

**Ordinance Governing  
Bachelor of Physiotherapy (BPT)  
Degree Course  
Syllabus / Curriculum**

2009-10



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**KLE UNIVERSITY**

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## **VISION**

To be an outstanding University of excellence ever in pursuit of newer horizons to build self reliant global citizens through assured quality educational programs.

## **MISSION**

- To promote sustainable development of higher education consistent with statutory and regulatory requirements.
- To plan and continuously provide necessary infrastructure, learning resources required for quality education and innovations.
- To stimulate to extend the frontiers of knowledge, through faculty development and continuing education programs.
- To make research a significant activity involving staff, students and society.
- To promote industry/organization, interaction/collaborations with regional / national / international bodies.
- To establish healthy systems for communication among all stakeholders for vision oriented growth.
- To fulfill the national obligation through rural health missions.

## **OBJECTIVES**

The objectives are to realize the following at university and its constituent institutions:

- To implement effectively the programs through creativity and innovation in teaching, learning and evaluation.
- To make existing programs more careers oriented through effective system of review and redesign of curriculum.
- To impart spirit of enquiry and scientific temperament among students through research oriented activities.
- To enhance reading and learning capabilities among faculty and students and inculcate sense of life long learning.
- To promulgate process for effective, continuous, objective oriented student performance evaluation.
- To ordinate periodic performance evaluation of the faculty.
- To incorporate themes to build values, civic responsibilities & sense of national integrity.
- To ensure that the academic, career & personal counseling are in-built into the system of curriculum delivery.
- To strengthen, develop and implement staff and student welfare programs.
- To adopt and implement principles of participation, transparency and accountability in governance of academic and administrative activities.
- To constantly display sensitivity and respond to changing educational, social, and community demands.
- To promote public- private partnership.

## INSIGNIA



The Emblem of the University is a Philosophical statement in Symbolic.

### **The Emblem...**

A close look at the emblem unveils a pillar, a symbol of the “University of Excellence” built on strong values & principles.

### **The Palm and the Seven Stars...**

The Palm is the palm of the teacher - the hand that acts, promises & guides the students to reach for the Seven Stars...

The Seven Stars signify the ‘Saptarishi Dnyanamandal’, the Great Bear- a constellation made of Seven Stars in the sky, each signifying a particular Domain. Our culture says: The true objective of human birth is to master these Knowledge Domains.

The Seven Stars also represent the Saptarishis, the founders of KLE Society whose selfless service and intense desire for “Dnyana Dasoha” laid the foundation for creating the knowledge called KLE Society.

Hence another significance of the raised palm is our tribute to these great Souls for making this University a possibility.

### **Empowering Professionals...**

‘Empowering Professionals’, inscription at the base of the Emblem conveys that our Organization with its strength, maturity and wisdom forever strive to empower the student community to become globally competent professionals. It has been a guiding force for many student generations in the past, and will continue to inspire many forth coming generations.

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## **Section-I**

### **PREAMBLE**

The disability profile has been increasing as indicated in the recent surveys by Government of India. New fields like community health centers, industrial health centers, homes for elderly, hospices, rehabilitation centers, schools for disabled, research centers, sports medicine and training centers, non-governmental organizations show an inadequate participation from qualified Physiotherapists. Hence, there is a growing need for the qualified Physiotherapists in our country.

Physiotherapy is an allied health care profession characterized by the treatment of various diseases and disorders with the help of skilled use of physiologically-based movement techniques, supplemented when necessary by electrotherapy and other physical means for the prevention and treatment of injury and disease. It is used to assist the process of rehabilitation and restoration of function, including the achievement of personal independence. The work of the Physiotherapist is therefore essential to ensure a good quality of life of individuals ranging from children to the elderly with various disabilities like physical, neurological, psychosocial and sensory, rehabilitation needs and their integration in the community. The specific objective of the therapist is to function as an integral part of a multidisciplinary team to enable those whose abilities in productivity, self-maintenance and leisure are threatened, restricted or lost due to impairment, developmental delay, ageing or lack of opportunity, to become full and productive members of the community. Physiotherapists are therefore of paramount importance in the effective operation of the health care, social welfare and education systems. Physiotherapists play an important role in preventive medicine which includes all pathologies of musculo-skeletal, neuromuscular & cardiovascular system at all ages.

The first three years of study have been designed to equip students with all the basic training needs of a Physiotherapist for general practice, including implementation of treatment after effective Physiotherapy assessment, good communication and interpersonal skills and commitment to ethical and social responsibility. The fourth year of study leads to the award of a Bachelor of Physiotherapy and is designed to meet the research and administrative and management needs of the profession, including exposure to clinical electives. The practical and clinical education training will provide the opportunity for translation of theoretical knowledge into hands-on practice of immediate relevance and will further help students in acquiring professional competence. Graduates with this degree can either pursue higher studies like Master of Physiotherapy and post graduate diploma or seek employment locally and internationally. Physiotherapists are employable in a wide range of areas like clinics, hospitals, hospices, homes for elderly, schools, industries, sports medicine centers etc and can also choose private practice after they are awarded the Bachelor of Physiotherapy degree.

## Section-II

### GOALS OF PHYSIOTHERAPY EDUCATION

Various Goals of education & training in physiotherapy at KLE University are as follows:

- Teach common problems of health and disease and the National Health programs.
- Take up responsibilities of physiotherapist and be capable of functioning independently in both urban and rural environment.
- Provide educational experience that allows hands on experience both in hospital as well as in community setting.
- Make maximum efforts to encourage integrated teaching methods.
- Use learner oriented methods which encourage clarity of expression, independence of judgment, scientific habits, problem solving abilities, self initiated and self directed learning.
- Use of active methods of learning such as group discussions, seminars, role play, field visits, demonstrations, peer interaction, etc which would enable to develop personality, communication skills and other qualities which are necessary.
- Shift the role of physiotherapy teachers from merely imparting knowledge to that of a facilitator and motivator of student learning.
- Establish a physiotherapy education unit for faculty development, preparation of learning resource materials and for imparting evaluation methods.

## Section-III

### AIMS AND OBJECTIVES OF BPT COURSE

**Aims:** The Physiotherapy graduates during training in the Institution should acquire adequate knowledge, necessary skills and reasonable attitudes which are required for carrying out all activities, appropriate to general physiotherapy practice involving the prevention, diagnosis and treatment of anomalies and diseases of the human body. The graduate also should understand the concept of community physiotherapy education and be able to participate in the rural health care delivery programs existing in the country.

**Objectives:** The objectives are dealt under three headings such as knowledge and understanding, skills and attitudes.

**Knowledge and understanding:** The graduate should acquire the following during the period of training:

- Adequate knowledge of the scientific foundations on which Physiotherapy is based and good understanding of various relevant scientific methods, principles of biological functions and is able to evaluate and analyze scientifically various established facts and data.
- Adequate knowledge of the development, structure, and function of the human system both in health and disease and their relationship and effect on general state of health and also bearing on physical and social well being of the patient.
- Adequate knowledge of clinical disciplines and methods which provide coherent picture of anomalies, lesions, and diseases of the human body and preventive, diagnostic, and therapeutic aspects of Physiotherapy practice.
- Adequate clinical experience required for general Physiotherapy practice.
- Adequate knowledge of the constitution, biological and behavior of persons in health and sickness as well as the influence of the natural and social environment of the state of health in so far as it affects Physiotherapy.

**Skills:** A graduate should be able to demonstrate the following skills necessary for practice of physiotherapy:

- Able to diagnose and manage various common Physiotherapy problems encountered in general physiotherapy practice keeping in mind the expectations and the rights of the society to receive the best possible treatment available wherever possible.
- Acquire the skill to prevent and manage complication if encountered while carrying out various surgical and other procedures.
- Possess skill to carry out certain investigative procedures and ability to interpret laboratory findings.
- Promote over all health (fitness) and prevent diseases whenever possible.
- Competent in the control of pain and anxiety during Physiotherapy treatment.



**Attitudes:** A graduate should develop during the training period the following attitudes:

- Willingness to apply the current knowledge of Physiotherapy in the best interest of the patients and the community.
- Maintain a high standard of professional ethics and conduct and apply these in all aspects of professional life.
- Seek to improve awareness and provide possible solutions for overall health problems and needs of the community.
- Willingness to participate in the Department of Physiotherapy Education (DOPE) programs to update the knowledge and professional skills from time to time.
- To participate implementation of the national health programs.

## Section-IV

### REGULATIONS GOVERNING BPT DEGREE COURSE

**Eligibility:** A candidate seeking admission to first year BPT course should have passed Pre-University examination of Karnataka Pre-University Board with English as one of the subjects and Physics, Chemistry and Biology as optional subjects OR should have passed any other examination conducted by Boards/Councils/ Intermediate examination established by State/Central Governments or equivalent studies within India or abroad, with English as one of the subjects and Physics, Chemistry and Biology as optional subjects. The candidate should have completed 17 years of age on or before 31<sup>st</sup> day of December of the year of admission. The selection of students to the physiotherapy course shall be based on:

- i) A Candidate must have passed in the qualifying examination individually in the subjects of Physics, Chemistry, Biology and English obtaining not less than 40% marks taken together and should also have scored 40% marks in English language.
- ii) The candidate must appear for KLE UGAIET competitive entrance examination and must have come in the merit list by securing not less than 40% marks in Physics, Chemistry and Biology taken together.

**Duration of the Course:** Every student shall undergo a period of certified study extending over 4 academic years from the date of commencement of his/her study for the subject comprising the physiotherapy curriculum to the date of completion of the examination followed by six months compulsory rotatory internship.

**Academic terms:** All candidates admitted beyond the last date stipulated by the University shall have to appear for first professional examination after completion of the prescribed duration.

**Attendance:** Every candidate should have attendance not less than 75% of total classes conducted in theory and practical in each calendar year calculated from the date of commencement of the term to the last working day as notified by the University, in each of the subjects prescribed to be eligible to appear for the University examination. A candidate lacking in the prescribed attendance and progress in any subjects in theory or practical/clinical shall not be permitted to appear for the University examination in those subjects.

**Internal assessment:** It shall be based on regular evaluation of periodic tests of assignments, clinical presentations, theory & practical test. There should be a minimum of at least 3 sessional examinations and the average of best two marks should be sent to the University before the University examination as per notification. Proper record should be maintained for all students & should be available for scrutiny. The marks of periodical tests should be displayed on the student notice board.

**Schedule of Examination:** There will be two examinations in a year, i) an annual examination and ii) a supplementary examination to be conducted as per notification issued by the University from time to time. The particulars of subjects for various examinations and distribution of marks are shown separately in tables V TO VIII.

**Eligibility for Examination:** To be eligible to appear for University examination a candidate:

- a) Should have undergone satisfactorily the approved course of study in the subject or subjects for the prescribed duration.
- b) Should have attended at least 75% of the total number of classes in theory and practical jointly to become eligible to appear for examination in those subject/subjects.
- c) Should secure at least 35% of total marks assigned for internal assessment in particular subject in order to be eligible to appear in the University examination of that subject.
- d) Who fails in any other subject/subjects of first year BPT, has to put one academic term before he/she becomes eligible to appear for the next examination.
- e) Shall fulfill any other requirement that may be prescribed by the University from time to time.

**Criteria for Pass:** For declaration of pass in any subject in the university examination, a candidate should pass both in Theory & Practical examinations components separately as stipulated below:

- a) For a pass in theory a candidate shall secure not less than 50% marks in aggregate i.e., marks obtained in written examination, viva-voce examination and internal assessment (theory) added together.
- b) For a pass in practical examination, a candidate shall secure not less than 50% marks in aggregate, i.e., marks obtained in university practical examination and internal assessment (practical) added together.
- c) A candidate not securing 50% marks in theory and practical examination in a subject shall be declared to have failed in that subject and is required to appear for both theory and practical, again in the subsequent examination in the subject.

**Declaration of class:**

- a) A candidate having appeared in the entire subject in the same examination and passed that examination in the first attempt and secure 75% of marks or more of grand total marks prescribed will be declared to have passed the examination with distinction.
- b) A candidate having appeared in the entire subject in the same examination and passed that examination in the first attempt and secure 60% of marks or more but less than 75% of grand total marks prescribed will be declared to have passed the examination in First class.
- c) A candidate having appeared in the entire subject in the same examination and passed that examination in the first attempt and secure 50% of marks or more but less

than 60% of grand total marks prescribed will be declared to have passed the examination in Second class.

- d) A candidate passing the University examination in more than one attempt shall be placed in pass class irrespective of the percentage of marks secured by him/her in the examination.

[Please note fraction of marks should not be rounded off for causes (a), (b) and (c)]

**Grading structure:** This will be as shown below taking into account that the pass mark for all subjects is 50% grade point average (GPA) under the GPA, the following letter grades & their grade point equivalent are used

Letter Grade	Grade Point	Percentage Mark
A <sup>+</sup>	4.00	$90 \leq x < 100$
A		$80 \leq x < 90$
A <sup>-</sup>		$70 \leq x < 80$
B <sup>+</sup>	3.00	$65 \leq x < 70$
B		$60 \leq x < 65$
C	2.00	$50 \leq x < 60$
F	0	$x \leq 50$

**Carry over:** A candidate who has failed in their respective year university examination can carry over a maximum of two subjects to their next year, but will have to pass the subjects in the subsidiary examination before writing the examination of the next academic year.

**Internship:** There shall be six months of Internship after the final examination for candidate declared to have passed the examination in all the subjects. Internship should be done in a teaching hospital recognized by the university. No candidate shall be awarded degree certificate without successfully completing six months internship. The internship should be rotatory and cover all clinical branches concerned with physiotherapy.

## Section- V

### SUBJECTS AND TEACHING SCHEDULE

Table I: FIRST YEAR BACHELOR OF PHYSIOTHERAPY (I BPT)

Subject code	Name of the subject	Teaching hours		
		Theory	Practical	Total
PT 1101	Human Anatomy	120	100	220
PT 1102	Human Physiology	120	100	220
PT 1103	Human Biochemistry	100	-	100
PT 1104	Human Biomechanics	150	100	250
PT 1105	Psychology & Sociology	100	-	100
PT 1106	Basic Nursing and First Aid	60	-	60
PT 1107	Clinical Education and Training	-	650	650
<b>TOTAL</b>		<b>650</b>	<b>950</b>	<b>1600</b>

**Table II: SECOND YEAR BACHELOR OF PHYSIOTHERAPY (II BPT)**

<b>Subject code</b>	<b>Name of the subject</b>	<b>Teaching hours</b>		
		<b>Theory</b>	<b>Practical</b>	<b>Total</b>
PT 1108	Exercise Therapy	100	200	300
PT 1109	Electrotherapy & Physical Agents	100	200	300
PT 1110	Prosthetics and Orthotics	100	100	200
PT 1111	Pathology and Microbiology	100	-	100
PT 1112	Pharmacology	100	-	100
PT 1113	Constitution of India	50	-	50
PT 1114	Clinical Education & Training	-	600	600
	<b>TOTAL</b>	<b>550</b>	<b>1100</b>	<b>1650</b>

**Table III: THIRD YEAR BACHELOR OF PHYSIOTHERAPY (III BPT)**

<b>Subject code</b>	<b>Name of the subject</b>	<b>Teaching hours</b>		
		<b>Theory</b>	<b>Practical</b>	<b>Total</b>
PT 1115	General Medicine	100	100	200
PT 1116	General Surgery	100	100	200
PT 1117	Community Medicine	100	100	200
PT 1118	Clinical Orthopedics	100	100	200
PT 1119	Neurology & Neurosurgery	100	100	200
PT 1120	Clinical Education & Training	-	650	650
<b>TOTAL</b>		<b>500</b>	<b>1150</b>	<b>1650</b>

**Table IV: FOURTH YEAR BACHELOR OF PHYSIOTHERAPY (IV BPT)**

Subject code	Name of the subject	Teaching hours		
		Theory	Practical	Total
PT 1121	Physiotherapy in Medicine	100	100	200
PT 1122	Physiotherapy in Surgery	100	100	200
PT 1123	Community Physiotherapy	100	-	100
PT 1124	Physiotherapy in Orthopedics	100	100	200
PT 1125	Physiotherapy in Neurology & Neurosurgery	100	100	200
PT 1126	Rehabilitation And Research	100	-	100
PT 1127	Clinical Education & Training	-	650	650
<b>TOTAL</b>		<b>600</b>	<b>1050</b>	<b>1650</b>



## Section- VI

**Table V: SCHEME OF EXAMINATION FOR I BPT**

Sl. No.	Subject	Theory			Practical			Grand Total
		Written		Internal Assessment	Practical	Viva Voce	Internal Assessment	
		Time	Maximum Marks	Maximum Marks	Maximum marks	Maximum marks	Maximum marks	
1	Human Anatomy	3hours	80	20	50	30	20	200
2	Human Physiology	3hours	80	20	50	30	20	200
3	Human Biochemistry	3hours	80	20	-	-	-	100
4	Human Biomechanics	3hours	80	20	50	30	20	200
5	Psychology & Sociology	3hours	80	20	-	-	-	100

**Table VI: SCHEME OF EXAMINATION FOR II BPT**

Sl. No.	Subject	Theory			Practical			Grand Total
		Written		Internal Assessment	Practical	Viva Voce	Internal Assessment	
		Time	Maximum Marks	Maximum Marks	Maximum marks	Maximum marks	Maximum marks	
1	Exercise Therapy	3hours	80	20	50	30	20	200
2	Electrotherapy & Physical Agents	3hours	80	20	50	30	20	200
3	Prosthetics and Orthotics	3hours	80	20	-	-	-	100
4	Pathology and Microbiology	3hours	80	20	-	-	-	100
5	Pharmacology	3hours	80	20	-	-	-	100

**Table VII: SCHEME OF EXAMINATION FOR III BPT**

Sl. No.	Subject	Theory			Practical			Grand Total
		Written		Internal Assessment	Practical	Viva Voce	Internal Assessment	
		Time	Maximum Marks	Maximum Marks	Maximum marks	Maximum marks	Maximum marks	
1	General Medicine	3hours	80	20	-	-	-	100
2	General Surgery	3hours	80	20	-	-	-	100
3	Community Medicine	3hours	80	20	-	-	-	100
4	Clinical Orthopedics	3hours	80	20	-	-	-	100
5	Neurology & Neurosurgery	3hours	80	20	-	-	-	100

**Table VIII: SCHEME OF EXAMINATION FOR IV BPT**

Sl. No.	Subject	Theory			Practical			Grand Total
		Written		Internal Assessment	Practical	Viva Voce	Internal Assessment	
		Time	Maximum Marks	Maximum Marks	Maximum marks	Maximum marks	Maximum marks	
1	Physiotherapy in Medicine	3 hours	80	20	50	30	20	200
2	Physiotherapy in Surgery	3 hours	80	20	50	30	20	200
3	Community Physiotherapy	3 hours	80	20	-	-	-	100
4	Physiotherapy in Orthopedics	3 hours	80	20	50	30	20	200
5	Physiotherapy in Neurology & Neurosurgery	3 hours	80	20	50	30	20	200
6	Rehabilitation And Research	3 hours	80	20	-	-	-	100

## Guidelines for University Theory Examinations

Type of Questions	Marks
Multiple choice question (twenty question of one marks)	20
Long Essay Question = 2x10 (2question)	20
Short essay type =4x5 (Four question)	20
Very short answer questions 10x2 (ten Questions)	20
<b>Total</b>	<b>80</b>
<b>Duration</b>	<b>3Hours</b>

### For section paper

Type of Questions	Marks
Multiple choice question (10 question of one marks)	10
Long Essay Question=1x10 (1question)	10
Short essay type = 2x5 (2 question)	10
Very short answer questions 5x2 (5 Questions)	10
<b>Total</b>	<b>40</b>
<b>Duration</b>	<b>1Hours 30 minutes</b>

### Guidelines for University Practical Examinations (I&II Year BPT)

Type of Questions	Marks
Laboratory Experiment 1 (two sub section)	20
Laboratory Experiment 2 (two sub section)	20
Laboratory Experiment 3 (one Sub section)	10
<b>Total</b>	<b>50</b>
<b>Viva Voice</b>	<b>30</b>
<b>Duration</b>	<b>8Hours</b>
<b>Students allotted</b>	<b>28/day</b>

### Guidelines for University Practical Examinations (IV Year BPT)

Type of Questions	Marks
One long case	20
Two short case (2x15)	30
<b>Total</b>	<b>50</b>
<b>Viva voice</b>	<b>30</b>
<b>Duration</b>	<b>8Hours</b>
<b>Students allotted</b>	<b>28/day</b>

**Maximum Duration to complete the course** = Double the duration of course. If a candidate fails to complete the course in that period then he/she have to reregister for the course.

**Maximum Number of attempts = 08**

<b>Valuation system</b>	<b>Double valuation system. Valuation from same university.</b>
<b>Examiner for Practicals.</b>	<b>1 External Examiner (outside university ) &amp; 1 Internal Examiner (within same university)</b>

## Section-VII- A

### FIRST YEAR BPT (BPT I) SUBJECTS AND COURSE CONTENTS

#### HUMAN ANATOMY (SUBJECT CODE: PT 1101)

**Teaching Hours:** 220 hours (Theory: 120 hours and Practical: 100hours)

**Maximum Marks:** 200 (Theory: 100 and Practical & Viva - voce 100)

**Assessment:** Written, Oral and Practical, Internal and University examination.

**Internal Examination:** 20 marks Theory and 20 marks Practical.

**University Examination:** 80 marks Theory, and 80 marks Practical and Viva – voce

**Objectives:** The objectives are to develop an understanding about various integral parts of human body, their structure, function and location with reference to the surface anatomy with an emphasis on musculoskeletal, nervous and cardio respiratory systems.

#### Theory Contents

##### 1. General anatomy

- Introduction to anatomy, terms and terminology
- Regions of body, cavities and systems outline
- Surface anatomy – musculo-skeletal and cardiopulmonary
- Cell structure and function of cell organelles (brief outline only)
- Connective tissue & its modification, tendons, membranes, special connective tissue
- Bone structure, blood supply, growth, ossification, and classification
- Muscle classification, structure and functional aspect
- Nerve – structure, classification, microscopy with examples
- Neurons, classification with examples
- Simple reflex arc
- Parts of a typical spinal curve/dermatome
- Joints – classification, structures of joints, movements, range, limiting factors, stability, blood supply, nerve supply, dislocations and applied anatomy
- Circulatory system – major arteries and veins of the body, structure of blood vessels
- Lymphoid system – circulation, function, lymphoid organs- and their structure & functions

##### 2. Upper extremity

- Bony architecture
- Joints – structure, range of movement
- Muscles – origin, insertion, actions, nerve supply
- Major nerves – course, branches and implications of nerve injuries
- Development of limb bones, muscles and anomalies
- Radiographic identification of bone and joints

##### 3. Lower extremity

- Bony architecture
- Joints – structure, range of movement

- Muscles – origin, insertion, actions, nerve supply
- Major nerves – course, branches and implications of nerve injuries
- Development of limb bones, muscles and anomalies
- Radiographic identification of bone and joints

#### 4. Spine

- Back muscles - superficial layer, deep muscles of back, their origin, insertion, action and nerve supply
- Vertebral column – structure & development, structure & joints of vertebra
- Radiographic identification of bone and joints

#### 5. Thorax

- Thoracic cage
- Pleural cavities & pleura
- Lungs and respiratory tree
- Heart and great vessels
- Diaphragm

#### 6. Head and neck

- Cranium
- Facial Muscles
- Central nervous system – disposition, parts and functions
- Cerebrum
- Cerebellum
- Midbrain & brain stem
- Blood supply & anatomy of brain
- Spinal cord- anatomy, blood supply, nerve pathways
- Pyramidal, extra pyramidal system
- Thalamus, hypothalamus
- Ventricles of brain, CSF circulation
- Development of nervous system & defects (brief description)
- Cranial nerves – special emphasis on V, VII, X, XI, XII (course, distribution and palsies)
- Sympathetic nervous system, its parts and components (brief description)
- Parasympathetic nervous system (brief description).

#### 7. Miscellaneous

- Histology: cells, tissues of the various organs of the body, epithelium, connective tissues, neuro- musculo- skeletal systems and blood vessels and lymphoid tissue
- Embryology in brief covering neuro-musculo-skeletal developmental aspects
- Endocrine - system – pituitary, thyroid, parathyroid (brief description)
- Special senses (brief description): nerve receptors, eye, ear, labyrinth
- Abdomen and pelvis (brief descriptions only):
- Abdominal cavity – divisions
- Muscles of abdominal wall, pelvic floor, innervations
- Bony pelvis
- Digestive system (liver & pancreas, alimentary canal)
- Urinary system – kidney, ureter, bladder, urethra
- Genital system – male and female

## Practical Contents

### 1. Topics for dissection

- Upper extremity, lower extremity, head & neck, brain and spinal cord, thorax and abdomen.
- Surface anatomy of all the above

### 2. Practical demonstrations

- Histology- identifying the bone, cartilage, all connective tissues, blood vessels, nervous system cells
- Embryology- models, charts & x-rays

### 3. Demonstrations (in a cadaver)

- All muscles of the whole body.
- Organs in thorax and abdomen
- All joints with periarticular structures
- Points of palpation of peripheral nerves and blood vessels of upper and lower limbs
- Brain parts and spinal cord

### 4. Surface marking

- Lung, pleura, fissures and lobes of lungs, heart, liver, spleen, kidney, cranial nerves, spinal nerves and important blood vessels

### 5. Identification of body prominences on inspection and by palpation especially of extremities

## Suggested Readings

1. Standring Susan: Gray's Anatomy – The Anatomical Basis of Clinical Practice. 39<sup>th</sup> Ed, Elsevier Churchill Livingstone, London, 2005.
2. Anne MR, Dalley AF: Grant's Anatomy. 11<sup>th</sup> Ed, Lippincott Williams, Baltimore, 2005.
3. Snell RS: Clinical Anatomy for Medical Students. 7<sup>th</sup> Ed, Little Brown Publishers, Boston, 1995.
4. Derek F: Anatomy – Palpation & Surface Markings, Butterworth Heinman, London, 1997.
5. Romanes GJ: Cunningham Manual of Practical Anatomy. Vol I, II, III, 15<sup>th</sup> Ed, Oxford Medical Publication, Oxford, 1986 (Reprinted with corrections 2002).
6. Chaurasia BD: Human Anatomy – Regional and Anatomy – Dissection & Clinical. 4<sup>th</sup> Ed, Vol I, II, III, CBS Publications & Distributors, New Delhi, 2004.
7. Faruqi NA: Handbook of Osteology. 1<sup>st</sup> Ed, CBS Publications & Distributors, New Delhi, 2007.
8. Inderbir Singh: Text Book of Human Histology. 4<sup>th</sup> Ed, Jaypee Brothers, New Delhi, 2002.
9. Inderbir Singh: Text Book of Human Embryology. 6<sup>th</sup> Ed, McMillan India Ltd, New Delhi, 1996.
10. Sinnatamby SC: Last's Anatomy – Regional & Applied. 10<sup>th</sup> Ed, Churchill Livingstone, Edinburgh, 1999.



## HUMAN PHYSIOLOGY (SUBJECT CODE: PT 1102)

**Teaching Hours:** 220 hours (Theory: 120 hours and Practical: 100hours)

**Maximum Marks:** 200 (Theory: 100 and Practical and viva-voce: 100)

**Assessment:** Written, Oral and Practical, Internal and University examinations

**Internal Examination:** 20 marks Theory and 20 marks Practical

**University Examination:** 80 marks Theory, 80 marks Practical and Viva – voce

**Objectives:** The objectives are to develop thorough understanding of the Physiological functions of the various systems of human including exercise and work physiology in relation to physical therapy with major emphasis on Cardio-Respiratory, Musculo-skeletal and Nervous Systems body; and the clinical application of various physiological functions.

### Theory Contents

#### 1. General physiology

- Structure of cell membrane
- Transport across cell membrane
- Functional morphology of the cell
- Intercellular communication
- Homeostasis

#### 2. Cardiovascular system

- Dynamics of blood & lymph flow
- Anatomical, biophysical consideration of arterial, arteriolar & capillary venous level, Lymphatic circulation
- Origin and spread of cardiac excitation
- Basic idea of electrocardiogram
- Mechanical events of cardiac cycle, cardiac output, its regulation
- Local & systemic regulatory mechanisms of CVS, humeral & neural
- Cerebral, coronary, splanchnic, skin, placental & fetal circulation

#### 3. Respiratory system

- Physiological anatomy of lungs, mechanics of respiration
- Pulmonary circulation, gas exchange in lungs
- Oxygen & carbon dioxide transport
- Other function of respiratory system
- Neural & chemical control of breathing
- Regulation of respiratory activity, non-chemical influences on respiratory activity

#### 4. Cardio respiratory adjustments in health & disease

- Exercise, high altitude, deep sea diving
- Hypoxia, hypercapnia, hypocapnia, oxygen treatment
- Asthma, emphysema, artificial respiration

#### 5. Blood

- W.B.C., R.B.C., platelets formation & functions

- Plasma, blood groups
- Haemostasis, immunity

## **6. Nerve – muscle, synaptic & junction transmission**

- Nerve – general concept
- Nerve cell – structure
- Genesis of resting membrane potential & action potential
- Their ionic basis, all or none phenomenon
- Ionic basis of nerve conduction
- Classification & types of nerve fibre
- Mixed nerves & compound action potential
- Concept of nerve injury & wallerian degeneration
- Muscle properties and functions
- Electric & mechanical responses & their basis
- Concept of isometric & isotonic muscle contraction
- Electrical events in postsynaptic neurons
- Inhibition & facilitation at synapses
- Chemical transmission of synaptic activity
- Principal neurotransmitter system
- Neuromuscular junction, structure & events occurring during excitation

## **7. Functions of nervous system (descriptive)**

- Reflexes, monosynaptic, polysynaptic, withdrawal reflex, properties of reflexes
- Sense organ, receptors, electrical & chemical events in receptors
- Ionic basis of excitation
- Sensory pathways for touch, temperature, pain, proprioception, others
- Control of tone & posture: integration at spinal, brain stem, cerebellar, basal ganglion levels, along with their functions & clinical aspects
- Autonomic nervous system & hypothalamus
- Higher functions of nervous system
- Learning & memory, neocortex,
- Limbic functions, sexual behaviour, fear & range, motivation
- Physiology of pain, its psychosomatic aspects, and physiology of biofeedback(in brief)

## **8. Renal system**

- Glomerular filtration rate, clearance, tubular function
- Water excretion, concentration of urine-regulation of Na, Cl, K excretion
- Physiology of urinary bladder

## **9. Digestive system**

- Digestion & absorption of nutrients
- Gastrointestinal secretions & their regulation
- Liver & Pancreas

## **10. Exercise & work physiology**

- Introduction to work and exercise physiology
- Effects of exercise on neuro-muscular system, cardio-pulmonary system, musculoskeletal system, hormonal system, blood, metabolic functions, oxygen transport
- Effects of exercise on body fluid and electrolyte balance, mobility and body composition
- Effect of gravity / altitude /acceleration / pressure on physical parameters

## **11. Miscellaneous**

- Special senses: vision, audition, taste, smell

- Endocrinology
- Male & female reproductive system
- Skin
- Physiology of aging

## **12. Neural control of development and movement**

- Normal human developmental process
- Growth, development and maturation
- Reflex and reaction maturation
- Sensory – motor integration
- Perception and cognition
- Motor control and motor learning

## **Practical Contents**

### **1. Clinical assessment**

- Examination of peripheral pulsations
- Recording of blood pressure (in postures like lying, sitting, standing and after exercise)
- Examination of cardio vascular system and pulmonary system
- Examination of nervous system including higher functions, sensory system, motor system, reflexes and cranial nerves

### **2. Hematology**

- Study of microscope and its uses
- Determination of RBC count, WBC count, differential count, ESR, hemoglobin, PCV
- Calculation of blood indices
- Determination of blood groups, bleeding time, clotting time

### **3. Recommended demonstrations**

- Pulmonary function tests (spirometry), artificial respiration, normal ECG interpretation, perimetry, ergography & work done

### **4. Amphibian experiments**

- Instruments used for frog experiments: kymograph, heart liver, muscle trough, stimulator (for demonstrations)
- Muscle- nerve preparation of frog ( G.S.Preparation) with recording of simple muscle twitch (for practicals)
- Effect of the following on G.S.Preparation: (demonstrations and dry charts explanation)
  - i. Varying strengths of the stimuli
  - ii. Two successive stimuli and multiple successive stimuli
  - iii. Genesis of tetanus and clonus
  - iv. Fatigue phenomena
  - v. Load on muscle contraction and work done
  - vi. Velocity of impulse transmission with calculation
  - vii. Temperature on muscle contraction
- Normal cardiogram of amphibian heart with properties of cardiac muscle

### Suggested Readings

1. Guyton AC, Hall JE: Textbook of Medical Physiology. 10<sup>th</sup> Ed, W.B.Saunders, Philadelphia, 2006.
2. Ganong FW: Review of Medical Physiology. 22<sup>nd</sup> Ed, Mc Graw Hill Lange Medical Books, New York, 2005.
3. Vander AJ, Sherman JH, Luciano DS: Human Physiology – The mechanisms of body function. 8<sup>th</sup> Ed, McGraw Hill Inc, New York, 2001.
4. Bell GH, Esmile SD, Paterson RC: Text book of Physiology, 11<sup>th</sup> Ed, Churchill Livingstone, USA, 1988.
5. Keele CA, Neil E, Joels N: Samson & Wright's Applied Physiology. 13<sup>th</sup> Ed, Oxford University Press, London / Mohan Makhijani & Rekha Printers, New Delhi, 1982.
6. McArdle WD, Katch FI, Katch VL: Exercise Physiology: Energy, Nutrition, and Human Performance. 6<sup>th</sup> Ed, Lippincott Williams & Wilkins, 2006.
7. Toratora GJ & Grabowski RS: Principles of Anatomy and Physiology, 7<sup>th</sup> Ed, Harper Collins College Publishers, USA, 1993.
8. Sembulingam K & Sembulingam P: Essentials of Medical Physiology. 4<sup>th</sup> Ed, Jaypee Brothers, New Delhi, 2006.
9. Chaudhuri: Concise Medical Physiology. 6<sup>th</sup> Ed, New Central Book Agency, Kolkata, 2008.
10. Bijlani R L: Understanding Medical Physiology, 3<sup>rd</sup> Ed, Jaypee Brothers, New Delhi, 2004.

## HUMAN BIOCHEMISTRY (SUBJECT CODE: PT1103)

**Teaching Hours:** 100 hours (Theory: 100 hours)

**Maximum Marks:** 100 (Theory: 100)

**Assessment:** Written, Internal and University examinations

**Internal Examination:** 20 marks Theory

**University Examination:** 80 marks Theory

**Objectives:** The objective is to enable the student to understand biochemical basis of life sciences.

### Theory Contents

#### 1. Biochemical perspective

- Historical background
- Stabilizing forces in biomolecules
- Properties of water
- Cellular organelles and cell membranes

#### 2. Nutrition

- Basic principles of nutrition
- Nutritional aspects of carbohydrates, proteins, lipid, fibers
- Composition of food, caloric requirement, balance diet, dietary recommendations, nutritional supplementation
- Calorimetry with energy values: calorimeters, RQ and its significance
- BMR – definition, normal values, factors affecting BMR.
- Energy requirements (with age/sex), thermogenesis, specific dynamic action of food.
- Energy expenditure for various activities including exercises
- Obesity, starvation, gout, hyperuricemia, peptic ulcers, nutritional disorders of nervous system and cardiovascular system

#### 3. Carbohydrates

- Definition, classification, chemistry, common carbohydrates, their sources and composition, their general functions
- Digestion and absorptions of carbohydrates
- Glycolysis (aerobic, anaerobic, energetic regulation, cori's cycle), glycogenesis and Glycogenolysis (their regulation, role of liver and muscle glycogen), gluconeogenesis, citric acid cycle with its energetics.
- Dietary Fibers: classification, importance
- Hormonal regulation of blood sugar level
- Clinical aspects: metabolic disorders of glycogen, lactose intolerance, diabetes mellitus, diabetic keto-acidosis, diabetes insipidus, hypoglycemia

#### 4. Proteins

- Definition, classification of proteins and aminoacids, their bio-medical importance and general functions.
- Enzymes: definition, co-enzymes, factors affecting enzyme activity.
- Digestion and absorption of proteins.
- Clinical aspects: PEM, kwashiorkor, marasmus, common protein deficiency disorders

## **5. Lipids**

- Definition, classifications of lipids and fatty acids, examples and functions of common lipids essential fatty acids and their importance
- General functions
- Lipoproteins: classification, sources, functions
- Digestion and absorption of lipids.
- B-oxidation and its energetics with regulation
- Fat metabolism in adipose tissue, fatty acid biosynthesis with its regulation and energetics.
- Cholesterol and its importance.
- Clinical aspects: ketone body formation and utilization, common hyper lipo- proteinaemias

## **6. Vitamins**

- Definition, classification, individual vitamin sources
- Co-enzyme forms
- Digestion, absorptions and transport.
- Functions of each vitamin with RDA
- Clinical aspects: vitamin deficiencies and toxicity

## **7. Minerals**

- Individual minerals: calcium, phosphate, iron
- magnesium, fluoride, selenium, molybdenum, copper
- Digestion, absorption, transport, excretion, functions
- Disorders

## **8. Blood, lymph and cerebrospinal fluid**

- Overview
- Composition
- Clinical aspects

## **9. Hemoglobin, porphyrins and bile pigments**

- Overview
- Haem and porphyrin biosynthesis
- Haem catabolism
- Metabolism of bile pigments
- Clinical aspects: anemias, jaundice, porphyrias and thalasseмииs

## **10. Immunochemistry (in brief)**

- Immunoglobulins
- Classification
- Determination of immunoglobulins
- Antigens, heptens
- Immunopotency

## **11. Homeostasis mechanism**

- General outline of fluid compartments of the body with their water and electrolyte content and osmolality, electrolyte and water balance
- Extra and intra cellular sodium, potassium, buffers, pH, buffer systems
- Acid – base balance ( role of lungs and kidneys)
- Clinical aspects: dehydration, acidosis and alkalosis

## **12. Muscle biochemistry**

- Muscle structure
- Inorganic constituents
- Molecular events in muscle contraction
- Connective tissue biochemistry (muscle, collagen, glycoproteins and proteoglycans)

### **13. Molecular biology (In brief)**

- Nucleotides: chemistry and metabolism
- DNA structure
- Molecular genetics
- Gene therapy

### **14. Molecular endocrinology (In brief)**

- Mechanism of hormonal actions and regulations
- Hormones & neurotransmitters
- Hormones acting at cell surface and inside the cell
- Clinical aspects

### **15. Clinical biochemistry**

- Relevance of blood levels of glucose, urea, Ca, phosphates, regulation of blood pH, bicarbonate, enzymes, lipids and lipoproteins, urine levels of sugar, creatinine, proteins.
- Competitive inhibitors, clinically important enzymes
- Liver and renal function Tests

## **Suggested Readings**

1. Murray RK, Garnner K, Mayes PA, Rodwell VW: Harper's Biochemistry. 26<sup>th</sup> Ed, Appleton & Lange, Connecticut, 1993.
2. Montgomery, Conway, Spector, Chappell: Biochemistry - A Case Oriented Approach. 6<sup>th</sup> Ed, Mosby Publishers, Missouri, 1996.
3. Devlin TM: Textbook of Biochemistry with clinical correlation. 5<sup>th</sup> Ed, Wiley-Liss, New York, 2002.
4. Nelson DL, Cox MM: Lehinger Principles of Biochemistry. 4<sup>th</sup> Ed, W.H.Freeman, New York, 2005.
5. Apps DK, Cohen BB, Steel CM: Biochemistry – A concise textbook for medical students, 5<sup>th</sup> Ed, ELBS with Bailliere Tindall, London, 1992.
6. Deb AC: Fundamentals of Biochemistry. 8<sup>th</sup> Ed, New Central Book Agency, Kolkata, 2004.
7. Satyanarayana U, Chakrapani U: Biochemistry. 3<sup>rd</sup> Ed, Arunabhasen Books & Allied (P) Ltd, Kolkata, 2006.
8. Dandekar SP: Prep manual for Under Graduate Medical Biochemistry. 2<sup>nd</sup> Ed, Urban & Schwarzenberg P Ltd, New Delhi, 2002.
9. Vasudevan DM, Sreekumari S: Textbook of Biochemistry for Medical Students. 5<sup>th</sup> Ed, Jaypee Brothers, New Delhi, 2007.
10. Chatterjee MN & Shinde R: Textbook of Biochemistry. 2<sup>nd</sup> Ed, Jaypee Brothers, New Delhi, 1995.

## HUMAN BIOMECHANICS (SUBJECT CODE: PT 1104)

**Teaching Hours:** 250 hours (Theory: 150 hours and Practical: 100hours)

**Maximum Marks:** 200 (Theory: 100 and Practical: 100)

**Assessment:** Written, Oral and Practical, Internal and University examinations

**Internal Examination:** 20 marks Theory and 20 marks Practical

**University Examination:** 80 marks Theory, 80 marks Practical and viva – voce

**Objectives:** The objective is to enable the student to understand the basic principles of Biomechanics, application of kinetics and kinematics on human movements.

### Theory Contents

#### 1. Bio - Mechanics and its principles

- Definition of mechanics and biomechanics
- Force - definition, diagrammatic representation, classification of forces, concurrent, coplanar and co-linear forces, composition and resolution of forces
- Momentum - principles, and practical application
- Motion, types of motion, theories of motion, Newton's laws of motion and their application.
- Torque and friction
- Gravity - definition, line of gravity, centre of gravity
- Equilibrium - supporting base, types, and equilibrium in static and dynamic state.
- Energy, work and power: potential and kinetic energy, work and power, speed, velocity and inertia
- Elasticity: definition, stress, strain, Hook's law, stress strain curve, Young's modulus
- Anatomic pulleys with examples
- Application of the principles to human body

#### 2. Axis and planes

- Axes and planes of movement and gravity
- Application with reference to human body

#### 3. Levers

- Definition
- Functions and classification of levers
- Application of levers in physiotherapy
- Order of levers with example of lever in human body
- Levers at home and at work

#### 4. Bio - Mechanics of muscles and soft tissues

- Muscle structure and function
- Classification of muscles
- Types of muscle work
- Ranges of muscle work
- Angle of pull of muscles with importance of muscle work
- Application of the above concepts with reference to joints, muscle and movement
- Biomechanics of cartilage, tendon and ligament
- Effects of injury, immobilization and aging



## **5. Bio – mechanics of joints**

- Joint structure and function
- Classification, designs and properties of connective tissues
- Motions and functions of joints
- Joint lubrication: theories and application
- Biomechanics of bone
- Visco-elastic properties and behavior of bone and soft tissues
- Open and closed kinematic chain movements
- Effects of injury, immobilization and aging

## **6. Bio-mechanics of all peripheral joints** (shoulder, elbow, wrist, hand, hip, knee, ankle, foot and temporo-mandibular joints), vertebral column, and rib cage

## **7. Posture & movement analysis**

- Gait - definition & description, alignments, phases of gait cycle, determinants of gait, gait kinetics and kinematics, GRF, support, moment during gait cycle & energy consumption
- Posture: definition & description, static and dynamic postures, alignments of various joints, centre of gravity, planes & muscular moments, and analysis of posture

## **8. ADL analysis**

- Supine to sit, prone to sit, sit to stand, kneel to stand, squat to stand
- Lifting analysis
- Hand functions (prehensions and precisions)

## **9. Therapeutic gymnasium**

Equipments and tools with their uses and therapeutic application

- Springs: properties, springs in series and parallel
- Pulleys: properties, types, mechanical advantage
- Resistance devices: types, weights, different tools used to apply resistance
- Elastic tools: elasticity, recoil, extensibility
- Explanation and mechanical principles of various equipments in an ideal gymnasium: parallel bars, wall bars, springs, pulleys, suspension unit, CPM unit, cervical and lumbar traction, shoulder wheel, overhead pulley systems, quadriceps table, DeLormes' shoe, weights, therabands, shoulder ladder, tilt table, equilibrium board, wobble board, treadmill, bicycle ergometer, medicine balls, gym ball, plinth, staircase, re-education board, bolster, wedges
- Walking aids and crutches: types and uses
- Hydrotherapy unit (in brief)

## **10. Starting positions**

- Fundamental and derived positions
- Description and muscle work including base of support and equilibrium
- Effects and uses of individual positions in exercises

## **11. Goniometry:** principles, types, application of goniometry

### **Practical Contents**

1. Goniometry measurement for all the peripheral and vertebral joints
2. Identification of the various tools and equipments in therapeutic gymnasium with their uses
3. Identification of walking aids, crutches, parallel bars with their uses
4. Parts of suspension therapy unit and their uses
5. Analysis of activities of daily living
6. Normal posture and gait analysis
7. Starting positions and their derived positions

### **Suggested Readings**

1. Levangie PK, Norkins CC: Joint Structure and Function: A Comprehensive Analysis. 3<sup>rd</sup> Ed, Jaypee Brothers Medical Publishers, New Delhi, 2001.
2. Smith, Weiss, Lehmkuhl: Brunnstrom's Clinical Kinesiology. 5<sup>th</sup> Ed, Jaypee Brothers, New Delhi, 1998.
3. Hollis M, Cook PF: Practical Exercise Therapy. 4<sup>th</sup> Ed, Blackwell, Oxford, 1999.
4. Gardiner DM: Principles of Exercise Therapy. 4<sup>th</sup> Ed, CBS Publishers, New Delhi, 1999.
5. Lippert LS: Clinical Kinesiology for Physical Therapy Assistants. 3<sup>rd</sup> Ed, Jaypee Brothers, New Delhi, 2002.
6. Jones and Barker: Human Movement Explained. 3<sup>rd</sup> Ed, Butterworth- Heine, London, 2000.
7. Norkin C, White JD: Measurement of Joint Motion: A Guide to Goniometry. 2<sup>nd</sup> Ed, Jaypee Brothers, Daryaganj, 1995.
8. Kisner C, Kolby LA: Therapeutic Exercise Foundation and Technique. 3<sup>rd</sup> Ed, Jaypee Brothers, New Delhi, 1996.
9. Campion MR: Hydrotherapy: Principles and Practice, 1<sup>st</sup> Ed, Butterworth, Oxford 2000.
10. Palastanga N, Field D, Soames R: Anatomy and Human movement – Structure & Function. 5<sup>th</sup> Ed, Elsevier LTd, Philadelphia, USA, 2006.

## PSYCHOLOGY & SOCIOLOGY (SUBJECT CODE: PT 1105)

**Teaching Hours:** 100 hours (Theory: 100 hours)

**Maximum Marks:** Theory: 100

**Assessment:** Written, Internal and University examinations

**Internal Examination:** 20 marks Theory

**University Examination:** 80 marks Theory

**Note:** This course is to be taught by two teachers (Psychologist & Sociologist / Medical Sociologist).

### PSYCHOLOGY (Part-A)

**Teaching Hours:** 50 hours (Theory: 50 hours)

**Maximum Marks:** 50 (Theory: 50)

**Assessment:** Written, Internal and University examinations

**Internal Examination:** 10 marks Theory

**University Examination:** 40 marks Theory

**Objectives:** The objective is to enable the student understand the specific psychological factors and their effects in physical illness thus aid them to have a holistic approach in dealings with their patients during admission, treatment, rehabilitation and discharge.

### Theory Contents

#### 1. Introduction

- What is psychology?
- Fields of application of psychology
- Scope of psychology

#### 2. Learning

- Theories of learning
- Principles of learning
- Factors affecting learning

#### 3. Memory

- Forgetting
- Theories of memory and forgetting
- Methods to improve memory

#### 4. Intelligence

- Theories of intelligence
- Influence of heredity and environment on the individual
- Tests of intelligence

#### 5. Personality

- Theories of personality
- Factors influencing personality

- Assessments in personality
- Personality disorders

## **6. Behavior**

- Normal and abnormal behavior
- Development and growth of behavior in infancy and childhood, adolescence, adulthood and old age

## **7. Thinking**

- Definition
- Thinking process
- Problem solving
- Decision making
- Creative thinking

## **8. Motivation**

- Theories
- Types of motivation

## **9. Emotions**

- Theories of emotions
- Stress
- Conflicts
- Frustration

## **10. Attitudes**

- Theories
- Attitudes and behavior
- Factors in attitude change

## **11. Emotional and behavioral disorders of childhood and adolescence (in brief)**

- Disorders of under and over controlled behavior
- Eating disorders

## **12. Mental deficiency**

- Mental retardation
- Learning disabilities
- Autistic behavior

## **13. Anxiety disorders**

- Phobias, panic disorder
- Generalized anxiety disorder
- Obsessive compulsive disorder
- Post-traumatic stress disorder

## **14. Somatoform and dissociate disorders**

- Conversion disorder
- Somatization disorder
- Dissociate amnesia & dissociate fugue

## **15. Patho-physiological disorders**

- Stress and health

#### **16. Severe psychological disorders**

- Mood disorders
- Psychosis

#### **17. Counseling**

- Definition
- Aims and principles
- Quality of a good counselor

#### **18. Psychotherapy**

- Brief introduction to paradigms in psychopathology and therapy

#### **19. Communication**

- Effective and faulty
- Audiovisual aids and its effects on communication

#### **20. Psychological need of pediatric and geriatric patients**

### **SOCIOLOGY (Part–B)**

**Teaching Hours:** 50 hours (Theory: 50 hours)

**Maximum Marks:** 50 (Theory: 50)

**Assessment:** Written, Internal and University examinations

**Internal Examination:** 10 marks Theory

**University Examination:** 40 marks Theory

**Objectives:** The objective is to enable the student understand the basic sociology 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.

#### **Theory Contents**

##### **1. Introduction**

- Meaning-definition and scope of sociology
- Its relation with anthropology, psychology, social psychology and ethics
- Methods of sociology-case study, social survey, questionnaire, interview and opinion poll methods
- Importance of its study with special reference to health care professionals

##### **2. Socialization**

- Meaning and nature of socialization
- Primary, secondary, and anticipatory socialization
- Agencies of socialization

##### **3. Social groups**

- Concepts of social groups
- Influence of formal and informal groups on health and sickness
- The role of primary groups and secondary groups in the hospital and rehabilitation settings

##### **4. Community**

- Rural community – meaning and features – health hazards of rural population
- Urban community – meaning and features – health hazards of urban population

### **5. Family**

- The family - meaning and definition, functions
- Changing family patterns
- Influence of family on the individual health, family, and nutrition
- The effects of sickness on family and psychosomatic disease and their importance to physiotherapy

### **6. Culture and health**

- Concept of culture
- Cultures and behavior
- Cultural meaning of sickness
- Culture and health disorders

### **7. Social change**

- Meaning of social changes & factors of social change
- Human adaptation and social change
- Social change and stress
- Social and deviance
- Social change and health program
- The role of social planning in the improvement of health and in rehabilitation

### **8. Social security**

- Social security and social legislation in relation to the disabled

### **9. Social worker**

- Meaning of social work
- The role of a medical social worker

### **10. Social Factors in health and disease**

- The meaning of social factors
- The role of social factors and illness

### **11. Social problems of disabled**

- Consequences of the following social problems in relation to sickness and disability, remedies to prevent these problems
- Population explosion
- Poverty and unemployment
- Beggary
- Juvenile delinquency
- Prostitution
- Alcoholism
- Problems of women in employment

## Suggested Readings

### Psychology & Sociology

1. Morgan CT, King RA, Weisz JR, Schopler J: Introduction to Psychology. 7<sup>th</sup> Ed, Tata McGraw Hill, New Delhi, 1993.
2. Munn NL, Farnald LD, Fernald PS: Introduction to Psychology. 3<sup>rd</sup> Ed, Houghton Mifflin Company, Boston or Oxford & IBH Publishers, New Delhi, 1972.
3. Worchle S, Shebilske W: Principles and Applications - Psychology. 5<sup>th</sup> Ed, Prentice Hall, Englewood Cliffs, New Jersey, 1994.
4. Nolen HS: Abnormal Psychology. 2<sup>nd</sup> Ed, McGraw Hill Higher Education, New York, 2001.
5. Cushman LA, Scherer MJ: Psychological Assessment in Medical Rehabilitation. 1<sup>st</sup> Ed, American Psychological Association, USA, 1995.
6. Bond J. & Bond S: Sociology & Health Care – An Introduction for Nurses & other Health Professions. 2<sup>nd</sup> Ed, Churchill Livingstone, Edinburgh, 1994.
7. Taylor S & Field D: Sociology for Health & Health Care. 4<sup>th</sup> Ed, Blackwell Publishing, USA, 2007.
8. Shankar Rao CN: Sociology Primary Principles. 3<sup>rd</sup> Ed, S. Chand & Company Ltd., New Delhi, 2001 (reprint).
9. Bhusan Vidya, Sachdeva DR: Introduction to Sociology. 3<sup>rd</sup> Ed, Kitab Mahal, Patna, 2004.
10. Dibyendunaryan B: Sociology for Physiotherapists. 1<sup>st</sup> Ed, Jaypee Brothers, New Delhi, 2006.

**BASIC NURSING AND FIRST AID (SUBJECT CODE: PT 1106)**  
(For college examination only)

**Teaching Hours:** 60 hours (Theory: 50hoursand 10 practical)

**Maximum Marks:** 50 (Theory: 50)

**Assessment:** Written examination

**College Examination:** 50 marks Theory

**Objectives:** The objective is to enable the student understand the basic nursing concepts and first aid for various ailments commonly seen by physiotherapists.

**Theory Contents**

**1. Overview of nursing**

- Definition
- Scope of nursing
- Principles
- Philosophy

**2. Inter-personnel relationships**

- Importance
- Characteristics
- Principles
- Phases
- Accelerating factors
- Barriers
- Therapeutic relationship

**3. Environment safety**

- Essential factors to well being
- Temperature, humidity, noise, light and other environmental factors
- Safety measures

**4. Nursing position**

- Positions and their uses
- Comfort measures
- Devices and their uses

**5. Bed making**

- Definition and types
- Purposes of bed making
- Principles of bed making
- General rules
- Open and closed beds
- Fowler bed
- Occupied bed
- Cardiac bed



## **6. Rest and sleep**

- Beneficial effects of rest
- Effects of prolonged rest
- Physiology of sleep
- Factors affecting sleep
- Sleep disorders
- Nursing measures to ensure rest and sleep

## **7. Bandaging**

- Overview
- General rules
- Types
- Applications

## **8. Surgical dressing**

- Overview
- Types and dressing materials
- Purposes
- Principles
- Procedure
- Observation

## **9. Lifting and transporting patients**

- Overview
- General instructions
- Lifting patient in bed
- Wheelchair transfer
- Stretcher transfers

## **10. Bedside procedures and management**

- Temperature, recordings, sites, thermometers
- Peripheral pulses, recording, normal and abnormal pulses and their interpretations
- Respiration, observation and recording
- Blood pressure, measurement and recording
- Observation of stool, urine and sputum
- Types of catheters
- Uses and care of catheters
- Principles of catheterizations
- Enema overview and types
- Purpose of enema
- Procedure for enema

## **11. Nourishment**

- Overview
- Methods of nourishments
- Feeding for helpless patient
- Tube feeding
- Drips
- Transfusion
- Parental administration of medicine
- Types of injections
- Purpose of injection

- Factors that favor absorption
- Complications of injection
- Drugs and fluid administered
- Size and safety measures while administering medications
- Selection of equipments for injections
- Principles involved in administration of injections
- General instructions for administration of medications
- Procedure of administration of medication
- Oral, subcutaneous, intradermal, intramuscular and intravenous injections

#### **11. Care of rubber goods**

- Types of rubber goods
- Uses and care

#### **12. Aseptic technique**

- Asepsis
- General precautions
- Medical aseptic practices
- Hand washing, gown technique, face masks and gloves
- Transferring forceps

#### **13. Sterilization and disinfection**

- Overview
- Uses, advantages and disadvantages
- Methods of sterilization
- Disinfection, types of disinfections
- Common antiseptics and disinfectants

#### **14. First aid management**

- Overview
- Basic and advanced life support
- Minor trauma and injuries
- Poisoning
- Snake and animal bites
- Electric shock
- Cardiopulmonary resuscitation

#### **15. Clinical education and demonstration**

- Nursing procedures
- First aid pertaining to musculoskeletal, neuromuscular and cardio respiratory ailments

### **Suggested Readings**

1. Patricia A Potter, Anne G perry: Basic Nursing Theory and Practice,3 Ed,CV mosby, Missouri,1995.
2. Elhart, Firsich, Rees: Scientific Principles in Nursing, 8Ed, CV Mosby, USA, NR Brothers India, 1978.
3. Sorensen & Luckmann's: Basic Nursing, A Psychophysiologic Approach: 3Ed, WB Saunders, Philadelphia, 1994.
4. Gardner AW, Royalnee PJ: New Advanced First Aid, 3Ed, John wright and sons Ltd, Bristol, England, 1984.
5. Lilly P Telu: Manual of Nursing Arts Procedures, 3Ed, Vikas Publishing house Pvt Ltd, New Delhi, 1993.

6. Basavthappa BT: Fundamentals of Nursing: Jaypee Brothers, New Delhi, 2004.
7. Gupta LC, Sahu VC: Practical Nursing Procedure: 2Ed, Jaypee Brothers, New Delhi, 1991.
8. Ahuja KK: Human Resource Management, Kalyani Publishers, Ludhiana, 1997.