of renin secretion

Atrial natriuretic peptide (ANP)

List the important actions of ANP

Role of hypothalamus and melatonin on circadian rhythm

XXI. REPRODUCTION

Pituitary gonadotropins and prolactin Puberty Menopause:

Describe the functions and regulation of secretion of pituitary gonadotropins and prolactin Explain the changes that occur during puberty Define menopause

Male reproductive Physiology:

Describe the functional anatomy of the male reproductive tract (Testis seminiferous tubules, Sertoli cells, Leydig cells, Blood Testis barrier, Epididymis, Vas deferens, Seminal vesicle, Prostate gland). Discuss factors that regulate Spermatogenesis Describe the structure of spermatozoa Describe the source and functions of testosterone and dihydrotestosterone

Female reproductive system:

Describe the Functional anatomy of the female reproductive system Outline the stages of Oogenesis Describe the development of ovarian follicles (Stages of follicle development , ovulation, luteinisation, luteal regression) Describe the control of follicular development, ovulation and luteinisation (role of FSH, estrogen and LH) Describe the process of follicle attrition List the hormones produced by the ovary

Discuss the functions of estrogen and progesterone Discuss the physiological basis of use of synthetic estrogens and progestins as oral contraceptives Describe the physiological changes occurring in ovaries, uterus, cervix , vagina and breast during a menstrual cycle Discuss and illustrate the hormonal changes during the menstrual cycle (changes in FSH, LH, estrogen and progesterone)

Describe the mechanism of ovulation State the importance of detecting ovulation and the time of ovulation State the tests for ovulation and their physiological basis

Contraception:

Classify contraceptive methods Describe the physiological basis of the various methods of contraception

Pregnancy and parturition:

Outline the process of fertilization, implantation and placental formation Discuss the importance of corpus luteum of pregnancy Discuss the functions of placenta. Discuss the secretion and function of hCG from the placenta. State the physiological basis of immunological tests for pregnancy based on hCG. Describe the role of hormonal and mechanical factors influencing labor

Lactation:

Describe the Role of estrogen and progesterone in breast development Describe the mechanism that causes initiation of lactation after delivery Describe the role of Prolactin in lactation Describe the Milk ejection reflex

XIII. EXCRETION

Functional anatomy of the kidney

Describe the gross anatomy of the Kidney.

Glomerular filtration and renal blood flow:

Describe the factors affecting glomerular filtration, Describe the mechanisms of auto regulation of renal blood flow and Glomerular filtration rate. Describe the structure of the Juxtaglomerular apparatus Describe the role of the Juxtaglomerular apparatus in the auto regulation of GFR and RBF (TG feedback) and the regulation of blood pressure via the Renin-AT-Aldosterone axis

Functioning of the Proximal Convoluted Tubule

Describe the reabsorption of sodium, chloride and water in the proximal tubule Describe the functioning of the important sodium transporters in PCT – sodium-glucose, sodium-amino acid co-transporters and sodium-hydrogen exchanger in

the luminal border, sodium-potassium pump in the basolateral border. Discuss the renal handling of glucose, bicarbonate and amino acids in the PCT Recognize the almost complete reabsorption of glucose, bicarbonate and amino acids in the PCT

Functioning of the Loop of Henle (LOH)

Distinguish between permeability characteristics of the two limbs of loop of Henle. Describe the role of the Na/2Cl/K transporter and the sodium potassium pump in the thick ascending limb (TAL) Describe the function of the Function of LOH in the creation of hyperosmolar medullary interstitium (MI) by the two mechanisms: i. Active transport of salt in TAL segment ii. Counter current multiplication of the active transport Describe the role of the vasa recta in maintaining the hyperosmolarity of the medullary interstitium by counter-current exchange.

Functioning of the Distal Convoluted Tubules (DCT)

Describe the regulated reabsorption of sodium (aldosterone) via Epithelial sodium channels (ENaC) and Na/Cl symporter in luminal border Describe the regulated secretion of potassium (aldosterone) via potassium channels in luminal border Describe the action of Atrial Natriuretic peptide

Functioning of the Collecting duct (CD)

Describe the role of ADH in regulated water absorption Describe the role of the hyperosmolarity of the medullary interstitium, created by the Loop of Henle in producing a gradient for water absorption.

List the abnormal constituents in urine Recognize the normal urinary volume Discuss the significance of the presence of albumin in urine Discuss the role of serum creatinine in the measurement of renal function

Regulation of osmolarity, Na+ and K+ levels

Describe the role of osmoreceptors in sensing body fluid osmolarity. Describe the mechanism of sensing thirst. Describe the role of ADH, Aldosterone, Angiotensin II and ANP in sodium and water balance. Discuss the effect of aldosterone in the renal handling of K+ at DCT

XIV REGULATION OF ACID BASE BALANCE:

Describe the different buffer systems in the body

Explain the respiratory regulation of acid base balance

Describe the role of the kidney in regulation of acid base balance

XV RESPIRATION

Functional anatomy

List the parts of the respiratory tract Describe the structure of alveolus & alveolo-capillary membrane.

Pulmonary Ventilation

State the normal respiratory rate and define inspiration & expiration .List the muscles of inspiration, expiration & accessory muscles of respiration .Discuss the factors affecting airflow between the atmosphere and alveoli .State the recoil nature of Lungs and chest wall .State the values of intra alveolar pressure, Intra pleural pressure .Discuss the changes in alveolar and intra pleural pressures during respiration

Explain the action of autonomic nervous system on bronchial tone .List histamine as a bronchoconstrictor .Recognise that airway resistance is increased in obstructive lung diseases .Define lung compliance and relate it to clinical conditions in which it is altered .State clinical conditions in which work of breathing is increased

Lung volumes and capacities Alveolar Ventilation

Define the lung volumes and capacities; state the normal values and discuss their physiological variations .Explain the recording of the Spirogram with a diagram and recognize the volumes and capacities which cannot be measured by spirometry .Discuss the physiological significance of the Residual volume & functional residual capacity .Describe the forced expiratory spirogram and describe FEV1, FVC and the FEV1/FVC ratio and its variations in obstructive and restrictive lung diseases. .Define peak expiratory flow & state its normal value

Define minute ventilation, anatomical dead space, physiological dead space & alveolar ventilation .Discuss the effect of changes in respiratory rate and tidal volume on alveolar ventilation

Pulmonary circulation and Ventilation/ Perfusion ratio

Explain the regional differences in perfusion, ventilation & V/Q ratio in the lungs.

State normal values of V/Q ratio

Gas Exchange

Discuss the factors that affect rate of gas exchange at lung & tissue level, with application to clinical conditions .State Fick's law of diffusion .Discuss normal composition of atmospheric, tracheal and alveolar air and recognize the conditions which can affect it .Discuss the normal partial pressures of gases in blood entering and leaving lung .Explain oxygen uptake and carbon-dioxide elimination by lungs & tissues and state the normal rates of the same.

Transport of oxygen

Explain the forms of oxygen transport in blood .Discuss hemoglobin affinity for oxygen .Explain & illustrate oxygen-hemoglobin dissociation curve and discuss the factors affecting it and the physiological advantages of the curve .Discuss oxygen carrying capacity of blood .Define hypoxemia and hypoxia; explain the physiological basis of types of hypoxia with examples .Define cyanosis

Transport of Carbon dioxide

Explain the forms of carbon dioxide transport in blood .Explain the role of chloride shift

Exercise

Describe the effects of exercise on the respiratory system and explain the physiological basis of these effects; explain the physiological need for these changes

Define VO2 max and oxygen debt

Physiological adaptations in special environments

State the physiological adaptations occurring at high altitude

Miscellaneous

List the Non-Respiratory functions of lung

XV CIRCULATION

Functional anatomy of heart

Describe the functional anatomy of the heart, with respect to its chambers, valves, input and output vessels, AV ring and electrical discontinuity, Conducting system, Coronary supply

SA node

Describe the following: Contour of SA node action potential Currents responsible for generation of SA node action potential: The funny current (If), T-type calcium current (ICaT), L-type calcium current (ICaL) Intrinsic rate of the SA node and influence of autonomic nervous system, hormones and temperature. Sinus arrhythmia, sinus bradycardia, sinus tachycardia

Ventricular cell

Describe the contour of the ventricular action potential with the aid of a diagram Describe the ionic currents responsible for phases 0,1,2,3,4 of the ventricular action potential Describe excitation-contraction coupling State the basic concepts of the sliding filament theory of contraction

Atrial cell

Recognize that AP in atrial cell is similar to ventricular cell (fast AP

ECG

Describe the electrocardiogram as a surface recording of electrical changes occurring on the external surface of the heart during the passage of an action potential. Identify the lead which is commonly used to monitor patients continuously. Describe the P, QRS, T and U waves of an ECG in lead II configuration and describe the electrical events responsible for these waves Describe PR and QT intervals and state what they represent Describe the significance of ST segment being on the isoelectric line in a normal ECG

List the ECG changes in the following conditions:

Myocardial infarction

Properties of cardiac muscle: Automaticity

Describe the function of the sinoatrial node as the pace-maker of the heart Describe the determinants of heart rate and the neural and chemical regulation of heart rate

Excitability and Refractorines

Define refractory period, describe its relation to the duration of the ventricular action potential, and state its physiological significance

Conductivity

Describe the normal mode of conduction of the cardiac impulse

Contractility

Describe the determinants of force of contraction of the ventricle in terms of Preload (Starling's law) ,Afterload oInotropic status (contractility) ,Frequency (or heart rate), (Bowditch phenomenon or Force-frequency relation)

Discuss the clinically measurable parameters reflecting preload, afterload and force of contraction of the heart Describe Starling curves or ventricular function curves

Describe events in a cardiac cycle

Stroke volume

Discuss the determinants of stroke volume

Cardiac output

Discuss the determinants of cardiac output Describe the regulation of cardiac output

Vascular Physiology

Describe the function of Aorta and large Arteries as elastic, windkessel vessels Describe the role of arterioles as resistance vessels Describe the term Total Peripheral resistance (TPR) discuss the determinants of TPR and the relationship of TPR to blood pressure and cardiac output

Discuss the role of capillaries as exchange vessels describe the Starling's forces determining fluid movement across the capillary membrane Describe the function of Veins as capacitance vessels Define the term Venous return (VR) and discuss

its role as preload Describe the determinants of VR Discuss the significance of assessing jugular venous pulse

Blood pressure

Define the following terms: Mean arterial blood pressure, Systolic pressure, Diastolic pressure, pulse pressure Describe the determinants of blood pressure Discuss the short-term (neural and hormonal) and long term (renal) mechanisms regulating blood pressure (with special reference to shock and exercise).

Effects of exercise on cardiovascular system

Discuss the effects of exercise on the cardiovascular system

Hypertension

State the normal ranges for systolic and diastolic blood pressures in the various age groups Define hypertension

Hypotension or Shock

Define the term ‘Shock’ or Cardiovascular shock State the different types of shock Discuss the pathophysiology of the following types of shock: Hypovolemic, cardiogenic, Distributive (septic, anaphylactic, neurogenic) Obstructive

Heart failure

Define the term cardiac failure or heart failure. State the clinical features of left heart failure and right heart failure. Define the term congestive cardiac failure

Myocardial infarction or heart attack

Define the following terms: Angina Ischemia Myocardial infarction or heart attack

XVI NERVOUS SYSTEM

Organization of the nervous system

Describe the classification of nervous system and the

Components of the following divisions:

CNS

PNS

Somatic NS

Autonomic NS

Enteric NS

Neural tissue

State the cell types present in the nervous system Describe the morphology of different types of neurons and neuroglia Describe the process of myelination and its significance Differentiate between white matter and grey matter. Define the terms ‘nuclei’ and ‘ganglia’

Peripheral nerve fibres

Define the term ‘Peripheral nerve’. State the types of fibres in a mixed peripheral nerve. Describe Ehrlanger & Gasser’s classification of peripheral nerve fibres Describe nerve injury, degeneration and regeneration of injured fibres

Electrical properties of the nerve cell membrane

Describe the ionic basis of resting membrane potential of a nerve cell. Describe the term electrotonic potentials with reference to:

‘receptor or generator potential’ in a sensory receptor

‘excitatory or inhibitory post-synaptic potentials (EPSP and IPSP)’ in a post-synaptic neuron

‘end-plate potential’ at the neuromuscular junction

Define the term ‘Action potential’ and describe the currents responsible for the different phases of the action potential in the neuron. Describe the process of transmission of action potential in unmyelinated and myelinated neurons Describe the phenomenon of saltatory conduction in a myelinated neuron. List the factors affecting conduction velocity in a nerve

Neurotransmitters

List the important small molecule neurotransmitters in the CNS and their receptors: oGlutamate and its ionotropic receptors: NMDA, and non-NMDA GABA ,Glycine ,Dopamine ,Serotonin or 5-HT ,Acetylcholine ,Noradrenalin State whether the action of each of the above neurotransmitters on the various receptors is excitatory or inhibitory. State the major excitatory neurotransmitter in the CNS

State the inhibitory neurotransmitters of the CNS. State the mechanism of inhibition.

Synapses

Define the terms electrical & chemical synapse Describe the morphological features of a chemical synapse – pre and post synaptic neurons List the morphological types of chemical synapse – axosomatic, axodendritic and axoaxonic Describe the process of synaptic transmission.

Sensations

Classify the types of sensations (sensory modalities)

Sensory receptors

Differentiate between usage of the term 'Receptors' i.e., sensory receptors versus neurotransmitter or ligand receptors. List the sensory receptor for each modality of sensation : Touch receptors . Receptors for proprioception . Pain and temperature receptors. Define rapidly adapting and slowly adapting receptors

Ascending sensory pathways

State the common features of ascending sensory pathways. List the ascending sensory pathways and list the sensations carried in each pathway. Define the term 'Proprioception'.

Describe the pathways (receptors, sensory neurons, synapses in the pathway, cortical termination) for: Fine-touch and proprioception Describe the role of posterior columns or dorsal columns Describe the role of anterior spinothalamic tract Locate the primary sensory Cortex in a figure of the brain or in a model Define the term sensory homunculus Describe the 'phantom limb' phenomenon.

Describe the ways in which proprioceptive input terminates after entering the spinal cord, with special reference to the muscle spindle (Posterior column

pathway, spinocerebellar tracts, spinal reflex arcs)

Physiology of pain

Briefly describe receptors for pain. Describe the pathway for transmission of pain from receptors to the cortex. Define the following terms: Substantia gelatinosa, Lissauer's tract, fast pain, slow pain. State the type of peripheral nerve fibres carrying fast pain and slow pain respectively. Describe the gate control theory of pain Discuss the principle of using pain balms and Acupuncture for pain relief

Describe the following phenomena: Referred pain . Describe the role of endogenous opioids in pain transmission .List a few opiates used to treat pain

Motor system

Describe the features of organization of the motor system. Define UMN & LMN List the descending tracts involved in motor control. Describe origin, course, termination and functional role of the Pyramidal tracts. State why the pyramidal tracts are called so. Describe the role of corticobulbar tracts. List the extrapyramidal descending tracts. State the origin, termination and physiological role of the following extrapyramidal tracts: Rubrospinal ,Pontine reticulospinal ,Medullary reticulospinal ,Lateral vestibulospinal

Describe influence of the Extra pyramidal tracts on spinal motor neurons and spinal reflexes

Describe the effects of lesion of the pyramidal and extra pyramidal tracts respectively on the spinal motor neurons , spinal reflexes and muscle tone

Describe the physiological basis and the clinical significance of

Decerebrate Posture

Decerebrate Rigidity

Reflexes

Define the term 'reflex'. Describe the components of a reflex arc with a diagram. Classify reflexes: based on the location of receptors (deep and superficial) ,Based on number of synapses in the reflex arc (mono, di or polysynaptic) Describe in detail, the stretch reflex and its physiological significance. List the

other terms which are commonly used to refer to the stretch reflex. Identify that the clinically tested deep reflexes (or tendon jerks) are stretch reflexes. Differentiate between alpha and gamma motor neurons. Name the receptor for the stretch reflex and describe its basic structure with a diagram. State the functional role of gamma motor neurons. State the effects of supraspinal influences on the stretch reflex describe the effects of UMN lesions. Describe the effects of LMN lesions. Describe the inverse stretch reflex arc. State the stimulus and response for the inverse stretch reflex. Describe the functional role of Golgi tendon organ. Describe the physiological basis of "Clasp-knife" rigidity Describe the flexion withdrawal reflex. State its functional role? Describe Babinski's sign and state its clinical significance. List the physiological conditions, where plantar response is extensor.

UMN and LMN Lesions

Describe the features and Physiological basis of Upper motor neuron & lower motor neuron lesion. Describe the features of:

- Hemi section of spinal cord at a given level (e.g. T8, L3 etc)
- Brown Sequard syndrome
- Complete transaction of spinal cord at a given level. Define the following terms: Hemiplegia, quadriplegia, paraplegia Hemiparesis, quadriparesis & Para paresis describe the stages of spinal shock

Cerebellum

Describe the structure of cerebellum, Describe the functions of cerebellum. Describe the features of cerebellar lesions Describe cerebellar function tests.

Cranial Nerves

Basal ganglia

List the nuclei forming the basal ganglia.

Input nuclei – which receive afferents from cortex Output nuclei – which send output to thalamus and spinal cord

Describe the internal connections between input and output nuclei

Describe the origin and termination of the nigro-striatal pathway. State the neurotransmitter in this pathway.

Describe the physiological role and clinical significance of the nigrostriatal pathway

Describe the features of Parkinson's disease.

Describe the pathophysiological basis of Parkinson's disease.

Describe the organization of the reticular formation and its physiological role.

Reticular formation

Describe the ascending Reticular Activation System

Thalamus

List the functions of thalamus

Hypothalamus

Describe the functions of the hypothalamus

Limbic system

State the components of Limbic system Describe the physiological role of the limbic system recognize the central role of amygdala.

Cortex

Identify the major somatic and special sensory, motor & association areas in the cortex. Recognize the somatotopy of the motor and somatic sensory areas (homunculi) recognize the phenomena of hemispheric specialization (dominance), handedness. Define the role of corpus callosum – inter-hemispheric transfer of information

Language & speech

Define the role of Wernicke's & Broca's areas in language & speech Define aphasia and state the site of lesion in motor and sensory aphasia

Learning and memory

Describe the classification of learning and memory Describe the synaptic phenomenon associated with Short term memory. Describe the phenomenon leading to long-term memory.

Describe the role of hippocampus in memory formation. Describe the role of cerebellum in motor learning

XVII SPECIAL SENSES

Functional anatomy

List the structures within the eyeball Name the extra ocular muscles and describe their functions Describe the functions of Iris, Ciliary body, Intra-ocular muscles, Lens, Aqueous humor, Vitreous body and Optic nerve Describe the formation and drainage of aqueous humor

Optics of eye

List the structures through which light passes before falling on the retina State the important refracting surfaces of the eye and the extent of contribution of each to image formation. State that the image formed on the retina is inverted and diminished in size.

Describe the role of crystalline lens in focusing the light rays and describe the changes that happen while focusing a near object – accommodation reflex List the common refractive errors – Myopia, hypermetropia, presbyopia and astigmatism describe the cause for the refractive errors and explain their correction

Retina

List the retinal cells contributing to the visual pathway. (Photoreceptors, bipolar cells and ganglion cells) Describe optic disc, macula lutea and fovea as important structural features in the retina Classify photoreceptors – Rods and cones List major structural and functional differences between rods and cones

Light & Dark adaptation

Describe the changes that happen during dark and light adaptation

Colour vision

Name the types of photoreceptors responsible for colour vision Classify cones based on their spectral sensitivity List the types of colour blindness Describe theories of colour vision demonstrate the use of Ishihara's chart to check for colour blindness

Optic pathway

Draw and describe the optic pathway from the photoreceptors to the visual cortex Describe the visual field defects produced by lesions at various levels of the pathway

Pupillary reflexes

Describe the pupillary light reflex pathway

Eye movements

List the extra ocular muscles and describe their actions Name the cranial nerves innervating the extra ocular muscles

Functional anatomy of the ear

List the different parts of the ear. Mention functions of outer ear. List structures within the inner ear and specify their functions describe the importance of attenuation reflex

Function of cochlea

Describe the ‘travelling wave theory’ of hearing Describe the function of basilar membrane in frequency discrimination -'Place principle' of hearing

Identify an audiogram Identify a normal air-conduction and bone-conduction tracing Identify conductive hearing loss and sensory neural hearing loss using audiogram Describe the principle of Rinne’s and Weber’s test Demonstrate the technique of performing Rinne’s and Weber’s test on a subject Differentiate between conductive and sensory hearing loss

Functional anatomy of vestibular apparatus

List the structures which make up vestibular apparatus and their functions

Mechanism of stimulation vestibular hair cells

Describe the mechanism of stimulation of otolith organs -deflection of hair cells using gravitational force/inertial force of otolith membrane Describe the mechanism of stimulation of semicircular canals -deflection of hair cells using inertial force of endolymph

Vestibular pathway

Describe the connections of vestibular nucleus to the cortex and cerebellum Describe the projections through vestibulospinal tracts Describe the functions of Vestibular system -Maintenance of balance, equilibrium and posture

Microscopic anatomy of olfactory epithelium and olfactory bulb

Describe the arrangement of olfactory sensory neuron within the olfactory epithelium

Testing of olfaction

Assess the olfactory nerve of a subject

Receptors for taste

Describe the arrangement of taste cells within taste buds and organization of taste buds within papillae

Basic qualities of taste sensation

List the basic qualities of taste sensation

Taste pathway

Draw and describe the taste pathway from the anterior two-third and posterior one-third of the tongue to the gustatory cortex

PRACTICAL DEMONSTRATIONS

A. Lung volumes

B.. Effect of exercise on ventilation.

C. Physical fitness

D. Determination of BP: Effects of exercise on BP, Heart rate ,Pulse , Respiratory rate,

E. Examination of sensory and motor systems and cranial Nerves

F. Examination of superficial and deep reflexes.

G. Tests of vision (acuity and colour perception) and hearing (Rhine's test & Weber's test).

EVALUATION

Internal : Theory, Orals

University: Theory, Orals

BASIC PRINCIPLES OF OCCUPATIONAL THERAPY

Examination at the end of 1st year Instruction hours: Basic Principles: 60
Practical: 60

A. BASIC PRINCIPLES

COURSE DESCRIPTION

This is an introductory course, briefly outlining the purpose and potential of Occupational therapy. The students are exposed to clinical situations to illustrate the classroom teaching, but have no responsibility for patient treatment.

COURSE OBJECTIVES

The objective of this course is that after **60** hours of lectures, seminars, demonstrations, practical work, the student will be able to demonstrate a basic understanding of the scope and aims of occupational therapy, and a practical knowledge of Occupations and Activities used in treatment.

The student will be able to fulfill the following objectives of the course.

1. **History of Occupational Therapy**

   - Describe the history and development of Occupational Therapy internationally.
   - Describe the present development of O.T in India, including organization and functions of All India Occupational Therapist's Association.

2. **An overview of Occupational Therapy**

   - Define Occupational Therapy.
   - Discuss the scope of O.T in a major hospital for Paediatrics, Physical and Psychiatric Disorders.
   - Discuss the scope of O.T in the community

3. **Occupational Therapy and the Rehabilitation team**

   - Describe Occupational Therapy's contribution as part of the total rehabilitation team.
   - Briefly outline the roles of the different team members.

4. Occupation: Philosophy and concepts

- The concept of Occupation in Occupational Therapy
- Importance of Occupation in people's life
- Occupation as a therapeutic medium
- Therapeutic qualities of Occupation: Purpose and meaning

5. Occupation as Therapy

- Analysis of roles, occupations, tasks, activities & performance components

- Selection, Gradation and Adaptation

6. Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL)

- Purpose of evaluation
- Content of ADL and IADL evaluation
- Parameters of ADL and IADL evaluation
- ADL and IADL evaluation methods

7. Therapeutic movements and exercises in OT.

- Principles of therapeutic exercises
- Types of muscle contractions
  (Isotonic, isometric muscle contractions)
- Types of therapeutics movements
  (Passive, Active, Active assisted and resistive movements)
- Briefly outline isometric, progressive resistive and regressive resistive exercises.

8. Overview of Assessments

- Reflexes (superficial and deep tendon reflexes),
- Muscle tone
- Range of Motion
- Muscles strength
- Voluntary control
- Co-ordination
- Sensation (cutaneous and cortical)
- Cognitive - Perceptual functions
- Hand functions

9. Framework for Professional practice

- Core values and attitudes of OT practice
- OT code of ethics
- The therapeutic relationship

B.PRACTICAL

ANALYSING OCCUPATIONS AND ACTIVITIES

60 HOURS

COURSE OBJECTIVIES

The objectives of this course are that after demonstrations and practical the student will be able to demonstrate an understanding of:

- Approaches to analyze occupations and activities in OT
- Similarities and differences between Occupation and Activity analysis
- Analyzing activities in general and as experienced by the client
- Grading and adapting activities to meet the needs of clients
- Application of the activity appropriately for specific therapeutic purposes

Analyze the following occupational performance areas:

I. Self care:

a. Personal care

- Eating
- Dressing
- Personal hygiene: Grooming, Bathing and oral care
- Toiletting

b. Functional mobility

- Indoor mobility
  Accessibility within the home
- Outdoor mobility
  Accessibility outside the home environment

c. Community Management

- Transportation

- Shopping
- Finances (money management)

II. Productivity

a. Work

- Tailoring
- Clerical including Basic computer applications
- Teaching
- Agriculture

b. Home making

- Meal preparation – Gathering & transporting items, Cooking, service and clean up, dish washing

- Laundry – collecting & transporting, washing & folding, ironing, sewing

- Indoor household maintenance – bed making, dusting, floor care, bath rooms
- Outdoor household maintenance – Yard maintenance and gardening

- Child care – bathing, diapering, dressing, feeding, lifting and carrying, play and cradle care

c. School

- Writing and using of instruments
- Reading

III. Leisure & Play

- Sports
- Games (Indoor & Outdoor)
- Picnic
- Gardening
- Craft activities (any five activities)

IV Socialization

- Correspondence
- Making phone calls

Basics in Computer science with reference to Occupational Therapy

Basic Computer Science **10 hours**

Intoduction to computers – Key board usage

Hardware:

Knowledge of the following terminology - Micro processor (CPU), Memory, Monitor, Keyboard ,Storage device, hard discs, printers, Microcomputers.

Software :

Operating Systems: E.g. Windows.

Word processing Software: E.g. MS Word

Spread sheet software: E.g. MS Excel

Application Software: Power Point

Internet: searching Medline and related research –Key terms, Privacy issues and ethics.

EVALUATION

Internal : Theory, Oral, Practical and Activities Analysis File
University : Theory, Oral and Practical

Recommended Book(s) for Reference:

1.*Muscle Testing & Function* by F.P. Kendall

2. *Measurement of Joint motion : a Guide to Goniomentry* by C.C. Norkin &

D.J.White

3.*Pedretti's Practice skills for physical dysfunction* edited by Heidi McHugh Pendleton ,Winifred Schultz Krohn

4.*Occupational Therapy for Physical Dysfunction* by Mary Vining Radomski, Catherine A Trombly

5.*Occupational Therapy and Physical Dysfunction , Principles ,Skills and Practice* by Ann Turner, Margaret Foster, Sybil E Johnson

6.Willard & Spackman's Occupational Therapy

7. *Principle of Exercise Therapy* by Dena Gardiner

8. *Therapeutic Exercises* by J. Basmajian & Wolf

SECOND YEAR

Subjects

1. General Medicine Surgery and Paediatrics, ENT,Opthalmology, Pharmacology
2. Biomechanics, Applied Anatomy and Applied Physiology
3. Clinical Orthopaedics
4. Clinical Neurology
5. Fundamentals for Occupational Therapy Practice

General Medicine, General Surgery and Paedaitrics

Examination at the end of 2nd year **Instruction hours: 140**

COURSE DESCRIPTION

This course follows basic courses on Anatomy, Physiology, Psychology and Sociology. It covers relevant aspects of General Medicine, General Surgery, Paediatrics, Plastic Surgery, E.N.T. and Ophthalmology.

COURSE OBJECTIVES

The objectives of this course is that after **140** hours of lectures and seminars the student will be able to demonstrate a general understanding of the diseases that therapists would encounter in their practice. They should have a brief idea of the aetiology and pathology, symptoms, and the resultant functional disability. This would help the candidates to understand the limitations imposed by the diseases on any therapy that may be prescribed.

A particular effort has been made to avoid over burdening the students with clinical signs and diagnostic maneuvers except in certain specific diseases such as rheumatoid arthritis.

Broad outlines of goals of pharmacological and surgical therapy should be imparted in those diseases in which Physical or Occupational therapy will be an important component of over all treatment.

In addition, the student will be able to fulfill the following objectives of the course.

GENERAL MEDICINE

A.INFECTIONS

Infectious agents
Source and spread of infection
Transmission of infection

Micro –organism –host interactions
Pathology of infections
Thermo regulation

Management of infections
Prevention of infection
Infection control

Outline the mode of spread and appropriate prevention measures of the following Communicable diseases.

Bacterial -Tetanus

Viral – Herpes simplex , Zoster, varicella, Measles,German Measles , Hepatits B, AIDS. Protozoal- Filaria

B.IMMUNOLGOCIAL FACTORS:

Immune deficiency, inflammatory response, Auto immune disease, allergy

C .HAEMATOLOGY

1. Define and briefly describe clinical aspects of iron deficiency, B-12 and folic acid deficiency anaemias.

2. List types of bleeding diathesis.

3. Describe the clinical features of Haemophilia

D.RESPIRATORY TRACT

1. Bronchitis- Define, list etiological factors and describe symptoms.

2. Pneumonia –list types of pneumonia (lobar, Broncho ,aspiration pneumonias)

3. List etiological agents and briefly outline symptoms and complications of pneumonia.

4. Asthma –Define, describe briefly the etiological factors and clinical features of acute exacerbation.

5. Chronic obstructive airway diseases- Define Emphysema and chronic bronchitis. Briefly describe the pathology, symptoms of diseases and clinical course.

6. Tuberculosis- Describe the etiology, pathology and clinical features of Pulmonary TB

7. Bronchiectasis- define and describe briefly the pathology, and clinical symptoms of bronchiectasis, bronchopulmonary segments and basis of Postural drainage.

8. Emphysema-Define and briefly describe etiological factors.

9. Chest wall deformities – Define funnel chest, Pigeon chest , barrel chest , kyphoscoliosis of thoracic spine.

10. Briefly describe functional disability of Occupational , lung diseases, list pneumoconiosis.

E.CARDIO-VASCULAR SYSTEM

1. Cardiac failure- Define, list causes and symptoms

2. Rheumatic fever- Define and briefly describe etiology and gross pathology of Rheumatic heart disease.

3. Infective endocarditis- Define and outline etiology, symptoms and complications

4. Ischaemic heart disease- Outline pathology of IHD, define angina pectoris and Myocardial infarction. Describe clinical features and broadly outline medical surgical therapy.

5. Hypertension- Define and outline the clinical features complications and goals of therapy.

6. Outline pathogenesis and clinical features of: Pulmonary embolism. Deep vein thrombosis, pulmonary infarct.

7. Congenital heart disease. List ASD,VSD, Fallot’s Tetrology, and PDA,and briefly outline the pathologic anatomy.

F.BONE, JOINT AND CONNECTIVE TISSUE DISORDERS

1. Brief introduction to concept of autoimmune disease.

2. Define: systemic lupus erythmatous , Polymyositis, Dermatomyositis, polyartheritis Nodusa, Scleroderma.

3. Rheumatoid Arthritis- Describe etiology, clinical features, and complications, Drug therapy and non pharmacological therapy.

4. Osteoarthritis- Describe etiology, clinical features and complications and review nonsteroidal anti-inflammatory drugs and steroids.

G. RENAL DISEASES

1. Define and briefly outline acute and chronic renal failure.

2. Urinary tract infection. Pathogenesis. Outline common clinical conditions complicated by UTI

H. METABOLIC DISEASES

1. Diabetes –define and outline etiology. List types of Diabetes and complications and briefly outline use of insulin, diet and oral hypoglycaemic agents in management of diabetes.

2. Obesity- Define ,Outline management.

3. Hypothyroidism Hyperthyroidism. Cushing's syndrome, Hypo addrenalism or Addison's disease

I. GERIATRICS

List diseases commonly encountered in the elderly population and their role in causing disability: Hypertension, Ischaemic Heart disease, cerebrovascular accidents, Benign prostatic Hyperplasia, Cataracts and other causes of failing vision.

J. ICU CARE

Nosocomial infections, shock, Ventilatory management and poisonings

K. GASTRO INTESTINAL DISEASE

Gastrooesophageal reflux disease, Swallowing disorders

Acute hepatitis, chronic liver disease

PLASTIC SURGERY

1. Classify burns by depth & surface area, Outline causes, Medical management & precautions in the acute stage.

2. List the potential deformities due to burns, methods of prevention & Precautions. Mention cosmetic & functional treatment measures.

3. Outline plastic surgery procedures & management in rehabilitation of burns including splinting methods for common deformities and prevention of burns contractures.

SURGERY SYLLABUS

1. Describe abdominal surgical incisions.
2. Outline the post operative complications in:
    a. Nephrectomy
    b. Appendicectomy
    c. Herniorraphy
    d. Mastectomy
    e. Thyroidectomy
    f. Colostomy
    g. Adrenalectomy
    h. Cystectomy
    i. Hysterectomy
    j. Prostatectomy
    k. Cholecystectomy
    l. Illeostomy

PAEDIATRICS

1. Describe growth and development of a child from birth to 12 years: including gross motor, fine motor, social and adaptive development.

2. List the maternal and neonatal factors contributing to high risk pregnancy : inherited diseases; maternal infections-viral and bacterial; maternal diseases incidental to pregnancy, such as gestational diabetes, pregnancy induced hypertension; chronic maternal diseases such as heart diseases, renal failure, tuberculosis, diabetes, epilepsy; bleeding in the mother at any trimester.

3. Briefly describe community programmes: International (WHO), national and local, for prevention of poliomyelitis, blindness, deafness, mental retardation and hypothyroidism. Outline the immunization schedule for children.

4.Cerebral Palsy: Define and briefly outline etiology-Prenatal, perinatal and postnatal causes; briefly mention pathogenesis, types of cerebral palsy (Classification), findings on examination: General examination, examination of C.N.S. Musculoskeletal system, respiratory system, G.I. tract & nutritional status.

Briefly outline associated defects: Mental retardation, microcephaly, blindness, hearing and speech impairment, squint and convulsions.

Briefly outline treatment.

Outline prevention: Appropriate management of high risk pregnancies, prevention of neonatal and postnatal infections, metabolic problems.

5.Muscular dystrophy: Outline various forms, modes of inheritance and clinical manifestation; physical findings in relation to disabilities progression of various forms and prognosis. Describe treatment goals in forms which are and are not fatal.

6.Spinabifida, meningomyelocele: Outline development; clinical features-lower limbs, bladder and bowel control; complications-U.T.I. & hydrocephalus; medical treatment and surgical treatment.

7.Juvenile idiopathic Arthritis: classification, pathology in brief, physical findings, course & prognosis. Outline treatment, prevention and correction of deformity.

8. Acute C.N.S infections: Classify (Bacterial and viral) and outline the acute illness, CNS sequelae leading to mental retardation, blindness, deafness, speech defect, neurological deficits, bladder and bowel

problems seizure disorder and specific problems such as subdural effusion, hydrocephalus, pressure sores, feeding difficulties and Nutrition

9. Acute Flaccid Paralysis:, Causes ,Clinical features and management

10. Nutritional Requirement of the newborn and child: List dietary calories, fat, protein, mineral and vitamin requirement in a normal child and in a child with malnutrition. Classify and outline etiology, findings and treatment of Rickets: Vitamin D deficiency and resistant rickets, Vitamin A deficiency and effects.

PHARMACOLOGY

Instruction Hours: 10 Hrs

1.Introduction to Pharmacology – Terminology – Agonist – Antagonist Pharmacokinetics, Pharmacodynamics, Pharmacotherapeutics, Toxicology Drug – Receptor interaction – Association – Dissociation constants, Routes of administration – Absorption – Distribution – Termination of action. **(1 hr)**

2. Autonomic Pharmacology – neurotransmitters, Acetylcholine, sites of action – epinephrine, Norepinephrine – Cholinergic blockers of muscarinic and nicotinic function – Belladonna alkaloids, synthetic substitutes, adrenergic blockers, both alpha and beta blockers and blockade. **(1 hr)**

3. Cardiovascular Pharmacology – Congestive Cardiac failure – glycosides – Angina And Antianginal Agents – Antihypertensives – Diuretics – beta blockers, calcium channel blockers, ACE – inhibitors, - Peripheral vascular diseases and vasodilators –**(1 hr)**

4. Blood disorders – cyanocobalamine – Shock – plasma substitutes, plasma expanders, vasoconstrictors – coagulants and anticoagulanyts – heparin and coumarins. **(2 hrs)**

5. Neuropharmacology – Sedatives and Hypnotics, barbiturates and their antagonists – Narcotics and narnotic analgesics – Opioids – Dangers of addition – prevention Role of superficial and Topical remedies in induction of analgesia . **(1 hr)**

6. Behaviroal Pharmacology and Psychopharmacology – Anxiety states, Anti anxiety drugs – Benzodiazepines – Diazepam congeners – Mood disorders and depressed states – antidepressants Lithium – Psychodysletics and their dangers in misuse among student population. **(1hr)**

7. Movement Disorders – Parkinsonism –Characteristic of disease (in detail), tremor, rigidity – chemotherapy, Epilepsies – types – drug management of disease – Spastic disease – drug treatment of acute muscle spasms **(2 hrs)**

8. Inflammatory diseases – anti-inflammatory agents – Analgesics – Nonsteroidal anti-inflammatory agents – Aspirin, paracetamol, indomethacin, diclofenac, piroxicam, mefenamoic acid, Steroidal agents, Clucocorticoids, Prednisolone, dexamethasone, betamethasone, baclomethasone **(1 hr)**

9. General introduction- Chemotherapy
-Penicillin –groups
- Fluoroquinolones
-- Anti Tuberculosis / anti leprosy/ anti malaria

General Introduction – Anti Cancer and side effects
Brief overview of radio active drugs (**2 hrs)**

10. Respiratory pharmacology / short introduction
Gastro intestinal drugs commonly used
(**1-2 hrs)**

OPHTHALMOLOGY

Instruction Hours : 10 Hrs

Briefly outline the following:

1. Eye lesions in leprosy, including causes, treatment and complications of lagophthalmus.

2. Field defects arising from lesions in the visual pathway, their clinical symptoms and methods of testing.

3. Effects of paralysis of the occular muscles and treatment.

4. Causes ,clinical features and treatment of disorders of Occular movement occurring in diseases such as myasthenia gravis, progressive supranuclear palsy and lower motor neuron diseases.

5. Causes , clinical features ,treatment and prognosis in visual failure arising from cataract, inflammatory disorders, vitamin A deficiency, Glaucoma and Trachoma: emphasis on preventable causes and prophylactic measures.

6. Definition of Blindness, and visual disability evaluation, investigative procedures used for testing visual failure, including basic screening procedures for visual acuity suitable for community health surveys.

E.N.T SYLLABUS

Instruction Hours: 5 Hrs

1. Outline the Anatomy and physiology of hearing and the use of audiometry in assessment of hearing.

2. Briefly classify causes of hearing loss. Outline conservative and surgical intervention, including types and availability of hearing aids.

3. Briefly outline the functions of the vestibular apparatus.

4. Briefly outline common ENT infections and diseases, which affect hearing, breathing and speech; and their management.

EVALUATION

Internal : Theory
University : Theory

BIOMECHANICS, APPLIED ANATOMY & APPLIED PHYSIOLOGY

Examination at the end of 2rd Year **Instruction Hours: 100**

COURSE DESCRIPTION

This course supplements the knowledge of anatomy and enables the student to have a better understanding of the principles of biomechanics and their application in musclo- skeletal function and dysfunction.

COURSE OBJECTIVES

The objectives of this course is that after **100** hours of lectures, demonstrations and practical the student will be able to demonstrate an understanding of the principles of Biomechanics and Kinesiology and their application in health and disease.

In addition, the student will be able to fulfill the following objectives of the course.

COURSE OUTLINE

A. MECHANICS

1. Describes types of motion, planes of motion, direction of motion and quantity of motion.

2. Define forces, force vectors, components of forces.

3. Describe gravity, segmental centres of gravity, center of gravity and line of gravity of the human body, stability and center of gravity, relocation of the centre of gravity.

4. Describe reaction forces, Newton's Law of Reaction.

5. Describe equilibrium-Law of inertia and Establishing equilibrium of an object.

6. Describe objects in motion; Law of acceleration; Joint distraction in a linear force system and force of friction.

7. Describe concurrent Force systems, composition of forces. Muscles action lines, Total muscles force vector, Divergent muscle pulls, and Anatomic pulleys.

8. Describe parallel force system:- First class levers- second class levers -

Third class levers - Torque - Mechanical Advantage

9. Define moment arm: Moment Arm of a muscle force, Moment arm of gravity and Anatomic pulleys.

10. Describe equilibrium of a lever.

DESCRIBE THE FOLLOWING:

1. Three types of motion.

2. The plane in which a given joint motion occurs, and the axis around which the motion occurs

3. The location of the centre of gravity of a solid object, the location of the centre of gravity of a segmental object, the location of the centre of gravity of the human body.

4. The action line of a single muscle.

5. The name, point of application, direction, and magnitude of any interforce, given its reaction force.

6. A linear force system, a concurrent force system, a parallel force system.

7. The relationship between torque, moment arm and rotatory force component.

8. The methods of determining torque for the same given set of forces.

9. How anatomic pulleys may change action line, moment arm, and torque of muscles passing through them.

10. In general terms, the point in the joint range of motion at which a muscle acting over the joint is biomechanically most efficient.

11. How external forces can be manipulated to maximize torque.

12. Friction, its relationship to contacting surfaces and to the applied forces.

DETERMINE THE FOLLOWING

1. The identity (name) of diagrammed forces on an object.

2. The new centre of gravity of an object when segments are rearranged, given the original centres of gravity.

3. The resultant vector in a linear force system, a concurrent force system, and a parallel force system.

4. If a given object is in linear and rotational equilibrium.

5. The magnitude and direction of acceleration of an object not in equilibrium.

6. Which forces are joint distraction forces and which are joint compression forces. What is the equilibrium force for each?

7. The magnitude and direction of friction in a given problem.

8. The class of term in a given problem.

COMPARE THE FOLLOWING

1. Mechanical advantage in a second and third class lever.

2. Work done by muscles in a second and third class lever.

3. Stability of an object in two given situations in which location of the centre of gravity and the base of support of the object.

DRAW THE FOLLOWING

1. The action line of a muscle.

2. The rotatory force component, the translatory force component, and the moment arm for a given force on a lever.

B. JOINT STRUCTURE AND FUNCTION

1. Describe the basic principles of joint design and a human joint.

2. Describe the tissues present in human joints; including dense fibrous tissue, bone, cartilage and connective tissue.
3. Classify Joint - synarthrosis, Amphiarthrosis, Diarthrosis, subclassification of synovial joints.

4. Describe joint function, kinematic chains, range of motion.

5. Describe the general effects of injury and disease.

RECALL THE FOLLOWING:

1. The elementary principles of joint design.

2. The three main classifications of joints.

3. The five features common to all diarthrodial joints.

4. Types of materials used in human joint construction.

5. Properties of connective tissue.

IDENTIFY THE FOLLOWING:

1. The axis of motion for any given motion at a specific joint (knee, hip, metacarpophalangeal).

2. The plane of motion for any given motion at a specific joint (shoulder, interphalangeal, wrist).

3. The degrees of freedom at any given joint.

4. The distinguishing features of a diarthrodial joint.

5. The structures that contribute to joint stability.

COMPARE THE FOLLOWING

1. A synarthrosis with an amphiarthrosis on the basis of methods, materials, and function.

2. A synathrosis with a diarthrosis on the basis of methods, materials and function.

3. Closed kinematic chain with an open kinematic chain.

4. Dense fibrous tissue with bone.

5. Hyaline cartilage with fibrocartilage.

C. MUSCLE STRUCTURE AND FUNCTION

1. Describe Mobility and stability functions of muscles.

2. Describes elements of muscles structure - Composition of a muscle fibre, the motor unit, types of muscle fibres, muscle fibre size, arrangement and number,

   Muscle tension, length - tension relationship.

3. Describe types of muscle contraction, speed and angular velocity, Applied load, Voluntary control, Torque & Isokinetic exercise.

4. Summarize factors affecting muscle tension.

5. Classify muscles - spurt and shunt muscles, Tonic and phasic muscles.

6. Factors affecting muscle function: Type of joint and location of muscle attachment, number of joints, passive insufficiency, Sensory receptors

DESCRIBE THE FOLLOWING**:**

1. Ordering of the myofibrils in a sarcomere.

2. An alpha motor neuron.

3. The connective tissue in a muscle.

4. How tension develops in a muscle.

5. Isokinetic exercise.

DEFINE THE FOLLOWING:

1. Active and passive insufficiency.

2. Active and passive tension.

3. Concentric, eccentric and isometric contractions.

4. Reverse action

5. Agonists, antagonists and synergists.

RECALL THE FOLLOWING:

1. Factors affecting muscle tension

2. Characteristics of different fibre types.

3. Characteristic of motor units.

4. Factors affecting angular velocity.

DIFFERENTIATE THE FOLLOWING:

1. A spurt from a shunt muscle.

2. A phasic from a tonic muscle.

3. Agonist from an antagonist.

4. Active from passive insufficiency.

5. Concentric from eccentric contractions.

COMPARE THE FOLLOWING:

1. Tension development in eccentric versus concentric contractions.

2. The angular velocity of isometric versus concentric and isokinetic contractions.

3. Isokinetic exercise with concentric exercise.

D. THE VERTEBRAL COLUMN

1. Describe the general structure and function of the vertebral column including: Primary and secondary course. Articulations, Ligaments and muscles, typical vertebra, intervertebral disc.

2. Describe factors affecting stability and mobility.

3. Regional structure and function of cervical, dorsal, lumbar and sacral vertebrae.

4. Describe the muscles of the vertebral column - Flexors, Extensors, Rotators and Lateral flexors.

5. Describe the effects of injury and developmental deficits.

DESCRIBE THE FOLLOWING:

1. The curves of the vertebral column using appropriate terminology.

2. The articulations of the vertebral column.

3. The major ligaments of the vertebral column.

4. The structural components of typical and atypical vertebrae.

5. The intervertebral disc.

6. Regional characteristic of vertebral structure.

7. Motions of the vertebral column.

8. Lumbar pelvic rhythm.

9. Rotation of the vertebrae in each region.

10. Movements of the ribs during rotation.

IDENTIFY THE FOLLOWING:

1. Structure that provide stability for the column.

2. Muscles of the vertebral column and the specific functions of each.

3. Ligaments that limit specific motions (i.e. flexion, extension, lateral flexion, rotation).

4. Forces acting on the vertebral column during specific motions.

EXPLAIN THE FOLLOWING:

1. The relationship between the intervertebral and facet joints during motions of the vertebral column.

2. The role of the intervertebral disc in stability and mobility.

3. The effects of forces acting on the structural components during motion and at rest.

ANALYSE THE FOLLOWING:

1. The effects of disease process, injury, or other defects in the vertebrae.

2. The effects of an increased lumbosacral angle on the pelvis and lumbar vertebral column.

E. THE SHOULDER COMPLEX

1. Describe the structural components of the shoulder complex including the articulating surfaces, capsular attachments and ligaments and movements of the following joints:

   i) Sternoclavicular ii) Acromioclavicular
   iii) Scapulothoracic iv) Glenohumeral

2. Describe the function of the shoulder complex including dynamic stability of the glenohumeral joint, musculohumeral rhythm. Scapulothoracic and glenohumeral contributions.

3. Describe the muscles of elevation:(Deltoid, Supraspinatus, Infraspinatus, Teres minor, Subscapularis, Upper trapezius, Lower trapezius, Serratus anterior, Middle trapezius and Rhomboids).

4. Describe the muscles of depression(Latissimus dorsi, Pectoralis, Teres major, Rhomboids).

DESCRIBE THE FOLLOWING:

1. The articular surfaces of the joints of the complex

2. The function of the ligaments of each joint.

3. Accessory joint structures and the function of each.

4. Motions and ranges available at each joint and movement of articular surfaces within the joint.

5. The normal mechanism of dynamic stability of the glenohumeral joint, utilizing principles of biomechanics.

6. The normal mechanism of glenohumeral stability in the dependent arm.

7. Scapulohumeral rhythm. Including contributions of each joints.

8. The extent of dependent or independent function of each joint in scapulohumeral rhythm.

9. How restriction in the range of elevation of the arm may occur.

10. One muscular force couple at a given joint and its function.

11. The effect of given muscular deficit may have on shoulder complex function.

COMPARE THE FOLLOWING;

1. The advantages and disadvantages of coracoacromial arch.

2. The structural stability of the three joints, including the tendency toward degenerative changes and derangement.

Draw the action lines of muscles of the shoulder complex and the moment arm for each, and resolve each into components.

F. THE ELBOW COMPLEX

1. Describe the structure of the Humeroulnar and Humeroradial joints including articulating surfaces, joint capsule, Ligaments & Muscles.

2. Describe the function of the Humeroulnar and Humeroradial joints including the Axis of motion, Range of motion, Muscle action.

3. Describe the structure of the superior and inferior radioulnar joints.

4. Describe the function of the superior and inferior radioulnar joints.

5. Describe the mobility and stability of the Elbow complex and its relationship to Hand and Wrist.

6. Describe the effects of injury and the resistance to longitudinal compression forces, to distraction forces & to Medial lateral forces.

DESCRIBE THE FOLLOWING:

1. All of the articulating surfaces associated with each of the following joints- humero-ulnar, humeroradial superior and inferior radioulnar.

2. The ligaments associated with all the joints of the elbow complex.

IDENTIFY THE FOLLOWING:

1. Axes of motion for supination and pronation and flexion and extension.

2. The degrees of freedom associated with each of the joints of the elbow complex.

3. Factors limiting the range of motion in flexion and extension.

4. Factors that create the carrying angle

5. Factors limiting motion in supination and pronation.

COMPARE THE FOLLOWING:

1. The translatory and rotatory components of the brachioradialis and brachialis at all points in the range of motion.

2. The moment arms of the flexors at any point in the range of motion.

3. Muscle activity of the extensors in a closed kinematic chain with activity in an open kinematic chain.

4. The role of pronator teres with the role of pronator quadratus.

5. The role of biceps with that of brachialis.

6. The resistances of elbow joint to longitudinal tensile forces with its resistance to compressive forces.

7. The features of a classic tennis elbow with the features of cubital tunnel syndrome.

8. The role of and structure of the annular ligament with the role and structure of the articular disc.

G.THE WRIST AND HAND COMPLEX:

1. Describe the wrist complex including Radiocarpal joint Midcarpal joint and the Ligaments of the wrist complex.

2. Describe the function of the radiocarpal and midcarpal joints including the movements and muscles involved.

3. Describe the Hand complex including: Structure of fingers (Carpometacarpal, Metacarpophalangeal and interphalangeal joints of fingers, ligaments, Range of motion).

4. Describe the finger musculature including Extrinsic & MCP, PIP and DIP joint function, and intrinsic finger muscles.

5. Describe the structure of the Carpometacarpal, MCP and IP joints of thumb.

6. Describe the Thumb Musculature including the Extrinsic & Intrinsic thumb muscles.

7. Describe Prehension, Power, Cylindrical, Spherical & Hook grips.

8. Describe Precision handling, Pad to Pad, Tip to Tip and Pad to side prehension

9. Functional position of wrist and hand.

DESCRIBE THE FOLLOWING:

1. The articular surfaces of the joints of the wrist and hand complexes.

2. The ligaments of the joints of the wrist and hand, including the function of each.

3. Accessory joint structures found in the wrist and hand complex, including the function of each.

4. Types of movements and types of motion of the radiocarpal joints, the midcarpal joint, and the total wrist complex.

5. The sequence of joint activity occurring from full wrist flexion to extension including the role of the scaphoid, the sequence of joint activity in radial and ulnar deviation from neural.

6. The role of the wrist musculature in producing wrist motion.

7. Motions and ranges available to joints of the hand complex.

8. The gliding mechanisms of the extrinsic finger flexors.

9. The structure of the extensor mechanism, including the muscles and ligaments that compose it.

10. How M.C.P. extension occurs, including the muscles that produce and control it.

11. How flexion and extension of the PIP joint occur. Including the muscular

and ligamentous forces that produce and control these motions.

12. How flexion and extension of DIP joints occur, including the muscular and ligamentous forces that produce and control these motions.

13. The role of the wrist in optimizing length - tension in the extrinsic hand muscles.

14. The activity of reposition, including the muscles that perform it.

15. The functional position of the wrist and hand.

DIFFERENTIATE BETWEEN:

1. The role of the interossei and lumbrical muscles at the MCP and IP joints.

2. The muscles used in cylindrical grip to those active in spherical grip, hook grip, and lateral prehension.

3. The muscles that are active in pad - to - pad, tip-to-tip, and pad to side prehension.

COMPARE

1. The activity of muscles of the thumb (in opposition of the thumb to the index finger) with the activity of those active in opposition to the little finger.

2. The characteristics of power grip with those of precision handling.

3. The most easily disrupted form of precision handling that may be used by someone without any active hand musculature; what are the pre-requisites: for each?

H. THE HIP COMPLEX

1. Describe the general features of the hip joint including the articulating surfaces of the pelvis & the femur; Angulations; Angle of inclination, Angle of Torsion; Internal architecture of femur and pelvis ; joint capsule. Ligaments & Muscles (Flexors, Extensors - one joint extensors, two joint extensors, Adductors, Medial Rotators and Lateral Rotators).

2. Describe the function of hip - Rotation between pelvis, lumbar spine and hip; Pelvic motion - Anterior posterior pelvic tilting, Lumbar pelvic rhythm, Lateral Pelvic tilting, Pelvic rotation.

3. Summarize the pelvic motions in the static erect posture.

4. Describe femoral motion.

5. Describe Hip Stability in Erect Bilateral stance, sagital plane equilibrium and Unilateral stance.

6. Describe reduction of Forces with weight shifting and using a cane and deviations from normal in muscular weakness & Bony abnormalities.

DESCRIBE THE FOLLOWING

1. The articulating surfaces of the pelvis and femur.

2. The structure and function of the trabecular systems of the pelvis and femur.

3. The structure and function of the ligaments of the hip joint.

4. The angle of inclination and the angle of torsion.

5. The planes and axes of the following: pelvic motions and the accompanying motions at the lumbar spine and hip joints, pelvic rotation, and anterior, posterior and lateral tilting at the pelvis.

6. The muscle activity that produces tilting and rotation of the pelvis.

7. Motions of the femur on the pelvis including planes and axes of motion.

8. The structure and function of all the muscles associated with the hip joints.

9. The forces that act on the head of femur.

10. The position of greatest stability at the hip.

EXPLAIN THE FOLLOWING:

1. How sagittal and frontal plane equilibrium are maintained in erect bilateral stance.

2. How frontal plane equilibrium is achieved in unilateral stance.

3. How force acting on the femoral head may be reduced.

4. How the function of the two joint muscle at the hip are affected by changes in the position of the knee and hip.

5. The functional and structural relationship among the hip, knee, pelvis and lumbar spine.

COMPARE THE FOLLOWING:

1. Forces acting on the femoral head in erect bilateral stance with the forces acting on the head in erect unilateral stance.

2. Coxa valga with coxa vara on the basis of hip stability and mobility.

3. The motions that occur at the hip, pelvis and lumbar spine during forward trunk bending with the motions that occur during anterior and posterior tilting of the pelvis in the erect standing position.

4. Antroversion with retroversion on the basis of hip stability and mobility.

5. The structure and function of the following muscles: Flexors and extensors, abductors and adductors, lateral and medial rotators.

I. THE KNEE COMPLEX

1. Describe the structure of the Tibiofemoral joint: Articulating surfaces of femur and tibia, the menisci, Joint capsule and bursae, Ligaments and other supporting structures. Anterior - posterior and Medial - Lateral stability; Muscle Structure; Knee flexors & extensors; Axes of knee complex; Mechanical axis, Anatomic axis and axis of motion.

2. Describe the function of the Tibiofemoral joint: Range of motion. Flexion and extension, Rotation, Abduction and Adduction, locking and unlocking; Function of Menisci and Muscle function.

3. Describe the structure of the patellofemoral joint.

4. Describe the function of the patellofemoral joint.

5. Describe the effects of injury and disease in the Tibio-femoral and patellofemoral joints.

DESCRIBE THE FOLLOWING:

1. The articulating surfaces of tibiofemoral and patellofemoral joints.

2. The joint capsule.

3. The anatomic and mechanical axes of knee.

4. Motion at the femoral condyles during flexion and extension in a closed kinematic chain.

5. Motion of the tibia in flexion & extension in an open kinematic chain.

DRAW

1. The Q angle when given an illustration of the lower extremity

2. Moment arm of quadriceps at the following degree of knee flexion: 90 deg., 130 deg., 30 deg., 10 deg.

3. The action lines of vastus lateralis and the vastus medialis oblique.

LOCATE:

1. The origins and insertions of all the muscles at the knee.

2. The bursae surrounding the knee.

3. The attachments of the ligaments of the medial and lateral compartments.

IDENTIFY:

1. Structures that contribute to the medial stability of the knee including dynamic and static stabilizers.

2. Structures that contribute to the lateral stability of the knee including dynamic and static stabilizers.

3. Structures that contribute to the posterior stability of the knee including dynamic and static stabilizers.

4. Structures that contribute to the anterior stability of the knee including dynamic and static stabilizers.

5. Structures that contribute to the rotatory stability of knee.

6. The normal forces that are acting on the knee.

COMPARE:

1. The knee and the elbow joint on the basis of similarities / dissimilarities in structure and function.

2. The lateral with the medial meniscus on the basis of structure and function.

3.The forces on the patellofemoral joint in full flexion with full extension.

4. The action of quadriceps in an open kinematic chain with that in a closed kinematic chain.

5. The effectiveness of the hamstrings as knee flexors in each of the following hip positions: - hyperextension, ten degrees of flexion and full flexion (open kinematic chain).

6. The effectiveness of the rectus femoris as a knee extensor at sixty degrees of knee flexion with its effectiveness at ten degrees of knee flexion.

EXPLAIN

1. The function of the menisci.

2. How a tear of the medial collateral ligament may affect joint function.

3. The functions of the suprapatellar, gastrocnemius, infrapatellar and prepatellor bursae.

4. Why the semiflexed position of the knee is the least painful position.

5. Why the knee may be more susceptible to injury than the hip joint.

J.THE ANKLE - FOOT COMPLEX

DESCRIBE the structure, ligaments, axis and function of the following: ankle joint, tibiofibular joints, subtalar joints, Talocalcaneonavicular joints, Transverse Tarsal joint, Plantar arches, Metatarsophalangeal joints, Interphalangeal joints.

Define the terminology unique to the ankle foot complex including inversion - eversion, pronation - supination, dorsiflexion - plantar flexion, flexion-extension and adduction and abduction.

DESCRIBE

1. The compound articulators of the ankle, subtalar, talo-calcaneonavicular, transverse tarsal and tarsometatarsal joints.

2. The role of the tibiofibular joints and supporting ligaments.

3. The degree of freedom and range of motion available at the joint of the ankle and the foot.

4. The significant ligaments that support the ankle, subtalar and transverse tarsal joints.

5. The triplanar nature of ankle joint motion.

6. The articular movements that occur in the weight-bearing subtalar joint during inversion-eversion.

7. The relationship between tibial rotation and subtalar / talocalcaneonavicular inversion-eversion.

8. The relationship between hind foot inversion -eversion and mobility-stability of the transverse tarsal joint.

9. The function of the tarsometatarsal joints, Including when motion at these joints is called upon.

10. Supination - pronation of the forefoot at the tarsometatarsal joints.

11. Distribution of weight within the foot.

12. The structure and function of the plantar arches including the primary supporting structure.

13. When muscles supplement arch support, including those muscles that specifically contribute.

14. The effects of toe extension on the plantar arches.

15. The general function of the extrinsic muscles of ankle & foot.

16. The general function of the intrinsic muscles of foot.

K. POSTURE

1. Describe the effects of gravity and indicate the location of the gravity line in the sagital plane in optimal posture.

2. Analyse posture with respect to the optimal alignment of joints in the antero-posterior and lateral views.

DESCRIBE:

1. The position of hip, knee and ankle joints in optimal erect posture.

2. The position of body's gravity line in optimal erect posture, using appropriate points of reference.

3. The effects of gravitational moments on body segments in optimal erect posture.

4. The gravitational moments acting around the vertebral column, pelvis, hip, knee and ankle in optimal erect posture.

5. Muscles and ligamentous structures that counter balance gravitational moments in optimal erect posture.

6. The following postural deviations: pesplanus, halluxvalgus, pes cavus, idiopathic scoliosis, kyphosis and lordosis.

7. The effects of the above postural deviations on body structures i.e. ligaments, joints and muscles.

DETERMINE:

1. How changes in the location of the body's gravity line will affect gravitational moments acting around specified joints axes.

2. How changes in the alignment of body segments will affect either the magnitude or the deviation of the gravitational moments.

3. How changes in alignment will affect supporting structures such as ligaments, joint capsules, muscles, and joints surfaces.

L. GAIT

DEFINE

1. The stance, swing and double support phases of gait.

2. The subdivisions of the stance and swing phases of gait.

3. The time and distance parameters of gait.

DESCRIBE

A. Joint motion at the hip, knee and ankle for one extremity during a gait cycle.

B. The location of line of gravity in relation to the hip, knee, and ankle during the stance phases of gait.

C. The gravitational moments of force acting at the hip, knee and ankle during the stance phase.

EXPLAIN

D. Muscle activity at the hip, knee and ankle throughout the gait cycle, including why and when a particular muscle is active and the type of contraction required.

E. The role of each of the determinants of gait.

F. The muscle activity that occurs in the upper extremity and trunk.

COMPARE:

1. Motion of upper extremities and trunk with motion of pelvis and lower extremities.

2. The traditional gait terminology with the new terminology.

3. Normal gait with a gait in which there is a weakness of the hip extensors and abductors.

4. Normal gait with a gait in which there is unequal leg lengths.

EVALUATION

Internal: Theory and orals
University: Theory and orals

Recommended books for reference :
Joint Structure and Function by Cynthia Norkins

APPLIED PHYSIOLOGY

Examination at the end of 2nd year **Instruction hours: 30**

COURSE DESCRIPTION

The objective of this course is that after 30 hours of lectures demonstrations, the student will be able to demonstrate an understanding of the effect of abnormal physiology on function and dysfunction of the human body.

In addition, the student will be able to fulfill the following objectives of the course.

A. THE HEART AND CIRUCLATION

1. Structure and properties of heart muscles.
2. The action of the heart
3. Determinants of cardiac performance.
4. Normal E.C.G.
5. Maintenance of blood pressure.
6. Cardiac arrest and heart failure.
7. Outline of lymphatic circulation & pulmonary circulation
8. Cardiovascular compensation for postural and gravitational changes.
9. Hypertension and hypotension
10. Oedema.
11. Central and peripheral venous pressures.

B. NERVOUS SYSTEM AND MUSCLES

1. Outline of structure and function of the central nervous system.
2. Outline of the autonomic nervous system.
3. Types of nerve cells, electrical phenomena in nerve cells.
4. Properties of mixed nerves.
5. Reflex action, reciprocal innervation.
6. Degeneration and re-generation of nerves.
7. Control of posture and tone. Abnormalities in tone
8. Outline of voluntary movement.
9. Cutaneous, deep and superficial sensation.
10. Synaptic transmission.
11. Neuro Muscular transmission.
12. Properties of muscles, contractile responses, type's of contraction, electrical phenomena and tonic reflexes, tetanic contractions, clonus . wave summation, fatigue

C. RESPIRATION

1. Mechanics of respiration
2. Breath sounds.
3. Properties of gases
4. Exchange of gases
5. Lung volumes and capacities
6. Control of bronchial smooth muscle.
7. Lung compliance.
8. Nervous control of respiration.
9. Chemical control of respiration.
10. Voluntary control of respiration
11. Oxygen and carbon dioxide transport.
12. Effects of exercise on respiration.
13. Artificial respiration.
14. COPD and Asthma

EVALUATION.

Internal : Theory and Orals
University: Theory and Oral

CINICAL ORTHOPAEDICS

Examination at the end of 2rd year **Total Instruction hours: 55 hrs.**

COURSE DESCRIPTION

Following the basic science and clinical science courses this course introduces the student to the orthopaedic conditions which commonly cause disability. Particular effort is made in this course to avoid burdening the student with any detail pertaining to diagnosis which will not contribute to their understanding of the limitations imposed by orthopaedic pathology on the functioning of the individual.

COURSE OBJECTIVES

The objective of this course is that after 55 hours of lectures, demonstrations and seminars along with clinical practice the student will be able to demonstrate an understanding of orthopaedic conditions causing disability and their management.

In addition, the student will be able to fulfill the following objectives of the course.

COURSE OUTLINE

A. INTRODUCTION TO ORTHOPAEDICS

Introduction to orthopaedic terminology, types of pathology commonly dealt with, clinical examination, common investigations and outline of non-operative & operative management.

B. PRINCIPLES OF OPERATIVE TREATMENT

List indications, contraindications and briefly outline principles of Arthrodesis, Athroplasty, osteotomy, bone grafting ,Tendon-Transfers, limb lengthening procedures, Principles of internal and external fixation of bone injuries

C. SPRAINS AND MUSCLE STRAINS.

List common sites of sprains and muscle strains and describe the clinical manifestations and treatment.

D. FRACTURES & DISLOCATIONS: General principles

Outline the following:

Types of Fractures including patterns, open and closed fractures and fracture-dislocations.

2. Differences between dislocation & subluxation.

3. General & Local signs & symptoms of fractures & dislocations

4. Principles of management of fractures & dislocations.

5. Prevention & Treatment of complications including:
Fracture-disease, Volkman's ischaemic contracture, Sudek's Atrophy, Carpal Tunnel
Syndrome, Myositis ossificans, and Shoulder-hand syndrome.

6. Fracture healing

E. UPPER LIMB FRACTURES & DISLOCATIONS

1. Enumerate major long-bone fractures and joint injuries.

2. Briefly describe their clinical features, principles of management and complications.

F LOWER LIMB FRACTURES & DISLOCATIONS

1. Enumerate major long bone fractures and joint injuries.

Briefly describe their clinical features, principles of management and complications.

G. SPINAL FRACTURES AND DISLOCATIONS

Outline the mechanism, clinical features, principles of management and complications of spinal injuries.

H. RECURRENT DISLOCATIONS

Outline the mechanism, clinical features, principles of management and complications of recurrent dislocations of the shoulder and patella.

I. AMPUTATIONS

1. Classify amputations, list indications for surgery.
2. Outline pre-operative, operative and prosthetic management.
3. Outline prevention and treatment of complications.

J.BONE & JOINT INFECTIONS

Outline the etiology, clinical features, management and complications of: septic arthritis, Osteomyelitis, Tuberculosis (including spinal T.B.)

K. BONE & JOINT TUMORS

Classify and outline the clinical features, management and complications of common (benign/malignant) bone and joint tumours.

L. CHRONIC ARTHRITIS

Outline the pathology, clinical features, mechanism of deformities, management and complications of: Rheumatoid arthritis, Osteoarthritis of major joints and spine, Ankylosing spondylitis.

M. LOWBACK ACHE, PAINFUL ARC SYNDROME, TENDONITIS & FASCITIS

Outline the above including clinical features and management.

N. SPINAL DEFORMITIES

Classify spinal deformities and outline the salient clinical features, management and complications.

O. POLIOMYELITIS

Describe the pathology, microbiology, prevention, management and complications of polio. Outline the treatment of residual paralysis including use of orthoses and muscle transfers.

P. CONGENITAL DEFORMITIES

Outline the clinical features and management of CTEV, flat foot, vertical talus, limb deficiency (Radial club hand and femoral, tibial and fibular deficiencies) meningeomyelocoele and Arthrogryphosis multiplex congenita.

Q. PERIPHERAL NERVE INJURIES

Outline the clinical features and management, including reconstructive surgery of:

1. Radial, median and ulnar nerve lesions.
2. Sciatic and lateral popliteal lesions.
3. Brachial Plexus injuries including Erbs, Klumpke's & Crutch Palsy.

R. HAND INJURIES

Outline of clinical features, management and complications of:
Skin and soft tissue injury, Tendon injury, Bone and joint injury.

S. LEPROSY

Outline of clinical features, management and complications of neuritis, muscle paralysis, trophic ulceration and hand & feet deformities.

RADIODIAGNOSIS FOR ORHTOPEDICS

Instruction Hours: 10 Hrs

Outline the basic views used in radiography, list the different types of radiodiagnostic methods using X-ray, CT Scan, Ultrasonogram. Outline the guidelines for interpretation.

Demonstrate X-rays showing different anomalies of the “spine” in comparison with a normal X-ray.

Outline the value of C.T. Scan of Spinal cord in diagnosis, recognize some of the normal and abnormal features.

Outline the value of MRI of spinal cord in diagnosis; recognize some of the normal and abnormal features.

Identify on X-rays; Fractures and dislocations of extremities and spine, different disorders of bone, Eg.: Osteomyelitis, osteoporosis, rickets, tumours, etc.

EVALUATION

Internal: Theory, Orals
External: Theory, Orals

CLINICAL NEUROLOGY

Examination at the end of 2rd year **Instruction hours: 55 Hrs**

COURSE DESCRIPTION

Following the basis science and clinical science course this course introduces the student to the neurological conditions which commonly cause disability. Particular effort is made in this course to avoid burdening the student with any detail pertaining to diagnosis which will not contribute to their understanding of the limitations imposed by neurological pathology on the functioning of the individual.

COURSE OBJECTIVIES

The objective of this course is that after 55 hours of lectures, demonstrations, and seminars along with clinical practice the student will be able to demonstrate an understanding of neurological conditions causing disability and their management.

In addition, the student will be able to fulfill the following objectives of the course.

COURSE OUTLINE

A.NEUROANATOMY

Review the basic anatomy of the brain and spinal cord including: Blood supply of the brain and spinal cord, anatomy of the visual pathway, Connections of the cerebellum, and extrapyramidal system, relationship of the spinal nerves to the spinal cord segments, Long tracts of the spinal cord, the brachial and lumbar plexuses, and cranial nerves.

B.NEUROPHYSIOLOGY

Review in brief the Neurophysiologic basis of: tone and disorders of tone and posture, bladder control, muscle contractions and movement and pain. Functions of the lobes of the brain

C.CLINICAL FEATURES & MANAGEMENT

Briefly outline the clinical features and management of the following Neurological Disorders:

1. Congenital and childhood disorders,.

    Cerebral Palsy.
    Hydrocephalus.
    Spinal Bifida.

2. Cerebrovasular accidents.

    General classification: thrombotic, embolic, hemorrhagic & "vasculitis/ arteritis - infectious and inflammatory strokes.

    Gross localization and sequelae.

    Detailed rehabilitative programme.

3. Trauma - broad localization, first aid and management of sequelae of head injury and spinal cord injury.

4. Diseases of the spinal cord.

    Craniovertebral junction anomalies
    Syringomyelia
    Cervical and lumbar disc disease.
    Tumours,
    Spinal arachnoiditis.

5. Demyelinating diseases (central and peripheral)

    Guillain - Barre syndrome.
    Acute disseminated encephalomyelitis.
    Transverse myelitis.
    Multiple sclerosis.

6. Degenerative disorders.

    Parkinson's disease.
    Dementia.

7. Infections
    Pyogenic Menignitis sequelae.
    Tuberculous infection of central nervous system.
    Poliomyelitis.

8. Disease of the muscle -classification, signs, symptoms, progression and management.

9. Peripheral nerve disorders.

Peripheral nerve injuries: localisation and management.
Entrapment neuropathies.
Peripheral neuropathies.

10. Miscellaneous.

Epilepsy : Definition, classification and management.
Myasthenia Gravis: Definition, course and management.
Intracranial tumours: Broad classification, signs and symptoms.
Motor neuron disease.

D. ASSESSMENT

Clinical assessment of neurological function to be taught through, bedside or demonstration clinics spread out over at least 5 sessions.

1. Basic history taking to determine whether the brain spinal cord or peripheral nerve is involved.

2. Assessment of higher cortical functions such as orientation, Memory, attention, speech and language, agnosia, apraxia etc

3. Assessment of Cranial Nerves.

4. Assessment of Motor Power.

5. Assessment of sensory function, touch, pain and position.

6. Assessment of tone- spasticity, rigidity, hypotonia.

7. Assessment of cerebellar function.

8. Assessment of gait abnormalities.

RADIODIAGNOSIS FOR NEUROLOGY

Outline the basic views used in radiography, list the different types of radiodiagnostic methods using X-ray, CT Scan, Ultrasonogram. Outline the guidelines for interpretation

Outline the value of C.T. Scan of Brain and Spinal cord in diagnosis; recognize some of the normal and abnormal features.

Outline the value of MRI of Brain and spinal cord in diagnosis, recognize some of the normal and abnormal features.

Evaluation: Internal: Theory and Orals:
University: Theory and Orals

Fundamentals for Occupational Therapy Practice

Examination at the end of 2nd year

Instruction Hours 100 hours

COURSE DESCRIPTION
This course consists of theory classes and practical sessions and will introduce the students to the concepts of Model, Frame of References, and Approaches. It includes specific models, frames of references and approaches used in intervention for Physical, Paediatric and Psychiatric conditions. It also includes theory and practical sessions on Assessment methods in Occupational Therapy for Physical ,Paediatric and Psychiatric conditions.

COURSE OBJECTIVES
The objectives of this course are that after **100** hours of lectures, demonstrations and practicals, the students will gain knowledge and skill in the Models, Approaches, Frames of reference and Assessments used in Occupational Therapy .The students will also gain knowledge and practical skills in Assessing patients with Physical, Psychiatric and Pediatric conditions .

Section I **Instruction Hours 60 hours**

1. Model, Frame of Reference and Approaches

- An overview of Model, Frame of Reference and Approaches
- Model of Human Occupation
- Canadian Model of Occupational Performance
- Ecological Model in Occupational Therapy

2. Approaches used in Occupational Therapy

- Biomechanical approach
- Neuro Developmental Treatment (NDT) approach (Adults & Paediatrics)
- Roods approach (Adults & Paediatrics)
- Brunnstrom approach
- Proprioceptive Neuromuscular Facilitation (PNF) approach
- Affolter's approach
- Motor Relearning Programme
- Task Oriented Approach
- Sensory Integrative Therapy (Paediatrics & Psychiatry)
- Behavioural frame of reference

- Peto's Conductive Education
- Rehabilitative approach
- Cognitive Behavioural approach.
- Psychoanalytical- Include expressive media used in OT
- Occupational Behaviour and Model of Human Occupation
- Developmental groups and developmental approach.
- Cognitive Disability FOR
- Acquisitional FOR

Section II: Assessments in Occupational Therapy

Instruction Hours: 40 hours

Assessments in Occupational Therapy for the following areas of dysfunction:

A. Paediatric

- Gross motor
- Fine motor
- Cognition
- Perception including Visuo-motor skills
- Oromotor evaluation
- Play

B. Physical

- Functional Ability
- Hand functions
- Cognition and Perception
- Basic ADL and IADL
- Cranial Nerves
- Cerebellar functions

Evaluation Procedures including:

- Reflexes (superficial and deep tendon reflexes),
- Muscle tone
- Range of Motion
- Muscles strength
- Voluntary control
- Co-ordination
- Sensation (cutaneous and cortical)
- Cognitive - Perceptual functions
- Hand functions

C. Psychiatric:

- History

- Sensory Perceptual
- Task skills
- Intra and Inter personal skills
- Social and group skills
- Group level
- Roles and Routines

EVALUATION

Internal: Theory, Orals and Practical
University: Theory, Orals on section I and II
Practical on section II **only**

Recommended book(s) for Reference:

1. *Pedretti's Practice skills for physical dysfunction* edited by Heidi McHugh Pendleton ,Winifred Schultz Krohn

2. *Occupational Therapy for Physical Dysfunction* by Mary Vining Radomski, Catherine A Trombly

3. *Occupational Therapy and Physical Dysfunction, Principles, Skills and Practice* by Ann Turner, Margaret Foster, Sybil E Johnson

4. *Introduction to Occupational Therapy* by Hussey Subonis ,Chafea O Brien

5. *Occupational Therapy and Mental Health* edited by Jennifer Creek, Lesley Lougher

6. Mental Health Concepts and Techniques for the Occupational Therapy Assistant by Mary Beth Early

7. *Frames of Reference in Psychosocial Occupational Therapy* by Mary Ann Bruce, Barbara Borg

8. Willard & Spackman's Occupational Therapy

9. *Occupational Therapy for children* by Jane Case Smith

10. Frames of Reference for Pediatric Occupational Therapy
by Paula Kramer , Jim Hinojosa

Third Year

Subjects

1. Community Medicine, Basic Nursing and First Aid.
2. Clinical Psychology, Health Psychology and Clinical Psychiatry
3. Occupational Therapy in Psychiatry
4. Occupational Therapy in Orthopaedics & Neurology
5. Occupational Therapy in Paediatrics

COMMUNITY MEDICINE

Examination at the end of 3rd year **Instruction hours: 55**

COURSE DESCRIPTION

This course will enable students to understand the effects of the environment and the community dynamics on the health of the individual.

COURSE OBJECTIVES

The objectives of this course is that after 55 hours of lectures, demonstrations, practicals and clinics, the student will be able to demonstrate an understanding of the influence of social and environmental factors on the health of the individual and society.

In addition, the student will be able to fulfill the following objectives of the course.

A. Outline the natural history of diseases and the influence of social, economic and cultural aspects of health and diseases.

B. Outline the various measures of prevention and methods of intervention- especially for diseases with disability.

C. Outline the national care delivery system and the public health administration system and the central and state level, local trends and resource.

D.Outline selected national health programmes including current programmes (Eg.SSA Sarva Siksha Abhiyan)

E. Define occupational health and list methods of prevention of occupational diseases and hazards.

F. Outline the Employees State Insurance scheme and its various benefits.

G. Describe the social security measures for protection from occupational hazards, accidents, diseases, and the workman's compensation act.

H. Outline the objectives and strategies of the national Family Welfare Programme.

I. Define community based and institution based rehabilitation. Describe the advantage and disadvantages of institution and community based rehabilitation.

J. Describe the following communicable diseases with reference to reservoir, mode of transmission, route of entry and levels of prevention. a. Poliomyelitis, b. Meningitis, c. Encephalitis, d. Tuberculosis, e. Filariasis, f. Leprosy, g. Tetanus & h. Measles.

K. Describe the epidemiology of rheumatic heart disease, cancer, Chronic degenerative disease and cerebrovascular accidents.

L. Outline the influence of nutritional factors such as protein Energy Malnutrition, Anaemia, Vitamin deficiency and minerals on disability.

M. List the principles of health education, methods of communication and role of health education in rehabilitation services.

N. Define the role of community leaders and health professionals in health education.

O. Outline the role of international health agencies in rehabilitation of the disabled.

P. Role of Occupational Therapy in meeting the health care needs of India

EVALUATION.

Internal : Theory
University: Theory

Basic Nursing and First Aid

Instruction Hours: 40
(Theory-24, Pract. 12)

COURSE DESCRIPTION

This course enables students to have a better understanding of and develop skill in giving first aid treatment in emergencies in either the hospital or the community.

COURSE OBJECTIVES

The objectives of this course is that after 40 hours of lectures, demonstrations, practicals and clinics the student will be able to demonstrate an understanding of the principles of first aid and demonstrate skill in giving first aid treatment in emergencies that may be met in the community and in their practice as therapists.

In addition, the student will be able to fulfill the following objectives of the course.

A. Understand the importance of first aid and explain the rules of first aid.

B. Explain the scope of first aid and concept of emergency.

C. Identify and give first aid in burns, fire accidents, road accidents, poisoning, drowning, insect bites and trauma due to a foreign body.

D. Identify various fractures and practice bandaging and splinting in care of fractures.

E. Describe the types of wounds, haemorrhages, shock and respiratory emergencies.

F. Transportation of persons with various types of injuries.

G. Identify and give first aid treatment in community emergencies and in natural disasters.

H. Identify and utilize the community resources like voluntary agencies, local, national and international agencies.

I. Acquire knowledge about ambulance services and their functions in relation to emergencies.

COURSE OUTLINE

A. INTRODUCTION

Definition of first aid, importance of first aid, Golden rules of first aid, scope and concept of emergency.

B. FIRST AID EMERGENCIES

1. Burns & scalds: Causes, Degrees of burns, first aid treatment, general treatment.

2. Poisoning: Classification (irritants, acid alkali, narcotics) Signs and symptoms, first aid treatment, general treatment.

3. Trauma due to foreign body insertion: Eye, ear, nose, throat, stomach and lung.

4. Bites: First aid, signs, symptoms and treatment.
    a. Dog bites: Rabies
    b. Snake bite: neurotoxin, bleeding diathesis.

C. SKELETAL INJURIES

Definition, types of fractures of various parts of the body, causes, signs, and symptoms, rules of treatment, transport of patient with fracture, first aid measures in dislocation of joints, treatment of muscle injuries.

D. RESPIRATORY EMERGENCIES

1. Asphyxia: Etiology, signs and symptoms, rules of treatment.
2. Drowning: Definition and management.
3. Artificial respiration: types and techniques.

E. WOUNDS AND HAEMORRHAGE

1. Review of Anatomy and Physiology of the circulatory system.

2. Wounds: Classification, management.

3. Haemorrhages: Classification, signs and symptoms, rules for treatment of haemorrhage.

4. Treatment of haemorrhage from special areas (scalp, mouth, nose, ear, palm and various veins.)

5. Internal haemorrhages: Visible and concealed.

F. SHOCK AND UNCONSCIOUSNESS

Definition, types of shock, common causes of shock, signs and symptoms of shock (assessment of established shock), general and special treatment of established shock.

G. TRANSPORTATION OF THE INJURED

1. Methods of transportation: Single helper, hand seat, stretcher, wheeled transport (ambulance)

2. Precautions taken: Blanket lift, air and sea travel.

H. COMMUNITY EMERGENCIES

Role of first aider (immediate and later) in fires, explosions, floods, earth quakes, famine.

I. COMMUNITY RESOURCES

Police Assistance, voluntary agencies (local, national, international), Ambulance services (functions)

J. BANDAGES

Bandaging, basic turns, bandaging extremities; triangular bandages and their application

EVALUATION

Unit tests, term examinations, assignments, term examinations by doctor

1. Theory tests
2. Final Practical + Oral test

Recommended Books for reference include

First Aid Manual: St John Ambulance

BASIC NURSING

A. INTRODUCTORY CLASS

What is nursing? Nursing principles. Inter personal relationship

B. NURSING POSITION

Environment safety; bed making, prone, lateral, dorsal, dorsal recumbent, fowler's positions, comfort measures, aids to rest and sleep.

C. LIFTING AND TRANSPORTING PATIENTS

Lifting patients up in the bed; transferring from bed to wheel chair' transferring from bed to stretcher.

D. PROVIDING FOR PATIENTS ELIMINATION

Giving and taking bed pan, urinal, observation of stools, urine observation of sputum,. Understand use and care of catheters enema giving.

E. METHODS OF GIVING NOURISHMENT

Feeding, tube feeding, drips, transfusions

F. Vital Signs

G. SURGICAL DRESSING

H. INFECTION CONTROL

Recommended Books for reference include:
A New Text book for Nurses in India, volume II , BNESIB NL, CMAI

Evaluation :

Internal: Theory and practical
University :Theory (along with community Medicine)

CLINICAL PSYCHOLOGY

Examination at the end of 3rd Year **Instruction Hours:35**

COURSE DESCRIPTION

This field of psychology covers the application of psychological principles in the etiology, pathology, assessment and management of abnormal conditions of all age groups. This course runs concurrently with Psychiatry for Occupational Therapy students. The basic foundation of general psychology would have been covered in 1st year.

COURSE OBJECTIVES

The objective of this course is that after 35 hours of lectures, demonstrations, seminars and clinics the students will be able to demonstrate ability to apply their knowledge of psychology in clinical situations for assessing, understanding, and treating their patients. They will learn to understand themselves, their feelings, attitudes and behaviour.

In addition, the student will be able to fulfill the following objectives of the course:

A. To evaluate attention, concentration, perception and briefly mention the related abnormalities.

B. To understand and explain behavioural aspects of learning, maturation, and appropriately use behavioural techniques in therapy

C. To evaluate memory, thinking & intelligence and briefly mention the related disorders.

D. To evaluate motivation, emotion and personality and assess their pathological manifestations.

E. With the concepts of conscious and unconscious mind to explain frustration and conflicts, and to study the role of defense mechanisms in normal and abnormal conditions.

COURSE OUTLINE

A. Definition of Clinical Psychology. : General and historical introduction to Abnormal Psychology, Psychology in relation to medicine, different schools. Methods of Clinical Psychology: Case History method, Interview Techniques, Clinical observation, Situational tests, Questionnaires.

B. Concepts of normality and abnormality: Causes of abnormality, Criteria for abnormality. Broad classification of Current model of abnormal behaviour - Medical model, Psychodynamic model, Behaviouristic model & Humanistic model ,and Cognitive model

C. Functional units of mind: Id, ego and super ego - their functions and interactions. Role of Defense mechanisms in normal and abnormal behaviour.

D. Evaluation of attention and concentration, perception, memory, thinking etc

E. Intelligence and Mental Retardation: Intelligence test - .Measurement of intelligence - children & adults (demonstrations)

F. Mental Retardation and it's psychosocial management

G. Personality Assessment: Questionnaires, inventories, projective techniques.

H. Behaviour techniques in Therapy –application of learning principles to modify behaviour

I. Counselling: Definition, Aim, Difference between counselling and guidance, principles in counselling, personality qualities of counsellors

J. Psychotherapy:

Basic Principles .Different types of Psychotherapy: Psychodynamic (including Brief psychotherapy) ,Humanistic (client-centred) and Cognitive Behavioural Therapy

HEALTH PSYCHOLOGY

Examination at the end of: 3rd year **Instruction hours: 35**

COURSE OUTLINE

A.PSYCHOLOGICAL REACTIONS OF A PATIENT

Psychological reactions of a patient during admission and treatment: anxiety, shock, denial, suspicion, questioning, loneliness, regression, shame, guilt, rejection, fear, withdrawal, depression, egocentricity, concern about small matters, narrowed interests, emotional over reactions, perceptual changes, confusion, disorientation , hallucinations, delusions, illusions, anger, hostility, loss of hope.

B. REACTION TO LOSS

Reaction to loss, death and bereavement: shock and disbelief, development of awareness, restitution, resolution. Stages of acceptance as proposed by Kubler-Ross.

C. STRESS

Physiological and psychological changes, relation to health and sickness: Psychosomatics, professional stress, burn out.

D. COMMUNICATIONS

Types: verbal, non-verbal, elements in communication, barriers to good communication, developing effective communication, specific communication techniques.

E. COMPLIANCE

Nature, factors contributing to non-compliance, methods of improving compliance.

F. EMOTIONAL NEEDS

Emotional needs and psychological factors in relation to unconscious patients, handicapped patients, bed-ridden patients, chronic pain, spinal cord injury, paralysis, cerebral palsy, burns, amputations, disfigurement, head injury, degenerative disorders, Parkinsonism, Leprosy, incontinence and mental illness.

G. GERIATRIC PSYCHOLOGY

Specific psychological reactions and needs of geriatric patients.

H. PAEDIATRIC PSYCHOLOGY

Specific psychological reactions and needs of paediatric patients.

K. SUBSTANCE ABUSE

Psychological aspects of substance abuse: smoking, alcoholism, and drug addiction.

L. PERSONALITY STYLES

Different personality styles of patients.

CLINICAL PSYCHIATRY

Examination at the end of 3nd year **Instruction Hours: 35**

COURSE DESCRIPTION

In this course students will study abnormality of behaviour and its effect on functioning. It parallels the study of Health Psychology and Clinical Psychology. Course of mental illness, preventive measures, and all clinical syndromes are covered. All treatment theories, approaches, and pharmacological aspects will be considered, with particular emphasis on current use.

This will be done through 30 hours of lectures and seminars and 5 hours of clinical experience in case studies and discussion.

COURSE DESCRIPTION

The objective of this course is that after 35 hours of lectures, demonstrations and clinics the student will be able to demonstrate an understanding of mental illness, methods of assessment and approaches used in therapy.

In addition, the student will be able to fulfill the objectives of the course:

1. Explain the causes and describe preventive measures for mental illness.

2. Describe possible symptoms in relation to clinical syndromes.

3. Discuss methods of treatment and explain the main treatment approaches.

4. Appreciate legal aspects of psychiatric illness and psychiatric management.

COURSE OUTLINE:-

A.

1. Introduction. A brief history of psychiatry
   History taking in psychiatry including mental examination and assessment.

2. Causes of mental disturbances:
    a. Hereditary factors.
    b. Embryonic development factors.
    c. Birth injury.
    d. Endocrine disease.
    e. Systemic diseases / accidents.
    f. Cerebral diseases.
    g. Emotional factors.
    h. Stresses related to cultural factors.

3. Preventive measures: In relation to consanguineous marriages, adequate ante-natal care, obstetric care, mother and child services, psychological services (e.g. child guidance, counseling services)

B. Symptoms of mental illness:

1. Disturbances of consciousness.
2. Disturbances of reasoning and judgment.
3. Disturbances of memory.
4. Disturbances of thought and perception.
5. Disturbances of volition.
6. Disturbances of motor behaviour.
7. Disturbances of speech.
8. Disturbances of affect.

C. Methods of treatment:

1. Individual and group psychotherapy
2. Physical Methods: ECT and related side effects, Psychosurgery.
3. Psychopharmacology and related side effects,

D. Criteria for classification and definition of psychiatric illness.

E. Description of the various clinical syndromes including etiology, clinical features, course, treatment, and prognosis.

To include: Schizophrenic and other Psychotic disorders
Mood disorders
Anxiety disorder including Phobias
Somatoform disorders
Dissociative disorders
Factitious disorders
Eating and sleep disorders

Psychosomatic illness
Personality disorders
Substance related disorders
Sexual dysfunction and gender identity disorders
Organic Brain Syndrome
Psychiatric disorders of childhood
Psychiatric disorders of adolescence
Psychiatric disorders of old age

F. Legal aspects related to psychiatric patients.
1. Civil responsibility.
2. Criminal responsibility.
3. Testamentary capacity.

G. Clinical teaching, case studies and discussion.
To be posted in psychiatry to attend the out patient clinics

EVALUATION:

Internal :Theory
University :Theory

Occupational Therapy in Psychiatry

Examination at the end of 3rd year **Instruction Hours: 75**
Clinical Hours : 400

COURSE DESCRIPTION
This course parallels the study of clinical psychology and psychiatry. It covers the practical application of occupational therapy in psychiatric treatment, including a variety of assessment and treatment approaches.

COURSE OBJECTIVES

The objectives of this course is that after at least **475** hours of lectures, demonstrations, practicals and clinics the student will be able to demonstrate an understanding of evaluation and therapy techniques used in Occupational Therapy for psychiatric conditions.

In addition, the student will be able to fulfill the following objectives of the course:

A. Describe the history of Psychiatric Occupational Therapy, and its development up to the present day.

B. Define OT in relation to psychiatry, and the role of an Occupational Therapist in the psychiatric team.

C. Discuss the treatment media used in Psychiatry including the role of activities. Analyze activities with reference to Psychiatry

D. Frames of Reference in the treatment of psychiatric conditions:

a. Cognitive Behavioural.
b. Behavioural.
c. Psychoanalytical- Include expressive media used in ot
d. Occupational Behaviour and Model of Human Occupation
e. Developmental groups and Developmental approach.
f. Sensory Integrative approach.
g. Cognitive Disability Frame of Reference
h. Acquisitional Frame of Reference

F. List and describe the various attitudes applied by the therapist in different conditions.

H. Describe in detail the assessment of a client including specific methods

used in the following:

1. Observation
2. Structured, semi structured and unstructured interviews
3. Specific assessments used in Occupational Therapy

I. Help students to identify their client's psychiatric problems in relation to the practical situations observed in OT

K. Discuss OT assessment, treatment aims, plan and methods of treatment for the following conditions:

- Schizophrenic and other Psychotic disorders
- Mood disorders
- Obsessive Compulsive Disorder, Anxiety & Phobic disorder
- Somatoform disorders
- Dissociative & Factitious disorders
- Eating and sleep disorders
- Psychosomatic illness
- Personality disorders
- Substance related disorders
- Seizure disorders
- Organic Brain Syndrome
- Autism Spectrum Disorder
- Specific Learning Disorder
- Intellectual Disability
- Social Communication Disorder
- Attention-Deficit/Hyperactivity Disorder
- Conduct Disorder
- Gender Dysphoria

M. Outline the types of therapeutic groups and briefly discuss the value of group therapy in psychiatry (Detailed study on group study is included in Group Process in Occupational Therapy in the 4th Year.)

N. Explain precautions to be observed by the therapist in a psychiatric unit, with reference to each condition; including handling of tools & materials and grouping of patients.

O. Outline the following psychiatric setups and the role of OT in each.

a. Therapeutic community
b. Half Way Homes

c. Geriatric units
d. Sheltered workshops
e. Day care centers
f. Government mental hospitals and psychiatric institutions
g. Family therapy units
h. Psychiatric rehabilitation

EVALUATION

Internal : Theory , Practical and Oral Tests and case study file.

Univesity: Theory, Practical and Orals

Recommended book(s) for Reference:

1. *Occupational Therapy and Mental Health* edited by Jennifer Creek , Lesley Lougher

2. *Frames of Reference in Psychosocial Occupational Therapy* by Mary Ann Bruce, Barbara Borg

3. *Occupational Therapy in short Term Psychiatry* by Moya Willson

4. *Occupational therapy in Long Term Psychiatry* by Moya Willson

5. Willard & Spackman's Occupational Therapy

6. Mental Health Concepts and Techniques for the Occupational Therapy Assistant by Mary Beth Early

Occupational Therapy in Neurology & Orthopaedics

Examination at the end of 3rd year **Instruction Hours: 110**
Clinical Hours: 550

COURSE DESCRIPTION

This course follows the study of application of Occupational Therapy approaches & techniques to Neurological and Orthopaedic conditions.

COURSE OBJECTIVES

The objective of this course is that after at least **660** hours of lectures, demonstrations, clinical placements and case presentations, the student will be able to demonstrate an understanding of evaluation and therapy techniques used in occupational therapy for neurological and orthopaedic conditions.

In addition, the student will be able to fulfill the following objectives of the course:

1. Practically apply basic principles of Kinesiology and functional anatomy to the evaluation and treatment of orthopaedic and neurological conditions.

2. Demonstrate appropriate evaluation procedures for patients with conditions commonly referred from orthopaedics and neurology.

3. Application of occupations & activities appropriately for clients' with neurological and orthopaedic conditions

4. Outline the principles and goals in design, indications, and fitting of hand splints, prostheses, calipers and mobility aids.

COURSE OUTLINE

A. Application of the occupation & activity, selection criteria and grading methods appropriately for the following performance components:

- ROM
- Muscles strength
- Muscle tone
- Co-ordination

- Control of movement
- Sensation (cutaneous and cortical),
- Cognitive Perceptual functions
- Hand functions
- Activities of daily living (ADL)
- Functional abilities

B. Application of following approaches to the neurological and orthopaedic problems: Biomechanical, Roods, NDT (for adults), Brunnstrom Approach, Proprioceptive Neuro muscular Facilitation, Motor Relearning Program and Rehabilitative approach, Affolter's approach and Task oriented approach**.**

C. Application of Approaches and Occupational Therapy principles and techniques in evaluation and treatment of the neurological and orthopaedic conditions based on the following;

- Identification of dysfunction
- Potential for function and improvement
- Planning of long term and short term treatment goals
- Selection and implementation of appropriate treatment techniques

Orthopaedic & Neurological conditions include:

1. Injuries to upper limb and hand

a. Peripheral nerve injuries

- Median nerve injury
- Ulnar nerve injury
- Radial nerve injury

b. Tendinitis/Tendinosis - Tennis elbow, Golfer's elbow, DeQuervain's syndrome, Intersection syndrome, EPL tendinitis, ECU tendinitis, FCR tendinitis, FCU tendinitis, trigger finger.

c. Stiff hand

d. Flexor tendon injury, Extensor tendon injury, Collateral ligament injury

e. Complex Regional Pain Syndrome (CRPS)

2. Brachial plexus injury

3. Fractures, with emphasis on upper limb and complications

a. Shoulder & Humerus fractures

- Clavicle Fractures
- Scapula Fractures
- Shoulder Dislocations (Glenohumeral Joint)
- Humerus Fractures

b. Elbow & forearm fractures

- Supra condylar fracture and Volkman's ischemic contracture
- Radius fractures
- Ulna fractures
- Fractures of radius and ulna

c. Wrist and hand fractures

- Colle's & Smith's fracture
- Carpal fractures and phalangeal fractures

4. Hansen's disease

Clinical features and deformities, early treatment, prevention of deformity, treatment of neuritis reaction, rehabilitation measures for chronic disabilities. Reconstructive surgery and muscle re-education and Sensory compensation.

5. Amputations - Upper limb and lower limb pre prosthetic and prosthetic training

6. Low Back Pain

7. Poliomyelitis: Post polio residual paralysis and post polio syndromes

8. Spondylitis, Spondylosis, spondylolisthesis

9. Total Hip and Knee replacements

10. Arthritic conditions - Rheumatiod arthritis, osteoarthritis

11. Work related Musculo Skeletal Disorders

12. Burns

13. Muscular dystrophy

14. Parkinson’s disease

15. Motor Neuron disease

16. Multiple sclerosis

17. Cerebellar ataxia.

18. Cerebro Vascular Accident (CVA) and it’s complications such as Shoulder hand syndrome and shoulder subluxation.

19. Intra cranial tumours.

20. Brain injuries including Traumatic (TBI) and hypoxic ischemic encephalopathy (HIE).

21. Guillain Barre Syndrome.

22. Spinal Cord Injuries.

23. Diabetic Neuropathy

24. Myasthenia gravis

D. Hand Splinting

- Describe goals of splinting. Explain classification of hand splint and their application to treatment. Identify splint types and materials used.

- Demonstrate and apply the principles of hand splinting process for preparing splints.

Practical Work:

1. Pattern and measurement taking.

2. Four splints to be made by student (Resting, Dynamic-flexor /extensor, short opponens, finger splint)

3. Low temperature mould splints.

4. High temperature splints (demonstration)

5. POP casting. (Demonstration)

6. Carry out check out of splint. Assignment on relevant chapters in books on hand splinting.

7. File preparation (for hand splints only) – splints and files will be marked.

E.Spinal Orthosis
Principles, goals, classification, specification in application, indications and contraindications. Demonstration of methods of training in the use of spinal orthoses.

F.Lower extremity orthosis

- Hip, knee, ankle, foot orthosis (HKAFO)
- Knee, ankle, foot orthosis (KAFO)
- Ankle, foot orthosis (AFO)
- Floor reaction orthosis (FRO)
- Foot drop splint - static and dynamic

Evaluation:

Internal : Theory , Practical and Oral Tests, Hand splinting file and case study file.

University: Theory, Practical and Orals

Recommended book(s) for Reference:

1.*Pedretti's Practice skills for physical dysfunction* edited by Heidi McHugh Pendleton ,Winifred Schultz Krohn

2. *Occupational Therapy for Physical Dysfunction* by Mary Vining Radomski, Catherine A Trombly

3. *Occupational Therapy and Physical Dysfunction , Principles ,Skills and Practice* by Ann Turner, Margaret Foster, Sybil E Johnson

4.Willard & Spackman's Occupational Therapy

Occupational Therapy in Paediatrics

Examination at the end of the 3rd year **Instruction hours : 100**
Clinical Hours : 400

COURSE DESCRIPTION

This course covers the application of the principles of occupational therapy to physical, mental and emotional disorders of childhood. It is the first of five courses in the application of Occupational Therapy.

COURSE OBJECTIVES

The objectives of this course is that after at least **500** hours of lectures, demonstrations, practicals and clinics the student will be able to demonstrate an understanding of:

- Areas of abnormal and delayed development in children from birth to 5 years.

- Psychological reactions of children to hospitalization and to disability.

- Appropriate therapeutic approaches and techniques for the physical, mental and emotional disorders of childhood and related reactions.

- Treatment plans appropriate to a child's condition and stage of development.

COURSE CONTENTS

A. NORMAL DEVELOPMENT FROM BIRTH TO FIVE YEARS.

1. Physical development- Gross and Fine motor.

2. Reflex development + Practicals.

3. Perceptual, Cognitive, Social, emotional, Language and Selfcare and Play development

4. Practicals (eg. perceptual testing).

B. PSYCHOLOGICAL ASPECTS

1. Psychological reactions to disability in childhood and OT role.

2. Psychological aspects of hospitalization, and OT role.

C. TREATMENT MEDIA

1. Play Therapy.

2. Creative activities.

D. FRAMES OF REFERENCES AND TREATMENT APPORACHES

1. Bobath NDT.

2. Rood's neuromuscular facilitation.

3. Ayre's Sensory Integration .

4. Biomechanical frame of reference

5. Behaviour modification

6. Acquisitional frame of reference

7. Motor skills frame of reference

8.. Peto's - conductive Education.

9.Special Education principles of education for perceptual and cognitive training.

E. OCCUPATIONAL THERAPY APPLICATION (including review of each condition)

1. Cardio respiratory conditions of childhood.
2. Cerebral palsy
3. Visuo perceptual and Visuo motor dysfunction
4. Muscular dystrophy

5. Erb's palsy
6. Poliomyelitis / Post Polio Residual Paralysis
7. Spina bifida and hydrocephalus.
8. Arthrogryphsis and other congenital orthopaedic disorders.
9. Stills disease.
10. Early intervention for congenital neurological disorders (High risk infants)
11. Nutritional disorders.
12. Mental retardation and Down's syndrome.
13. Congenital Syndromes and Chromosomal abnormalities
14. Specific learning disabilities
15. Pervasive Developmental Disorder
16. Attention Deficit Hyperactivity Disorder
17. Behaviour disorders.
18. Visual / auditory loss.
19. Speech and communication disorders.
20. Acquired Immuno Defficiency Syndrome.
21. Seizure disorders
22. Haemophillia
23. Oncology and Palliative care

F.OCCUPATIONAL THERAPYFOR SPECIFIC AREAS OF DYSFUNCTION

1. Oromotor dysfunction:
Evaluation of Oral structures, Oromotor development and eating skills, sucking and drinking, swallowing, coordination of suck swallow and breathing, biting and chewing, Self feeding, Contextual factors

Intervention: Postural alignment, Handling techniques, Intervention for Sucking, swallowing, biting and chewing, self feeding, oral structural problems and nutrition

2. Pre writing and writing skills

3. Psychosocial dysfunction

4. School based intervention:

Types of schools where OT’s provide services
Categories of disability

OT Evaluation: level of participation. Assessment of performance: motor, sensory, perceptual Cognitive Psychosocial School Environment Teacher curriculum expectation
Individualized Education Programme: Developing and components
Intervention: education academic and Functional goals
Integrated therapy
Consultation

G. PAEDIATRIC SPLINTING AND ADAPTIVE DEVICES:
Including, seating devices, Adaptations for feeding, Mobility and Ambulatory devices, Indication and use of splint for correction of CDH

Evaluation:

Internal : Theory , Practical and Oral Tests, Child Development file and case study file.

Univesity: Theory, Practical and Orals

Recommended book(s) for reference:

1. *Occupational Therapy for children* by Jane Case Smith

2. *Frames of Reference for Pediatric Occupational Therapy* by Paula Kramer , Jim Hinojosa

3.Willard & Spackman's Occupational Therapy

Fourth Year

SUBJECTS

1. Clinical Cardio Respiratory and Work Physiology

2. Rehabilitation Medicine

3. Organization, Administration & Work Study in Occupational Therapy

4. OT in Rehabilitation

5. Group process in OT

6. Project, Research Methodology and Biostatistics

Clinical Cardio-Respiratory

Examination at the end of 4th year along with Work Physiology
Instruction Hours: 50

COURSE DESCRIPTION

Following the basic science and clinical science courses this course introduces the student to the cardio-thoracic conditions which commonly cause disability. Particular effort is made in this course to avoid burdening the student with any detail pertaining to diagnosis which will not contribute to their understanding of the limitation imposed by cardio-thoracic pathology on the functioning of the individual.

COURSE OBJECTIVES

The objective of this course is that after 50 hours of lectures, clinics and seminars, the student will be able to demonstrate an understanding of cardio-thoracic conditions causing disability and their management.

In addition, the student will be able to fulfill the following objectives of the course.

COURSE OUTLINE

A. ANATOMY AND PHYSIOLOGY

1. Describe in detail the anatomy of the lungs, bronchi and bronchopulmonary segments.

2. List the relationship of the bony thorax and lungs to each other and to the abdominal contents.

3. Briefly describe the variations in the bony cage in the following conditions:

a. Cervical ribs
b. Rickets – rickety rosary
c. Pigeon chest
d. Funnel chest
e. Scoliosis
f. Kyphosis

4. Describe the movements of the thorax: Bucket handle, pump handle.

5. List the muscles of respirations involved in inspirations and expirations (including accessory muscles that are involved).

6. Describe in brief the anatomy of the heart and its blood supply and briefly outline the electrical activity of the myocardium and normal ECG.

7. Describe the physiological control of respiration and highlight the function of the medullary and pontine respiratory centres and peripheral chemoreceptors.

8. Describe the mechanisms for maintenance of blood pressure.

9. Describe in detail the cough reflex.

10. List the mechanical factors involved in breathing. Describe briefly factors affecting lung compliance and airway resistance.

11. List the factors affecting diffusion of oxygen and carbon dioxide in the lungs. Explain ventilation, perfusion and their inter relationship.

12. Outline the energy expenditure of various common activity of daily living.

13. Pulmonary function assessment: Briefly describe the pulmonary function tests and their use; briefly outline the basis and value of blood gas analysis.

14. Briefly outline the principles of cardio vascular stress testing.

B. CARDIAC SURGERY

1. List the cardiac conditions requiring closed heart surgery and briefly describe the following:

Acquired heart diseases (Mitral stenosis and Aortic stenosis), Congenital heart diseases (patent ductus arteriosus, coarctation of aorta.)

2. List the cardiac conditions requiring open heart surgery and briefly describe the following: Congenital (Atrial septal defect, ventricular septal defect, pulmonary stenosis, Tetralogy of Fallot.Transposition of great vessels and A.V. malformation), Acquired (Mitral stenosis, Mitral regurgitation, aortic stenosis, & regurgitation, coronary artery disease).

C. THORACIC SURGERY

1. Describe very briefly the clinical features and management of the following:

Fracture ribs, Flail chest, Stove-in chest, Pneumothorax, Haemothorax, Haemopneumothorx, Lung contusion & laceration, Injury to Heart, Great vessels & Bronchus.

2. List the causes of empyema and its treatment. Describe briefly: Intercostal drainage, Rip resection, Decortication and window operation.

3. Outline briefly the clinical features and management of the following suppurative lesions of the lung; Bronchiectasis, Lung abscess, Bronchopneumonia & Aspergillosis.

4. Outline briefly the clinical features and management of carcinoma lung.

5.Outline the extent, use and complications of the following surgical incisions: Anterolateral thoracotomy, Posterolateral thoracotomy and Median sternotomy.

6. Describe the post operative management of patients with: Segementectomy, Lobectomy, Bilobectomy, Pneumonectomy, Pleuropneumonectomy & Tracheostomy.

7. Outline briefly the principles of various ventilators and their use.

8. Describe in detail the preoperative assessment and management of a patient posted for thoracotomy.

9. Describe in detail the following post operative procedures; management of endotracheal / endonasal tubes, tracheal suction, weaning the patient from the ventilator extubation technique & post extubation care.

10. Describe the principles of Cardio-pulmonary resuscitation;

Cardiac massage, artificial respiration, defibrillators and their use.

D. MISCELLANEOUS

1. Systemic Hypertension, Pulmonary Hypertension, Syncope and their management.

2. Briefly outline the management of a patient with chronic obstructive airway disease.
3. Ischemic Heart Disease and risk factors and its management.

4. Heart failure, Cardiomyopathies

EVALUATION

Internal: Theory
University : Theory and Oral

WORK PHYSIOLOGY SYLLABUS

COURSE OBJECTIVES

The objective of this course is that after 50 hours of lectures and seminars, the student will be able to demonstrate an understanding of the following learning objectives:

A. Physiology of exercise

- Define exercise
- Recognise the two types of muscle contraction – (a) Isotonic (b) Isometric
- Define and give examples of (a)Aerobic/Endurance exercise and (b)Anaerobic/Strengthening/Glycolytic/Resistance exercise
- Differentiate between Aerobic/Endurance exercise and Anaerobic/Resistance exercise
- State the formula for computing the maximal heart rate of an individual
- Define metabolic equivalents or METs. Explain the relationship between METs, oxygen consumption and energy expenditure
- Express the level of exercise/physical activity in terms of % of Maximal heart rate, % of VO_2 max, power output and energy expenditure in METs
- Recognise the classification of physical activity/exercise based on intensity of exercise (example: light, moderate, heavy etc. exercise)
- Describe the benefits of exercise

B. Acute effects of exercise on different systems:

Specific learning objectives:

1. Cardiovascular system :

- Describe the acute changes in heart rate, cardiac output, systolic and diastolic blood pressures with different levels of exercise
- Describe the changes in the distribution of blood (muscle, renal, gut, brain, heart circulations etc.) with exercise
- Recognise the difference in the effects of upper limb alone, lower limb alone and whole body exercise on the cardiovascular system
- Recognise the difference in the effects of aerobic and anaerobic exercise on the cardiovascular system
- Recognise the limitations to exercise in patients with cardiac failure and myocardial infarction

2. Respiratory system:
    - Describe the acute changes in respiratory rate, pulmonary ventilation, and pulmonary blood flow with exercise

3. Neuro-muscular system:
    - Recognise the immediate effect of exercise on neural circuits and muscle strength
4. Metabolism :
    - List the sources of energy for different intensities and duration of exercise
    - Describe oxygen consumption during exercise and during recovery
    - Define oxygen deficit and oxygen debt
    - Explain what is meant by maximal oxygen consumption/$VO_{2\ max}$ /maximal aerobic capacity and discuss its importance

C. Long term effect of exercise on different systems:

1. Circulatory adaptations to exercise training:

- Describe the effects of exercise training on heart rate, stroke volume, cardiac output, blood pressure, microcirculation of skeletal muscle and cardiac muscle
- Differentiate between the training effects of aerobic and anaerobic exercise on the cardiovascular system

2. Biochemical adaptations to exercise training:
    - List the skeletal muscle metabolic adaptations with aerobic and anaerobic exercise training

3. Morphological adaptations to exercise training
    - Describe the adaptations in skeletal muscle structure, fibre type and blood supply
    - List the adaptations in tendons and ligaments, bones, cardiac muscle and body composition
    - Differentiate between adaptations due to aerobic training and anaerobic training

EVALUATION

Internal: Theory
University : Theory and Oral

REHABILITATION MEDICINE

Examination at the end of 4th year **Instruction hours: 55**

COURSE DESCRIPTION

Following the basic sciences and clinical science courses this course will enable the students to understand their role in the management of disability within the rehabilitation team.

COURSE OBJECTIVES

The objectives of this course are that after 55 hours of lectures and seminars and clinics the student will be able to:

A. Understand the concept of team approach in rehabilitation through practical demonstrations, with contributions from all members of the team.

B. Develop skills in identification of diagnostic features in various clinical conditions leading to disability.

C. Understand the role of medical and surgical aspects in a rehabilitation programme

D. Understand role of each member of the Rehabilitation team in maximizing the residual potential of persons with disability.

E. Formulation of appropriate goals (long &short term) in treatment and rehabilitation of individuals with disability.

COURSE OUTLINE

A. INTRODUCTION

Define the term rehabilitation. Explain its aims and principles

B. PRINCIPELS AND MANGEMENT OF THE FOLLOWING CONDITIONS

Demonstrate methods of evaluation for physical, cognitive and behavioral dysfunction & management of disabilities with particular reference to: Spinal Cord Injury (paraplegia and tetraplegia), Poliomyelitis, Brain Injury (including stroke , traumatic brain injury and cerebral palsy), Arthritic conditions, Amputation, Neuro muscular disorders, Hansen's diseases, Peripheral nerve lesions, Fracture disease & chronic cardio – respiratory dysfunction.

C. THERAPEUTIC TECHNIQUES

Explain the theory and mechanisms of therapeutic techniques, and relevant precautions, for the following:

1. Joint mobilization.
2. Reducing spasm and management of spasticity
3. Assisting weak muscles.
4. Increasing endurance.
5. Muscle re-education following muscle transfer surgery.
6. Strengthening muscles.
7. Increasing co-ordination.
8. Improving balance.
9. Gait training.

D. ELECTRO THERAPY MODALITIES: Brief introduction, indications and contra Indications

E. COMMUNICATION PROBLEMS

Identify communication problems, classify these and outline principles of treatment / training.

F. BEHAVIOURAL PROBLEMS

Identify behavioural problems in the disabled and outline the principles of management.

G. PAIN

Describe the theories of pain and discuss therapeutic management of pain using various modalities. Describe the common myo-facial pain syndromes and outline their management.

H. ORTHOTIC DEVICES

Explain the principles involved in prescribing orthotic devices for different parts of the body. Outline the purpose of each type and list major indications & contraindications and demonstrate methods of training in their use.

Brief over view of the following:

- Upper and lower extremity Orthoses
- Spinal Orthoses
- Hand orthoses

I. PROSTHETIC DEVICES

Describe types, prescription, fitting and checking of Upper Extremity and Lower Extremity Prostheses. Demonstrate methods of training in their use. . Prescription and designing foot wear modifications.

J. MOBILITY AIDS

Demonstrate knowledge of the indications for different types of mobility aids, and their functions, eg. wheel chairs, walkers, crutches.

K. PRE-VOCATIONAL EVALUATION

Discuss methods and team involvement in pre-vocational evaluation and training.

L. ARCHITECTURAL BARRIERS

Describe architectural barriers and possible modifications, with reference to Rheumatoid arthritis, Cerebrovascular accident, spinal cord injury, and other disabling conditions.

M. DISABILITY EVALUATION

Outline the principles of disability evaluation and discuss its use.

N. INTERNATIONAL CLASIFICATION OF FUCNTIONING

O. LEGAL ASPECTS

Outline legal aspects of disability in terms of compensation for disability and

benefits available to the disabled.

P. SOCIAL IMPLICATIONS

Outline the social implications of disability for the individual and for the community.

Q. COMMUNITY BASED REHABILITATION MODULE

Describe a CBR module and compare this with an Institutional based rehabilitation system.

R .BIOENGINEERING

Define and describe role of bioengineering in rehabilitation.

EVALUATION.

Internals : Theory
University : Theory

Organization, Administration & Work Study in Occupational Therapy

Examination at the end of 4th year **Instruction Hours: 70**

COURSE OBJECTIVES

The objective of this course is that after **70** hours of lectures, demonstrations, practicals and clinics, the student will be able to demonstrate an understanding of the principles and methods of organization, administration and work study as appropriate to the OT healthcare delivery system, patient treatment and training.

In addition, the student will be able to fulfill the following objectives of the course.

I. ORGANIZATION AND ADMINISTRATION

A.
Define- Organization, Administration and Management.
Outline Principles of administration
Describe four major functions of management: Planning, Organizing and staffing, Directing and Controlling
Outline the purpose of organization, administration and management in relation to OT.

B. Describe the following aspects of administration in general and in relation to OT work situations.

1. Referrals: Purpose and types of referral.

2. Documentation:
Purposes for documentation, fundamental elements in documentation

Documentation of Initiation of OT Services: initial evaluation, re evaluation, records, reports, intervention plans: short term and long term goals.

Selecting /planning assessment forms eg. Pre-vocational, ADL, hand function & cognitive functions for initial evaluation and progress recording with respect to different conditions

Documentation of Continuing OT Services: Progress notes: Problem Oriented Medical Records (POMR) SOAP notes, check list notes, narrative notes descriptive notes, SMART, RUMBA, Progress check lists or flow sheets

Documentation of Termination of OT Services: Discharge reports

Administrative documentation and records including attendance, statistics, inventory records, stock (store keeping)

Electronic documentation

Confidentiality in Documentation

3. **Purchase Ordering**

4. **Maintenance**: of equipments, materials, furniture and buildings

5. **Correspondence and Filing**: a) Types of correspondence b) Methods of filing.

6. Financial Management – including types of Budgets, Petty cash accounting, Costing of splints / aids / equipment / articles made in OT.

7. **Annual Reports and Statistics.** Method of calculating monthly and annual statistics. Outline method of writing OT department annual reports. Making plans for future requirements based on statistics: eg. Staff patient ratio, equipment and staff requirements.

8. **Considerations for construction of a new department, and modification of an old department** including: a) Space required b) Allotment of space, e.g. Suitability for access, plumbing requirements, & circulation of air.

9. Safety precautions in OT

Discuss considerations relating to the following:

General Safety Recommendations in the OT department: eg. Moving patients, training attenders and "helpers", while doing activities outside, when using sharp hand tools, while using machinery and electrical equipments.

Fire Safety

Safety precautions in relation to patients with physical conditions like Leprosy, Hemiplegia, Paraplegia, back injuries, Cerebellar dysfunction; psychiatric disorders like Epilepsy, Mental Retardation, suicidal patients and paediatric conditions like ADHD, Haemophilia.

10. Infection control, Incidents and Emergencies:

Universal Precautions, Standard Precautions, Transmission based Precautions, Effective hand washing techniques, Isolation

Cardio Pulmonary Resuscitation, Falls, Burns, Bleeding, Shock, Seizures

Respiratory distress, Insulin related Illness, Choking and Cardiac arrest

11. Legal aspects related to rehabilitation: Mental health act, Medico legal cases, Workmen's Compensation Act & Insurance facilities and other financial benefits available for the disabled.

12. Staff Management, Supervision and Development

Supervision: Methods and Types of Supervision: Formal/Informal, Direct /Indirect, Administrative, Clinical etc.

Mentoring,

Performance evaluation and appraisal

Leadership

Professional development

Staff Meeting: Purpose of staff meetings.

13. **Planning Teaching methods** for assistants and OT students in the clinical situation.

14. **Organizing programmes for patients:** picnic, sports and other events

C. Practical work to be carried out under supervision, during clinical postings in the fourth year. Eg. Maintaining records, stores requests, care of equipment, inventory check, costing of aid, adaptations, and petty cash records.

II.WORK STUDY

A. WORK

Define work. Explain the purpose and need to work and identify its relationship to culture. Describe the importance of work to a handicapped person. Distinguish categories of work. Outline the importance of work study to an Occupational therapist.

B. JOB ANALYSIS

Explain the purpose of job analysis. Identify aspects to be analysed-using sample form. Gain experience in analysing different types of job. Carry out

individual assignments.

C. PRODUCTIVITY

Define productivity. Mention factors which influence productivity and causes for decreases in productivity.

D. WORK STUDY PRINCIPLES

Work Study: Definition and Components (Method Study and Work Measurements)

Method Study: Definition, Objectives
Steps in method study
Recording information and recording techniques: Flow Process Chart- including symbols used in a process chart, Flow Diagram, String Diagram

Work measurement: Definition, Brief outline of techniques of Work measurements: Time study and Work Sampling

E. WORKING CONDITIONS

Specify importance of good working conditions and their relationship to productivity. List different aspects of working conditions-lighting, ventilation, sanitary facilities, safety precautions, etc.

F. ERGONOMICS

1.. Define ergonomics. Describe scope of ergonomics in Occupational Therapy.

2.Objectives of Ergonomics

3. Work simplification and energy saving techniques.

4. Joint protection techniques

5. Application of Ergonomics to various aspects of functional performance.
a. Selfcare
b. Home-making
c. School
d. Occupation including work station, seating and tools
e. Recreation.

6. Application of ergonomics principles to various physical conditions with the following.

a. Limited range of motion
b. Muscle weakness
c. Limited endurance
d. In-co-ordination
e. Pain
f. Visual Impairment
g. Cardiac Conditions
h. Degenerative Disorders

G.Practicals :

1, Participate in problem solving-practical activity. Eg. 1) Coffee making using string diagram. 2) Serving of meals in a ward using flow diagram or process chart.

2. Conduct a practical work study and job analysis of one occupation. This includes a 4 hour observation and interview of worker at his/her job. Each student may choose a different occupation. A written report may be submitted for the same.

3. Make a visit of observation to a local industry to identify the following:-

a. Physical Environment
   i. Access
   ii. Lighting
   iii. Ventilation
   iv. Temperature
   v. Noise

b. Organisational environment
   i. work flow
   ii. work routine/rest breaks
   iii. work hours/overtime
   iv. work pressure
   v. training
   vi. line of responsibility

c. Individual factors
   i. Worker interaction
   ii. Psychological factors

d. Individual workstation/task/job

i. tasks
ii. equipment used
iii. Tools used
iv. Work posture & movements
v. Maximum task time

Assignment to be submitted with recommendations.

EVALUATION

Internals : Theory and Practical Assignments
University : Theory

Recommended book(s) for Reference:

1. Willard & Spackman's Occupational Therapy

2. Occupational Therapy and Mental Health –Jennifer Creek

3. Occupational Therapy for Physical Dysfunction by C.A. Trombly

4. Occupational Therapy and Physical Dysfunction Principles Skills and Practice

by Ann Turner, Margaret Foster, Sybil. E Johnson

5. O.T. Practice skills for Physical Dysfunction by L.W. Pedretti

Occupational Therapy in Rehabilitation

Examination at the end of 4th year **Instruction hours: 110**
Clinical Hours :540

COURSE DESCRIPTION

This course covers rehabilitation methods in detail and the application of O.T. to physical conditions and specific dysfunctions not covered in Occupational Therapy in Neurology and Orthopaedics and including medical, surgical and chronic deforming conditions, visual, hearing deficits. It runs parallel to Rehabilitation Medicine, which is studied together with physiotherapy students. The examination covers both subjects.

COURSE OBJECTIVES

The objective of this course is that after at least **650** hours of lectures, demonstrations, practicals and clinics the student will be able to demonstrate an understanding of the Occupational Therapy role in medical and surgical conditions, and rehabilitation methods for people with residual disability.

In addition, the student will be able to fulfill the following objectives of the course :

A. Explain the role of Occupational Therapy in rehabilitation of Neurology, Orthopaedic and Psychiatric conditions, and habilitation of Paediatric conditions. Describe in detail ADL and functional assessment, training and planning methods of mobility.

B. Explain in detail the O.T. objectives and principles and appropriate treatment media for the following.

1.. Cardiac and Pulmonary disease and rehabilitation

2.. Cancer

3.. Geriatric conditions, including social implications.

4.. Haemophillia (adults)

5.. Terminal illness and Hospice care- Adults and Children

6.. Visually and Hearing Impaired – Adults

C. Occupational Therapy Management for pain

Application of superficial and mechanical modalities as preparatory measures to manage pain and improve occupational performance.

Underlying principles, Indications and contraindications, Precautions.

Monitoring, Re assessment and discharge in collaboration with patient and care givers

D Swallowing Disorders and Management

Normal swallowing and Disorders in swallowing,
indicators of eating and swallowing dysfunction ,Dysphagia assessment , DyspahgIa intervention including non-oral feeding, positioning, oral hygiene, progression, swallowing therapy and caregiver training

E.Mobility:

Functional Ambulation - Basics of Ambulation, mobility devices, Ambulatory techniques, Safety aspects

Wheel Chair: Prescriptions, Wheelchair components, Wheel chair measurements

Wheel chair adaptations, Wheel chair safety

Wheel chair skill Training: basic and advanced

Public Transportation; Private Transportation

Transfer Techniques with walking aids and wheelchair

Indoor: Bed Chair, Toilet, Floor

Outdoor: Car, Bus Auto Tricyle

Community Access: Recommendations and Training in techniques to enhance community mobility

Driver Rehabilitation Evaluation: Assessment of performance skills and client factors in comprehensive driver evaluation. Knowledge of primary and secondary controls. Suggest appropriate modification. Regulations for drivers with disability in India.

F.Work Evaluations and Work Programmes:

Functional Capacity evaluation, Vocational Evaluation (General or Prevocational and Specific) ,Job Analysis, Work Hardening ,Work Conditioning, Sheltered Work shops

Home based Programmes, Transitional and supported employment

G.Evidence Based Practice

Models and approaches to Evidence and inquiry based practice.

Step in Evidence Based Practice.

Systematic Occupational Therapy Practice Model (SOTP): brief overview

H. Client Centered Therapy

I.Physical Agent Modalities:

Superficial thermal agents:

Treatment planning, primary effects, Selection, Clinical use of thermotherapy

Awareness of the following modalities of treatment

Whirl pool baths and hydrotherapy fluidotherapy, hot packs paraffin

Cryotherapy : purpose, effects, indication, precautions

Therapeutic ultra sound:

Physical principles clinical use phosphoresis, precautions

Electrotherapy:

Principles of Electrotherapy

Physiology of nerve and muscle Education .propagation of electrically stimulated nerve

Treatment planning specific to electro therapy : parameter of electrical stimulation devices, electrodes, Electrode site , Electrode placement

*Clinical use of electro therapy :*Electrical stimulation ,Neuro muscular Electrical stimulation, Functional Electrical Stimulation,Transcutaneous Electrical Nerve Stimulation

Basic Principles in application of Functional Electrical Stimulation as adjuncts to therapy, Clinical uses

I.Biofeedback Basic Principles in application of Biofeedback and as adjuncts to therapy *Surface Electro myographic Biofeed back*. Clinical uses including muscle re-education .

J.Assistive Technology: Design ,fit ,and train in assistive technology and devices required for seating ,positioning, daily living which would enhance occupational performance ,self maintenance and self advancement roles. Also including Environmental Control units , Augmentative and Alternative Communication devices communication devices ,Mobile arm supports and slings ,reachers, mouse and keyboard adaptations, writing, feeding and toilet aids.

K.Fabrication of Hand splints:
Plan appropriate hand splint design. Prepare and fit four different hand splints, and explain their use.
Including Thumb spica, Resting hand, Gutter splints, anti claw, Ulnar drift

L.Disability evaluation for physical conditions. mention the legal aspects relating to compensation and insurance.

Disability evaluation of upper & lower extremity

Disability percentages in the following conditions:

- Amputation
- Intellectual impairment
- Altered sensorium
- Monoparesis, monoplegia, paraparesis, paraplegia, hemiparesis, hemiplegia, quadriparesis, quadriplegia

M. Introduction to International classification of functioning, disability and health (ICF)

*International classifications***: ICD, ICIDH & ICF**

Components: Functioning and Disability and contextual factors

Functioning and Disability: Body structures & functions, Activity & Participation

Contextual factors: Personal & environmental factors

Qualifiers

O.Community Based Rehabilitation: Definition and Models. Discuss steps involved in starting a Community Based Rehabilitation.

Outline the role and value of O.T. in Community based Rehabilitation (CBR) with emphasis on rehabilitation of disabled children.
Identify occupational hazards in the community and discuss possible safety precautions. Discuss community reintegration

P. Architectural barriers, Discuss the removal of architectural barriers and use of appropriate adaptive devices. Explain purposes and methodology in home situation evaluation.

Q. Home and work site modifications for persons with disability which includes appropriate working levels, accessibility, types of stoves, storage levels. Hygiene and safety measures at home.

R. Special Assessments and intervention for

1. Activities of Daily living
2. Hand Function- Adults and Paediatrics
3. Cognitive Perceptual Functions
4. Home Evaluation and Modification
5. Home Making skills and Child care
6. Leisure
7. Play

S. Plan Assessment forms: Eg prevocation, ADL, Hand Function and Higher functions for initial evaluation and progress recording

T. Selecting and Critiquing Assessments: Theoretical Context, Clinical Utility, Test Construction, Standardized Tests, Reliability, Validity, Cultural Relevance

U. Psychological reactions in patients: Observe and interpret psychological reactions in patients with physical disabilities and their relatives, and plan therapeutic approaches and methods for treating such reactions. Understand the principles and use techniques of group dynamics in both psychiatric and physical treatment areas as agents of change in behaviour.

Recommended book(s) for Reference:

1. Willard & Spackman's Occupational Therapy

2. Occupational Therapy for Physical Dysfunction by C.A. Trombly

3.Occupational Therapy and Physical Dysfunction Principles Skills and Practice

by Ann Turner, Margaret Foster, Sybil. E Johnson

4. O.T. Practice skills for Physical Dysfunction by L.V. Pedretti

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EVALUATION:

Internals: Theory, Practical and Oral
University:Theory, Practical and Oral

GROUP PROCESS IN OCCUPATIONAL THERAPY

Examination at the end of 4th year **Instruction hours: 40**
Practical hours : 40

COURSE OBJECTIVES

This course applies general group theory to Occupational Therapy practice and aims to help the therapist function more effectively in groups. The students should gain practical experience in conducting various types of groups in the clinical setting.

COURSE OUTLINE

Sec A

i) Groups in Occupational Therapy
ii) Groups in society
iii) Groups in therapy
iv) Different approaches to group work

Sec B Group Dynamics

i) Group process
ii) Roles
iii) Interaction - verbal & non verbal
iv) Intra-group relationships
v) Stages of a group
vi) Norms
vii) Group cohesion

Sec C. Managing groups:

i) Planning aims & goals
ii) Choosing an activity
iii) The environment
iv) Motivating group members

Sec D

i) Leadership roles & styles
ii) Developing group leader skills

Sec E. Managing problems within a group.

Sec F. Evaluating groups.

Sec G. Demonstrate ability to plan and organize the following groups:

i) Task oriented groups.
ii) Stress management groups.

iii) Care givers Support Groups
iv) Self help groups.
v) Anger management groups.
vi) Assertiveness training group.
vii) Drama therapy groups.
viii) Social skills training groups.
ix) Sensory Integration Groups

EVALUATION : Internal Theory
University Theory

Research Methodology and Biostatistics

Instruction hours: 30

Course objectives:

After 30 hours of lectures on Research Methodology and Biostatistics the student should acquire knowledge of principles of scientific methods of enquiry and basic statistical methods of enquiry and basic statistical concepts, be initiated to skills of information searching, identification, retrieval and evaluation, principles of measurement and experimental design. The students should be able to use the above knowledge to carry out a study.

Course Description:

The inclusion of this subject is to provide a basic knowledge and skill to the undergraduate Occupational Therapy students of the following:

Critical review of literature

To be able to plan and carry out a simple study using basic statistical concepts

Course content:

I. Research Methodology:-

1. Stages of research process
2. Developing ideas and defining a research question
3. Literature review
4. Errors in measurement and their control,
5. Reliability and validity
6. Epidemiological measures of disease frequency
7. Research design:
    - I. Quantitative (epidemiological)
        - a. Experiment (clinical, field, community)
        - b. Observational
            - i. Cohort
            - ii. Case control
            - iii. Cross sectional study
            - iv. Ecological study
    - II. Qualitative Research Method (Sociological)

Developing instruments (Delphi technique)
Focus groups
Indepth interview
Key informant interview

8. Ethical issues
9. Critical Appraisal of a research report

Biostatistics

1. Data Collection, basic statistics and graphs
2. Probability and Probability distribution (Binominal and normal)
3. Sampling and sampling techniques.
4. Confidence interval
5. Tests of significance (for large sample and small sample)
   T Test
   Z Test
   Chi square test

6. Non-parametric tests (where to use, sign test and Mann –Whitney U test
7. Correlation and Regression

PROJECT
(Special study)

Course Description **HOURS: 170**

The special study is a major project undertaken by student. It is a subject in its own right and must be satisfactorily completed in order for the student to graduate. As an alternative to this the student can present a record of cases.

The special study requires the student: to identify a problem area of relevance to the theory and / or practice of physiotherapy or occupational therapy to carry out an investigation of one aspect of that problem are: and to present a clear report on the process and results of the project.

Students are encouraged to identify problems of special interest to them that tall within the interest areas of physiotherapy or occupational therapy services. Students are encourages to aim towards knowledge on the topic in the specified problem area.

Course objectives:

The objective of this course is that at the end of the special study the student will have

1. Developed skills in critical thinking research methods (including review of literature formulation of a problem for study, selection of a research strategy to investigate the problem, implementation of that strategy and the formal presentation of information related to the theory and or practice of physiotherapy and occupational therapy.

2. Gained an interest in research, writing, and publishing material which contributes to the ongoing development of professional therapy both as a science and an art.

In addition the student will be able to fulfil the following objectives of the course

1. Identify problems of relevance to the theory and or practice of therapy in rehabilitation.

2. Undertake enquiry in to a specific problem area.

3. Formally document the stages of such a study, including description of the problem the process of investigation, the findings and their implications for therapy education practice and research.

Evaluation:
Internal : 50 marks will be awarded by internal assessment, which will include the guide.
University: 50 marks will be awarded by external examiner during viva.

CLINICAL PRACTICE

INSTRUCTION HOURS: 1960

Course Objective: After **1960** hours of clinical experience the student will be able to demonstrate an understanding of the basic requirements of occupational therapy in each O.T section.

1ST YEAR CLINICAL POSTING: 30 Hours

GOAL:

To orient students to different clinical areas.

OBJECTIVES:

The student will be able to fulfill the following objectives.

1. The students will be oriented to the various departments & wards of the Hospital .

2. Orientation to the PMR department including(Physiotherapy, Prosthetic & orthotic department & speech therapy)

3. At Occupational therapy, orientation to all kinds of patients, sections, equipments, assessment & treatment services provided.

4. Clinical observation of patients – Identify the common physical / mental / emotional problems

5. Identify media used by therapists during treatment.

6. Developing rapport with patients.

7. Muscle testing and goniometry

8. Surface Anatomy.

EVALUATION:

Files – To record media & equipment used in Occupational Therapy.

II YEAR CLINICAL POSTING: **600 hrs**

GOAL:

The student will be able to take detailed history & evaluate relevant performance components.

OBJECTIVES:

1. The student will be posted on rotation in the inpatient and outpatient sections of Orthopedics, Neurology, Neurosurgery, Psychiatry and Pediatrics Unit.

2. The student will take detailed history through interview; obtain details of investigations & medical treatment from case records.

3. To evaluate performance components relevant to client's diagnosis i.e tone R.O.M, muscle power,voluntary control, sensation,coordination,DTR,superficial reflexes,TCD,cranial nerve testing.

4. To Identify problems to be addressed in Occupational Therapy.

EVALUATION:

Files: Case submission - 2 cases per posting.
Case presentation – 1 case per posting

III YEAR CLINICAL POSTING: **750 hrs**

GOAL:

The students will master history taking & learn the skills of Occupational Therapy assessment in respective clinical areas & problem identification & goal setting and intervention The students will be posted on rotation in Occupational Therapy inpatient and outpatient units, in the areas of Psychiatry, Paediatics.,Ortopaedics and Neurology.

OBJECTIVE:

Students will be able to fulfill the following objective**:**

1. Be proficient in history taking.

2. Learn occupational therapy assessment skills such as observation, palpation, clinical testing & examination.

3. They will learn to do mental status examination, assess relevant performance components & detailed functional assessment.

4. The students will learn to identify patient's problems to be addressed Occupational therapy.

5. The students will learn to prioritize short term & long term goals for the patient.

6. The students will learn to choose and apply treatment approaches and implement Occupational Therapy intervention with supervision.

7. The students will have hands on practice on wheelchair & crutch transfers, one handed techniques and mat activities.

8. The students will learn to plan for prescribing splints, adaptive & assistive devices.

EVALUATION:

Files: 1. Normal development of child file - 1year – 5 years of age

2. Hand splint file – 5 hand splints, paper pattern & fabrication description.

3. Case submission – 2 cases per posting

4. Case presentation – 1 per posting

IV YEAR CLINICAL POSTING **580 hours**

GOAL:

The student should be proficient in Rehabilitation of all clients relevant to occupational therapy .Emphasis is on assessment, treatment plan and involvement in patient care.

OBJECTIVES:

1. The student will have placements to include the following: Clinical Cardio Respiratory, Neurology, Orthopedics & Rheumatology, Plastic surgery, Burns and Geriatric conditions , Hand therapy, Prosthetic & Orthotics, Speech therapy & Physiotherapy units, Community based rehabilitation.

2.Student should be able to do specialized assessments on specific performance components.

3. Demonstrate competency in assessment, clinical reasoning & treatment planning.

4. The student should be able to conduct groups in Occupational Therapy.

5. Take responsibility for at least one administrative or organizational duty in the treatment area eg. Care of equipment / materials, billing & record maintenance.

6. Students will learn to conduct a job site and job analysis of workers in industrial setups.

7. In CBR student will learn to conduct survey, identify disability, plan home

based therapy and low cost aids and adaptations.

EVALUATION:

1. Files case submission – 2 cases / posting
2. Case presentation – 1 per student in all specialized performance components.
3. Report writing on work study & job analysis after industrial visit.

INTERNSHIP TRAINING

A student after having successfully completed the final year University Examination is qualified to commence the **compulsory rotatory internship**. Completion of Internship is mandatory to enable a student to obtain the degree of Bachelor of Occupational Therapy.

Aims:

The Internship program is designed to facilitate the transition from student- hood to becoming a competent professional. It is meant to instill in the students clinical practice skills which would encompass the following qualities.

- Time management and Punctuality
- Work behaviours, roles & routines
- Communication and interaction skills with patients, colleagues, supervisors & other professionals of multi disciplinary team.
- Plan & cooperate with other members of the treatment team for achieving objectives of treatment.
- Take responsibility for at least one administrative or organizational duty in the treatment area e.g. care of equipment, therapy sessions & patient care.
- Ability to write concise, relevant evaluation and progress notes on patients treated in consultation with therapist.
- Ability to present their patients to the treatment team at clinical rounds conferences etc, - clearly demonstrating progress made and present treatment objectives.

Duration & Description:

The internship program is of the six months duration. A student doing internship has to work under supervision of experienced staff in the following areas.

1. Paediatrics - One month

2. Orthopaedics and Hand, Burns
& Plastic surgery - One month

3. Community based Rehabilitation - One month

4. Neurology - One month

5. Psychiatry - One month

6. Physical Medicine & Rehabilitation - One month
(Rheumatology, Cardio Respiratory and Prosthetic & Orthotics unit)

All the above mentioned postings and durations are compulsory

Ordinances:

- The intern will be eligible for 1 day casual leave in each month and can carry over the leave to next months, but he cannot avail the next month leave in advance.

- The intern should conduct themselves in a manner befitting the profession.

- The intern should dress appropriately in the clinical areas.

- It is mandatory for the intern to wear the white apron with nametag when in the clinical area/ wards.

The intern can avail medical leave on producing a medical certificate, but will have to compensate for the number of days of absence from internship

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