SunRise University
Approved by Govt. of Rajasthan vide Sunrise University Act, 2011
Recognized by UGC Act, 1956 u/s 2 (f)

SRU COLLEGE OF PARAMEDICAL TECHNOLOGY
SunRise University Campus,Alwar,Rajasthan,India

SYLLABUS

B.Sc.,OCUPATIONAL THERAPY

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 thequalifying examinations of the H.Sc conducted by any state or Central government Board / Council 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 orwould complete the age on or before 31st December of the year of admission to the B.Sc.,O.T degree course.

3. PHYSICAL FITNESS CERTIFICATE

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

4. ELIGIBILITY CERTIFICATE

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

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 shallextend over a period of four academic years and six months of compulsory internship.

7. MEDIUM OF INSTRUCTIONS

English shall be the Medium of instructions 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 ordeclared 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 BSc.,.O.T. course shall be the 30th of September of theacademic 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 DegreeCourse unless he/she has attended the course in the subject for the prescribed
period in an affiliated institution recognised by this University and produces thenecessary certificate of study, attendance and satisfactory conduct from the Head of the institution.

b. A candidate is required to put in minimum 80% of attendance in both theory andpractical 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 ayear 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 Practicals 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.

c. 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 Practicals 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 thefollowing 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 are allowed to carry over failed subjects upto 3 ½ years.

b. Candidates are not permitted to go to final year examinations unless he clears all the previous year subjects.

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 ofadmission and more than two spells of break will not be generally consideredfor 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 orcontemplated against them.

d. 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 Officer of this University. The candidates may be re- admitted in the correspondingcourse of study at the commencement of the session and shall undergo a minimumperiod of study of 3(three) months and after fulfillment of the regulations of thisUniversity be admitted for the examination. The candidates shall be granted exemptionin 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 thepowers 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 undergoingcourse of study in affiliated institutions of this university.

20 COMPULSORY INTERNSHIP

Every candidate admitted to Bachelor of Science.,(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 COMPLETIONCERTIFICATE

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 Examination
(Non Semester 4 year BOT Course)

Sl No	Year	Subject	Examination	Duration Of Exam	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 OT And Therapeutic Activities	Examination	3	50	100	75	25	250
5	Two	Pathology And Microbiology	Examination	3	50	100	Nil	Nil	150
6	Two	Medicine Surgery And Paediatrics, ENT, Ophthalmology, Pharmacology	Examination	3	50	100	Nil	Nil	150
7	Two	Biomechanics, Applied Anatomy and Applied Physiology.	Examination	3	50	100	Nil	50	200
8	Two	Clinical Orthopaedics , Radio diagnosis	Examination	3	50	100	Nil	50	200
9	Two	Clinical Neurology	Examination	3	50	100	Nil	50	200
10	Three	Community Medicine, Basic Nursing and First Aid	Examination	3	50	100	Nil	Nil	150
11	Three	Health Psychology, Clinical Psychology	Examination	3	50	100	Nil	Nil	150

		Clinical Psychiatry							
12	Three	OT in Psychiatry	Examination	3	50	100	75	25	250
13	Three	OT in Orthopaedics and Neurology	Examination	3	50	100	75	25	250
14	Three	OT in Paediatrics	Examination	3	50	100	75	25	250
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	75	25	250
19	Four	Group ProcessIn OT	Examination	3	50	100	Nil	Nil	150
20	Four	Project, Research Methodology and Biostatistics	Examination (viva only)	Nil	50	Nil	Nil	50	100

5. Question paper pattern to consist of only short notes (5 marks) in Pathology(Sec A)and Microbiology (Sec.B)

Sec A 10 x 5 = 50
Sec B 10 x 5 = 50

100
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6. Section A Medicine Paediatrics & Pharmacology – Essay from Medicine and Paediatrics only Section B ENT, Opthalmology & Surgery – Essay from Surgery only

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	Therapeutic Activities	-	420
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	Pathology and Microbiology	50	-
15	General Medicine, Surgery and Paediatrics	140	-
16	ENT, Ophthamology, Radio diagnosis, Pharmacology	35	-
17	Biomechanics and Applied Anatomy	100	-
18	Applied Physiology	30	-
19	Clinical Orthopaedics	55	-
20	Clinical Neurology	55	-
21	OT Clinical Placements (Peads , Psychiatry, Orthoand Neuro)	-	600
22	3rd Year Classes	125	-
	3rd YEAR		
23	Health Psychology	35	-
24	Clinical Psychiatry	35	-
25	Clinical Psychology	35	-
26	Community Medicine	55	-
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 MethodologyAnd 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 1styear)	20

Recommended Hours for Clinical work and Internship

Clinicals(1st year to 4thyear)	2030
Internship	1150
Total Hours	3180

First Year
Subjects

General Psychology and Sociology

Anatomy

Physiology

Basic OT and Therapeutic Activities

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 , 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 fulfil 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'sprofession.

Identify ego defence mechanisms and learn counselling techniques to help those in need.

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

A. DEFINITION OF PSYCHOLOGY

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

a. Schools: Structuralism, functionalism, behaviourism, psychoanalysis, gestaltpsychology.

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

c. Branches: General, child, social, abnormal, industrial, clinical, counselling,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.

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.

Psychological needs: 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 oflearning: 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; 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, Counselling and religious conversion).

M. DEFENCE MECHANISMS OF THE EGO

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

Evaluation : Internal - Theory
University –Theory

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 fulfil 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 thehealth 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 ofthe 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 healthand 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 ofculture 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 the 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 anddisability; remedies to prevent these problems:

Population explosion, Poverty and unemploymentBeggary
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
External - Theory

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 fulfil 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 gives functions of organs ,Names of cell bodies.
4. Defines chromosomes, genes
5. Reviews mitosis and meiosis, Mentions the main events, but stages notnecessary.

C. TISSUES

1. Classifies tissues.
2. Classifies and mentions the microscopic structure of types of tissues such as epithelial, connective, muscular and nervous tissues. Gives examples for each type of tissue.

D. CARDIO-VASCULAR SYSTEM

1. a. Comprehends the external and internal features of the structure of theheart and their implications.

   b. Mentions position of the heart.

   c. Identifies and name, the chambers of the heart, surface and borders ofthe 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 & nervous supply of theheart.

   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 andmajor veins and names their main branches.

   b. Names the types of arteries and veins; gives examples and indicates abasic microscopic structure of type of blood vessels.

E. LYMPHATIC SYSTEM

1. Comprehends the general and regional arrangements of the lymphatic system.
2. Names the lymphatic organs and mentions their location.
3. Illustrates the basic structural features of lymphatic vessels, lymphnodes,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 respiratorysystem.

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

2. a. States the position extent and gross and microscopic structure of theparietal pleura.

b. Comprehends the arrangements of pleura. Mentions the parts, andposition 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. Names the components of the hilum of lung.

g. Names the bronchopulmonary segments

h. Illustrates the main features of the microscopic structure of the lung.

i. Identified 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. Mentions the boundaries and features of the mouth

c. Classifies teeth.

d. Mentions position, extent, subdivisions, communications, internalfeatures and muscles of pharynx.

e. Names the tonsils and defines fauces.

f. Identifies internal features of the mouth and pharynx of the specimen.

2. a. States the position, course and extent of oesophagus

   b. Identifies oesophagus of 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. Names the subdivisions of the intestine and mentions their positions.

   b. Mentions the differences between small and large intestine.

5. a. Names the arteries arising from the abdominal aorta. Names the organssupplied by these branches

   b. Awareness of the name and position of the principal autonomic visceralnerve 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 positions 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 ofthe 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 surface 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 femaleurthera.

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 organsof 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 anatomyand functional considerations of ovary, uterine tubes, uterus, vagina and female external genitalia.

b. Mentions the basic features of parts of the female external genitalia.

c. Enumerates the factors responsible for the maintenance of the position ofthe 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 names their subdivisions.
Comprehend the position and form of the spinal cord, its structure and function interms 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 mentions parts of the cerebellum.

d. Mentions the external features and internal structures of the cerebellum and names 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 component of forebrain including cerebral cortex, insula,olfactory bulb, olfactory tract, uncus, fornix, basal ganglia, thalamus, hypothalamus, internal capsule, corpus callosum etc.

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 ofmuscle tone.

5. a. States the formation, circulation and drainage CSF.

b. Locate and identify the ventricles

c. Identify and name the meninges and space 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 subarachnoidhaemorrage.

6. a. Outlines the arrangement of major blood vessels around the brain and spinalcord.

b. Mentions the arteries forming the Circle of Willis.

c. Name the branches of major arteries supplying the brain and spinal cordand mentions 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. Mentions their functionin emotion and behaviour.

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

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

c. Names and locates the sympathetic and parasympathetic ganglia.

d. Summarizes the functional differences between the sympathetic andparasympathetic systems.

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

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

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

d. Predicts the result of injury to cranial nerves.

9. a. Anatomy or spinal cord - review.

b. Names the groups of spinal nerves.

c. Explains the formation and branches of the spinal nerves and distribution ofanterior and posterior rami.

d. Locates and names the plexuses of nerves.

e. Indicates the course and distribution of branches of the plexuses of thenerves.

J. ENDOCRINE SYSTEM

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

   b. Mentions the hormones produced by each endocrine organ.

K. INTRODUCTION TO BONES (Osteology)

1. a. Defines skeleton.

   b. Mentions the subdivisions of the skeleton. Names the bones in each subdivision. Knows the number of bones in each subdivision and totalnumber of bones.

   c. Classifies the bones and gives examples.

   d. Enumerates the common surface features of bones

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

   f. Indicates blood supply and nerve supply of a bone

2. When regional anatomy is taught:

   a. Identifies, names and correctly orientates the bones.

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

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

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 ofjoint

   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 h. 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 theskeletal 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 andnerve 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 orientates the sternum, clavicle, scapula andhumerus. c. Outlines the main features of the bones of shoulder girdle

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

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

f. Identifies the borders, angles surfaces, processes, fossae and other features ofscapula. g. Identifies the ends, head, greater and lesser tubercles and anatomical and surgical necks of humerus; also the capitulum, trochlea, and radial, coronoid and olecronon 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 ofbrachial 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. b. Names the joints of shoulder girdle. Identifies the articularsurfaces and names the ligaments and movements of sternoclavicular and acromioclavicular joints Mentions the types of the joints

c. Demonstrates and names the movements of scapula. Mentions the chiefmuscles producing these movements. Correlates movements of scapula.

d. Assigns functional roles of the articular disc and costoclavicular ligament ofsternoclavicular 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. Analysesthese 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 theshoulder joints

f. Mentions the limiting factors and the factors for its stability. Indicates appliedanatomy.

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, cornonoidand olecranon fossae

c. Mentions the origin, insertion, nerve supply and actions of the muscles of thefront 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 chiefmuscles 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, metacarpat 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 or 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 musclesproducing them. Mentions its blood supply and nerve supply.

Mentions the visible tendons around the wrist and their synovialsheaths

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 the type 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 of 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 andpatella.

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

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

d. Mentions the boundaries and contents of femoral triangle and subsartorialcanal.

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

f. Indicates the course and main branches of femoral artery and mentions theblood 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 theirorigin, 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 actionof 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 actionof the muscles.

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

5. **Hip joints:**

a. Mentions the type, articular surface and ligaments.

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

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

d. Indicates applied anatomy.

6. Knee joint:

a. Mentions the type, articular surfaces, and ligaments. b. Defines the movements and names and chief muscles for the movements. c. Analyses themovements. d. Knows the blood supply and nerve supply. e. Indicates appliedanatomy. 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 anarticulated foot.

b. Names and identifies the muscles.

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

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 actionof the muscles.

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

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 ofmuscles 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 oftibiofibular 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. Mentionsthe boundaries

b. States the parts and features of sternum.

c. Defines true, false and floating ribs. Mentions the parts and features oftypicalribs. 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. Indicatesthe 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, xiphisternumand spines of thoracic vertebrae.

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

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

3. a. Defines the boundaries and subdivisions of the mediastinum and lists the contents. Identifies the contents. b. St.ates the features of thoracic parts ofsympathetic 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 thefeatures of the female bony pelvis and their roles.

c. Mentions the type, articular surfaces, ligaments and movements of thejoints 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 thesemuscles.

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

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

e. Names and identifies the muscles of posterior abdominal wall. Gives theirorigin, 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. Identifies 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 othersympathetic ganglia.

j. Mentions the branches and distribution of the abdominal aorta and iliacarteries.

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 andfemale 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 andposterior 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 thoughthem.

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

   f. Predicts the results of paralysis to the facial muscles and sequel of injury to thefacial 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 andseventh 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 theirdistribution.

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

e. Demonstrates the action of sternomastoid.

f. Mentions the type, articular surfaces, ligaments, movements, and musclesproducing 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 positionand 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 mentionstheir 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 thepathway).
5. Mentions the distribution of the three divisions of trigeminal (Vth) nerve
6. Names and states the nerve supply and simple actions of the extraoccularmuscles.
7. Predicts the results of lesions of 3rd, 4th and 6th 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.

Temporomandibular joint:

1. States the type, articular surface, ligaments, possible movements, musclesperforming 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 andnerve 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 musclesand 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 andspeech.

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 termination.
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 : 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, practical and clinics the student will be able to demonstrate an understanding of elementary human physiology.

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

LECTURE OUTLINES

A. CELL INTRODUCTION

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

B. SKIN

Structure; functions; blood flow; temperature regulation.

C. BLOOD

1. Outline of components; and their function; RBC, WBC, Platelets, Blood groups.
2. Significance of RBC & WBC counts ESR and other related tests.
3. Clotting mechanisms
4. Blood volume and its regulation

D. CIRCULATION

1. Structure & Properties of cardiac muscle: Cardiac cycle.
2. ECG: Heart sounds, cardiac output.
3. Factors regulating the action of the heart.
4. Blood pressure; its maintenance and regulation
5. Cerebral circulation: Renal circulation: Pulmonary circulation.
6. Effects of exercise: effects of postural changes

7. Lymph; factors affecting its flow.

E. RESPIRATION

1. Defence mechanisms in the Respiratory tree; mucociliary transport. Mechanics of Respiration.
2. Transport of blood gases. Acid-base balance.
3. Lung function tests (including lung volumes). Artificial ventilation
4. Nervous and chemical regulation of respiration.
5. Hypoxia-types and causes
6. Effects of exercise on respiration

F. DIGESTION

1. Digestion in the mouth, stomach and intestine.
2. Bile; Pancreatic secretion.
3. Mechanisms of control of secretions and motility.
4. Diet and Nutrition

G. EXCRETION

1. Structure of the nephrons
2. Formation of urine.
3. Micturation.

H. ENDOCRINE

1. General metabolism. Carbohydrates, protein and fat metabolism.
2. Outline of the various hormones and their actions with special emphasis on Thyroxine and Parathyroid hormone.

I. REPRODUCTION

1. Male reproductory system
2. Female reproductory system
3. Outline of pregnancy: functions of placenta; Parturition; lactation; contraceptive measures.
4. Physiology of foetus; factors that affect foetal growth.

J. NERVOUS SYSTEM

1. Structure of neurons
2. Properties of neurons: (excitations & conduction)
3. Synapses and synaptic transmission;Reflexes and properties of reflexes;
4. Sensory endings
5. Spinal cord; Pathways in the spinal cord.
6. Brain stem; Thalamus; Basal ganglia; Cerebellum; Cerebral cortex;
7. Control of posture and control of voluntary motor activity.

K. SPECIAL SENSES

1. Vision
2. Audition; Olfaction;Gustation:Vestibular apparatus

L. MUSCLE

1. Structure of muscle tissue:gross structure and microscopic structure. Arrangement of myofibrils. Myoneural junction.

2. Chemical processes involved in muscle contraction

3. Physiology of muscle contraction. Single muscle twitch, Quantal summation. Wave Summation, Tetany. Effects of temperature changes. All or none law. Fatigue , Isotonic, Isometric, Isokinetic contraction.

4. Exercise metabolism. Oxygen debt ,Respiratory quotient.

5. Development of endurance. Factors affecting endurance and muscle strength. Factors affecting general and cardiorespiratory endurance. Aerobic and anaerobic work. Efficiency of muscular activity, aerobic versus anaerobic (eg. speed, work, load, fatigue diet, obesity).

6. Age and exercise. Age changes in muscle function. Age changes in CVS. Age changes in pulmonary function. Age and physical work capacity. Age and nervous system.

7. Environment and exercise. Adaptation to heat and cold. Exercise in heat and cold. Human limitation in heat. Acclimatization to heat. Exercise at high altitudes.

PRACTICAL DEMONSTRATIONS

A. Determinations of RBC and WBC counts.

B. Examination of different types of WBC in stained blood smears.

C. Circulation in the web of the frog's feet.

D. Ischeamic pain.

E. & F. Muscle contraction in frog:simple muscle curve, Tetany,Wave summation, quantal summation,fatigue.

G. Lung volumes

H. Effect of exercise on ventilation.

I. Physical fitness

J. Determination of BP:Effects of exercise on BP.

K. Examination of sensory and motor systems.
Examination of superficial and deep reflexes.

L. 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 and Therapeutic Activities

Examination at the end of 1st year

Instruction hours: Basic Principles 60
Therapeutic Activities **420**

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 , demonstrations and practical exposure to clinical work, the student will be able to demonstrate a basic understanding of the scope and aims of occupational therapy, and a practical knowledge of at least five activities used in treatment.

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

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

2. Define Occupational Therapy. Discuss the scope of O.T in a major hospital and in the community

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

4. **Briefly explain objectives and Media used in Occupational Therapy**

5. **Occupation: Definition, philosophy ,Concept, Consequences of Occupational Loss**
6. **Muscle contractions and therapeutics movements as relevant to Occupational Therapy**
   - **Isotonic, isometric muscle contractions**
   - **Passive, Active, Active assisted and resistive movements**

7. Define the characteristic of Activities used as treatment media ,Analysis of Activities – for physical , psychological and general aspects ,Gradation and Adaptation of Activities

8. Outline treatment objectives for children: development, remedial (physical, mental and emotional), ADL, Include use of play, creative and cognitive activities.

Outline treatment objectives for physical conditions: remedial (physical & mental), ADL, prevocational, resettlement.

Outline briefly psychiatric treatment objectives: - Remedial (Emotional, social cognitive)
ADL, prevocational and resettlement aspects.

9. General Outline of Department: : Orientation to equipments and referral system..

10. Outline the ethics and etiquette relevant to O.T. as follows:-
- Professional conduct.
-Need for confidentiality in treatment of patients.
-Inter-staff, and therapist-patient relationships.

11. Definition of Model , Frame of Reference and Approaches

12. Models of Practice : Model of Human Occupation, Canadian Model of Occupational Performance, Person Environment Occupational Performance

B. THERAPEUTIC ACTIVITIES

COURSE DESCRIPTION

A variety of practical activities are taught in order to provide a wide selection of therapeutic media relevant to the need of individual patients. For each activity the following objectives apply.

COURSE OBJECTIVIES

The objectives of this course is that after **420** hours of demonstrations and practicals the student will be able to demonstrate an understanding of materials, tools and methods required for the activities studied, and their application in Occupational therapy.

In addition, the student will be able to fulfil with as measured by written assignments & practical work the following objectives of the course:

A. Demonstrate the process involved.

B. Explain and demonstrate methods of handling the materials.

C. Plan and design simple, relevant projects in each activity learnt.

D. Demonstrate ability to teach the activity to both individuals and groups. This will include both patients and fellow students.

E Analyse processes involved for physical, mental and emotional aspects prevocational and vocational purposes.

F. Apply and adapt the activity appropriately for specific therapeutic, prevocational and vocational purposes.

COURSE OUTLINE

The following seven activities should be learnt.

Marks will be included with internal assessments for the current O.T examination. Oral and practical examination will be conducted in therapeutic Activities in the First year examination.

a. Design
b. Weaving and chair canning.
c. Leatherwork.
d. Book-binding
e. Recreational activities
f Tailoring
g. Basics in Computer science with reference to OT.
h. Home activities
i. Woodwork

A. Design

A. Introduction to design - Students will be able to identify design in nature, textures, buildings, textiles, etc., to apply the colour wheel (primary and secondary colours, different shades and tones) for colour preparation.

B. Students will carry out and describe therapeutic value of the following:

1. Painting/designs (blow, spray, blotch, finger, oil, wax, thread, charcoal, etc)

2. Montage and collage.

3. Paper mat weaving and paper folding,

4. Paper cutting and streamers

5. Macrame - cord / knotting

6. Symmography

7. Ball decoration and paper beads. Plate decorations and coconut shell designs.

8. Aluminium wire pictures. Wire decorations.

9. Embroidery (4 stitches)

10. Lettering and posters

11. Batik printing

12. Tie and Dye fabric design

13. Block designing and printing, including adaptations.

14. Finger puppets clay modelling and paper mache.

15. Hand puppets, and dramatic presentation as group work

C. Each student will teach their class 1 or 2 activities of their own choice.

D. Therapeutic application and analysis of physical and psychological aspects. Observation of application in O.T psychiatric & paediatric application in detail.

File prepartation - compiling of methods samples for each activitiy. Children's activities to be compiled seperately with appropriate therapeutic values. Files will be marked.

B. Weaving and chaircaning

Weaving

1. Simple card weaving.

2. Rug weaving

   Therapeutic application, activity analysis of above.

3. Chaircaning

A. Students will be able to carry out and describe the following:

1. Preparation of frame (for chair or stool).

2. Seven different steps in weaving the cane.

B. Application of therapeutic prevocational and vocational values.

File preparation - illustrations of above processes and OT application will be marked.

C. Leather work

1. Types of hides and skins used in leather work.,

2. Manufacture of leather, different characteristics in relation to methods employed.

3. Leather purchasing and calculation of cost.

B. Describe and use tools - basic tools, cutting tools, sewing tools, tools for special effects. Outline purchase and care of tools.

   Carry out techniques - cutting, thonging, stitching, punching, braiding, lining, fastenings (rivets, eyelets, press buttons, buckles, zips and velcro), decorating leather articles, use of paints, dyes and finishes.

C. Prepare 1 splint and 1 aid eg. opponens splint and palmar pocket aid.

D. Prepare 1 project - eg. watch strap, purse, wallet, belt, pocket pouch, spectacle case etc., using as many techniques as possible.

E. Outline - storage availability, cost and care of materials.

F. Application : Activity analysis, therapeutic values and use to the therapist.

File preparation - On all the above. Practical test Marks will also be given for projects and files.

D. Book Binding

A. Outline the art of book binding

Describe book binding equipment and how to use it.

Describe maintenance and care of binding tools and equipment.

B. Practical sessions:

1. Simple binding procedures eg.chit pads and letter pads.

2. Section binding (including stitching)

3. Costing of projects made.

C. Application - therapeutic, prevocational and vocational values. File preparation on above methods and application. Marks will be given for files and projects.

E. Recreational Activities

Outline the use of the following recreational activities as a therapeutic medium.

Plan the following activities for various patient groups.

1. Sports
2. Games
3. Picnic
4. Drama
5. Leisure & hobbies
6. Music
7. **Play**

File preparation: This is an applied subject. Notes on the above will be marked.

F. Tailoring

1. Types of stitches and their uses
2. Types of seams and their uses
3. Types of openings and fastenings
4. Pattern making , measuring and cutting
5. To make any one of the following:
   - Pillow case
   - Shopping bag
   - Apron
   - Cushion cover
   - Baby's dress

G. Basic Computer Science

30 hours

A Intoduction to computers –

Key board usage

Hardware:

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

B) Switching on and switching off the computer and printer

C) Accessory Management: Explorer and Outlook Express.

D) Printers, Modem, CD.

E) Simple trouble shooting.

F) Simple Preventive Maintenance techniques (dust, Mouse pad maintenance, gentle use of keys)

Software :

Operating Systems: E.g. Windows, Linux, DOS. The student should know how to use any one.

Word processing Software: E.g. MS Word, Star Office, Word Perfect .The student should be able to use any one

Spread sheet software: E.g. MS Excel, Star Office, Lotus. The student should be able to use anyone

Application Software: Power Point, Graphics

Browser/ Mail: Netscape Communication, Internet.

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

H. Home Activities

A. Plan and prepare simple meals.

B. Gardening

EVALUATION

Internal:

1. Files to be submitted for each of the above activities
2. Tests on Activity analysis , grading of activity ,
3. Written, Oral & Practical examination in Basic Principles and Therapeutic Activities

University: Written, Oral and Practical Examination in Basic Principles and Therapeutic Activities

Second Year
Subjects

1. **Pathology and Microbiology**
2. **General Medicine Surgery and Paediatrics, ENT,Opthalmology,Pharmacology**
3. **Biomechanics, Applied Anatomy andApplied Physiology**
4. **Clinical Orthopaedics, Radio diagnosis**
5. **Clinical Neurology**

Pathology and Microbiology

Examination at the end 2nd year Instruction hours: 50

COURSE DESCRIPTION

This course follows the basic course in anatomy and physiology, and compliments the course in general medicine & surgery being taught concurrently. 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 pathology on the functioning of the individual.

COURSE OBJECTIVES

The objective of this course is that after 25 hours of lectures, demonstrations, practicals and clinics the student will be able to demonstrate an understanding of the pathology and microbiology of common diseases that therapists would encounter in their daily practise. The course will also help therapists understand how to protect themselves and their patients from nosocomial infections during their interactions.

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

COURSE OUTLINE

PATHOLOGY

A. Introduction: Concepts of diseases, classification of lesions.

B. Bacterial, viral and parasitic infections – a general outline.

C. Inflammation and repair, Degeneration, necrosis and gangrene.

D. Hemorrhage, shock, embolism, thrombosis.

E. Tuberculosis, Leprosy, Typhoid.

F. Deficiency diseases.

G. Tumours: Aetiology & spread. Common tumours.

H. Blood : Anaemia, Heart and blood vessels, common congenital anamolies, rheumatic & coronary heart diseases.

I. Respiratory system: Pneumonias, Bronchiectasis, Emphysema, Chronic bronchitis, Asthma.

J. Bone and joints : Autoimmune disease, septic arthritis, Osteomyelitis.

K. Skin : Leprosy.

L. Urinary system.

M. Central nervous system: CNS infections, vascular disorders.

N. Rheumatoid Arthritis.

O. Sclerodema and Psoriasis

P. Diseases of muscle including poliomyelitis, Myopathies.

Q. Volkmann's lschaemia

MICROBIOLOGY

L- Lecture.
LD- Lecture demonstrations.

A. Introduction and history of microbiology (L)

B. General lectures on micro – organisms: (LD)

1. Classification
2. Shape and arrangement
3. Special characteristics – spores, capsules, enzymes, motility, reproduction.

C. Disinfection and antiseptics. (LD)

D. Sterilization and asepsis (LD)

E. Antibacterial agents – fundamental aspect, susceptibility tests. (LD)

F. Infection – source of infection

- portals of entry
- spread of infection

G. Non – specific immunity (L)

H. Immunity – natural and acquired (L)

I. Allergy and hypersensitivity (L)

J. Outline of common pathogenic agents and diseases produced by them. treatment and prevention.

1. Respiratory tract infections.
2. Meningitis.
3. Enteric infections.
4. Anaerobic infections.
5. Urinary tract infections.
6. Leprosy, tuberculosis and miscellaneous infections.
7. Wound infections.
8. Sexually transmitted diseases.
9. Hospital acquired infections.

K. Pathogenic yeasts and fungi. (LD)

L. Virology – virus infections, with special mention of Hepatitis, Poliomyelitis & Rabies. (LD)

EVALUATION
Internal tests and University Examination on Theory.

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.G., Ophthalmology. A very short course in pathology and Microbiology will be conducted concurrently.

COURSE OBJECTIVES

The objectives of this course is that after **140** hours of lectures, 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 manoeuvres 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 fulfil the following objectives of the course.

GENERAL MEDICINE

INFECTIONS

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

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

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.

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.

E.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.

F. RENAL DISEASES

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

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

G. 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 mangement of diabetes.

2. Obesity- Define outline management.

H. GERIATRICS

1. 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.

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

Describe growth and development of a child from birth to 12 years:

including Gross motor, fine motor, social and adaptive development.

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.

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

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.

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

NOTE: Although the time slot appears to be 1 hour lectures 10 in all, it is strongly recommended that this be altered to 10 lectures of 90 minute duration each – to make the course meaningful and profitable to the candidates despite the fact that NO examination has been incorporated.

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.

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.

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 – Cardiac antiarrythmic agents.

4. Blood disorders – cyanocobalamine – Shock – plasma substitutes, plasma expanders, vasoconstrictors – coagulants and anticoagulanyts – heparin and coumarins.

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 – Demonstrate preparation of a Liniment.

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.

7. Movement Disorders – Parkinsonism – CHARACTERISTICS OF DISEASE, tremor, rigidity – chemotherapy, Epilepsies – types – drug management of disease – Spastic disease – drug treatment of acute muscle spasms – gastro intestinal pharmacology, hyperacidity, antidiarrhoels, purgatives.

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

9. Chemotherapy – bacterial infections – drugs against micro organism – sulphonamnides, antibniotics, floxacins – Parasitic infestations malaria, amoebae, filariasis – flagellates – Respiratory Pharmacology- use of broncho dilator – airway clearance – Cancers – antimiotics, antimetabolities, irradiation – radioactive materials in cancers.

OPHTHALMOLOGY

Instruction Hours : 10 Hrs

Briefly outline the following:(Lecture & demonstration only)

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

Lecture – demonstrations only

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.

1. APPLIED ANATOMY & BIOMECHANICS

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 practicals 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 fulfil 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 maximise 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.

F. 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

3. 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.

G. 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.

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. and 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?

I. 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.

J. 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).

5. The effectiveness of the rectus femoris as a knee extensor at sixty degrees

of

6. 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.

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.

L. 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.

M. 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

*** Bio Engineering deleted from 2nd year and added to 4th year O.T in Rehabilitation.**

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 fulfil 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. Synanatic transmission.
11. Neuro Muscular transmission.
12. Properties of muscles, contractile responses, types contraction, electrical phenomena and tonic reflexes.

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

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 and demonstrations, 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 fulfil the following objectives of the course.

COURSE OUTLINE

A. INTRODUCTION TO ORTHOPAEDICS

A. 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.

EVALUATION

Internal: Theory, Orals
External: Theory, Orals

RADIODIAGNOSIS

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 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.

Identify on X-rays; Fractures and dislocations of extremities and spine, different disorders of bone, Eg.: Osteomyelitis, osteoporosis, rickets, tumours, etc.

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 and demonstrations, 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 fulfil 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 Neurophysiological 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, heamorrhagic & inflammatory strokes.

Gross localization and sequelae.

Detailed rehabilitative programme.

3. Trauma - board 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.
Infections.
Pyogenic Menignitis sequelae.
Tuberculous infection of central nervous system.
Poliomyelitis.

7. Disease of the muscle -classification, signs, symptoms, progression and management.

8. Peripheral nerve disorders.
   Peripheral nerve injuries: localisation and management.
   Entrapment neuropathies.
   Peripheral neuropathies.

9. 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.

Evaluation : Internal Tests in Theory and Orals:
University Examination - Theory and Orals

Third Year

Subjects

1. **Community Medicine, Basic Nursing andFirst Aid.**
2. **Health Psychology, Clinical Psychology,Clinical Psychiatry.**
3. **OT in Psychiatry**
4. **OT in Orthopaedics**
5. **OT 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 fulfil 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 tests

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 fulfil 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 utilise 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)

EVALUATION

Unit tests, term examinations, assignments, term examinations by doctor

1. Test papers
2. Final Practical + Oral test

REFERENCES

1. Golwalla Asoi " A Handbook of Emergencies" 2nd edition, Bombay Samet and Company, 1981.

BASIC NURSING

A. INTRODUCTORY CLASS

What is nursing? Nursing principles. Inter personal relationship, Bandaging, basic turns, bandaging extremities; triangular bandages and their application.

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. CARE OF RUBBER GOODS

Observation, reporting and recording temperature, respiration and pulses, simple aseptic technique, sterilisation and disinfection.

G. SURGICAL DRESSING
Parental Administration of Medicine.

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, burnout.

D. COMMUNICATIONS

1. Types: verbal, non-verbal, elements in communication, barriers to good communication, developing effective communication, specific communication techniques.

2. Counselling: Definition, Aim, differentiate from guidance, principles in counselling and personality qualities of counsellors.

E. COMPLIANCE

Nature, factors, contributing to non-compliance, 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.

I. BEHAVIOUR MODIFICATION

Application of various conditioning and learning principles to modify patient behaviour.

K. SUBSTANCE ABUSE

Psychological aspects of substance abuse: smoking, alcoholism, and drug addiction.

L. PERSONALITY STYLES

Different personality styles of patients.

EVALUATION
Internal: Theory
University : Theory

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 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 fulfil the following objectives of the course:

A. To evaluate attention, concentration, perception and mention 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 mention 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 Defence mechanisms in normal and abnormal conditions.

COURSE OUTLINE

A. Definition of clinical Psychology. General and historical introduction of Abnormal Psychology, Psychology in relation to medicine, different schools. Methods of Clinical Psychology: Case history method, nterview 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 Defence mechanisms in normal and abnormal behaviour.

D. Evaluation of attention and concentration, perception, memory, thinking, etc. and related disorders (possible demonstrations)

E. Intelligence and mental subnormality. Intelligence test - dmonstrations.Measurement of intelligence - children & adults.
Factors contributing to mental retardation. Prevention , Remedy and care.

F. Personality Assessment: Questionnaire, inventories, projective techniques.

G. Learning and maturation with specific reference to behavioural aspects.

Behaviour techniques in therapy

H. Counselling, Psychotherapy and Psychodrama.

Brief psychotherapy - Psychodrama.

Students are to be posted in psychiatry to attend the out patient clinics

EVALUATION
Internal tests and University Examination on Theory

REFERENCES
1. Abnormal Psychology and Modern Life - by C. Coleman.
2. Guide to mental test by Cattell.

BOOKS RECOMMENDED
Abnormal Psychology by T.E. Shanmugam.

PSYCHIATRY

Examination at the end of 3nd year Instruction Hours: 35

COURSE DESCRIPTION

In this course students will study abnormality of behaviour functioning. It follows the study of 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 5 hours of clinical experience in cases 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 fulfil 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, with two special references to India and to ancient Indian medicine and its relationship with 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 consanguinous marriages, adequate ante-natal care, obstetric care, mother and child services, psychological services (eg. child guidance, counselling services)

B. Symptoms of mental illness:

1. Disturbances of consciousness.
2. Disturbances of reasoning and judgement.
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,
4. Social and rehabilitation.
5. Family interaction, environmental manipulation.

.

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.

EVALUATION : Internal Theory Tests And University Theory Examination

Occupational Therapy in Psychiatry

Examination at the end of 3rd year

Instruction Hours : 75
Clinical Hours **: 400**

COURSE DESCRIPTION

This course follows 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, practical 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 fulfil the following objectives of the course:

A. Describe the history of psychiatric occupational therapy, and its development upto the present day.

B. Define OT in relation to psychiatry, and the role of an occupational therapist in the psychiatric team.
C. Describe the general characteristics of a potential client. Identify problems that make a person seek help. Compare types of referrals. Discuss the potential of psychiatric OT in the community.

D. Discuss the role of activities in psychiatric treatment, including patient, therapist, activities and context of treatment

E. Frames of Reference in the treatment of psychiatric conditions :

1. Cognitive behavior.

2. Behavioural.

3. Phychoanalytical.

4. Occupational behavior and Model of Human Occupation

5. Therapeutic use of self.

6. Projective techniques.

7. Developmental groups and developmental approach.

8. Mosey's adaptive skills.

9. Sensory integrative approach.

F. List and describe the various attitudes applied by the therapist in different conditions.

G. Analyze activities with reference to psychiatry and psychodynamics of activities.

H. Describe in detail the assessment of a client including specific methods used in the following:

1. Observation.

2. Interest checklist.

3. Interview.

4. Personality questionnaire.

5. ADL

6. Vocational and Pre-vocational

7. Social dysfunction rating scales – to learn any one scale

I. Help students to identify their client's psychiatric problems in relation to the practical situations observed in OT. Eg. Restlessness manifesting as decreased concentration and attention.

J.. Counseling: Guidelines and practical demonstration

K. Discuss OT assessment, treatment aims, plan and methods of treatment for the following conditions:

Schizophrenic and other Psychotic disorders

Mood disorders

Anxiety disorder including Phobias

Somatoform disorders

Factitious disorders

Eating and sleep disorders

Psychosomatic illness

Personality disorders

Substance related disorders

Seizure disorders

Organic Brain Syndrome

Mental Retardation

L. Review psychiatric problems of childhood and apply OT principles and techniques.

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 and materials, grouping and attitude of the therapist.

N. 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 Examination in Theory, Practicals and Orals
University Examination in Theory ,Practicals and Orals

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 Neurology and Orthopaedics and involves the application of Occupational Therapy techniques to these conditions. Further study on aspects of rehabilitation and team involvement will be covered in Occupational Therapy in Rehabilitatio

COURSE OBJECTIVES

The objective of this course is that after at least **660** 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 neurological and orthopaedic conditions.

In addition, the student will be able to fulfil 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. Analyse and apply therapeutic activities .Use biomechanical and neuordevelopmental approaches appropriately.

4. Discuss Psychological factors affecting selection of treatment media.

5. Outline the principles and goals in design, indications, and fitting of hand splints, prostheses, callipers and walking aids.

COURSE OUTLINE

A. Activity analysis and therapeutic activity for Physical conditions including:

1. Selection criteria and grading methods.

2. Positioning and posture.

3. Muscle action and range of motion (Biomechanical approach).

4. Control of movement (Neurodevelopmental approach

5. Sensory perception Analysis (sensory motor integration approach)

6. Prevocational analysis /assessment potential (Methods to be covered in OT in rehabilitation).

B. Evaluation procedures including:-

ROM, Muscles strength, Muscle tone, Co-ordination, Control of movement, Sensation (cutaneous and cortical), Cognitive Perceptual functions, Hand functions (in detail), Gait, ADL (activities of daily living). **Functional abilities, special tests in ortho, special tests for nerve compression ,contractures and deformities.**

C Approaches – including Biomechanical, Roods, NDT – Bobath for adults, Movement Therapy -Brunnstrom Approach, Proprioceptive neuro muscular facilitation, motor relearning theory and problem oriented approach, Rehabilitative Approach and Affolter's approach, **Task oriented approach**

D. Application of occupational therapy principles and techniques in evaluation and treatment of the following neurological and orthopaedic conditions to include:

Identification of possible deficits, dysfunction, and potential function improvement.

Planning of long term and short term treatment goals. Selection and implementation of appropriate treatment techniques, including biomechanical, Neurodevelopmental, psycholological, and biofeedback.

Identification of residual dysfunction, application of appropriate training in activities of daily living and adaptation to home environment.

1. Injuries to upper limb and hand, including:

   a) Peripheral nerve injuries, including appropriate reconstructive surgery & muscle re-education.

   b) Shoulder hand syndrome.

   c) Leprosy deformities (including appropriate reconstructive surgery and muscle re-education)

   d) Volkmam's ischaemic constracture.

e) Brachial plexus injury.

f) Hand injuries

2. Amputations- upper limb treatment and prosthetic training.

3. Fractures, with emphasis on upper limb and complications.

4. Muscular dystrophy.

5. Motor neurone disease.

6. Multiple sclerosis.

7. Parkinson's disease.

8. Cerebellar ataxia.

9. Cerebrovascular Accidents

10.Intra cranial tumours.

11. Brain injuries.

12. Guillain Barre Syndrome.

13. Spinal Cord Injuries.

14. Poliomyelitis :Post polio residual paralysis and post polio syndromes

15. Low Back Pain.

16. Spondylitis, Spondyloses, spondylolystheses

17. Total Hip and Knee replacements

18. Diabetic Neuropathy

19. Myasthenia gravis

E. Spinal Orthoses: Principles, goals, classification, specification in application, indications and contraindications . Demonstration of methods of training in the use of spinal orthoses.

F a) Hand Splinting.

1. Describe goals of splinting. Explain classification of hand splint and their application to treatment. Identify splint types and materials used.

2. 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.

b) Upper extremity splints – including (knowledge of elbow conformer, elbow driven hinge ,aeroplane splint, shoulder slings)

c) Lower extremity splints :-Knowledge about AFO,FRO, KAFO, foot drop splint-static and dynamic.

d) Other splints:- Splint for Microstomia and Facial Nerve Palsy splint

e) "Checkout of orthosis"

File preparation (for hand splints only) – splints and files will be marked.

Evaluation:

Internal : Theory , Practical and Oral Tests, Hand splinting file **and case study file.**

Univesity: Theory, Practical and Orals

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 APPROACHES - (Children's activities)

1. Play Therapy.
2. Creative activities.

D. Frames of References - (Practicals)

1. Bobath NDT.
2. Rood's neuromuscular facilitation.
3. Ayre's Sensory Integration Approach.
4. **Biomechanical frame of reference**
5. **Behaviour modification**
6. Peto's - conductive Education.
7. Special Education principles of education for perceptual and cognitive training.

E. OT 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 **/ PPRP**
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

Occupational Therapy Intervention for specific areas of dysfunction

1. Oromotor dysfunction
2. Pre writing and writing skills
3. Psychosocial dysfunction

G. Paedaitric 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 evaluation: Performance in Theory tests & clinicals
Child development file
File – of case studies

University : Theory, Practical and Oral Examination

Fourth Year
SUBJECTS

1. **Clinical Cardio Respiratory and WorkPhysiology**
2. **Rehabilitation Medicine**
3. **Organization and Administration in OT**
4. **OT in Rehabilitation**
5. **Group process in OT**
6. **Project, Research Methodology andBiostatistics**

Clinical Cardio-Respiratory

Instruction Hours: 50

Examination at the end of 4th year along with Work Physiology

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 and in addition to clinics, 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 fulfil 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: Tests in Theory
University Examination: Theory

WORK PHYSIOLOGY SYLLABUS

Instruction Hours : 50

Examination at the end of 4th year along with clinical cardiorespiratory.

1) Physiology of exercise
2) Cardiac output and cardiac work during regulation of exercise.
3) Cardiac rate during exercise.
4) Oxygen consumption of the body at rest and, during exercise and after exercise
5) Effect of exercise on
    a) Caloric intake
    b) Coronary circulation
    c) Metabolism
    d) Renal blood flow
    e) Contractility of Myocardium
    f) Blood pressure
    h) Increase in CO2 tension and mixing venous blood.
    i) Increase in pulmonary ventilation

Equipment for Work Physiology

Ergo meter -
Cycle type, Hand hook type and treadmill type

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 is that after 55 hours of lectures and seminars, the student will be able to demonstrate an understanding of:

A. The concept of team approach in rehabilitation will be discussed and implemented, through practical demonstrations, with contributions from all members of the team.

B. Observation and identification of diagnostic features in physical condition will be practiced through clinical demonstration.

C. Medical and surgical aspects of disabling conditions will be explained in relation to rehabilitation.

D. Identification of residual potential in patients with partial or total disability (temporary or permanent).

E. Formulation of appropriate goals (long &short term) in treatment & rehabilitation will be discussed.

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

COURSE OUTLINE

A. INTRODUCTION

Define the term rehabilitation. Explain its aims and principles

B. Principles and Management of following conditions

Demonstrate methods of evaluation for physical dysfunction & management of disabilities with particular reference to: Spinal Cord Injury (paraplegia and tetraplegia), Poliomyelitis, Brain Injury, (including stroke and cerebral palsy), Arthritic conditions, Amputation, Muscular Dystrophy, 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 mobilisation.
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.

I. PROSTHETIC DEVICES

Describe types of artificial limbs and their functions.
Demonstrate methods of training in their use.

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. LEGAL ASPECTS

Outline legal aspects of disability in terms of compensation for disability and benefits available to the disabled.

O. SOCIAL IMPLICATIONS

Outline the social implications of disability for the individual and for the community.

P. COMMUNITY BASED REHABILITATION MODULE

Describe a CBR module and compare this with an Institutional based rehabilitation system.

EVALUATION.

Internals : Theory
University : Theory

Organization Administration & Work Study in OccupationalTherapy

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 delivery system and to patient treatment and training.

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

ORGANIZATION AND ADMINISTRATION

A. Outline the purpose of the subject in relation to OT Define Organization. Explain aspects of administration in general and in relation to OT work situations. Outline principles of administration.

B. Describe methods of administration in an OT department.

1. Records - their purpose eg. attendance, statistics, inventory, stock.
2. Maintenance of records. eg. methods of community and institutional based departments (CBR & IBR)
3. Referrals – purpose and types of referral.
4. Documentation

C. Demonstrate administration of the following.

1. Store keeping – materials, inventory records, Purchase ordering, Petty cash accounting.
2. General maintenance of equipment, furniture, buildings, costing of splints / aids / equipment / articles / make in OT.

D. Describe and demonstrate: a) Types of correspondence b) Methods of filing.

E. Describe methods for care of equipment and materials.

F. Discuss budgeting – including items for an annual budget.

G. Discuss considerations for construction of a new department, and modification of an old department including: a) Space required b) Allotment of space, eg. Suitability for access, plumbing requirements, & circulation of air.

H. Plan assessment forms eg. pre-vocational. ADL, hand function & higher functions for initial evaluation and progress recording.

I. Outline method of writing OT department annual reports. Calculate monthly and annual statistics. Make plans for future requirements eg. consider staff patient ratio, equipment and staff requirements.

J. Plan to organize picnic or sports programme for patients.

K. Outline legal aspects related to rehabilitation: Medico Legal cases, Workmen's Compensation Act & Insurance facilities. Other financial benefits available for the disabled.

L. Outline safety precautions in OT. Discuss considerations relating to the following.

1. When using small hand tools.
2. General safety in the OT department, eg. moving patients, training attenders and "helpers" , while using safety machinery, while doing activities outside. Safety precautions in relation to patients with,
    a. Leprosy
    b. Hemiplegia
    c. Paraplegia
    d. Back injuries
    e. Epilepsy, M.R.
    f. Suicidal patients.
    g. Patients with incoordination.
3. Infection control

M. Plan teaching methods for assistants and OT students in the clinical situation.

N. Discuss staff management and development, purpose of staff meetings.

O. Practical work to be carried out under supervision, during clinical postings in V & VI semester. Eg. Maintaining records, stores requests, care of equipment, inventory check, costing of aid, adaptations, petty cash records. Documentation

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

Perform work measurement related to productivity. Carry out methods of recording and analysing. Use process chart flow diagram accurately.

Prepare a string diagram.

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.

Teach different symbols used in a process chart.

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. MOTION ECONOMY OR ERGONOMICS

A. Define ergonomics. Describe scope of ergonomic in Occupational Therapy.

B. Objectives of Ergonomics

C. Work simplification and energy saving technique.

D. Joint protection techniques

E. Application of Ergonomics to various aspects of functional performance.
   a. Selfcare
   b. Home-making
   c. School
   d. Occupation
   e. Recreation.

F. 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

Practicals

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.

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 on visit with recommendations to be submitted.

EVALUATION

Internals : theory and assignments
University : theory

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 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 OT role in medical and surgical conditions, and rehabilitation methods for people with residual disability.

In addition, the student will be able to fulfil the following objectives of the courses:

A. Explain the role of O.T. 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. Discuss the removal of architectural barriers, and use of appropriate adaptive devices. Explain purposes and methodology in home situation evaluation.

D. Explain in detail the O.T. objectives and principles and appropriate treatment media for the following.

1. Arthritis
2. Burns
3. Cardiac and Pulmonary disease and rehabilitation
4. Hansen's disease – early treatment, prevention of deformity, treatment of neuritis reaction, rehabilitation measures for chronic disabilities.

Reconstructive surgery and muscle re-education, Sensory compensation

5. Amputation, both upper and lower limb including rehabilitation measures.
6. Cancer
7. Geriatric conditions, including social implications.
8. Haemophillia (adults)
9. Terminal illness and Hospice care- Adults and Children
10. OT management for pain
11. Visually and Hearing Impaired – Adults
12. Cumulative trauma disorder

D. Plan appropriate hand splint design. Prepare and fit four different hand splints, and explain their use.

E. Explain disability evaluation for physical conditions and mention the legal aspects relating to compensation and insurance.

F. 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

G. Vocational Rehabilitation including Work assessments, Prevocational evaluation, Vocational Evaluation, Job analysis, Work Hardening

H. 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.

I. Client Centered Therapy; Evidence Based Practice, Introduction to ICF (International classification of function)

J. Home Evaluation and adapting a house for different types of people with handicap , include appropriate working levels, accessibility, types of stoves, storage levels. Hygiene and safety measures at home. Starting a vegetable garden at home. Planning a days work for a housewife with physical limitations including use of energy saving techniques

K. 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. Prevocational and Vocational Testing and Training
7. Leisure
8. Play

L. Wheel Chair transfers

M .BIOENGINEERING THEORY: 20 HRS

1.Definition And Principles Of Bio – Engineering.

2. Designing And Construction Of:

- Upper and lower extremity Orthoses
- Spinal Orthoses
- Hand orthoses

3. Upper Extremity And Lower Extremity Prostheses

- Prescription
- Fitting
- Checking

4. Mobile arm supports and slings
5. Basic Principles in application of Biofeedback and FES and as adjunct to therapy

6, Wheel chair prescriptions including adaptations. Electro mechanical mobility aids, motorized wheel chairs.

8. Adaptive devices and assistive technology including reachers, mouse and

keyboard adaptations, and mobility impairment. Environmental control units, writing, feeding and toilet aids.

8. Prescription and designing foot wear modifications.

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EVALUATION: Internals: Theory, Practical and Oral Tests
University:Theory,Practical and Oral tests

GROUP PROCESS IN OCCUPATIONAL THERAPY

Examination at the end of 4th

Instruction hours: 40
Practical hours: 40

COURSE OBJECTIVES

This course applied general group theory to occupational therapy practice and aim to help 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) Awareness groups.
ii) Task oriented groups.
iii) Stress management groups.
iv) Self help groups.
v) Anger management groups.
vi) Assertiveness training group.
vii) Drama therapy groups.
viii) Social skills training groups.

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
8. Epi info

PROJECT

(Special study)

INSTRUCTION HOURS: 170

Course Description

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: 2030

Course Objective: After 2030 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: 100 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 hours

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 out patient 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: 800 Hours

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 a 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

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 be posted on rotation in Clinical Cardio Respiratory, Pediatrics, Neurology, Orthopedics & Rheumatology, Plastic surgery, Burns & Hand therapy, Prosthetic & Orthotics; Speech therapy & Physiotherapy units, Community based rehabilitation; Geriatrics.

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 instil 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 organgizational 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