SRI BALAJI VIDYAPEETH

Deemed University u/s 3 of UGC Act 1956
Accredited by NAAC with 'A' Grade
SBV Campus, Pillayarkuppam, Pondicherry – 607 402

DEPARTMENT OF PHYSIOTHERAPY

Bachelor of Physiotherapy (B.P.T)

Choice Based Credit System

Regulations & Syllabus

August 2019 Onwards

(As Approved in the 28th Academic Council dated
21st November 2019)

SRI BALAJI VIDYAPEETH

DEEMED TO BE UNIVERSITY

Declared u/s 3 of the UGC act, 1956

Accredited by NAAC with 'A' Grade

SBV Campus, Pilayarkuppam.

Pondicherry - 607402. http://sbvu.ac.in/

THE COMPOSITION OF BOARD OF STUDIES

DEPARTMENT OF PHYSIOTHERAPY - 2019

Sl:no	NAME	STATUS	DESIGNATION/WORKING ADDRESS
1	Dr.E. Shanmugananth. PT	CHAIR PERSON	ASSOCIATE PROFESSOR AND HEAD. DEPARTMENT OF PHYSIOTHERAPY. MAHATMA GANDHI MEDICAL COLLEGE AND RESEARCH INSTITUTE. PONDICHERY.
2	Dr. S. Senthil. PT	Internal member	ASSISTANT PROFESSOR. DEPARTMENT OF PHYSIOTHERAPY. MAHATMA GANDHI MEDICAL COLLEGE AND RESEARCH INSTITUTE. PONDICHERY
3	Dr. T. Murugaraj. PT	Internal member	
4	Dr.V. Velkumar. PT	Internal member	
5	Dr. SUPRIYA.K.VINOD. PT	External member	Professor and Principal. Mother Theresa college of physiotherapy. Pondichery.
6	Dr. Antony Leo Asser. PT	External member	Professor and vice principal. Sri Ramachandra college of physiotherapy. Porur - Chennai
7	Dr. Gopal Nambi. S . PT	External member	Asst professor. Salman bin abdul aziz university. Saudi Arabia.
8	Dr. Anbalagan . J	Special invitee	Professor & Principal in charge for Allied Health sciences. Faculty of Allied Health Sciences. Mahatma Gandhi medical college and research institute. Pondichery.

INDEX

BACHELOR OF PHYSIOTHERAPY PROGRAM ACADEMIC YEAR - 2018 ONWARDS

DEFINITION:

'Physiotherapy' means a system which includes comprehensive examination, treatment, advice and instructions to any persons preparatory to or for the purpose of or in connection with movement/ function and dysfunction, bodily malfunction, physical disorder, disability, healing and pain from trauma and disease, physical and mental conditions using

physical agents, activities, and devices including exercise, mobilization, manipulations, electrical and thermal agents and other electrotherapeutics for prevention, screening, diagnosis, treatment, health promotion and fitness. *(As per the Ministry of Health and Family Welfare- India)*

`*Physiotherapist'* assess, plan and implement rehabilitative programs that improve or restore human motor functions, maximize movement ability, relieve pain syndromes, and treat or prevent physical challenges associated with injuries, diseases and other impairments. They apply a broad range of physical therapies and techniques such as movement, ultrasound,

heating, laser and other techniques. They may develop and implement programs for screening and prevention of common physical ailments and disorders. *(As per the Ministry of Health and Family Welfare- India)*

PREAMBLE:

The Bachelor of Physiotherapy (BPT) undergraduate degree course is a 4-year and 6 months (8 semesters & 6 months internship) fulltime program. The program is generic in nature and has a component of additional learning of one area leading to another area with choice-based study to focus the career development based on his/her interest. The program focuses on overall development of the student including language and soft skill, emergency care and professional ethics. Psychosomatic aspects of training are a component through all the areas.

Physiotherapists diagnose and manage movement dysfunction and enhance physical and functional abilities. This physical dysfunction may be the sequel of involvement of any of the systems like Musculoskeletal, Neurological, Cardiovascular, Respiratory or other body systems. these practitioners contribute to society and the profession through practice, teaching, administration, and the discovery and application of new knowledge about physiotherapy experiences of sufficient excellence and breadth by research to allow the acquisition and application of essential knowledge, skills, and behaviors as applied to the practice of physiotherapy

Learning experiences are provided under the guidance and supervision of competent faculty, in both, classroom as well as in clinic. The designed curriculum will prepare the entry-to-practice physiotherapist, to be an autonomous, effective, safe and compassionate professional, who practices collaboratively in a variety of healthcare set ups such as neonatal to geriatric, from critical care to community fitness to sports training and is responsive to the current and future needs of the health care system.

NOMENCLATURE:

The course will be referred to as a Bachelor of Physiotherapy (BPT)

1. VISION

Dedicated to impact quality education in the field of physiotherapy, providing evidence Based physiotherapy care to the community encouraging seeds of research in every professional aspirant in the institution thereby a route to fulfill the vision of the university.

2. MISSION

- To provide quality education on per with the global standards.
- Guide towards research to promote evidence-based physiotherapy practice.
- Create awareness and provide quality services to the society and work towards preventive health.
- Update and share existing and new knowledge in the field of physiotherapy and providing equal opportunity for faculty to update.

OBJECTIVES:

- Demonstrate knowledge of the theoretical basis of physical therapy. Demonstrate clinical competency in evaluation, treatment planning and implementation. Integrate knowledge of basic sciences and physical in order to modify treatment approaches that reflect the breadth and scope of physical therapy practice.
  Integrate the use of basic principles of research in critical analysis of concepts and findings generated by self and others.
- Actively recognize the rights and dignity of individuals in planning and administering programs of care.
- Identify with and contribute to the aims and ideas of the profession. Function as competent physical therapist in any healthcare setting.
  Demonstrate command of knowledge which is necessary to function as an independent problem solver and learner in the practice environment.

ELIGIBILITY FOR ADMISSION:

A candidate seeking admission in the Bachelor of Physiotherapy program shall be completing the age of 17 years as on December of the admission year. The candidate shall have passed the Higher Secondary Examinations conducted by the State Board or the Central Board or its equivalent.

The candidate should have studied English as one of the papers and passed the same. The candidate should have Biology, Physics & Chemistry and have passed the same in their qualifying Examinations.

The candidate should have secured 50 percent as aggregate in the subjects of Biology, Physics and Chemistry at the Higher Secondary Examinations. The candidates have to appear for entrance test conducted by the university, and admission followed according through the merit list obtained by the candidates through the entrance examination conducted by the university

DURATION OF THE PROGRAM:
The duration of certified study for the Bachelor of Physiotherapy program shall be for four and half years, with eight semesters and six months compulsory internship.

MEDIUM OF INSTRUCTION:
English shall be the medium of instruction for all the courses of study and for the examinations

FACULTY/STUDENT RATIO:
The teacher: student ratio should be such that the number of teachers to the number of students admitted per year is 1:10.

CLINICAL EDUCATION TRAINING OUTLINE OF THE COURSE:

Clinical training comprises all of the formal and practical "real-life" learning experiences provided for students to apply classroom knowledge and skills in the clinical environment. Experiences would include those of short and long duration (Supervised Clinical Education Training & Internships) and those that provide a variety of learning experiences (e.g. rotations on different units within the same practice setting, rotations between different practice settings within the health care system) to include comprehensive care of patients across the life span and related activities. Each student will be under the supervision of a faculty at the clinical education site who directly instructs and supervises students during their clinical learning experiences.

ATTENDANCE
A student must have a minimum of 80% attendance to be eligible to take up the examinations. Only those students who have pursued a regular prescribed course of study for the semester will be allowed to appear in the University Examinations that are held at the end of their respective semesters.

Duration of the course
Duration of the course: 4 years or 8 semesters. (Total of 4352 hours in theory, practical & clinical) and minimum 1008 hours for compulsory rotatory internship (to be completed in six months duration). Total hours - 5360

Medium of instruction:
English shall be the medium of instruction for all the subjects of study and for examination of the course.

Commencement of the course -
The course shall commence not later than 1st September of an academic year

Working days during the semester -
Each semester shall consist not less than 100 working days excluding examination days.

Commencement of examination -
University examination will be conducted at the end of each semester.

University Examination Passing Criteria:

Internal evaluation:
The internal assessment is done based on continuous evaluation method. Every semester, there will be two internal examinations for theory and practical. For the award of internal marks in theory and practical, the average of the two tests shall be considered along with other components like attendance, presentations, and assignments. however, Candidate must obtain at least 40% marks in theory and practical separately in internal assessment to be eligible for the university examination

University (external) examination:
Every student has to score minimum 50 % of marks to pass in theory and practical examination (each separately) in final University Examination

Aggregate:
Every student has to have an aggregate score of 50 % marks to pass in the final University Examination of both the internal and external evaluation of 100 % marks in theory and practical examination and the grade will be awarded based on the aggregate marks.

.

- Internal assessment (Theory) will be done as follows:

a) Sessional examinations (average mark scored in internals)	=	10 marks
b) Assignments/Projects/class test/Clinical Presentations	=	05 marks
c) Attendance	=	05 marks
Total		**= 20 marks**

- Internal assessment (Practical) will be done as follows:

a)	Record work	= 10 marks
b)	Discipline	= 05 marks
c)	Attendance	= 05 marks
	Total	**= 20 marks**

<u>Continuous Internal Assessment:</u>

A candidate shall secure a minimum of 40% marks in the Internal Assessment (separately for Theory and Practical wherever applicable) to become eligible to appear for the University written examination. If the student fails to secure the minimum required marks in the I.A. he/she will be detained from appearing for the University examination in the subject concerned.

However, such candidate shall be permitted to go to the next semester with the condition that he should improve and obtain a minimum of 40% of marks in I.A. in the subject(s) in which he/she was detained and qualify himself/herself to appear for the subsequent University Examination as an arrear subject(s) along with the subjects of the current semester.

Carryover of semester policy will be as prescribed by the Universities.

Carryover of semester shall be as prescribed by the University. The second semester, fourth semester & eighth semester were kept as the break semester whereas first. Third, fifth, sixth, and seventh semester kept as carry semester. However, it is recommended that students have to clear all the subjects during break semesters.

Carryover subjects of I semester must to be cleared during II Semester examination to enter second year Carryover subjects of III semester must to be cleared during IV Semester examination to enter third year Carryover subjects of V, VI, VII semester must to be cleared during VIII Semester examination to enter internship.

CC/DSE Subjects will have compulsory break during break semester. GE/AECC /SEC Subjects will be eligible to carryover till 8th semester

Semester	Status	Promotion
1.	Carry semester	Permitted to next semester
2.	Break semester	Compulsory have to clear all subjects of 1st & 2nd semester
3.	Carry semester	Permitted to next semester
4.	Break semester	Compulsory have to clear all subjects of 3rd & 4th semester
5.	Carry semester	Permitted to next semester
6.	Carry semester	Permitted to next semester
7.	Carry semester	Permitted to next semester
8.	Break semester	Compulsory have to clear all subjects of 5th 6th& 7th semester along with 8th semester to enter internship training program

Note: CC/DSE will have compulsory break during break semester and GE will be eligible to carryover till 8th semester, AECC / SEC is an non examination course however all has to be completed before 8th semester.

Only after passing all the subjects in all semesters he/she will be allowed to undergo internship.

Review of answer papers of failed candidates -
As per the regulations prescribed for review of answer papers by the University.

Maximum duration of the program:
Candidates should complete the Bachelor of Physiotherapy degree course within a period of eight years from the date of joining in the course.

Re-admission after break of study -
All re admissions of candidates are subjected to university regulations / through the approval of the Vice Chancellor.

Project guide:
Physiotherapy faculties who currently working with minimum 3 years of teaching experience after MPT shall be appointed as guide for UG project work. The guide student ratio should be 1:7 for each year.

Examiners:

Physiotherapy faculties who currently working with minimum 3 years of full teaching experience after MPT shall be appointed as examiners as well as for paper evaluation.

SCORING – THE CBCS SYSTEM

Any Program shall run on Choice Based Credit System (CBCS). It is an instructional package developed to suit the needs of students to keep pace with the developments in higher education and the quality assurance expected of it in the light of liberalization and globalization in higher education.

RATIONALE FOR INTRODUCTION OF CBCS:

The UGC while outlining the several unique features of the Choice-Based Credit System (CBCS) has, in fact, given in a nutshell, the rationale for its introduction. Among the features highlighted by the UGC are:

- Enhanced learning opportunities, ability to match learners' scholastic needs and aspirations, inter-institution transferability of learners (following the completion of a semester).
- Improvement in educational quality and excellence.
- Flexibility for working learners to complete the programme over an extended period of time.
- Standardization and comparability of educational programmes across the country, etc. Some of the specific advantages of using the Credit system as outlined in the available literature on the topic are as listed below.
- Represents a much-required shift in focus from teacher-centric to learner-centric education since the workload estimated is based on the investment of time in learning, not in teaching.
- Helps to record course work and to document learner workload realistically since all activities are taken into account - not only the time learners spend in lectures or seminars but also the time they need for individual learning and the preparation of examinations etc.
- Segments learning experience into calibrated units, which can be accumulated in order to gain an academic award

- Helps self-paced learning. Learners may undertake as many credits as they can cope with without having to repeat all the courses in a given semester if they fail in one or more courses.

- Alternatively, they can choose other courses and continue their studies. _Learner Autonomy‘.

- Makes education more broad-based. One can take credits by combining unique combinations.

- Credits earned at one institution can be transferred to another. Helps in working out twinning programs.

- Is beneficial for achieving more transparency and compatibility between different educational structures.
- A credit system can facilitate recognition procedures as well as access to higher education for non-traditional learners

GRADING:

The total of the internal evaluation marks and final University examination marks in each course will be converted to a letter grade on to confirm as per the following scheme as recommended by UGC:

Letter Grades and Grade Points:

Letter Grades	Grade Points	% of marks
O+ (Outstanding)	10	85% and above
O Excellent	9	75 - 84
A + (Very Good)	8	65 - 74
A (Good)	7	60 - 64
B+ (Above Average)	6	55 - 59
B (Average pass)	5	50 - 54
F(Reappear)	0	49 and below
Ab (Absent)	0	0

A student obtaining Grade F (or) Grade point _0‘shall be considered failed and will be required to reappear in the examination.

COMPUTATION OF SGPA AND CGPA:

The UGC recommends the following procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e.

SGPA (Si) = Σ (Ci x Gi) / ΣCi

where Ci is the number of credits of the ith course and Gi is the grade point scored by the student in the ith course.

The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

CGPA = Σ(Ci x Si) / Σ Ci

where Si is the SGPA of the ith semester and Ci is the total number of credits in that semester. The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.

Illustration of Computation of SGPA and CGPA and Format for Transcripts

i. Illustration for computation of SGPA for I semester

Course	Credit	Grade Letter	Grade Point	Credit Point (Credit x Grade)
Course 1	7	B+	7	7X7=49
Course 2	6	A	8	6X8=48
Course 3	3	B	6	3X6=18
Course 4	10	A+	9	10X9=90
Total	26			205

Thus, **SGPA =205/26 =7.884**

Illustration for computation of CGPA

Semester 1	Semester 2	Semester 3	Semester 4	Semester 5	Semester 6
Credit:20	Credit:22	Credit:25	Credit:26	Credit:26	Credit:25
SGPA:6.9	SGPA:7.8	SGPA:5.6	SGPA:6.0	SGPA:6.3	SGPA:8.0

AWARD OF DEGREE :

Every student of the program who fulfils the following criteria will be eligible for the award of the degree provided

a) He/ She should have earned at least minimum required credits as prescribed in course structure,
b) He/ She should have cleared all internal and external evaluation components in every course,
 He /She should have successfully completed the internship with project work.
c) He/ She should have secured a minimum CGPA of 5.00 at the end of the program BPT.

AWARD OF CLASS:

The class awarded to a student in the programme is decided by the final CGPA as per the following scheme:

Distinction: CGPA ≥ 9.50 First class: CGPA of 7 – 8
Second Class: CGPA of 5.00 to 6.99

TRANSCRIPT:

The transcript issued to the student at the time of leaving the University will contain a consolidated record of all the courses taken, credits earned, grades obtained, SGPA,CGPA, class obtained, etc.

CLASSIFICATION OF COURSE IN BPT PROGRAM: CHOICE BASED CREDIT SYSTEM

SEM	CORE COURSE (CC)	DICIPLINE SPECIFIC ELECTIVE (DE)	GENERIC ELECTIVE (GE)	ABILITY ENHANCEMENT COMPULSORY COURSE (AE)	SKILL ENHANCEMENT COURSE (SE)
1	1. Anatomy-I 2. Physiology-I	1. Psychology & Sociology 2. Biochemistry		1. Introduction To Healthcare Delivery System In India 2. English & Communication Skills 3.Orientation In Physiotherapy	
2	1.Anatomy – II 2.Physiology –II 3.Exercise Therapy-I	1. Exercise Physiology		1.Introduction To Quality And Patient Safety, Biomedical, Control, Etc.	1.First Aid And Emergency Nursing
3	1.Exercisetherapy-II 2.Kinesiology-I 3.Electrotherapy-I 4.Pathology, Microbiology And Pharmacology			1.Environmental Science	1.Natural Disaster Management
4	1. Kinesiology-II 2. Electrotherapy-II 3.General Medicine, Pediatrics And Psychiatry			1.Basiccomputer And Informative Sciences. 2. Collaboration In Physiotherapy Practice	
5	1. General Surgery Including Burns And Plastic Surgery 2. Clinical Orthopedics& Traumatology 3. Clinical Obstetrics And Gynecology And Its Physiotherapy Management	1.Community Medicine			

CLASSIFICATION OF COURSE IN BPT PROGRAM: CHOICE BASED CREDIT SYSTEM

SEM	CORE COURSE (CC)	DICIPLINE SPECIFIC ELECTIVE (DE)	GENERIC ELECTIVE (GE)	ABILITY ENHANCEMENT COMPULSORY COURSE (AE)	SKILL ENHANCEMENT COURSE (SE)
6	1. Clinical Neurology And Neurosurgery 2. Clinical Cardiovascular And Respiratory Conditions 3. Physiotherapy In Orthopedics And Sports	1.Medical / Physiotherapy Law & Ethics		1. Yoga In Physiotherapy 2.Ergonomics And Occupational Health	
7	1.Physiotherapy In Neurology & Psychosomatic Disorder 2.Physiotherapy In Cardiovascular , Respiratory Conditions & Intensive Care	1.Biostatistics & Research Methodology 2. Community Based Rehabilitation		1.Professionalism And Values	1. Diagnostic Imaging For Physiotherapist
8	1. Advanced Physical And Functional Diagnosis 2. Research Project	1.Bioengineering In Physiotherapy 2.Clinical Reasoning And Evidence Base Physiotherapy			

GENERIC ELECTIVE COURSES

SL: No	YEAR	SUBJECT CODE	Electives
1.	1st and 2nd semester	GE - 01	BASIC SCIENCE
		GE - 02	HOSPITAL LAWS
		GE - 03	HOSPITAL SAFETY AND MANAGEMENT
2.	3rd and 4th semester	GE - 04	BEHAVIOURAL SCIENCE
		GE - 05	DIET AND NUTRITION
		GE - 06	HEALTH AND WELLNESS
3.	5th semester	GE - 07	ENTERPRENEURSHIP IN PHYSIOTHERAPY
		GE - 08	LEADERSHIP IN PHYSIOTHERAPY
4.	7th and 8th semester	GE - 09	ACCUPUNTURE
		GE - 10	DIABETIC EDUCATION
		GE - 11	INTEGUMENTARY PHYSICAL THERAPY

Note: Candidates can choose any one elective in each semester given in the prescribed year.

FIRST SEMESTER

	Course code	Subject	Teaching scheme				Examination scheme				
			Contact hours				Theory		Practical		Total
			L	P	Credit	Total hours	Internal	Externa l	Internal	External	
CC	SBVPT - 101	Anatomy – 1	48	96	3+3	144	20	80	20	80	200
CC	SBVPT - 102	Physiology – 1	96	-	6	96	20	80			100
DE	SBVPT - 103	General Psychology & Sociology	96	-	6	96	20	80			100
DE	SBVPT - 104	Biochemistry	64	-	4	64	20	80			100
GE	SBVPT - 105 *	To be chosen by the Student	48	-	3	48	20	80			100
AE	SBVPT – 106	Introduction to healthcare delivery system in India	32		NC	32					
AE	SBVPT - 107	English and communication skills	32		NC	32					
AE	SBVPT - 108	Orientation in physiotherapy	32		NC	32					
Total					25	544					600

SECOND SEMESTER

	Course code	Subject	Teaching scheme				Examination scheme				
			Contact hours				Theory		Practical		Total
			L	P	Credit	Total hours	Internal	Externa l	Internal	External	
CC	SBVPT - 201	Anatomy – II	48	96	3+3	144	20	80	20	80	200
CC	SBVPT - 202	Physiology – II	96		6	96	20	80			100
CC	SBVPT - 203	Exercise therapy - I	48	96	3+3	144	20	80	20	80	200
DE	SBVPT - 204	Exercise physiology	64		4	64	20	80			100
GE	SBVPT – 205 *	To be chosen by the student	48		3	48	20	80			100
AE	SBVPT – 207	Introduction to quality and patient safety, biomedical waste management, infection prevention and control	24		NC	24					
SE	SBVPT - 206	First aid and emergency nursing		24	NC	24					
Total					25	544					700

THIRD SEMESTER

	Course code	Subject	Teaching scheme				Examination scheme				
			Contact hours				Theory		Practical		Total
			L	P	Credit	Total hours	Internal	Externa l	Internal	External	
CC	SBVPT – 301	Exercise therapy - II	48	96	3+3	144	20	80	20	80	200
CC	SBVPT - 302	Kinesiology – I	80		5	80	20	80			100
CC	SBVPT - 303	Electro therapy - I	32	64	2+2	96	20	80	20	80	200
CC	SBVPT - 304	Pathology , Micro biology and Pharmacology	80		5	80	20	80			100
GE	SBVPT - 305 *	To be chosen by the student	48		3	48	20	80			100
SE	SBVPT - 306	Natural disaster management	16	32	NC	48					
AE	SBVPT - 307	Environmental science	48		NC	48					
Total					23	544					700

FOURTH SEMESTER

	Course code	Subject	Teaching scheme				Examination scheme				
			Contact hours				Theory		Practical		Total
			L	P	Credit	Total hours	Internal	External	Internal	External	
CC	SBVPT – 401	Kinesiology – II	80		5	80	20	80			100
CC	SBVPT - 402	Electro therapy - II	48	96	3+3	144	20	80	20	80	200
CC	SBVPT - 403	General medicine, Pediatrics and psychiatry	80		5	80	20	80			100
GE	SBVPT - 404 *	To be chosen by the student	48		3	48	20	80			100
AE	SBVPT - 405	Basic computer and informative science	32		NC	32					
AE	SBVPT - 406	Collaboration in physiotherapy practice	32		NC	32					
CR	SBVPT - 407	Clinical education - I		128	4	128			100		100
Total					23	544					600

FIFTH SEMESTER

	Course code	Subject	Teaching scheme				Examination scheme				
			Contact hours				Theory		Practical		Total
			L	P	Credit	Total hours	Internal	External	Internal	External	
CC	SBVPT - 501	General Surgery including burns and plastic surgery	80		5	80	20	80			100
CC	SBVPT - 502	Clinical Orthopedics & Traumatology	80		5	80	20	80			100
CC	SBVPT - 503	Clinical Obstetrics and Gynecology and its Physiotherapy Management	48	96	3+3	144	20	80	20	80	200
GE	SBVPT - 504 *	To be chosen by the student	48		3	48	20	80			100
AE	SBVPT - 505	Medical /Physiotherapy Law & ethics	64			64					
CR	SBVPT – 506	Clinical education - II		128	4	128			100		100
Total					23	544					600

SIXTH SEMESTER

	Course code	Subject	Teaching scheme				Examination scheme				
			Contact hours				Theory		Practica l		Total
			L	P	Credit	Total hours	Internal	Externa l	Internal	Externa l	
CC	SBVPT - 601	Clinical neurology and neurosurgery	80		5	80	20	80			100
CC	SBVPT - 602	Clinical cardiovascular and Respiratory conditions	80		5	80	20	80			100
CC	SBVPT - 603	Physiotherapy in Orthopedics & sports injuries	32	64	2+2	96	20	80	20	80	200
DE	SBVPT - 604	Community Medicine	64		4	64	20	80			100
AE	SBVPT - 605	Yoga in physiotherapy	48		NC	48					
AE	SBVPT - 606	Ergonomics and occupational health	48		NC	48					
CR	SBVPT – 607	Clinical education - III	128		4	128			100		100
Total					22	544					600

SEVENTH SEMESTER

	Course code	Subject	Teaching scheme				Examination scheme				
			Contact hours				Theory		Practica l		Total
			L	P	Credit	Total hours	Internal	extern al	Interna l	Externa l	
CC	SBVPT - 701	Physiotherapy in Neurology & psychosomatic disorder	32	64	2+2	96	20	80	20	80	200
CC	SBVPT - 702	Physiotherapy In Cardiovascular and Respiratory Conditions	32	64	2+2	96	20	80	20	80	200
DE	SBVPT - 703	Research methodology & biostatistics	64		4	64	20	80			100
DE	SBVPT - 704	Community based rehabilitation	64		4	64	20	80			100
GE	SBVPT - 705 *	To be chosen by the student	48		3	48	20	80			100
SE	SBVPT - 707	Diagnostic imaging for Physiotherapist	48		NC	48					
CR	SBVPT – 708	Clinical education - IV		128	4	128			100		100
Total					23	544					800

EIGHTH SEMESTER

	Course code	Subject	Teaching scheme				Examination scheme				
			Contact hours				Theory		Practica l		Total
			L	P	Credit	Total hours	Internal	Externa l	Internal	External	
CC	SBVPT - 801	Advanced physical and functional diagnosis	32	64	2+2	96	20	80	20	80	200
DE	SBVPT - 802	Bioengineering in physiotherapy	64		4	64	20	80			100
DE	SBVPT - 803	Clinical reasoning and evidence base physiotherapy	48		3	48	20	80			100
GE	SBVPT - 804 *	To be chosen by the student	48		3	48	20	80			100
DE	SBVPT - 805	Research project		64	2	64			20	80	100
AE	SBVPT - 806	Professionalism and values	32		NC	32					
CR	SBVPT – 807	Clinical education - V		192	6	192			100		100
Total					22	544					700

INTERNSHIP PERIOD

SL NO	COURSE CODE		TRAINING HOURS	CREDIT	TOTAL HOURS
1	SBVPT – 901	INTERNSHIP	26 WEEKS	45	1440
	OVERALL TEACHING HOURS AND CREDIT POINT			186	4352
	OVERALL TRAINING HOURS, TRAINING HOURS AND CREDIT POINT			231	5792

Credit points: 16 hours of theory = 1 credit,

32 hours of practical = 1 credit,
32 hours of clinical = 1 credit.
NC-Non credit courses

SCHEME OF EXAMINATION - BPT FIRST SEMESTER

Sr.No	Subject	Subject Code	Theory Marks Duration= 3 Hrs						Practical mark						Total Marks
			Internal		External		Total Aggregate		Internal		External		Total Aggregate		
			min	max	min	max	min	max	min	max	min	max	min	max	
1.	Anatomy - I	SBVPT -101	08	20	40	80	50	100	08	20	40	80	50	100	200
2.	Physiology - I	SBVPT -102	08	20	40	80	50	100							100
3.	General Psychology & Sociology	SBVPT -103	08	20	40	80	50	100							100
4.	Biochemistry	SBVPT -104	08	20	40	80	50	100							100
5.	Generic Elective	SBVPT - 105*	08	20	40	80	50	100							100
														Total	600

SCHEME OF EXAMINATION - BPT SECOND SEMESTER

Sr.No	Subject	Subject Code	Theory Marks Duration= 3 Hrs						Practical mark						Total Marks
			Internal		External		Total Aggregate		Internal		External		Total Aggregate		
			min	max	min	max	min	max	min	max	min	max	min	max	
1.	Anatomy - II	SBVPT -201	08	20	40	80	50	100	08	20	40	80	50	100	200
2.	Physiology - II	SBVPT -202	08	20	40	80	50	100							100
3.	Exercise Therapy - I	SBVPT -203	08	20	40	80	50	100	08	20	40	80	50	100	200
4.	Exercise physiology	SBVPT -204	08	20	40	80	50	100							100
5.	Generic Elective	SBVPT - 205*	08	20	40	80	50	100							100
														Total	700

SCHEME OF EXAMINATION - BPT THIRD SEMESTER

Sr.No	Subject	Subject Code	Theory Marks Duration= 3 Hrs						Practical mark						Total Marks
			Internal		External		Total Aggregate		Internal		External		Total Aggregate		
			min	max	min	max	min	max	min	max	min	max	min	max	
1.	Exercise therapy - II	SBVPT -301	08	20	40	80	50	100	08	20	40	80	50	100	200
2.	Kinesiology – I	SBVPT -302	08	20	40	80	50	100							100
3.	Electrotherapy -I	SBVPT -303	08	20	40	80	50	100	08	20	40	80	50	100	200
4.	Pathology , Micro biology and Pharmacology	SBVPT -304	08	20	40	80	50	100							100
5.	Generic Elective	SBVPT - 305*	08	20	40	80	50	100							100
														Total	700

SCHEME OF EXAMINATION - BPT FOURTH SEMESTER

Sr.No	Subject	Subject Code	Theory Marks Duration= 3 Hrs						Practical mark						Total Marks
			Internal		External		Total Aggregate		Internal		External		Total Aggregate		
			min	max	min	max	min	max	min	max	min	max	min	max	
1.	Kinesiology – II	SBVPT -401	08	20	40	80	50	100							100
2.	Electro therapy - II	SBVPT -402	08	20	40	80	50	100	08	20	40	80	50	100	200
3.	General medicine, Pediatrics and psychiatry	SBVPT -403	08	20	40	80	50	100							100
4.	Generic Elective	SBVPT - 404*	08	20	40	80	50	100							100
5.	Clinical education-I	SBVPT -407							50	100			50	100	100
														Total	600

SCHEME OF EXAMINATION - BPT FIFTH SEMESTER

Sr.No	Subject	Subject Code	Theory Marks Duration= 3 Hrs						Practical mark						Total Marks
			Internal		External		Total Aggregate		Internal		External		Total Aggregate		
			min	max	min	max	min	max	min	max	min	max	min	max	
1.	General Surgery including burns and plastic surgery	SBVPT - 501	08	20	40	80	50	100							100
2.	Clinical Orthopedics & Traumatology	SBVPT - 502	08	20	40	80	50	100							100
3.	Clinical Obstetrics and Gynecology and its Physiotherapy Management	SBVPT - 503	08	20	40	80	50	100	08	20	40	80	50	100	200
4.	Community medicine	SBVPT - 504	08	20	40	80	50	100							100
5.	Generic elective	SBVPT - 505*	08	20	40	80	50	100							100
6.	Clinical education-II	SBVPT - 506							50	100			50	100	100
														Total	700

SCHEME OF EXAMINATION - BPT SIXTH SEMESTER

Sr.No	Subject	Subject Code	Theory Marks Duration= 3 Hrs						Practical mark						Total Marks
			Internal		External		Total Aggregate		Internal		External		Total Aggregate		
			min	max	min	max	min	max	min	max	min	max	min	max	
1.	Clinical neurology and neurosurgery	SBVPT - 601	08	20	40	80	50	100							100
2.	Clinical cardiovascular and Respiratory conditions	SBVPT - 602	08	20	40	80	50	100							100
3.	Physiotherapy in Orthopedics & sports injuries	SBVPT - 603	08	20	40	80	50	100	08	20	40	80	50	100	200
4.	Medical /Physiotherapy Law & ethics	SBVPT - 604	08	20	40	80	50	100							100
5.	Clinical education-III	SBVPT - 607							50	100			50	100	100
														Total	600

SCHEME OF EXAMINATION - BPT SEVENTH SEMESTER

Sr. No	Subject	Subject Code	Theory Marks Duration= 3 Hrs						Practical mark						Total Marks
			Internal		External		Total Aggregate		Internal		External		Total Aggregate		
			min	max	min	max	min	max	min	max	min	max	min	max	
1.	Physiotherapy in neurology and psychosomatic disorder	SBVPT - 701	08	20	40	80	50	100	08	20	40	80	50	100	200
2.	Physiotherapy in cardiovascular and respiratory conditions	SBVPT - 702	08	20	40	80	50	100	08	20	40	80	50	100	200
3.	Research methodology and biostatistics	SBVPT - 703	08	20	40	80	50	100							100
4.	Community based rehabilitation	SBVPT - 704	08	20	40	80	50	100							100
5.	Generic elective	SBVPT - 705*	08	20	40	80	50	100							100
6.	Clinical education-IV	SBVPT - 706							50	100			50	100	100
														Total	**800**

SCHEME OF EXAMINATION - BPT EIGHTH SEMESTER

Sr.No	Subject	Subject Code	Theory Marks Duration= 3 Hrs						Practical mark						Total Marks
			Internal		External		Total Aggregate		Internal		External		Total Aggregate		
			min	max	min	max	min	max	min	max	min	max	min	max	
1.	Advanced physical and functional Diagnosis	SBVPT -801	08	20	40	80	50	100	08	20	40	80	50	100	200
2.	Bio-engineering in physiotherapy	SBVPT -802	08	20	40	80	50	100							100
3.	Clinical reasoning and evidence base physiotherapy	SBVPT -803	08	20	40	80	50	100							100
4.	Generic elective	SBVPT - 804*	08	20	40	80	50	100							100
5.	Research project	SBVPT -805							08	20	40	80	50	100	100
6.	Clinical education-V	SBVPT -806							50	100			50	100	100
															Total 700

I-SEMESTER

ANATOMY –I COURSE CODE : SBVPT – 101

Didactic-48 hrs, Pratical-96 hrs =Total-144 hrs

1. HUMAN ANATOMY 1

COURSE DESCRIPTION:

The major focus of this course is an in-depth study and analysis of the basic elements of human anatomy, embryology, formation and types of bones, muscles and joints. Emphasis is placed upon structure and function of human movement concerned with upper limb, lower limb, thorax, abdomen and pelvis. A comprehensive study of human anatomy with emphasis on the respiratory system and cardio vascular systems are incorporated. Introduction to general anatomy lays the foundation of the course. Dissection and identification of structures in the cadaver supplemented with the study of charts, models, prosecuted material and radiographs are utilized to identify anatomical landmarks and configurations of the upper limb, thoracic region, lower limb, abdomen pelvis.

Learning Objective

Cognitive

At the end of the training, the student should be able to –

1. Describe the gross anatomy of the human body and correlate the knowledge of structure and function of thorax, abdomen, pelvis, upper limb and lower limb.
2. Describe the cross section anatomy of the human body and correlate the knowledge of structure and function.
3. Interpret the anatomical basic of symptoms and signs of clinical conditions related to of thorax, abdomen, pelvis upper limb and lower limb.
4. Describe the formation and maturation of various systems in the body.
5. Describe the anatomical structure and clinical aspects of cardio vascular and respiratory system.

Psychomotor

At the end of the training, the student should be able to –

1. Dissect and demonstrate organelles of thorax, abdomen, pelvis, upper limb and lower limb.
2. Demonstrate surface landmarks and living anatomy pertaining to muscle power, testing of nerves and palpating vessels.
3. Prepare and deliver lectures on various topics of human anatomy using audio – visualaids.
4. Present paper / poster in conference emphasizing on the anatomy and clinical anatomy.

Affective Domain

At the end of training the student should be able to correlate the knowledge of anatomy and its relevance in the physiotherapy profession

S.No	Topics	Didactic hours	Practical/ Laboratory hours	Total hours
1	INTRODUCTION	02	-	02
2	GENERAL EMBRYOLOGY	02	02	04
3	TISSUES	01	02	03
4	INTRODUCTION TO BONES(OSTEOLOGY)	02	05	07
5	INTRODUCTION TO JOINTS(ARTHROLOGY)	02	04	06
6	INTRODUCTION TO MUSCLES(MYOLOGY)	02	04	06
7	UPPER EXTREMITY	10	24	34
8	LOWER EXTREMITY	10	26	36
9	RESPIRATORY SYSTEM	04	06	10
10	CARDIO VASCULAR SYSTEM	04	06	10
11	THORAX	04	08	12
12	ABDOMEN & PELVIS	05	09	14
	Total	**48**	**96**	**144**

SYLLABUS

S. No	Topics	Didactic hours	Practical/ Laboratory hours	Total hours
1	**INTRODUCTION**	**02**	**-**	**02**
	Define anatomy and its subdivisions Name the regions, cavities and systems of the body Define anatomical positions and anatomical terms Development of limbs-Axial and appendicular skeleton			
2	**GENERAL EMBRYOLOGY**	**02**	**02**	**04**
	Define a cell Mention shape, size and parts of a cell Reproduction of cells Review of Mitosis, Meioses, chromosomes and Genes Process, organization and gestational period of human embryo Nutrition of embryo Development of various systems.			
3	**TISSUES**	**01**	**02**	**03**
	Types of Tissues Classify Microscopic structure of epithelial connective, muscular, nervous tissue Appendages of skin.			
4	**INTRODUCTION TO BONES (OSTEOLOGY)**	**02**	**05**	**07**
	Define skeleton Mention subdivisions, Name the bones in each subdivisions, number of bones Classify the bones with examples Define ossification, types of ossification with examples.			
5	**INTRODUCTION TO JOINTS(ARTHROLOGY)**	**02**	**04**	**06**
	Define joint or articulation. Classify joints with examples, individual articulations and bones. Basic feature of synovial joints Define the axis and movements possible in a synovial joint Define range of movement and limiting factors Indicate the blood supply and nerve supply Define stability of joint Chief muscles producing movement in all individual joints and applied anatomy			
6	**INTRODUCTION TO MUSCLES(MYOLOGY)**	**02**	**04**	**06**
	Define a skeletal muscle, fascia, tendon, aponeurosis. Classify skeletal muscles with examples and action of skeletal muscles and applied anatomy			

7	**UPPER EXTREMITY**	**10**	**24**	**34**
	Pectoral region Features of pectoral region. sternum, clavicle, scapula, and humerus- borders, surfaces Muscles of pectoral region- origin, insertion, supply and Action **Scapular region** Features of region Bony landmarks of scapula, humerus and clavicle. Muscles of region-origin, insertion, nerve supply, action **Axilla.** Identify boundaries and contents of axilla Branches of axillary artery Identify and illustrate the formation of brachial plexus. Shoulder girdle features and function of the joints movements of scapula Muscles of shoulder girdle articular disc and ligaments. **Shoulder Joint** Type , articular surface and ligaments of shoulder joint, movements of shoulder joint muscles producing the movements and limiting factors blood and nerve supply of the joint Upper arm identify borders, surfaces of humerus Muscles at front and back of upper arm Identify course, relation and distribution of Radial and Musculocutaneous nerve, applied anatomy **Elbow Joint** Type, articular surface and ligaments movements possible and muscles producing the movements factors for stability and limiting factors Carrying angle, cubitus varus and Valgus, applied anatomy **Forearm, Wrist and Hand** Features of radius, ulna, carpal, metacarpal bones and phalanges. Muscles of front and back of the forearm- origin, insertion, nerve supply and action, Movements and muscles producing these movements. Identify course, relation and distribution of median, ulnar and radial nerves Blood and nerve supply Prehension, types of grip Lymphatic drainage and location of lymph nodes in upper limb. Identify cutaneous nerves and illustrate the areas of their distribution, dermatomes, applied anatomy			

8	**LOWER EXTREMITY**	**10**	**26**	**36**
	Features of hip bone, femur, tibia, fibula and patella. **Anterior Thigh** Muscles in front of thigh-origin, insertion, nerve supply and action Mention the boundaries and contents of femoral triangle and sub sartorial canal Indicate the position, course and distribution of femoral nerve Indicate the course and main branches of femoral artery and mention the blood supply of neck of femur Indicate the position of femoral vein, applied anatomy			
	Medial Thigh Name and identify the muscles of the medial side of thigh. Mention their origin, insertion, nerve supply and action Indicate the course, relations and distribution of Obturator nerve , applied anatomy			
	Posterior Thigh Identify and mention the position, origin, insertion, nerve supply and action of the hamstring muscles. Indicate the position, course, relation and distribution of sciatic nerve			
	Gluteal Region Identify and mention the position, origin, insertion, nerve supply and action of the muscles. Name and mention the position and course and relations of the nerves and arteries, applied anatomy			
	Hip joint Mention the type, articular surface and ligaments. Define the movement and name the chief muscles producing the movements Mention the blood supply, nerve supply, factor for stability and limiting factors, Applied anatomy			
	Knee joint Mention the type, articular surfaces and ligaments. Define the movement and name the chief muscles for the movements Analyze the movements Know the blood supply and nerve supply Indicate applied anatomy Define locking and unlocking of the joint Popliteal fossa - Indicate the boundaries and contents Mention the position and branches of tibial and common peroneal nerves, applied anatomy			

	Front of Leg and Dorsum of foot Name and identify the tarsal bones, metatarsal bones and phalanges in an articulated foot Name and identify the muscles Mention the positions, origin, insertion, nerve, supply and action of the muscles Position and distribution of deep peroneal nerve Indicate the position and attachment of extensor retinaculae Mention and identify the features of the tibia and fibula, applied anatomy			
	Lateral side of leg Name and identify the muscles Mention the position, origin, insertion, nerve supply and action of muscles State the position, course and distribution of superficial peroneal nerve State the position and attachment of peroneal retinaculae, applied anatomy **Back of leg and sole of foot** Name and identify the features of the bones of the foot. Name and identify the muscles of back of leg. Mention the position, arrangement, origin, insertion, nerve supply and action of the muscles. State the position course and distribution of tibial artery. State the position, and distribution of posterior tibial artery. Mention the position, and attachment of flexor retinaculum. Mention the arrangement, origin, insertion, nerve supply and action of muscles of the foot Indicate the type of formation, and factors for the maintenance of the arch of foot. Mention the type, articular surface, ligaments, movements, chief muscles for the movement. Axis of movements and applied anatomy of tibiofibular joints, ankle joints, subtalar joints, metatarsophalangeal joints and Interphalangeal joints. Palpate and identify the tendons around the ankle and dorsum of foot, applied anatomy **Nerves** Indicate the position, formation and branches of lumbar and sacral plexuses Mention the root value of the nerves. Mention the position, course, relation and distribution of the nerves injury to the nerves. Illustrate cutaneous innervation of dermatomes. **Blood vessels** Indicate the position of arteries and their main branches Indicate the position of veins and their main tributaries Indicate the position of lymph nodes, applied Anatomy			

9	**RESPIRATORY SYSTEM**	**04**	**06**	**10**
	Parts of respiratory system with basic functional Anatomy Position extent of bronchi, bronchioles and lungs Arrangement & Microscopic structure of parietal pleura Extent of trachea Distinguishing feature of the right and the left lung- border and surfaces Name the bronchopulmonary segments Mechanics of respiration & diaphragm, applied anatomy			
10	**CARDIO VASCULAR SYSTEM**	**04**	**06**	**10**
	Position of heart – chambers, borders, valves of Heart Identify – aorta, pulmonary vessels, venacava Blood supply and nerve supply of heart Myocardium and its functions Coronary artery and coronary system Conductive system of heart Microscopic structure of blood vessels Myocardial infarction and prognosis, Applied anatomy			
11	**THORAX**	**04**	**08**	**12**
	Define thoracic wall & thoracic cavity Thoracic vertebrae – features Sternum – deformities and clinical implications Ribs & joints of thorax Phrenic nerves Intercostal space & contents, applied anatomy			
12	**ABDOMEN & PELVIS**	**05**	**09**	**14**
	Define Lumbar & sacral Vertebra Pelvis – distinguish between male & female pelvis Articular surfaces, Ligaments and movements of joints of pelvis Layer of muscles forming the abdominal wall Origin, Insertion, Nerve supply and Action of muscle Inguinal canal – Position, extent, formation and contents Define inguinal hernia and its clinical implications. Formation and location of Lumbar plexus – its branches Branches and distribution of abdominal aorta & iliac arteries Identify muscles of pelvic floor and mention their attachments, actions & nerve supply, applied anatomy			
Total	**48**	**96**	**144**	

PRACTICALS

1. Upper extremity including surface Anatomy
2. Lower extremity including surface Anatomy
3. Identification of body prominences on inspection and by palpation especially of extremities
4. Thorax including surface anatomy, abdominal muscles joints
5. Histology-Elementary tissue including surface Anatomy
6. Embryology-models, charts & X-rays
7. Demonstration of the muscles of the whole body and organs in thorax and abdomen.
8. Demonstration of movements in important joints.
9. Surface making of the lung, pleura, fissures and lobes of lungs, heart, liver, spleen, Kidney.

PRACTICAL LECTURE

- Learning through charts models and specimens.
- Identification and location of systems in models and cadaver
- Location of anatomical parts in dissected cadaver
- Identification of specimens

Recommended Text books:

1. Gray_s anatomy 37th edition edited by – Peter L. Williams, Mary Dyson
2. 2.Text book of human anatomy by T.S. Ranganath
3. SNELL [Richard S], Clinical Anatomy for Medical students : Ed. 6. Little Brown andCompany Boston. 1995, p898
4. B.D Chaurasia_s Human Anatomy – Regional And Applied; Volume I, Volume Ii And Volumeiii.
5. MOORE [Kieth L], Clinically Oriented Anatomy. Ed.3., Williams and Wilkins, Baltimore,1992, p917
6. DATTA[A.K], Essentials of human Anatomy: Thorax and Abdomen Ed 2. Vol. I Current Book International, Culcutta 1994, p433,
7. SINGH [Inderbir], Text book of Anatomy with colour atlas: Introduction, Osteology, UpperExtremity, Lower Extremity. Vol I. P Brothers, New Delhi 1996,
8. SINGH [Inderbir], Text book of Anatomy with colour Atlas: Thorax and Abdomen. Vol II. JPBrothers, New Delhi 1996, SINGH [Inderbir],Human Osteology. JP Brothers, New Delhi 1990,p191

PRACTICALS

1. ROMANES [G J], Cunningham manual of practical anatomy: upper and lower limbed 15Vol 1 Oxford Medical Publication, Oxford 1996, P263,
2. ROMANES [G J], Cunningham manual of practical anatomy : Thorax and abdomen ed15 Vol II Oxford Medical Publication, Oxford 1996, P298

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 10 questions- 5 marks each	**30**
Short Answer questions Answer all the questions 10x2=20 10 questions- 2 marks each	**20**
Total	**80**

PRACTICALS /VIVA VOCE- 80 Marks	**Maximum Marks**
Total	**80**

INTERNAL ASSESSMENT: (20marks) for both theory and practical separately.

Internal assessment given for Theory and Practical follows as per Universitypattern

PHYSIOLOGY I COURSE CODE : SBVPT - 102

Didactic 96 hrs

COURSE DESCRIPTION

The course along with the anatomy forms the fundamental basis for every physiotherapy professional. The course is designed to study the function of the human body at the molecular, cellular, tissue and systems levels. The major emphasis is placed on general physiology, physiology of exercise and applied physiology. The general physiology focus on blood, nerve muscle function, cardiovascular and respiratory system. The applied physiology focus on the functions and dysfunctions of cardio respiratory system, nervous system and muscular system

S.NO	TOPIC	Didactic hours	Practical/ Laboratory hours	Total hours
1	**General Physiology**	**35**		**35**
2	**Physiology of exercise**	**17**		**17**
3	**Applied physiology**	**20**		**20**
4	**Reproductive System**	**12**		**12**
5	**Digestive System**	**12**		**12**
	TOTAL	**96**		**96**

Learning Objectives

- To know about the principles related to maintenance of body equilibrium and composition.
- To understand the basic mechanism operating across the biological membrane.
- To understand the functional mechanisms of cardio respiratory system, nervous system and muscular system.
- To understand interaction and integration of cardio respiratory system, nervous system and muscular system in health and diseases.
- To understand the influence of various environmental factors including personal stressors like exercise on various systems.
- At the end of training the student should be able to -
- The student should be able to correlate the knowledge of physiology and its relevance in the physiotherapy profession

S.NO	TOPIC	Didactic hours	Total hours
1	**General Physiology**	**35**	**35**
	Cell Morphology: Organelles: their structure and functions. Transport Mechanisms across the cell membrane Body fluids: Distribution, composition. Tissue fluid – formation **Blood** Introduction: Composition and functions of blood. Plasma: Composition, formation, functions. Plasma proteins, RBC: count and its variations. Erythropoiesis-stages, factorsregulating. Reticulo-endothelialsystem (in brief) Haemoglobin - Anaemia (in detail), types of Jaundice. Blood WBC: Classification., Morphology, functions, indices, PCV, ESR. count, its variation of each Immunity Platelets: Morphology, functions, count,its variations. Hemostatic mechanisms: Blood coagulation factors, mechanisms. Their disorders. Anticoagulants. Blood Groups: Landsteiner_s law. Types, significance, determination, Erythroblastosisfoetalis. Blood Transfusion: Cross matching. Indications and complications. Lymph: Composition, formation, circulation and functions. **Nerve Muscle Physiology** Introduction: Resting membrane potential. Action potential – ionic basis and properties. Nerve: Structure and functions of neurons. Classification, Properties and impulse transmission of nerve fibres. Nerve injury – degeneration and regeneration. Neuroglia: Types and functions. Muscle: Classification. Skeletal muscle: Structure. Neuromuscular junction: Structure of Neuromuscular transmission, myasthenia gravis.Excitation- Contraction coupling.Rigormortis. Motor unit. Properties of skeletal muscles, Strength- Duration curve, Length-tension relationship, fatigue, load. Smooth muscle: Structure, types, mechanism of contraction. Plasticity **Cardiovascular System** Introduction: Physiological anatomy and nerve supply of the heart and blood vessels. Organisation of CVS. Cardiac muscles: Structure. Ionic basis of action potential and pacemaker potential,Properties. Conducting system: Components. Impulse conduction Cardiac Cycle:Definition. Phases of cardiac cycle.Pressure and volume curves. Heart sounds – causes, character. ECG: Definition. Different types of leads. Waves and their causes.P-R interval.Heart block. Cardiac Output: Definition. Normal value.Determinants.Stroke volume and its regulation.Heart rate and its regulation. Their variations Arterial Blood Pressure: Definition. Normal values and its variations.Determinants.Peripheralresistance.Regulation of BP. Arterial pulse, Shock – Definition. Classification–causes and features , Regional Circulation: Coronary, Cerebral and Cutaneous circulation Cardiovascular changes duringexercise **Respiratory System** Introduction: Physiological anatomy –Pleura,tracheo-		

	bronchialtree,alveolus,respiratorymembrane and their nerve supply. Functions of respiratory system.Respiratory muscles Mechanics of breathing: Intra pleural and Intrapulmonary Pressure changes during respiration. Chest expansion. Lung compliance Normal value, pressure-volume curve, factors affecting compliance and its variations. Surfactant – Composition, production, functionsRDS Spirometry: Lung volumes and capacities. Timedvitalcapacityanditsclinicalsignificance,Maximumventilat ionvolume,Respiratory minute volume.Dead Space: Types and their definition Pulmonary Circulation.Ventilation-perfusion ratio and its importance Transport of respiratory gases: Diffusion acrossthe respiratory membrane. Oxygen transport – Differentforms,oxygen-haemoglobindissociationcurve. Factorsaffectingit. P50,Haldane and Bohr effect. Carbon dioxidetransport: Different forms, chloride shift. Regulation of Respiration: Neural RegulationHering-breuer_sreflex.Voluntarycontrol.Chemical RegulationHypoxia:Effects of hypoxia. Typesofhypoxia.Hyperbaricoxygentherapy. AcclimatizationHypercapnoea.Asphyxia. Cyanosis – types andfeatures. Dysbarism Disorders of Respiration: Dyspnoea. Orthopnoea. Hyperpnoea, hyperventilation, apnoea,tachypnoea. periodic breathing – types Artificial RespirationRespiratory changes during exercise.		

2	**Physiology of exercise**	**17**	**17**
	Effects of acute and chronic exercise on 1) O2 transport 2) Muscle strength/power/endurance 3) B.M.R./R.Q 4) Hormonal and metabolic effect 5) Cardiovascular system 6) Respiratory system 7) Body fluids and electrolyte B. Effect of gravity / altitude /acceleration pressure on physical parameters C. Physiology of Age		
3	**Applied physiology**	**20**	**20**
	CVS The heart and circulation Determinants of cardiac performance 1. Normal& Abnormal E.C.G. 2. Maintenance of blood pressure 3. Cardiac arrest and heart failure 4. Cardiovascular compensation for postural and gravitational changes 5. Hypertension 6. Odema 7. Central and peripheral venous pressure		

	Nervous system and muscles 1. Reflex action, reciprocal innervation 2. Degeneration and regeneration of nerves 3. Control of posture 4. Outline of voluntary movement 5. Cutaneous, deep and superficial sensation 6. Synaptic transmission 7. Neuro muscular transmission **Respiration** 1. Normal& abnormal Breath sounds 2. Gas tension in air at sea level, tracheal air, cellular air, mixed air, plasma, arterial blood and mixed venous blood. 3. Altered Lung volume 4. Oxygen and carbon dioxide transport 5. Acid base reactions in blood 6. Effects off exercise on respiration 7. Artificial respiration. hypertension 8. Oedema 9. Central and peripheral venous pressure		
4	**Reproductive System**	**12**	**12**
	Introduction: Physiological anatomy Reproductive organs. Sex determination. Sex Differentiation. Disorder, Male Reproductive System: Functions of testes. Pubertal changes in males. Spermatogenesis.Testosterone: action. Regulation of secretion. Semen. Female Reproductive System: Functions of ovaries and uterus. Pubertal changes in females. Oogenesis. **Hormones:** oestrogenand progesterone-action. Regulation of secretion. **Mentrual Cycle:** Phases. Ovarian cycle. Uterine cycle. Hormonalbasis. Menarche. Menopause. **Pregnancy**: Pregnancy tests. Physiological Changes during pregnancy. Functions of placenta. Lactation.Contraception methods		
5	**Digestive System**	12	12
	Introduction: Physiological anatomy and nerve supply of alimentary canal. Enteric Nervous system Salivary Secretion: Saliva: Composition. Functions. Regulation. Mastication (in brief) Swallowing: Definition. Different stages. Functions. **Stomach**: Functions. Gastric juice: Gland, composition, function, regulation. Gastrin: Production, function and regulation. Peptic ulcer. Gastric motility .Gastric emptying. Vomiting. Pancreatic Secretion: Composition, production, function. Regulation. **Liver:** Functions of liver. Bile secretion: Composition, functions and regulation. Gall bladder: Functions. Intestine: Succusentericus: mComposition, Function and regulation of secretion. Intestinal motility and its function and regulation. Mechanism of Defaecation.		
	TOTAL	**96**	**96**

Recommended text books:

1. Basics of medical Physiology -3rd edition D.Venkatesh.Sudhakar
2. Ganongs Review of Medical Physiology 24th edition
3. Fundamentals of medical Physiology Prakasam reddy 5th edition
4. Text book for physiology-A.K.Jain vol I&II
5. Concise Medical Physiology - Chaudhuri 4th edition
6. Human Physiology- Sembulingam 4th edition.

RECOMMENDED REFERENCE BOOKS

1. Review of Medical Physiology – Ganong
2. Samson & Wright's Applied Physiology
3. Textbook of Medical Physiology – Bern and Levy

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 10 questions- 5 marks each	**30**
Short Answer questions Answer all the questions 10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: (20marks)

1. **Internal assessment as per University pattern.**

GENERAL PSYCHOLOGY AND SOCIOLOGY COURSE CODE : SBVPT - 103

Didactic Hours = 96 hrs

COURSE DESCRIPTION

This course serves as a broad introduction to the field of contemporary psychology, which is explored as a science, a profession, and a means of promoting human welfare. Students are exposed to psychology and sociology as both a natural and social science through reading assignments, lectures, discussions, and demonstrations. Physiotherapy as a profession necessitates socialization and analyzing the psychology of patients with suffering.

S. NO	TOPIC	Didactic hours	Total hours
1	Definition of Psychology	02	02
2	Heredity and Environment	03	03
3	Development and Growth Behavior	05	05
4	Intelligence	03	03
5	Motivation	04	04
6	Emotions	03	03
7	Personality	08	08
8	Learning	05	05
9	Thinking	02	02
10	Frustration	02	02
11	Sensation, Attention and Perception	07	07
12	Defense mechanisms of the ego	02	02
13	Democratic and Authoritarian leadership	02	02
	TOTAL	48	48

OBJECTIVES:

At the end of the course, the candidate will be able to:

Define the term Psychology & its importance in the Health delivery system, & will gain knowledge of Psychological maturation during human development & growth & alterations during aging process.

Understand the importance of psychological status of the person in health & disease; environmental & emotional influence on the mind & personality.

Have the knowledge and skills required for good interpersonal communication, learning and situational analysis.

The student should be able to correlate the knowledge of general psychology and sociology and understand the clinical application of the same in patient handling, evaluation and treatment in the physiotherapy profession.

The student should respect others without showing bias or presences on the grounds of age, race and gender. The student should learn to respect and positively respond to the instructions and suggestions of the peers, superiors and respect the values of physiotherapy profession.

S. NO	TOPIC	Didactic hours	Practical/ Laboratory hours	Total hours
1	**Definition of Psychology**	**02**		**02**
	Define of Psychology, basic information in relation to following schools methods and branches. Schools: Structuralism, functionalism, behaviorism, psychoanalysis, gestalt psychology Methods: Introspection, observation, inventory and Experimental method Branches: General, child, social, abnormal, Industrial, clinical, counseling, Educational.			
2	**Heredity and Environment**	**03**		**03**
	Twins relative importance of heredity and environment, their role in relation to physical characteristics, intelligence .and personality, nature-nature controversy.			
3	**Development and Growth Behavior**	**05**		**05**
	Infancy, childhood, adolescence, adulthood, middle age, old age.			
4	**Intelligence**	**03**		**03**
	Definitions – IQ, Mental Age, List of various intelligence testes-WAIS, WISC, Bhatia_s performance test, Raven_s progressive matrices test.			
5	**Motivation**	**04**		**04**
	Definitions: motive, drive, incentive and reinforcement, Basic information about primary needs: hunger, thirst, sleep elimination activity, air, avoidance to pain, and attitude to sex. Psychological needs: Information, security, self-esteem, competence, love and hope			
6	**Emotions**	**03**		**03**
	Definition, differentiate from feelings, physiological changes of emotion, role of RAS, hypothalamus, cerebral cortex, sympathetic nervous system, adrenal gland, heredity and emotion. Nature and control of anger, fear and anxiety.			
7	**Personality**	**08**		**08**
	Definition, List the components: Physical characteristics, character abilities, temperament interest and attitudes. Discuss briefly the role of heredity, nervous system, physical characteristics, abilities, fam8ily and culture on personality development. Basic concepts of Freud: Unconscious, conscious Ide, ego and superego list and define the oral, anal and phallic genita, latency stages of personality development. 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. Personality assessment: interview, standardized non - standardized, Exhaustive and stress interviews, list and define inventories BAI, CPI and MMPI. Projective tests, Rorschach, TAT and sentence completion test.			

8	**Learning**	**05**		**05**
	Definition, List the laws of learning as proposed by Thorndike. Types of learning: Briefly describe classical conditioning, operant conditioning, insight, observation and Trial and Error type. List the effective 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. International learning, role of language.			
9	**Thinking**	**02**		**02**
	Definition, concepts, creativity, steps in creative thinking; list the traits of creative people, delusions.			
10	**Frustration**	**02**		**02**
	Definition, concepts, creativity, steps in creative thinking; list the traits of creative people, delusions. Definition, Sources, solution – conflict: approach – approach, avoidance – avoidance, and approach – Avoidance, solution.			
11	**Sensation, Attention and Perception**	**07**		**07**
	List the senses, Vision, hearing, Olfactory, Gustatory and cutaneous sensation, movement, equilibrium and viscera sense. Define attention and list factors that determine attention: nature of stimulus intensity, colour, change extensity, repetition, movement size curiosity, primary motives. Define perception and list the principles of perception: Figure ground, constancy, similarity, proximity, closure, continuity, values and interests, past experience context, needs, moods, religion, sex and age, perceived benefits, and socioeconomic status. Define illusion and hallucination List visual, auditory, cutaneous, gustatory and olfactory hallucination.			
12	**Defense mechanisms of the ego**	**02**		**02**
	Denial, rationalization, projection, reaction formation, identification, repression, emotional insulation, undoing, introjections, acting out, depersonalization.			
13	**Democratic and Authoritarian leadership**	**02**		**02**
	Qualities of leadership: Physical factors, intelligence, self- confidence, sociability, will and dominance. Define attitude, change of attitude by: Additional information, changes in group, affiliation, enforced modification by law and procedures that affect personality Psychotherapy. Counseling and religious conversion.			
	TOTAL	**48**		**48**

Recommended books

1. Cliford T. Morgan – Introduction to Psychology
2. Morgan & King – Introduction to Psychology
3. Hilgard & Atkinson – Introduction to Psychology

SOCIOLOGY

S. NO	TOPIC	Didactic hours	Total hours
1	Definition of Sociology	03	03
2	Sociology Approaches	06	06
3	Social Health	08	08
4	Family	10	10
5	Community	10	10
6	Social worker	11	11
	TOTAL	48	48

S. NO	TOPIC	Didactic hours	Practical/ Laboratory hours	Total hours
1	Definition of Sociology	03		03
	Understanding Sociology, Definition and scope of Sociology,Its relation to Anthropology and Psychology Sociological understanding and sociological thinking.			
2	Sociology Approaches	06		06
	Sociological approaches to healthcare Main features of positivistic and naturalistic approaches to sociological thinking andtheorizing Sociological approaches to health-care Concepts of social groups; influence of formal and informal groups on health and sickness. The SCP [Society-Culture-Personality] Model and the health care			
3	Social Health	08		08
	Social class and health experience Culture types and practices universal and variability_s of culture. The role of primary groups and secondary groups in the hospital and rehabilitation. Gender and health issues in India.			
4	Family	10		10
	Family, the family, meaning and definitions. Functions of types of family Changing family patterns Influence of family on the individuals health, family and nutrition, the effects of sickness in the family and psychosomatic disease and their importance to physiotherapy.			
5	Community	10		10
	Rural community: Meaning and features – Health hazards of ruralities, health hazards to tribal community. Urban community: Meaning and features- Health hazards of urbanities.			
6	Social worker	11		11
	Meaning of Social Work The role of a Medical Social Worker			
	TOTAL	48		48

Recommended books

1. Sachdeva and Vidyabushan (1990), Introduction to the study of Sociology,
2. KitabMahal. Allahabad. Indrani T K, Text Books of Sociology for Graduates Nurses and Physiotherapy Students, JP Brothers, New Delhi.
3. Gilbert (1973), Fundamentals of Sociology, 3rd ed. Bombay, Orient Longman
4. William J Goode (1977 Principles of Sociology McGraw-Hill Book Co. New York
5. Mark Walsh (2004). Introduction to Sociology for Healthcares. Nelson Thomes, UK

SCHEME OF UNIVERSITY EXAMINATION

Section Separation and Marks Distribution:

Section A – Psychology - 40 Marks

Section B – Sociology - 40 Marks

Question Paper Pattern:

Section A: Psychology (Total Marks: 40)

S. No	Description	No. of Questions	Marks Allotted	Total Marks (40)
1.	Essay	01	15	15
2.	Short Notes	03	05	15
3.	Short Answer Questions	05	02	10

Section B – Sociology (Total Marks: 40)

S. No	Description	No. of Questions	Marks Allotted	Total Marks (40)
1.	Essay	01	15	15
2.	Short Notes	03	05	15
3.	Short Answer Questions	05	02	10

INTERNAL ASSESSMENT: Internal assessment as per University pattern : (20marks)

Psychology carries 10 mark

Sociology carries 10 mark Total = 20 Marks

BIOCHEMISTRY COURSE CODE: SBVPT - 104

Didactic Hours = 64 Hrs

COURSE DESCRIPTION:

This course provides the knowledge and skills in fundamental organic chemistry and introductory biochemistry that are essential for further studies It covers basic biochemical, cellular, biological and microbiological processes, basic chemical reactions in the prokaryotic and eukaryotic cells, the structure of biological molecules, introduction to the nutrients i.e. carbohydrates, fats, enzymes, nucleic acids and amino acids.

S. NO	TOPIC	Didactic hours	Total hours
1	CARBOHYDRATES	9	9
2	PROTEINS	7	7
3	ENZYMES	6	6
4	VITAMINS	8	8
5	MINERALS	7	7
6	HORMONES	6	6
7	NUTRITION	8	8
8	LIPID	7	7
9	MUSCLE CONTRACTION	6	6
	TOTAL	64	64

Course objective:

Cognitive -

List the structure, function and assimilation of macro and micro nutrients.

Describe the abnormalities associated with pathological condition with respect conception, absorption and assimilation of various macro and micro nutrients.

Enumerate the biochemistry of connective tissue, collage glycoprotein, proteoglycans, elastin and keratin.

Biochemical aspects of muscle contraction.

Psychomotor: Draw and label various stages involved in different metabolic cyclic reactions like Kreb‘s cycle, Glycogen metabolism etc.

Affective: At the end of training the student should be able to -

The student should be able to correlate the knowledge of biochemistry and its significance in various conditions handled by the physiotherapy profession.

S. NO	TOPIC	Didactic hours	Practical/ Laboratory hours	Total hours
1	**CARBOHYDRATES**	**9**	**-**	**9**
	Chemistry, Definition, Classification with Examples and Functions Glycolysis, TCA cycle, Glycogen metabolism, Glycogen storage disorder, Diabetes Mellitus and glycosuria Hormonal regulation of blood glucose, HbA1C and GTT			
2	**PROTEINS**	**7**	**-**	**7**
	Definition, Importance, Functional Classification of proteins decarboxylation, deamination, transamination, transmethylation, Urea Cycle, clinical significance of serum urea. Special products formed from glycine, Phenylalanine, trytophan, methionine tyrosine. There should be an emphasis on understanding the structure of protein, the essential and non-essential amino acids.			
3	**ENZYMES**	**6**	**-**	**6**
	Definition, Modern Classification, Factors affecting enzymes Action, diagnostic & therapeutics uses & enzymes, Isoenzymes, Competitive & Non competitive inhibition.			
4	**VITAMINS**	**8**	**-**	**8**
	Definition, Classification, Fat & water soluble vitamins, functions, Deficiency manifestations sources & RDA			
5	**MINERALS**	**7**	**-**	**7**
	Sources, metabolic role and deficient manifestation of Na, K, Ca, P, Fe, I, Zn, Se, Fl			
6	**HORMONES**	**6**	**-**	**6**
	Definition with mechanism of action, Classification.			
7	**NUTRITION**	**8**	**-**	**8**
	Composition of food, balanced diet, Kwashiorkar, Marasmus, Nitrogen balance, major Dietary constituent & their importance. Include energy requirements, factors affecting B.M.R., S.D.A. (Specific Dynamic Action) and R.Q. (Respiratory Quotient)			
8	**LIPID**	**7**	**-**	**7**
	Definition, classification and importance of lipids, essential fatty acids. Phospholipids – classification and functions Name the lipoproteins and its functions Name the ketone bodies and its importance and tests Clinical significance of cholesterol and obesity Functions of prostaglandins			
9	**MUSCLE CONTRACTION**	**6**	**--**	**6**
	Biochemistry of connective tissue Collagen-Glyco-proteins, Proteoglycans, Elastin, Keratin.			
	TOTAL	**64**	**-**	**64**

RECOMMENDED TEXT BOOKS

1. Biochemistry – Dr. Satyanarayan
2. Text book of Biochemistry for Medical students – Dr. Vasudevan / Shri Kumar
3. Biochemistry – Dr. Pankaja Naik

RECOMMENDED REFERENCE BOOK

1. Review of Biochemistry (24th **edition**) – Harper

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 10 questions- 5 marks each	**30**
Short Answer questions Answer all the questions 10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: (20marks)

Internal assessment as per University pattern.

NON-EXAMINATION COURSE

INTRODUCTION TO HEALTHCARE DELIVERY SYSTEM IN INDIA COURSE CODE: SBVPT - 106

COURSE DESCRIPTION: The course provides the students a basic insight into the main features of Indian health care delivery system and how it compares with the other systems of the world. Topics to be covered under the subject are as follows:

S. NO	TOPIC	Didactic hours	Practical/ Laboratory hours	Total hours
1	**Introduction to healthcare delivery system**	**8**	**-**	**8**
	Healthcare delivery system in India at primary, secondary and tertiary care Community participation in healthcare delivery system Health system in developed countries. Private Sector National Health Mission National Health Policy Issues in Health Care Delivery System in India			
2	**National Health Programme-**	**4**	**-**	**4**
	Background objectives, action plan, targets, operations, achievements and constraints in various National Heath Programme			
3	**Introduction to AYUSH system of medicine**	**5**	**-**	**5**
	Introduction to Ayurveda. Yoga and Naturopathy Unani Siddha Homeopathy Need for integration of various system of medicine			
4	**Demography & Vital Statistics-**	**7**	**-**	**7**
	Demography – its concept Vital events of life & its impact on demography Significance and recording of vital statistics Census & its impact on health policy			
5	**Epidemiology**	**5**	**-**	**5**
	Principles of Epidemiology Natural History of disease Methods of Epidemiological studies Epidemiology of communicable & non-communicable diseases, disease transmission, host defense immunizing agents, cold chain, immunization, disease monitoring and surveillance.			
6	**Health scenario of India- past, present and future**	**3**	**-**	**3**
	TOTAL	**32**	**-**	**32**

Non examination course
English and communication skills COURSE CODE : SBVPT – 107

LEARNING OBJECTIVES:

At the end of the course, the candidate will- Develop good vocabulary skills for better communication Effectively communicates with teachers, patients and public Understands methods of writing and drafting letters in English In this subject, the students will learn about English and Communication skills, which help them to have a better orientation towards patients and the society.

S. NO	TOPIC	Didactic hours	Practical/ Laboratory hours	Total hours
1	**An Introduction To Communication And Key Concepts In Communication**	**05**	**-**	**05**
	An Introduction to Communication. Basic terms, concepts, and contexts of communication. Factors influencing message encoding, the nature of messages, and message uses and effects. Importance, Types and Principles of Communication General Vs Technical Communication			
2	**MAJOR COMMUNICATION TECHNIQUES**	**5**	**-**	**5**
	Introduction to Communication styles and techniques. Assertive Communication. Aggressive Communication. Passive Communication. Passive – Aggressive Communication. Working with different Styles			
3	**LISTENING SKILLS**	**5**	**-**	**5**
	Introduction to Listening. Purpose and Types of Listening. Active Listening V/s Passive Listening. Difference among Listening, Hearing and Overhearing. Traits of a good listener. Barriers to effective listening and Tips for effective listening .			
4	**READING SKILLS**	**5**	**-**	**5**
	An Introduction to Reading and Comprehension. Types and Techniques - Skimming and Scanning of Reading Inferencing in Reading. Reading data in various forms.	.		
5	**WRITING SKILLS**	**6**	**-**	**6**
	Introduction to Writing and Importance of effective writing., Paragraph Development, Coherence – Topic Sentence, Supporting Sentence. Authentication, and Examples. Letter Writing and Resume Making., Report Writing Drafting…press notes, memo, circulars, notices, telegrams, agenda, , minutes etc.			

6	**GRAMMAR AND VOCABULARY**	**6**	**-**	**6**
	Tenses and the Concept of Time. Active and Passive Constructions. Direct – Indirect Speeches. Prepositions and Conditionals. Idioms, Confusables, One-word Substitutes, Synonyms, Antonyms.			
	Total	**32**		**32**

INSTRUCTIONAL METHOD AND PEDAGOGY:

Interactive class room sessions using black-board and audio-visual aids. Using the available technology and resources for e-learning. Students will be focused on self-learning, practical learning and clinical exposure facilitated by the faculty. Students will be enabled for continuous evaluation. Case study, group discussions, role-plays and simulation exercises.

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester, the student will be able:

1. To sharpen basic Communication Skills (LSRW) by revealing the key communication techniques.
2. To expose themselves to the modern modes of communication

RECOMMENDED STUDY MATERIAL: BOOKS:

1. English For Technical Communication Vol 1&2 Combined,
2. Lakshminarayanan RK The Functional Aspects of Communication Skills, Prasad P & Sharma R K
3. A Communication Grammar of English, Leech Geoffrey

NON EXAMINATION COURSE ORIENTATION IN PHYSIOTHERAPY COURSE CODE : SBVPT – 108
Duration Hours = 32 hours

COURSE DESCRIBTION:

The objective of this particular section of the foundation course is to sensitize potential learners with essential knowledge; this will lay a sound foundation for their learning across the under-graduate program and across their career. Innovative teaching methods should be used to ensure the attention of a student and make them more receptive such as group activities, interactive fora, role plays, and clinical bed-side demonstrations

SL. NO	TOPIC	Didactic hours	Practical/ Laboratory hours	Total hours
1	History of physiotherapy.	02		02
2	Ethical rules and guidelines for physiotherapist.	03		03
3	Orientation to medical terminologies.	03		03
4	Patterns of health care delivery: National trends and resources Local trends and resources Overview of health science professions.	09		09
5	Components of physiotherapy profession: History of medical therapeutics Overview of health science professions	05		05
6	Role of physiotherapy in meeting health care needs in India. Needs versus demands Physiotherapist as 'educator' Typical job settings Common problems and solutions	10		10
	TOTAL	32		32

II – SEMESTER

ANATOMY –II COURSE CODE : SBVPT - 201

Didactic- 48 Hrs + Practical = 96 Hrs [TOTAL – 144 Hrs]

COURSE DESCRIPTION

The major focus of this subject is an in-depth study and analysis of the structure and function of human movement concerned with head and neck.A comprehensive study of human anatomy with emphasis on the endocrine system, lymphatic system, digestive system, genitor urinary, integumentary system are incorporated. Dissection and identification of structures in the cadaver supplemented with the study of charts, models, prosected material and radiographs are utilized to identify anatomical landmarks and configurations of the head and neck and brain.

Sr. No.	Topics	Didactic Hours	Practical/ Laboratory Hours	Total Hours
1	NEURO ANATOMY	14	40	54
2	HEAD AND NECK	06	22	28
3	CRANIAL NERVES	06	10	16
4	ENDOCRINE SYSTEM	04	-	04
5	LYMPHATIC SYSTEM	03	-	03
6	DIGESTIVE SYSTEM	05	05	10
7	GENITO URINARY SYSTEM	05	13	18
8	INTEGUMENTARY SYSTEM	02	-	02
	TOTAL	48	96	144

OBJECTIVES

Cognitive –

At the end of the training, the student should be able to –

1. Describe the gross anatomy of the human body and correlate the knowledge of structure and function of Head and neck.
2. Describe the cross section anatomy of the human body and correlate the knowledge of structure and function of Head and neck.
3. Interpret the anatomical basic of symptoms and signs of clinical conditions, diagnostic procedures and treatment modalities related to of Head and neck, endocrine system, lymphatic system, digestive system, genitor urinary, integumentary system
4. Describe the development aspects of human body and interpret the development basis of various congenital anomalies of Head and neck and Nervous system.
5. Describe the neuro anatomy in its entirety and interpret the neuro anatomical basis of various clinical conditions of Head and neck, Nervous system, endocrine system, lymphatic system, digestive system, genitor urinary, integumentary system.

Psychomotor

At the end of the training, the student should be able to –

1. Dissect and demonstrate various parts of head, neck, brain and spinal cord.
2. Demonstrate the anatomical significance of nerves and blood vessels of human body.
3. Prepare and deliver lectures on various topics of human anatomy using audio –visual aids.
4. Present paper / poster in conference emphasizing on the anatomy and clinical anatomy

Affective

At the end of training the student should be able to –

1. The student should be able to correlate the knowledge of anatomy and its application in the physiotherapy profession during patient evaluation and treatment

Sl:no	Topics	Didactic Hours	Practical/ Laboratory Hours	Total Hours
1	**NEURO ANATOMY**	**14**	40	54
	Definition of Neuron Organization of Nervous system along with division central, peripheral autonomic. Anterior and posterior triangles of the neck - subdivisions and contents. Development of brain and spinal cord in embryonic level. **Spinal cord: -** Position, extent transectional view. Tracts ofspinal cord and their extent Reflex levels at spinal cord. Blood supply Effects of injury, prognosis and applied anatomy Rhombencephalon or hind brain Medulla Oblongata Pons Cerebellum parts of cerebellum, Internal cerebellar structures, Various afferent and efferent tracts and their respective terminations. Results of damage to cerebellum and prognosis and applied anatomy **Reticular formation Forebrain or cerebrum** gross components, Knowledge of gyri, sulci and cortical areas Association fibres, projectionfibers and commisural fibers. cerebral cortex fornix ancus insula, Limbic lobe and factory pathways Meninges, Internal capsule, basal ganglia, thalamus, hypothalamus – Role and effects of injury and applied anatomy Pyramidal motor system and its tracts. Upper and lower motor neurons Parts and tracts of extra pyramidal system and its functions and applied anatomy Nature and basis of muscle tone Autonomic nervous system sympathetic, parasympathetic Anatomy of Cranial nerves and applied anatomy Peripheral apparatus of special senses Reflex levels of organization Controlling levels of organization Blood supply Arteries of the brain. Blood supply to the cerebrum/circle of willis Blood brain barrier Subdural hemorrhage, subarachnoid, extradural hemorrhage Result of occlusion CSF Formation, circulation and drainage Lumbar puncture and cisternal puncture and applied anatomy			

2	**HEAD AND NECK**	**06**	**22**	**28**
	Discussion about the musculoskeletal and neurovascular features. Anterior and posterior triangles of the neck with its substitutions. Anatomy of large skull bones and their parts Anatomy of main muscles of the face nerve supply and action and applied anatomy Temporomandibular joint articulation muscles and movements. Paralysis of facial muscles – causes of injury to facial nerve and sequel of injury and applied anatomy Anatomy of trigeminal nerve on the face Anatomy and general features of typical cervical vertebra, atlas, axis and seventh cervical vertebra. Anatomy of Main muscles of the cervical region attachments, actions and nerve supply. Anatomy of phrenic, accessory and vagus Nerves Joints of the cervical region–type, articular surfaces, ligaments, movements and muscles producing these movements. **EYE:** Structure of eye, subdivisions and chambers Retina & Optic pathway Light and accommodation reflex Nerve supply & action of extraocular muscles. **NOSE:** Bony components of nose Parts and boundaries of nose and features of nasal cavity. **EAR**: Basic structure of ear: hearing &equilibrium Nerve endings for hearing and equilibrium			
3	**CRANIAL NERVES**	**06**	**16**	**22**
	Anatomy of cranial nerves Nucleus of origin and termination attachments to the brain and cranial exit, its relations Sensory and motor distribution applied anatomy			
4	**ENDOCRINE SYSTEM**	**05**		**05**
	Endocrine organs and their position Functions of hormones produced by each endocrine organ. Applied anatomy			
5	**LYMPHATIC SYSTEM**	**04**		**04**
	Comprehend the general and regional arrangements of the lymphatic system Functions of Lymphatic system Structures of Lymph nodes, Lymph vessels. Applied anatomy			

6	**DIGESTIVE SYSTEM**	**05**	**05**	**10**
	Anatomy of digestive system Special features of mouth, teeth and muscles of the pharynx. Position, course and extent of the oesophagus Position and gross structure of stomach, nerve supply and chief functions. Subdivisions of the intestines and mention their surface anatomy Distinguish between the small and the large intestine Chief arterial branches of the abdominal aorta. Position and gross features of the liver & Biliary system Position of pancreas & spleen Hernias in stomach and intestinal levels. Treatments and prognosis and applied anatomy			
7	**GENITO URINARY SYSTEM**	**05**	**13**	**18**
	Basic structure, functional anatomy of kidney Distinguish between right & left kidney –position, size & shape Anatomy and Structure of Nephron Anatomy of bladder, Uterus, Urethra Basic innervation of bladder Anatomy of male reproductive system Anatomy and functional considerations of the reproduction and external organs. Anatomy of female reproductive system anatomy and functional considerations of ovary, uterine tubes, uterus, vagina and female external genitalia. Anatomy of the uterus, causes for prolapse, factors responsible for maintenance of its position, applied anatomy Discuss course of external and internal iliac arteries its applied anatomy			
8	**INTEGUMENTARY SYSTEM**	**03**		**03**
	Anatomy, Structure and layers of skin Blood circulation of skin Sweat and sebaceous glands – location, function and its applied anatomy			
	Total	**48**	**96**	**144**

PRACTICAL ANATOMY

1. Head & Spinal cord and Neck and Brain including surface Anatomy cranial nerves, spinal nerves and important blood vessels.
2. Points of palpation of nerves and arteries.
3. Learning through charts models and specimens.
4. Identification and location of systems in models and cadaver
5. Location of anatomical parts in dissected cadaver
6. Identification of specimens

Reference:

Clinical neuro anatomy for medical students – Snell 6th edition

1. Human anatomy – B.D. Chaurasia_s
2. Clinical anatomy for medical students – Snell 6th edition
3. Text book of human neuroanatomy – Inderbir Singh
4. Gray_s anatomy 37th edition edited by – Peter L. Williams, Mary Dyson
5. Text book of human anatomy by T.S. Ranganathan

Recommended Text books:

1. Gray_s anatomy 37th edition edited by – Peter L. Williams, Mary Dyson
2. Text book of human anatomy by T.S. Ranganath
3. SNELL [Richard S], Clinical Anatomy for Medical students : Ed. 6. Little Brown and Company,Boston., p898,
4. B.D Chaurasia_s Human Anatomy – Regional And Applied; Volume I, Volume Ii And Volume
5. MOORE [Kieth L], Clinically Oriented Anatomy. Ed.3., Williams and Wilkins, Baltimore,1992, p917
6. SINGH [Inderbir], Text book of Anatomy with colour atlas: Introduction, Osteology, UpperExtremity, Lower Extremity. Vol I. P Brothers, New Delhi1996,

Practicals

1. ROMANES [G J], Cunningham manual of practical anatomy : Head and Neck and Brain ed
2. 15 Vol II Oxford Medical Publication, Oxford 1996, P3

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=50 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**
PRACTICALS /VIVA VOCE- 80 Marks	**Maximum Marks**
Total	**80**

INTERNAL ASSESSMENT: (20marks) for both theory and practical separately. Internal assessment given for Theory and Practical follows as per University pattern

PHYSIOLOGY-II COURSE CODE : SBVPT - 202
Didactic-90 Hrs [TOTAL – 90HRS]

COURSE DESCRIPTION

The course is designed to study the function of the nervous system. The major emphasis is placed on special senses, reproductive system, digestive system, renal and endocrine system.

Sr. No.	Topics	Didactic Hours	Practical/ Laboratory Hours	Total Hours
1	Nervous System	45		45
2	Special senses	20		20
3	Renal System	14		14
4	Endocrine System	17		17
TOTAL		96		96

Learning Objectives

1. To understand the functional mechanisms of nervous system, reproductive system, digestive system, renal and endocrine system.
2. To understand interaction and integration of reproductive system, digestive system, renal and endocrine system.
3. To understand the functions and dysfunctions of reproductive system, digestive system, renal and endocrine system.
4. At the end of training the student should be able to -

The student should be able to correlate the knowledge of physiology and its application in the physiotherapy profession.

S. No	Topic	Didactic hours	Practical/ Laboratory hours	Total hours
1.	**Nervous System**	**45**		**45**
	Introduction: Organization of CNS – central and peripheral nervous system. Functions of nervous system. Synapse: Functional anatomy, classification, Synaptic transmission. Properties. Sensory Mechanism: Sensory receptors: function, classification and properties. Sensory pathway: The ascending tracts – Posterior column tracts, lateral spinothalamic tract and the anterior spinothalamic tract – their origin, course, termination and functions. The trigeminal pathway.Sensory cortex. Somatic sensations: crude touch, fine touch, tactile localization,tactile discrimination, stereognosis, vibration sense, kinesthetic sensations. Pain sensation: mechanism of pain. Cutaneous pain – slow and fast pain, hyperalgesia. Deep pain, Visceral pain – referred pain.Gate control theory of pain.tabesdorsalis, sensory ataxia. Motor Mechanism: Motor Cortex, Motor pathway: The descending tracts – pyramidal tracts, extrapyramidal tracts – origin, course,termination and functions. Upper motor neuron and lower motor neuron.Paralysis, monoplegia, paraplegia, hemiplegia and quadriplegia. Reflex Action: components, Bell-Magendie law, classification and Properties. Monosynaptic and polysynaptic reflexes, superficial reflexes, deep reflexes.Stretch reflex- structure of muscle spindle, pathway, higher control and functions. Inverse stretch reflex.Muscle tone – definition, and properties hypotonia, atonia and hypertonia. UMNL and LMNL Spinal cord Lesions: Complete transection and Hemisection of the spinal cord. Cerebellum: Functions. Cerebellar ataxia. Posture and Equilibrium: Postural reflexes – spinal, medullary, midbrain and cerebral reflexes. Thalamus and Hypothalamus: Nuclei. Functions. Thalamic syndrome Reticular Formation and Limbic System: Components and Functions. Basal Ganglia: Structures included and functions. Parkinson_s disease. Cerebral Cortex: Lobes. Brodmann_s areas and their functions.Higher functions of cerebralcortex – learning, memory and speech. EEG : Waves and features. Sleep: REM and NREM sleep.			

	CSF: Formation, composition, circulation and functions. Lumbar puncture and its significance. Blood brain barrier. Hydrocephalus. ANS: Features and actions of parasymapatheticand sympathetic nervous system.			
2.	**Special Senses**	**20**		**20**
	Vision: Introduction: Functional anatomy of eyeball. Functions of cornea, iris, pupil,aqueous humor – glaucoma, lens – cataract, vitreous humor, rods and cones Photopic vision. Scotopic vision. Visual Pathway and the effects of lesions. Refractive. Errors: myopia, hypermetropia, presbyopia and astigmatism. Visual Reflexes: Accommodation, Pupillary and Light. Visual acuity and Visual field. Light adaptation. Dark adaptation. Color vision – colorblindness. Nyctalopia Audition: Physiological anatomy of the ear. Functions of external ear, middle ear and inner ear. Structure of Cochlea and organ of corti. Auditory pathway. Types of Deafness. Tests for hearing. Audiometry Taste: Taste buds. Primary tastes. Gustatory pathway Smell: Olfactory membrane. Olfactory pathway. Vestibular Apparatus: Crista ampullaris and macula. Functions. Disorders			
3.	**Renal System**	**14**		**14**
	Introduction: Physiological anatomy. Nephrons Cortical and juxtamedullary. Juxta Glomerular apparatus. Glomerular membrane. Renal blood flow and its regulation. Functions of kidneys. Mechanism of Urine Formation: Glomerular Filtration: Mechanism of glomerular filtration. GFR – normal value and factors affecting. Renal clearance. Inulin clearance. Creatinine clearance. Tubular Reabsorption: Reabsorption of Na+ glucose, HCO_3 urea and water. Filtered load., Renal tubular transport maximum. Glucose clearance: TmG. Renal threshold for glucose. Tubular Secretion: Secretion of H^+ and K^+.PAH clearance. Mechanism of concentrating and diluting the Urine: Counter-current mechanism. Regulation, of water excretion. Diuresis. Diuretics. Micturition: Mechanism of micturition. Cystometrogram. Atonic bladder, automatic bladder. Acid-Base balance (very brief) Artificial Kidney: Principle of haemo dialysis. Skin and temperature regulation.			

4.	**Endocrine System**	**17**		**17**
	Introduction: Major endocrine glands. Hormone: classification, mechanism of action. Functions of hormones Pituitary Gland: Anterior Pituitary and Posterior Pituitary hormones: Secretory cells, action on target cells, regulation of secretion of each hormone. Disorders: Gigantism, Acromegaly, Dwarfism, Diabetes insipidus. Physiology of growth and development: hormonal and other influences. Pituitary-Hypothalamic Relationship. Thyroid Gland: Thyroid hormone and calcitonin: secretory cells, synthesis, storage, action and regulation of secretion. Disorders:Myxoedema. Cretinism, Grave_s disease Parathyroidhormnes: secretorycell, action, regulation of secretion. Disorders: Hypoparathyroidism. Hyperthyroidism. Calciummetabolism and its regulation.Adrenal Gland: Adrenal Cortex: Secretory cells,synthesis, action, regulationof secretion of Aldosterone, Cortisol, Androgens. Disorders:Addison_s disease, Cushing_s syndrome, Conn_s syndrome, Adrenogenital syndrome Adrenal Medulla: Secretory cells, action, regulation of secretion of adrenaline and noradrenalin. Disorders: Phoechromocytoma. Endocrine Pancreas: Secretory cells, action, regulation of secretion of insulin and glucagon. Glucose metabolism and its regulation. Disorder: Diabetes mellitus. Calcitrol, Thymusand Pineal gland (very brief). Local Hormones.(briefly).			
	Total	**96**		**96**

Recommended text books

1. Basics of medical Physiology -3rd edition D.Venkatesh.Sudhakar
2. Ganongs Review of Medical Physiology 24th edition
3. Fundamentals of medical Physiology Prakasam reddy 5th edition
4. Text book for physiology-A.K.Jain vol I&II
5. Concise Medical Physiology - Chaudhuri 4th edition
6. Human Physiology- Sembulingam 4 th edition.
7. RECOMMENDED REFERENCE BOOKS
8. Review of Medical Physiology – Ganong
9. Samson & Wright's Applied Physiology
10. Textbook of Medical Physiology – Bern and Levy.

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: (20marks)

Internal assessment as per University pattern

EXERCISE THERAPY - 1 COURSE CODE : SBVPT - 203
Didactic-45 Hrs + Practical = 90 Hrs [TOTAL - 135 HRS]

COURSE DESCRIPTION:

This course is based on anatomical and physiological &related kinesiological principles for normal human movement and for the efficacy in the assessment methods for mobility, muscle strength. Students have the opportunity to develop and acquire understanding of physiological responses to various types of training and develop skills of exercise programs (on models). Exercise components of muscle strength, flexibility, balance, breathing and gait are examined. Evidence of appropriate, safe and effective exercise design and proper exercise biomechanics and prescription parameters are addressed with all interventions.

S. NO	TOPIC	Didactic hours	Practical/ Laboratory hours	Total hours
1	INTRODUCTION TO EXERCISE THERAPY	03		03
2	CLASSIFICATION OF MUSCLES	03		03
3	STARTING AND DERIVED POSITIONS	04	06	10
4	ACTIVE AND PASSIVE MOVEMENTS	08	16	24
5	GONIOMETRY MEASUREMENTS	08	12	20
6	MANUAL MUSCLE TESTING	07	12	19
7	STRETCHING	07	16	23
8	ANTHROPOMETRIC MEASUREMENTS	02	10	12
9	MASSAGE THERAPY	08	24	32
	TOTAL	48	96	144

OBJECTIVES:

The objective of this course is that after 105 hours of lectures and demonstration in addition to practical and clinic the candidate will be able to list the indications and contraindications of various types of exercise, demonstrate the different techniques and describe the effects.

Objectives Cognitive

1. Define mechanical principals applied in human body emphasizing on Centre of gravity, baseof support, axis, planes, springs, levers, force , work, velocity and power
2. Classify the muscles on the basis of fiber orientation, type of contraction, range of muscle work and group muscle action.
3. Comprehend the importance of starting positions and derived positions in exerciseprescription.
4. Enumerate active and passive range of motions (ROM) to upper limb, lower limb, neck muscles and trunk muscles.
5. Understand the basic principles of measuring joint range of motion, stretchingand strengthening.
6. Illustrate the physiology of aerobic exercises and device exercise program incorporatingthe

same.

Psychomotor

1. Demonstrate the measurements of joint range of motion with Goniometer.
2. Perform ROM exercises with respect to fiber orientation, type of contraction, range of muscle work and group muscle action on human models.
3. Exhibit good practical skills of grasp and support during suspension exercises, massage and manual muscle testing.
4. Imitate general and local relaxation techniques.
5. Display ability of instructing balance and coordination exercises to human models and then to patients.

Affective

At the end of training the student should be able to –

The student should be able to correlate the knowledge of movement science, and increase proficiency in understanding the influence of various types of therapeutic exercise on the human body and its clinical application during treatment and also respect and be aware of the emotional aspects of human models without sexual discrimination.

SYLLABUS

S. NO	TOPIC	Didactic hours	Practical/ Laboratory hours	Total hours
1	**INTRODUCTION TO EXERCISE THERAPY**	**03**		**03**
	Mechanical principle applied in human body – gravity, centre of gravity, line of gravity, base of support, equilibrium, axis, planes, anatomical movements, and types of motion, pulleys, springs and levers. Definition of Speed, Velocity, Force, Work, Energy, Power, Acceleration, Momentum, Friction and Inertia.			
2	**CLASSIFICATION OF MUSCLES**	**03**		**03**
	Types of muscle fibers Types of muscle contraction Group muscle action Range of muscle work			
3	**STARTING AND DERIVED POSITIONS**	**04**	**06**	**10**
	Muscle work, effects and uses of starting and derived positions			
4	**ACTIVE AND PASSIVE MOVEMENTS**	**08**	**16**	**24**

	Definition, Classification, Indications, Contraindications, Advantages, Limitations, Techniques – Emphasize AROM and PROM to Upper, Lower, Neck and Trunk Muscles			
5	**GONIOMETRY MEASUREMENTS**	**08**	**12**	**20**
	Goniometer, types and techniques of measuring joint ROM			
6	**MANUAL MUSCLE TESTING**	**07**	**12**	**19**
	Principle & grading system Trick movements Group Muscle Testing Individual Muscle testing – Upper & Lower Limbs, Trunk & Face			
7	**STRETCHING**	**07**	**16**	**23**
	Definition, properties of soft tissue, mechanical and neurophysiologic properties of connective tissue, mechanical properties of contractile and non- contractile tissue. Assessment of muscle length, determinants, principles, type and effect of stretching, indications and contraindications, precautions, general applications of stretching technique advantages and limitations.			
8	**ANTHROPOMETRIC MEASUREMENTS**	**02**	**10**	**12**
	1. Measurement of muscle mass 2. Measurement of Skin fold using Vernier caliper Assessment of Height, Weight and BMI, Waist and Hip Ratio Fat analysis			
9	**MASSAGE THERAPY**	**08**	**24**	**32**
	History of massage Definition of massage Mechanical points to be considered Indications and contraindications Techniques Classification of massage			
	TOTAL	**48**	**96**	**144**

PRACTICAL

1. Starting positions and derived positions
2. Range of motion (PROM, AROM, AAROM) exercises to all joints
3. Measurement of joint range using goniometer
4. General and local Relaxation techniques
5. Suspension exercise to all major joints
6. Massage – upper limb, lower limb, back, face
7. Manual muscle testing of individual muscles
8. Coordination exercises, balancing exercises

RECOMMENDED TEXT BOOKS

1. Progressive Resisted Exercises – Margaret Hollis,
2. Therapeutic Exercise foundation and techniques - Carolyn Kisner
3. Muscle Testing -Daniel
4. Muscle Testing -Kendall
5. Principles of Exercise Therapy – Dena Gardiner

6. Measurement of Joint Motion – Cynthia Norkins.

RECOMMENDED REFERENCE BOOKS

1. Therapeutic Exercise - Basmajian & Wolf.
2. Orthopedic Evaluation – Magee
3. Physical Rehabilitation- O" Sullivan

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**
PRACTICALS /VIVA VOCE- 80 Marks	**Maximum Marks**
Total	**80**

SCHEME OF UNIVERSITY EXAMINATION

INTERNAL ASSESSMENT: (20marks) for both theory and practical separately. Internal assessment given for Theory and Practical follows as per University pattern

EXERCISE PHYSIOLOGY COURSE CODE : SBVPT - 204

Didactic Hours - 60hours =Total-60 hrs

Course Description:

The purpose of this course is to increase the student_s knowledge and understanding about human physiology and the adaptations that occur during exercise. Exercise physiology is a branch of physiology that deals with the functioning of the human body during exercise. An understanding of how the body responds to acute and chronic exercise is crucial for the physical educator, athletic trainer, coach, fitness expert, or exercise physiologist. Emphasis is placed on bioenergetics as well as circulatory, respiratory and neuromuscular responses to the physical stress of exercise. Also discussed are the effects of environmental factors and ergogenic aids on athletic performance. The objective of this course is for the student to gain an understanding and working knowledge of how the body responds to exercise so that they may apply this knowledge to their chosen field. Indeed, understanding the interactions of metabolism, circulation, and structural adaptations in response to exercise and training are required to be an effective teaching or health care professional.

S. NO	TOPIC	Didactic hours	Practical hours	Total hours
1	UNIT I	11		11
2	UNIT II	16		16
3	UNIT III	16		16
4	UNIT IV	21		21
	TOTAL	64		64

Course Objectives:

Following the completion of this course, the student will be able to discuss the following:

1. The acute physiological changes that occur during exercise
2. Appropriate means of maintaining the body in optimum physiological status for exercise
3. The physiological adaptations that occur following exercise training
4. Health benefits of a consistent exercise program and the health risks associated with inactivity
5. The students will be able to discuss how the various systems of the human body interrelate in response to exercise.
6. The students will be able to discuss the various control steps and mechanisms of metabolism (ATP production and ATP utilization)

SYLLABUS

S. NO	TOPIC	Didactic hours	Practical hours	Total hours
1	**UNIT I**	**11**		**11**
	Basic Exercise Physiology Unit Introduction to exercise physiology Nutrition and Performance Energy transfer Measurement of human energy expenditure Systems of energy delivery and utilization			
2	**UNIT II**	**16**		**16**
	Nutrition and Energy (ATP) Topics: Metabolism, bioenergetics, fuel utilization, EPOC, lactate, enzymes, hormonal control, glucose homeostasis, energy systems. **Physiological Systems: Transportation** Topics: Cardiovascular system, respiratory system, ventilation, VO2max, altitude, training. Maximal aerobic and anaerobic power Pulmonary function Gas Transport Kidney function and acid- base balance Cardio-Vascular Dynamics			
3	**UNIT III**	**16**		**16**
	Muscle Physiology & Training: **Energy Out** Topics: Nervous system, skeletal muscle structure and function, resistance training, ergogenic aids, Muscle function - Role of energy metabolism in muscular contraction Exercise Prescription Objectives of graded exercise testing Exercise Test variables Physiological effects of training Environmental effects on physical performance			
4	**UNIT IV**	**21**		**21**
	Sources of Energy, Energy Transfer and Energy Expenditure at rest and various physical activities. Responses and Adaptations of various systems to Exercise and training. Control Of Bio energitics: Control of ATP-CP System, Control of Glycolysis, Control of Kreb‘s cycle and Electron transport chain Interaction between Aerobic /Anaerobic ATP Production.			
	TOTAL	**64**		**64**

Recommended Books

1. Exercise Physiology by Mc Ardle, Katch & Katch (Lippincott Williams and Wilkins, 2000)
2. Exercise Physiology: Exercise, Performance, and Clinical Applications by Robert A. Roberts and Scott O Roberts William C Brown, 1997)
3. Clinical Exercise Testing and Prescription Theory and Applications by Scott O. Roberts, Peter Hanson (C RC Press,
4. Physiology of exercise and sport, Bruce J. Noble, Times Mirror/ Mosby college Publishing

SCHEME OF UNIVERSITY EXAMINATION

THEORY	Marks
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT :(20 Marks)

1. Internal assessment as per University pattern.

NON EXAMINATION COURSE
FIRST AID AND EMERGENCY NURSING
COURSE CODE : SBVPT - 206

Didactic Hour = 45

Objectives of the course:

In this subject, the students will learn about English and Communication skills, which help them to have a better orientation towards patients and the society.

SYLLABUS

S. NO	TOPIC	Didactic hours	Practical hours	Total hours
1	**FIRST AID**	**08**		**08**
	Introduction to First Aid. Bandages – Types, binders, splints & slings. Promoting safety consciousness. Examination of Vital Signs. First Aid in RTA, Cardiac arrest, Respiratory failure, Burns, Electric shock, Drowning, Spinal cord injuries, Hypovolemic Shock, Poisoning, Snake Bite. Instruments used in First Aid (First Aid kit).			
2	**EMERGENCY**	**08**		**08**
	Concept of emergency- Definition, Importance& Rules. Community emergencies: Fire explosions, floods, earthquakes, famine. Community resources: Police assistance; Voluntary agencies; Local, National and International agencies; Ambulance service- their relation to emergencies. Casualty management.			
3	**NURSING BASICS**	**08**		**08**
	Introduction: What is nursing, nursing principles, interpersonal relationships, **Mobility & Immobility** – Principles of body mechanics, Maintenance of normal body alignments & mobility, factors affecting body alignment & mobility, Hazards associated with immobility, alteration in body alignment & mobility, Range of Motion, Exercise, Positions, moving **Nursing Position:** Environment safety, bed making, prone, lateral, dorsal, dorsal recumbent, Fowler's position comfort measures, aids, rest and sleep. **Bed Side Management:** Giving and taking bed pan, urinal, observation of stools, urine, sputum, use of catheters, enema giving. **Methods Of Giving Nourishment:** Oral, Enteral, Nasogastric / Orogastic, gastrotomy, parental **Care Of Rubber Goods:** simple aseptic technique, sterilization and disinfection.			
	TOTAL	**24**		**24**

RECOMMENDED STUDY MATERIAL:
TEXTBOOK:
1. First aid and Emergency Nursing, N.N.Yalayyaswamy, CBS, CBS Publishers & Distributors.

Non Examination Course

Introduction To Quality And Patient Safety, Biomedical Waste Management,Infection Prevention And Control.

COURSE CODE : SBVPT - 207

Quality assurance and management - The objective of the course is to help students understand the basic concepts of quality in health Care and develop skills to implement sustainable quality assurance program in the health system., Concepts of Quality of Care, Quality Improvement Approaches, Standards and Norms, Quality Improvement Tools Introduction to NABH guidelines

S. NO	TOPIC	Didactic hours	Practical hours	Total hours
1	Bio medical waste management and environment safety-	08		08
	The aim of this section will be to help prevent harm to workers, property, the environment and the general public. Topics to be covered under the subject are as follows: Definition of Biomedical Waste Waste minimization BMW – Segregation, collection, transportation, treatment and disposal (including color coding) Liquid BMW, Radioactive waste, Metals / Chemicals / Drug waste BMW Management & methods of disinfection Modern technology for handling BMW Use of Personal protective equipment (PPE) Monitoring & controlling of cross infection (Protective devices			
2	Infection prevention and control -	08		08
	The objective of this section will be to provide a broad understanding of the core subject areas of infection prevention and control and to equip AHPs with the fundamental skills required to reduce the incidence of hospital acquired infections and improve health outcomes. Concepts taught should include - Evidence-based infection control principles and practices [such as sterilization, disinfection, effective hand hygiene and use of Personal protective equipment (PPE)], Prevention & control of common healthcare associated infections, Components of an effective infection control program, and Guidelines (NABH and JCI) for Hospital Infection Control			
3	Antibiotic Resistance-	08		08
	History of Antibiotics How Resistance Happens and Spreads Types of resistance- Intrinsic, Acquired, Passive Trends in Drug Resistance Actions to Fight Resistance Bacterial persistence Antibiotic sensitivity Consequences of antibiotic resistance Antimicrobial Stewardship- Barriers and opportunities, Tools and models in hospital			
	TOTAL	24		24

III - SEMESTER

EXERCISE THERAPY - II SUBJECT CODE - SBVPT -301

Didactic-48 Hrs + Practical =-96 Hrs [Total - 144 Hrs]

COURSE DESCRIPTION:

This course is based on anatomical and physiological & related kinesiological principles for normal human movement and for the efficacy in the assessment methods for mobility, muscle strength. Students have the opportunity to develop and acquire understanding of physiological responses to various types of training and develop skills of exercise programs (on models). Exercise components of muscle strength, flexibility, balance, breathing and gait are examined. Evidence of appropriate, safe and effective exercise design and proper exercise biomechanics and prescription parameters are addressed with all interventions

LEARNING OBJECTIVES:

Cognitive

1. Define mechanical principals and techniques of proprioceptive neuromuscular facilitation, traction.
2. Classify various techniques of massage therapy based on the effects and target tissues.
3. Comprehend the importance of posture and deviation in posture and the corrective exercises for the same.
4. Comprehend the importance of gait and deviation in gait and analysis and corrective exercises for the same.
5. Enumerate the importance of assistive devices emphasizing on selection, prescription, measurement and training.
6. Understand the basic principles, indication, contraindication, nature of pull and the applied aspects of traction.
7. Understand the basic principles, indication and various types of relaxation techniques.
8. Describe the basic principles, indication and various types of relaxation techniques.
9. Illustrate the various mat activities, functional reeducation and applications.
10. Understand the basic principles, indication, interpretation and application of coordination and balance activities.

Psychomotor

1. Demonstrate joint mobilization techniques with emphasis to patient and therapist position.
2. Perform various types of stretching for various muscle groups.
3. Perform resisted exercises of individual and group muscles, open and closed kinematic exercise.
4. Demonstrate skill the measurements of joint range of motion with Goniometer.
5. Perform ROM exercises with respect to fiber orientation, type of contraction, range of muscle work and group muscle action on human models.

6. Exhibit good practical skills of grasp and support during suspension exercises, massage and manual muscle testing.

7. Imitate general and local relaxation techniques.

Affective

At the end of training the student should be able to -The student should be able to correlate the knowledge of movement science, and increase proficiency in understanding the influence of various types of therapeutic exercise on the human body and its clinical application during treatment and also respect and be aware of the emotional aspects of human models without sexual discrimination.

Sr. No.	Topics	Didactic Hours	Practical/ Laboratory Hours	Total Hours
1	Proprioceptive neuromuscular Facilitation	04	13	17
2	Coordination and balance	03	08	11
3	Mat activitires and functional Reeducation	04	05	09
4	Introduction to manual Therapy and joint mobilization Techniques	03	10	13
5	Suspension therapy	05	10	15
6	Assistive devices	04	07	11
7	Traction	03	04	07
8	Relaxation techniques and Breathing exercise	04	06	10
9	Hydrotherapy	03	02	05
10	Muscle strengthening	03	14	17
11	Aerobic exercise and group Exercise	04	05	09
12	Posture	03	05	08
13	Gait	05	05	10
	TOTAL	48	96	144

Sl. No	Topics	Didactic hours	Practical hours	Total hours
1.	**PROPRIOCEPTIVE NEURO MUSCULAR FACILITATION**			
	Proprioceptive Neuromuscular Facilitation– Principles, Diagonal patterns of movements, Basic procedures, Upper Extremity Diagonal patterns, Lower Extremity Diagonal Patterns. Technique in PNF – Rhythmic Initiation, Repeated Contractions, Reversal of Antagonists, Alternating Isometrics, Rhythmic Stabilization			
2.	**COORDINATION AND BALANCE**			
	Coordination – Definition, causes of coordination disorder, Tests for coordination, Coordination exercises. Balance training: Definition and Key terms, Balance control, Components of balance, Balance Impairment, Examination of Impaired Balance, Balance training Exercises			
3.	**MAT ACTIVITIES AND FUNCTIONAL REEDUCATION**			
	Introduction Demonstrate common mat activities			
4.	**INTRODUCTION TO MANUAL THERAPY AND JOINT MOBILIZATION TECHNIQUES**			
	Joint mobilization: Definition – Mobilization, Manipulation, indications, limitations, contraindications and precautions, applications of Mobilization technique to various joints. Principles of Maitland, Mulligan and Mc kenzie joint Manipulation techniques			
5.	**SUSPENSION THERAPY**			
	Principles Suspension Apparatus Types of Suspension Effects and uses Techniques for individual joints			
6.	**ASSISTIVE DEVICES**			
	Walking Aids: Types: Crutches, Canes, Frames, wheel chair Principles and training with walking aids Indications Selection / Prescription Pre Walking Aids training Measurements Gait with walking aids			
7.	**TRACTION**			
	Definition Mechanism of action of traction Indications and contraindications Types of tractions, Based on method of application based on nature of pull based on regions applied			

8.	**RELAXATION TECHNIQUES AND BREATHING EXERCISE**			
	Breathing Exercises: Aims and Goals of Breathing Exercises, Procedures of Diaphragmatic Breathing, Segmental Breathing,. Pursed- Lip Breathing, Preventing and Relieving Episodes of Dyspnea, Positive Expiratory Pressure Breathing, Respiratory ResistanceTraining, Glossopharyngeal Breathing			
9.	**HYDROTHERAPY**			
	Hydrotherapy: Definitions, principles, Goals and Indications, Precautions and Contraindications, Properties of water,Therapeutic Exercises in Hydrotherapy, Special equipments used			
10.	**AEROBIC EXERCISE AND GROUP EXERCISE**			
	Definitions, Physiological response to Aerobic Exercise, Evaluation of aerobic capacity – exercise testing, Determinant of Aerobic Exercise, Physiological Changes with Aerobic Training, Aerobic Exercise Program. Introduction, Advantages and Disadvantages, Indications and Contraindications of group exercises. Formation of group-Space, Selection of patients, Number of patients, Instruction to patients and Group exercise. Type of exercise			
11.	**MUSCLE STRENGTHENING**			
	Definition – strength, power, endurance. Factors influencing the strength of normal muscle hypertrophy, recruitment of motor units change after the training. Principles- overload, intensity, motivation, learning, duration, frequency, reversibility, specificity and determinants. Guiding principle of resisted exercise, determinants, types, Manual and Mechanical Resistance Exercise. Training with isometric Exercise, Dynamic Exercise - Concentric and Eccentric, Dynamic Exercise - Constant and Variable Resistance, Isokinetic Exercise, Open- Chain and Closed-Chain Exercise, precautions, indications and contraindications. Progressive Resistance Exercise - De‘ Lormes, Oxford, MacQueen, Circuit Weight Training, Plyometric training Training—Stretch-Shortening Drills, Isokinetic Regimens Individual Muscle Strengthening Exercises			
12.	**POSTURE**			
	Posture: Definition, Postural control, Normal Posture, Types of posture, Posture assessment - Postural Alignment, Postural Stability, Postural Impairment and Mal-Alignment,Postural Training			

13.	**GAIT**			
	a) Introduction, definition, gait cycle, phases of gait, muscular activity during stance andswing phase and characteristics of normalgait- vertical displacement of COG(pelvic tilt) lateral pelvic tilt, Horizontaldip of pelvis, pelvis forward and backward rotation, knee flexion, double limb support, single limb support, cadence, step length, stride length, step duration, stride duration, base width, degree of toe out or footangle b) Pathological gait c) Gait Training: Definition, Different methodsof Gait Training, Gait Training in Parallel Bars			

PRACTICAL:

1. Joint Mobilisation to individual joint
2. Stretching of individual and group muscles
3. Resisted exercises to individual and group muscles, open and closed kinematic exercises
4. PNF patterns to upper and lower limb.
5. Various types breathing exercises, chest mobilization exercises, postural drainage
6. Gait training with various walking aids

RECOMMENDED TEXT BOOKS

1. Principles of Exercise Therapy – Dena Gardiner
2. Massage, Manipulation & Traction – Sydney Litch
3. Therapeutic Exercise – Sydney Litch
4. Massage – M. Hollis
5. Practical Exercisetherapy– Margaret Hollis
6. Hydrotherapy – Kisner, Hollis
7. Biomechanics – Cynthia Norkins
8. Clinical Kinesiology-Brunnstrom
9. Cash‟ s Textbook for Physiotherapists in Chest, Heart & Vasculardiseases

RECOMMENDED REFERENCE BOOKS

1. Therapeutic Exercise – Carolyn Kisner
2. Asanas-Why & How – Omprakash Tiwari

SCHEME OF UNIVERSITY EXAMINATION

THEORY	Marks
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

PRACTICALS /VIVA VOCE- 80 Marks	Maximum Marks
Total	**80**

INTERNAL ASSESSMENT: (20marks) for both theory and practical separately. Internal assessment given for Theory and Practical follows as per University pattern

KINESIOLOGY - I (SUBJECT CODE - SBVPT -302)

Didactic-80 Hrs [TOTAL - 80HRS]

COURSE DESCRIPTION: This course integrates the knowledge of anatomy and enables the student to have a better understanding of the principles of biomechanics, the science of movement and their application in musculoskeletal function and dysfunction. The practical sessions also helps the students to experience clinically the application of the principles of Biomechanics.

OBJECTIVES COGNITIVE

1. Define kinetics and kinematics and lever system with respect to biomechanical aspects of human body
2. Mechanical basics of joint and muscle‘s structure and function
3. Enumerate the biomechanical basics of shoulder, elbow, wrist complex, temporomandibular joint, thorax and chest wall.
4. Comprehend the abnormal mechanics associated with pathology of shoulder, elbow, wrist complex, Tempro mandibular joint, thorax and chest wall

Psychomotor

1. Demonstrate the arthrokinamatic movements that accompany osteo kinematic movements at joint level of shoulder, elbow, wrist complex using models.
2. Imitate the various chest wall Tempromandibular joint functions using skeletal model.
3. Present an analytical summary of biomechanical derangements and dysfunctions that leads to various pathological conditions in shoulder, elbow, wrist complex, temporo mandibular joint, thorax and chest wall.

Affective

1. At the end of training the student should be able to -
2. The student should be able to correlate the knowledge of biomechanics, and increase proficiency in understanding the mechanical functioning of the human movements and its clinical application during evaluation and treatment.

S. NO	TOPIC	Didactic hours	Practical/ Laboratory hours	Total hours
1	INTRODUCTION TO BIOMECHANICS	06		06
2	JOINT STRUCTURE AND FUNCTION	10		10
3	MUSCLE STRUCTURE AND FUNCTION	10		10
4	BIOMECHANICS OF SHOULDER COMPLEX	13		13
5	BIOMECHANICS OF ELBOW COMPLEX	09		09
6	BIOMECHANICS OF WRIST AND HAND COMPLEX	13		13
7	BIOMECHANICS OF TEMPROMANDIBULAR JOINT	09		09
8	BIOMECHANICS OF THORAX AND CHEST WALL	10		10
	TOTAL	80		80

SYLLABUS

Sl no	Topic	Didactic hour	Practical hour	Total hour
1	**INTRODUCTION TO BIOMECHANICS**			
	Kinetics, kinematics, concurrent force system, parallel force system, momentum of the force, force components, equilibrium of levers			
2	**JOINT STRUCTURE AND FUNCTION**			
	Joint design, joint categories, joint functions, materials used in human joints, general effects of diseases, injury and immobilization			
3	**MUSCLE STRUCTURE AND FUNCTION**			
	Introduction, Elements of muscle structure Muscle Function Muscle tension Classification of muscles Factors affecting muscle tension Effects of immobilization , Injury and aging			
4	**BIOMECHANICS OF SHOULDER COMPLEX**			
	Components of the shoulder complex Scapulothoracic joint Acromioclavicular joint Glenohumeral joint Integrated functions of the shoulder complex Scapulohumeral rhythm Structural dysfunction Muscles of elevation Muscles of depression			
5	**BIOMECHANICS OF ELBOW COMPLEX**			
	Structure and function of the humeroulnar and humero radial joints Structure and function of the superior and inferior radio-ulnar joints Mobility and stability of elbow complex Effects of immobilization and injury			
6	**BIOMECHANICS OF WRIST AND HAND COMPLEX**			
	Wrist complex Structure and function of the wrist complex Hand complex Structure of the fingers Figure musculature Structure of the thumb Thumb musculature Prehension Power grip Precision handling Functional position of the wrist and hand			
7	**BIOMECHANICS OF TEMPOROMANDIBULAR JOINT**			
	Structure and functions of the Temporomandibular joint TMJ Dysfunctions			
8	**BIOMECHANICS OF THORAX AND CHEST WALL**			
	General structure and function of rib cage Articulations of rib cage Kinematics of ribs and manubriosternum Muscle associated with the rib cage Diaphragm Abdomen Coordination and integration of ventilator motions Developmental aspects of structure and functions Changes in normal structure and function			
	TOTAL	**80**		**80**

PRACTICAL

1. Shall be conducted for various joint movements in the Upper limbs, TMJ, Chest wall and analysis of the same. The student should be able to explain and demonstrate the movements occurring at the joints, the muscles involved, the movements or muscle action produced, and mention the axis and planes through which the movements occur.
2. The demonstrations may be done on models or skeleton.

RECOMMENDED TEXT BOOKS

1. Joint structure and function – Cynthia c. Norkin and Pamela k. Levangie
2. Basic biomechanics explained - John low and Ann reed
3. Fundamentals of Biomechanics -Duane Knudson
4. The Physiology of the Joints- I. A. Kapandji MD

SCHEME OF UNIVERSITY EXAMINATION

THEORY	Marks
*The question paper will give appropriate weightage to all the topics in the syllabus	**80**
Essay Q1-Essay-15 Marks 2x15=30 Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions 10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: 20 marks

1. Internal assessment as per University pattern

ELECTROTHERAPY-I (SUBJECT CODE - SBVPT -303)

Didactic 32 hrs+ Practical 64hrs [TOTAL-96 Hrs]

COURSE DESCRIPTION: In this course the student will learn the principles, Techniques, Effects, indications, contraindications and the dosage parameter for the various low and medium frequency currents in the restoration of physical function.

S. NO	TOPIC	Didactic hours	Practical/ Laboratory hours	Total hours
1	**BASIC PHYSICS OF LOW FREQUENCY CURRENTS**	05	10	15
2	**LOW FREQUENCY CURRENTS**	08	15	23
3	**BASIC PHYSICS OF MEDIUM FREQUENCY CURRENTS**	05	12	17
4	**MEDIUM FREQUENCY CURRENTS**	09	12	21
5	**ELECTRO DIAGNOSIS**	05	15	20
	TOTAL	**32**	**64**	**96**

OBJECTIVES:

Cognitive:

1. At the end of the course, the candidate will be able to:
2. The basic physics principles & laws of electricity, describe the main electrical supply, electric shock, precautions, enumerate types & production of various therapeutic electrical currents & describe the panel diagrams of the machines.
3. Physiological and therapeutic applications, indications and contra indications of low and medium Frequency currents.

Psychomotor

1. At the end of the course the candidate will be able to –
2. Test the working of the various low and medium electrotherapeutic equipments
3. Describe in brief, certain common electrical components such as capacitor, static and current electricity. Describe & identify various types of electrodes used in therapeutics, describe electrical skin resistance & significance of various media used to reduce skin resistance. Applications of low and medium frequency currents.

Affective

At the end of training the student should be able to -Lectures, demonstration, practical and clinics the student will be able to list the indications, contra indications, dosages of electrotherapy modalities, demonstrate the different techniques and describe their effects on various conditions.

SYLLABUS

Sl:no	Topics	Didactic hour	Practical hour	Total hour
1	**BASIC PHYSICS OF LOW FREQUENCY CURRENTS**			
	FUNDAMENTALS OF LOW AND MEDIUM FREQUENCY CURRENTS: Basic physics: structure of atom, isotopes, states of matter. Characteristic of lines of forces: potential energy, potential difference and EMF Condenser: principles, types, construction, working, charging and discharging, capacitive Resistance and uses. Static electricity: theories, production of electric charge, characteristic of charge body. Current electricity: units of electricity, farad, volt, ampere, ohms law, coulomb, watt, rheostat, potentiometer, ammeter, voltmeter functioning and uses. Shock: Definition, types of shock, Electric and Earth shock, micro and macro shocks, severity, causes, effects, precautions and management. Fuse construction, working and application. Chokes: principle, construction, working and uses. Electrical skin Resistance: skin resistance, factors affecting skin resistance, methods to reduce skin resistance. Principles of application electrode tissue interface, tissue impedance, types of electrode, size and placement of electrodes, electrode coupling, lowering of skin resistance. Action potential Resting membrane potential Propagation of action potential, motor unit, synapse, Sensory Action Potential, Nerve and muscle physiology, Accommodation, Stimulation of innervated, denervated muscle. PAIN: Definition, theories of pain, pain gate control theory, descending pain suppressive system. Pain pathway			
2	**LOW FREQUENCY CURRENTS**			
	A. FARADIC CURRENT: Definition, type, Duration, Faradic current production, working, smart Bristow faradic coil, surger, sinusoidal currents, applications and uses, short and long pulse currents, motor points, physiological, therapeutic, indications and contra indications, Faradic Re education. Various techniques of applications of faradic current **B. GALVANIC CURRENT (INTERRUPTED D.C):** Definition, type, Duration, shape, frequency, production, property of accommodation, techniques and methods of applications,			

	- types- Anodal and cathodal, therapeutic effects and uses, Dangers and precautions. Effect of interrupted galvanic current on normally innervated and denervated muscles and partially denervated muscle. Ionization, Intophorosis, theory of medical ionization, effects and uses of various ions, indications, contra indications, dangers and precautions. **C. TRANSCUTANEOUS ELECTRICALNERVE STIMULATION:** (T.E.N.S) Definition, parameters, wavelength, wave form, frequency, pulse width, amplitude, types of TENS, acupuncture TENS, Burst mode TENS, Brief intense TENS, High and Low TENS, conventional mode TENS, Principles and applications of TENS, electrode placement, physiological effects, therapeutic effects, Advantages and disadvantages, uses, indicationsand contra indications, role of TENS in relief of pain.			
3	**OTHER LOW FREQUENCY CURRENTS**			
	HVPGS- parameters and uses Micro and macro currents Diadynamic current, Functional electrical stimulation **BASIC PHYSICS OF MEDIUM FREQUENCY CURRENTS** Amplitude modulation, Amplitude Modulation Frequency, current distribution, current intensity, Rotating vector, frequency Sweep, Alternating bi - directional current, ohmic resistance, capacitive resistance.			
4	**MEDIUM FREQUENCY CURRENTS**			
	INTERFERENTIAL THERAPY: Definition, principle, types, production, static and dynamic interferential current, isoplanar vector field. Quadripolar, bipolar, vector scanning mode, vacuum via IFT, parameters of IFT, treatment duration. Electrode placement of IFT, dosage, Methods of applications, physiological, therapeutic effects, dangers, indications and contraindications. IFT for Arthritis, Migraine Head ache, Urinary incontinence, intermittent claudication etc. Russian currents Rebox type current			
5	**ELECTRO DIAGNOSIS**			
	Strength and Duration curve, FG test, principle of SD curves, technique of plotting, apparatus selection, characteristic of normally innervated muscle, characters of partially denervated muscle, character of completely denervated muscle, Interpretation of normal curve, chronaxie and rheobase, factors that affect accuracy of SD curves, galvanic tetanus ratio. Electromyography, Nerve conduction tests. **BIO-FEED BACK** –principles, types, applications and use			
	TOTAL	**32**	**64**	**96**

PRACTICAL:

1. Demonstrate the technique for patient evaluation, receiving the patient and positioning the patient for Treatment using Electrotherapy.
2. Collection of materials requires for treatment using electrotherapy modalities and testing of the apparatus.
3. Demonstrate the patient electrodes for various electrotherapy modalities.
4. Electrical stimulation for various muscles supplied by peripheral nerves,
5. Selection of current differentiate between the type of current, Duration, shape, and frequency of current used, treatment of various types of peripheral nerve lesions.
6. Faradism under pressure for upper limb and lower limb.
7. Deltoid and quadriceps inhibition
8. Demonstrate FG test
9. Plotting SD curve differentiate the innervated and denervated muscles withchronaxie and rheobase
10. Demonstrate the treatment methods using TENS for various conditions with parameters and dosage.
11. Demonstrate the treatment methods using IFT for various conditions with Parameters anddosage

RECOMMENDED TEXT BOOKS

1. Clayton 1s Electro therapy – 10th edition
2. Electro therapy explained – Low & Reed
3. Electro Therapy – Kahn
4. Electrotherapy Evidence Based Practice-Sheila Kitchen 11th edition
5. Thermal Agents – Cameroon.
6. Clinical Electrotherapy -- Nelson & Currier

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	**80**
Essay	
Q1-Essay-15 Marks	**30**
Q2-Essay-15 Marks	
Short Notes	
Answer all the questions 6x5=30	**30**
6 questions- 5 marks each	
Short Answer questions	
Answer all the questions10x2=20	**20**
10 questions- 2 marks each	
Total	**80**

PRACTICALS /VIVA VOCE- 80 Marks	**Maximum Marks**
Total	**80**

INTERNAL ASSESSMENT: (20marks) for both theory and practical separately. Internal assessment given for Theory and Practical follows as per University pattern

PATHOLOGY, MICROBIOLOGY AND PHARMACOLOGY
(SUBJECT CODE - SBVPT -304)

DIDACTIC-30 +30 + 20 Hrs [TOTAL - 80HRS]

COURSE DESCRIPTION :(PATHOLOGY)

Students will develop an understanding of pathology underlying clinical disease states involving the major organ systems and epidemiological issues. Students will learn to recognize pathology signs and symptoms considered red flags for serious disease. Students will use problem-solving skills and information about pathology to decide when referrals to another health care provider or alternative interventions are indicated. Students will develop the ability to disseminate pertinent information and findings, and ascertain the appropriate steps to follow.

The course more deals with structural impairments as an important part in ICF Classification.

COURSE DESCRIPTION :(MICROBIOLOGY)

Students will develop an understanding of pathology underlying clinical disease states and involving the major organ systems and epidemiological issues. Epidemiological issues will be presented and discussed. Students will learn to recognize pathology signs and symptoms considered red flags for serious disease. Students will use problem-solving skills and information about pathology to decide when referral to another health care provider or alternative intervention is indicated. Students will develop the ability to disseminate pertinent information and findings, and ascertain the appropriate steps to follow.

COURSE DESCRIPTION: (PHARMACOLOGY)

This course covers the basic knowledge of Pharmacology including administration, physiologic response and adverse effects of drugs under normal and pathologic conditions. Topics focus on the influence of drugs in rehabilitation patient/client management. Drugs used in iontophoresis and phonoporesis will be discussed in detail.

Sr. No.	Pathalogy, Microbiology, And Pharmacology	Total Hours (80)
Pathology(30)		
1	General Pathology	15
2	Systemic Pathology	15
Microbiology(30)		
1	General Bacteriology	04
2	Systematic Bacteriology	04
3	Immunology	04
4	General Virology	04
5	Parasitology	04
6	Mycology	05
7	Clinical/Applied Microbiology	05
Pharmacology (20)		
1	General Pharmacology	02
2	Autonomic Nervous System	02
3	Cardio Vascular System	02
4	Drugs Used In Blood Disorders	02
5	Neuro Pharmacology	02
6	Disorders Of Movement	02
7	Endocrine Pharmacology	02
8	Git	02
9	Inflammatory/ Immune Disease	02
10	Respiratory Pharmacology	02
11	Chemotherapy	02
12	Immunological Agents And Vaccines	02
13	Anti Septic And Disinfectant	02
14	Geriatrics	02
15	Dermatological Drugs	02
	Total	80

PATHOLOGY = 30 hrs				
Sr. No.	**Topics**	**Didactic**	**Practical**	**Total**
	General Pathology **Introduction** Aims and objects of study of pathology, definitions of health, disease, causes of disease, methods of study of disease. Cell injuries Causes of cell injury features of cell injury mechanism of cell injury – hypoxia, free radical injury. Necrosis and gangrene Inflammation Definition, events of acute inflammation, chemical mediator of inflammation, morphological types of acute inflammation, chronic inflammation, difference between acute and chronic inflammation Repair Primary healing, secondary healing, factors affecting healing and repair healing of skin, muscle and bone **Immunopathology** Natural and acquired. immunological mechanisms of tissue injury hypersensitivity reactions, general features of autoimmune diseases and immunodeficiency diseases Infectious diseases (In Brief) Mycobacterial diseases: Tuberculosis, Leprosy and Syphilis. Bacterial disease: Pyogenic, Diphtheria, Gram negative infection, Bacillary dysentery. Viral diseases: Poliomyelitis, Herpes, Rabies, Measles, HIV infection. Fungal disease and opportunistic infections. Parasitic diseases: Malaria, Filaria, Amoebiasis, Kala-azar. **Circulatory Disturbances:** Oedema, hyperemia, Haemorrhage, shock, embolism, thrombosis,infarction Growth Disturbances and Neoplasia Characteristic of benign and malignant tumors a brief outline of the carcinogenic agents and general effects of malignancy on theHost Nutritional Disorders Deficiency disorders (protein deficiency, vitamin deficiency(A,B,C,D,E,K) causes , features , a brief outline of the methods of diagnosis. **Genetic Disorders** Basic concepts of genetic disorders and some common examples and congenital malformation. **Systemic Pathology** A brief outline of aetiology, pathogenesis and general features of disease of the following systems. The morphology, microscopic details and details of diagnostic procedures. **Blood** Disorders of RBC,WBC, platelets			

	Blood Vessels Atherosclerosis, thromboangitisobliterence, varicose vein, DVT, thrombophlebitis, lymphoedema. **Respiratory System** Pneumonia,Bronchitis,Bronchiectasis,Asthma, Emphysema,Tuberculosis, Carcinoma of lungs, Occupational lung diseases **Cardiovascular Pathology** Congestive cardiac failure, ischemic heart disease, rheumatic heart disease, infective heart disease (pericarditis, myocarditis, endocarditis), Buerger_s diseases, **Alimentary tract** Oral Pathology**:** Ulcers, leukoplakia, Carcinoma, oral cavity diseases, Stomach: Gastritis, Ulcer and Tumors'. Pancreatitis and pancreatic tumors : Exocrine, ii) Endocrine Hepato – biliary pathology Jaundice: Types, aetio-pathogenesis Hepatitis: Acute, Chronic, neonatal. Alcoholic liver disease Cirrhosis: Post necrotic, Alcoholic, Metabolic and Portal Hypertension **Lymphatic System** Diseases of the gall bladder: Cholecystitis, Cholelithiasis, Carcinoma. Lymphadenitis –Nonspecific and granulomatous Causes of lymph node enlargements. Musculoskeletal System Joints disorders Arthritis- types and features Bone Disorders Osteoporosis, pagets disease, osteogenesisimperfecta, osteomylitis, tumors- osteosarcoma, chondrosarcoma, Ewings sarcoma, multiple myloma Muscles: Muscular dystrophy, Myasthenia gravis, Volkmann‘s Ischemic contracture Endocrine pathology Diabetes Mellitus: Types, Pathogenesis, Pathology : Non-neoplastic lesions of Thyroid: Iodine deficiency- Goiter Autoimmune Thyroiditis, Thyrotoxicosis, myxedema, Hashimoto's Thyroiditis. Neuropathology CNS: Meningitis, Encephalitis, Cerebral Hemorrhage, CVA, Brief outline of CNS Tumors Peripheral Nerves Neuritis, Neuralgia, GBS, Neuropathies. Skin Scleroderma, Psoriasis, Autoimmune disorders			

MICROBIOLOGY = 30 hrs				
	General Bacteriology Introduction, historical background, classification of micro – organisms Morphology of bacteria Staining of bacteria Sterilization and Disinfection Cultivation and culture media Drug resistance and Antimicrobial susceptibility Systematic Bacteriology Gram-Positive cocci – Streptococci, Pneumococci, Staphylococci Gram-Negative Cocci – Gono and Meningococci Gram-Positive Bacilli Gram-Negative Bacilli-Typhoid, Cholera, Dysentery Aerobic-Diptheria, T.B., Leprosy Anaerobic-Tetanus, Gas Gangrene, Botulism **Immunology** Immunity, Antigens Antibodies, Ag-Ab Reaction Agglutination, precipitation Hypersensitivity reactions ELISA General Virology Poliomyelitis Rabies Parasitology Malaria Amoebiasis Round worm, Hook worm & Tap worm Mycology Candidiasis Ring worm Subcutaneous & systemic infections Clinical/Applied Microbiology Streptococcal infections: Rheumatic fever and Rheumatic heart disease, Meningitis, Tuberculosis, Pyrexia of unknown origin, leprosy, Sexually transmitted diseases, Hospital acquired infections Poliomyelitis, Hepatitis, Acute-respiratory infections, Central nervous System infections, Biomedical waste management&universal precautions Urinary tract infections, Pelvic inflammatory disease, Wound infection, opportunistic infections, HlV infection, Malaria, Filariasis, Zonotic diseases.			

PHARMACOLOGY = 20 hrs				
	GENERAL PHARMACOLOGY Introduction, Definition, Sources of drugs , Routes of drug administration, Absorption and Distribution – definition, factors modifying, basics of Metabolism and routes of drug excretion, basics of mechanism of drug action-receptor and non receptor, agonist and antagonist, Factors modifying drugs responses, Adverse effects. **AUTONOMIC NERVOUS SYSTEM** Sympathetic and Para sympathetic Neuro transmitters – synthesis, Release, Metabolism. Parasympathetic and sympathetic Agonist and Antagonist, skeletal muscle relaxant. **CARDIO VASCULAR SYSTEM** Basic mechanism of action, brief pharmacological action and adverse effect and uses-			

	CCF-Digitalis, Antihypertensive drugs Antianginal drugs, Myocardial infarction, Hemostasis Lipid –Lowering agents, Diuretics **DRUGS USED IN BLOOD DISORDERS** Iron preparations - uses, adverse effects, folic acid uses, Anti-thrombotic, Coagulants and Anticoagulants, thrombolytic **NEURO PHARMACOLOGY** Basic mechanism of action, brief pharmacological action and adverse effect and uses- Sedative-Hypnotic Drugs- Barbiturates, Benzodiazepines, Anti anxiety drugs Antidepressants Antipsychotic drugs Opioids- Morphine and Opioids Antagonist Alcohol **DISORDERS Of MOVEMENT** Drugs used in Treatment of Parkinson‘s Disease, Antiepileptic Drugs,Spasticity. **ENDOCRINE PHARMACOLOGY** Uses And Adverse Effect Of T3, T4, Name Of Anti- Thyroid Drugs, Uses Adverse Effects, Ratio-Active Iodine Insulin- Short, intermediate and longacting, uses adverse effects and treatment of hypoglycemia Mechanism of action of prototype and other oral hypo- Glycemic drugs, uses and adverse effects **GIT** a) Peptic ulcer- Drugs used, brief mechanism, uses and adverse effects Drugs used for constipation, Diarrhoea **INFLAMMATORY/ IMMUNE DISEASE** Basic mechanism of action, brief pharmacological action and adverse effect and uses- Non steroidal anti-inflammatory drugs-Paraceatamol, Aspirin, Diclofenac sodium, ibuprofen, Indomethacin, COX 2 Inhibitors Use of Glucocorticoids, Drugs used in treatment o Arthritics Disease-Rheumatoid Arthritis, Osteoarthritis, Gout, Treatment of neuromuscular, Immune/ Inflammatory Diseases- Myasthenia gravis, Idiopathic inflammatory Myopathies, systemic lupus Erythematosus, Scleroderma, Demyelinating Disease **RESPIRATORY PHARMACOLOGY**			

	a) Drugs in Bronchial asthma, C.O.P.D, cough Allergic Rhinitis **CHEMOTHERAPY** Antibiotics used in gram +ve, gram – ve and both infection, Drugs used in viral infection including HIV Drugs used in Leprosy Drugs used in TB **IMMUNOLOGICAL AGENTS AND VACCINES** Names of immune-suppressants, brief mechanism of action, uses and adverse effects Names of immune-stimulants Anti Cancer drugs -general toxicity, mechanism of action, uses, adverse effects of commonly used drugs- chlorambucil,6-Mercaptopurine, 5-Fluorouracil, Cisplatin, Methotrexate, Vinca alkaloids, taxanes, antibiotics , **Anti Septic And Disinfectant** **GERIATRICS** Importance of drug prescription in geriatrics population **DERMATOLOGICAL DRUGS** Scabies, Psoriasis, Local antifungal			
	Total	**80**		**80**

REFERENCE AND RECOMMENDED BOOKS: PATHOLOGY

1. Text book of pathology: Harshmohan
2. General and systemic pathology: Churchill Livingstone
3. Text book of Pathology: Robbins.

MICROBIOLOGY

1. Short text book of Medical Microbiology by Sathish Gupta
2. Text book of Microbiology by JayaramPanicker
3. Microbiology & Parasitology by Rajeshwar Reddy
4. Text book of Microbiology by Anantha Narayanan
5. Microbiology by Baveja
6. Text book of microbiology by Chakraborthy

PHARMACOLOGY

1. Pharmacology for Physiotherapy –Padmaja Udaykumar
2. Pharmacology for Physiotherapist –H. L. Sharma, K. K. Sharma
3. Essentials of Medical Pharmacology – K. D. Tripathi
4. Pharmacology and Pharmacotherapeutics – Dr. R S Satoskar, Dr. Nirmala N. Rege,

SCHEME OF UNIVERSITY EXAMINATION

THEORY	Marks
*The question paper will give appropriate weightage to all the topics in the syllabus	**80**
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions - 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

Question Paper Pattern:

Section A: Pathology (Total Marks: 30)

S. No	Description	No. of Questions	Marks Allotted	Total Marks
1	Essay	01	15	15
2	Short Notes	01	05	05
3	Short Answer Questions	05	02	10

Section B – Microbiology (Total Marks: 30)

S. No	Description	No. of Questions	Marks Allotted	Total Marks
1	Essay	01	15	15
2	Short Notes	01	05	05
3	Short Answer Questions	05	02	10

Section C- Pharmacology (Total Marks: 20)

S. No	Description	No. of Questions	Marks Allotted	Total Marks
1	Short Notes	04	20	20

INTERNAL ASSESSMENT: (20marks) (all three subjects IA average will be taken for internals) 1. Internal assessment follows as per University pattern

NON EXAMINATION COURSE NATURAL DISASTER MANAGEMENT

Total hours = 48 hrs

COURSE DESCRIPTION:

The course gives an overview of issues related to disaster management including a history of the field, comprehensive emergency management and integrated emergency management, risk reduction and management and current issues in the field.

OBJECTIVES:

At the end of the course, the candidate will be able to:

Cognitive:

1. Defining disaster and the brief history of disasters and its classification
2. Understanding the various approaches to disaster risk reduction and disaster management skills. Comprehending the relationship between disaster and development

Psychomotor:

1. To be able to present various disaster and relate it to development and analyze the same. Field work on minimizing the disaster and building the culture of safety.
2. Performing project work, which is creatively designed based on the geographical location and hazard profile of the region where the college is located.

Affective :

1. In the view of disaster, the student should be able to understand and volunteer towards the needs of the society based on the requirements.

The course gives an overview of issues related to disaster management including a history of the field, comprehensive emergency management and integrated emergency management, risk reduction and management and current issues in the field.

S. NO	TOPIC	Didactic hours	Practical/ Laboratory hours	Total hours
1	Introduction to Disasters	03		03
2	Disasters	03	08	11
3	Approaches to Disaster Risk reduction	03	08	11
4	Inter-relationship between Disasters and Development	03	08	11
5	Disaster Risk Management in India	04	08	12
	TOTAL	16	32	48

SYLLABUS

S. NO	TOPIC	Didactic hours	Practical	Total hours
1	**Introduction to Disasters**	**03**		**03**
	Concepts, and definitions (Disaster, Hazard, Vulnerability, Resilience, Risks)			
2	**Disasters**	**03**	**08**	**11**
	Classification, Causes, Impacts (including social, economic, political, environmental, health, psychosocial, etc.,) Differential impacts- in terms of caste, class, gender, age, location, disability Global trends in disasters. urban disasters, pandemics, complex emergencies, Climate Change			
3	**Approaches to Disaster Risk reduction**	**03**	**08**	**11**
	Disaster cycle - its analysis, Phases, Culture of safety, prevention, mitigation and preparedness community based DRR, Structural- nonstructural nurses roles and responsibilities of- community, Panchayat Raj Institutions/Urban Local Bodies (PRIs/ULBs), states, Centre, and other stake-holders.			
4	**Inter-relationship between Disasters and Development**	**03**	**08**	**11**
	Factors affecting Vulnerabilities, differential impacts, impact of Development projects such as dams, embankments, changes in Land-use etc. Climate Change Adaptation. Relevance of indigenous knowledge, appropriate technology and local resources.			
5	**Disaster Risk Management in India**	**04**	**08**	**12**
	Hazard and Vulnerability profile of India Components of Disaster Relief: Water, Food, Sanitation, Shelter, Health, Waste Management Institutional arrangements (Mitigation, Response and Preparedness, DM Act and Policy, Other related policies, plans, programmes and legislation).			
	TOTAL	**16**	**32**	**48**

Suggested Reading list:

1. Alexander David, Introduction in 'Confronting Catastrophe', Oxford University Press, 2000
2. Andharia J. Vulnerability in Disaster Discourse, JTCDM, Tata Institute of Social Sciences Working Paper no. 8, 2008
3. Blaikie, P, Cannon T, Davis I, Wisner B 1997. At Risk Natural Hazards,Peoples' Vulnerability and Disasters, Routledge.
4. Coppola P Damon, 2007. Introduction to International Disaster Management,
5. Carter, Nick 1991. Disaster Management: A Disaster Manager's Handbook.Asian Development Bank, Manila Philippines.
6. Cuny, F. 1983. Development and Disasters, Oxford University Press.
7. Document on World Summit on Sustainable Development 2002.Govt. of India: Disaster Management Act 2005, Government of India, NewDelhi.
8. Government of India, 2009. National Disaster Management Policy,
9. Gupta Anil K, Sreeja S. Nair. 2011 Environmental Knowledge for DisasterRisk Management, NIDM, New Delhi Indian Journal of Social Work 2002. Special Issue on Psychosocial Aspects of Disasters, Volume 63, Issue 2, April.

NON EXAMINATION COURSE ENVIRONMENTAL SCIENCE SUBJECT CODE : SBVPT307
Didactic hours = 48 hrs

COURSE DESCRIPTION

The course gives an overview of multi disciplinary nature of environmental studies, natural recourses, and ecosystem. The course also deals with issues of environmental pollution, population and human rights.

S. NO	TOPIC	Didactic hours	Practical/ Laboratory hours	Total hours
1	Unit 1 : Multidisciplinary nature of environmental studies	07		07
2	Unit 2 : Natural Resources	05		05
3	Unit 3 : Ecosystems	08		08
4	Unit 4 : Biodiversity and its conservation	06		06
5	Unit 5 : Environmental Pollution	05		05
6	Unit 6 :Environment Issues	05		05
7	Unit 7 : Population and Human rights	06		06
8	Unit 8 : Field work	06		06
	TOTAL	48		48

Learning Objectives:

At the end of the course, the candidate will be able to:

Cognitive:

1. List down the natural recourses and ecosystem.
2. Define pollution and its impact on the society and various environmental issues.
3. List down the human rights concerned to health, women and child welfare.

Psychomotor

1. Perform community visits and carryout documentation of environmental asset
2. Visit sites of pollution and analyse its impact on society

Affective

In the view of ecosystem, the student should be able to understand and treat all animals without
harm and be a effective member of the ecosystem. The student should behave with respect to neighbors and work hand in hand with the society in controlling pollution of any form.

1	**Multidisciplinary nature of environmental studies**			
	Definition, scope and importance Need for public awareness.			
2	**Natural Resources**			
	Natural resources and associated problems. Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people. Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems. Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies. Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer- pesticide problems, water logging, salinity, case studies. Energy resources: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies. Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.			
3	**Ecosystems**			
	Concept of an ecosystem. Structure and function of an ecosystem. Producers, consumers and decomposers. Energy flow in the ecosystem. Ecological succession. Food chains, food webs and ecological pyramids Introduction, types, characteristic features, structure and function of the following ecosystem :- Forest ecosystem Grassland ecosystem Desert ecosystem Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)			
4	**Biodiversity and its conservation**			
	Introduction – Definition: genetic, species and ecosystem diversity. Biogeographical classification of India Value of biodiversity consumptive use, productive use, social, ethical, aesthetic and option values. Biodiversity at global, National and local levels. India as a mega-diversity nation Hot-sports of biodiversity Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. Endangered and endemic species of India Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.			

5	**Environmental Pollution**			
	Definition Cause, effects and control measures of :- Air pollution Water pollution Soil pollution Marine pollution Noise pollution Thermal pollution Nuclear hazards Solid waste Management: Causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. Pollution case studies. Disaster management: floods, earthquake, cyclone and landslides.			
6	**Environment Issues**			
	From Unsustainable to Sustainable development Urban problems related to energy Water conservation, rain water harvesting, watershed management Resettlement and rehabilitation of people; its problems and concerns. Case Studies Environmental ethics: Issues and possible solutions. Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case Studies Wasteland reclamation. Consumerism and waste products. Environment Protection Act. Air (Prevention and Control of Pollution) Act. Water (Prevention and control of Pollution) Act Wildlife Protection Act Forest Conservation Act Issues involved in enforcement of environmental legislation. Public awareness.			
7	**Population and Human rights**			
	Population growth, variation among nations. Population explosion – Family Welfare Programme VII Environment and human health. Human Rights. Value Education. HIV/AIDS. Women and Child Welfare Role of Information Technology in Environment and human health. Case Studies.			
8	**Field work**			
	Visit to a local area to document environmental assets river/ forest/ grassland/ hill/ mountain Visit to a local polluted site- Urban/ Rural/ Industrial/ Agricultural Study of common plants, insects, birds. Study of simple ecosystems-pond, river, hill slopes,etc.			
	Total	**48**		**48**

REFERENCE

1. Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
2. BharuchaErach, The Biodiversity of India, Mapin Publishing Pvt.Ltd.,Ahmedabad – 380 013, India, Email:mapin@icenet.net (R)
3. Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p
4. Clark R.S., Marine Pollution, Clanderson Press Oxford (TB)
5. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001,
6. Environmental Encyclopedia, Jaico Publ. House, Mumabai, 1196p
7. De A.K., Environmental Chemistry, Wiley Eastern Ltd.
8. Down to Earth, Centre for Science and Environment (R)
9. Gleick, H.P. 1993. Water in crisis, Pacific Institute for Studies in Dev.,
10. Environment & Security. Stockholm Env. Institute Oxford Univ. Press. 473p
11. Hawkins R.E., Encyclopedia of Indian Natural History, Bombay Natural

IV - SEMESTER

KINESIOLOGY- II (SUBJECT CODE - SBVPT -401)
Didactic-90 Hrs [TOTAL - 90HRS]

COURSE DESCRIPTION;

This course integrates the knowledge of anatomy and enables the student to have a better understanding of the principles of biomechanics, the science of movement and their application in musculoskeletal function and dysfunction. The practical sessions also helps the students to experience clinically the application of the principles of Biomechanics

Sr. No.	Topics	Didactic hours	Total Hours
1	BIOMECHANICS OF VERTEBRAL	15	15
2	BIOMECHANICS OF HIP AND PELVIS	13	13
3	BIOMECHANICS OF KNEE JOINT	10	10
4	BIOMECHANICS OF ANKLE AND FOOT	10	10
5	POSTURE	14	14
6	GAIT	10	10
7	KINETICS AND KINAMATICS OF VARIOUS ACTIVITIES OF ADL	08	08
	TOTAL	80	80

OBJECTIVES:

1. The objective of this course is that after 90 hours of lectures, the student will be able to demonstrate an understanding of the principles of biomechanics and the clinical application in normal human body and in cases of dysfunctions.
2. Learn to analyze the functioning of the musculoskeletal system specific to the spine and the lower extremity and integrate it with the basics of anatomy and principles of movement, Gait and Posture.
3. Providing practical sessions that enable to understand the clinical application of the knowledge of biomechanics in the concepts of leverage, forces etc.
4. To provide a start in incorporating these knowledge in the clinical reasoning process of physical diagnosis and treatment.

Cognitive

1. Define kinetics and kinematics of vertebral column, hip, pelvis, knee complex, ankle complex and foot.
2. Mechanical basics of posture and gait.
3. Describe the kinetics and kinematics of various activities of daily living.
4. Comprehend the abnormal mechanics associated with pathology of vertebral column, hip, pelvis, knee complex, ankle complex and foot.

Psychomotor

1. Demonstrate the arthrokinematic movements that accompany osteokinematic movements at joint level of vertebral column, hip, pelvis, knee complex, ankle complex and foot.
2. Imitate the various sequential activities involved in gait cycle and pathological abnormalities in relation to spatial and temporal variables.
3. Analyze normal posture and interpret abnormalities in posture and demonstrate the abnormal mechanics associated with the same.

Affective

At the end of training the student should be able to -

The student should be able to correlate the knowledge of biomechanics, and increase proficiency in understanding the mechanical functioning of the human movements and its clinical application during evaluation and treatment

SYLLABUS

Sr. No.	Topics		Total Hours
1	**BIOMECHANICS OF VERTEBRAL COLUMN**		
	a) General structure and function b) Regional Structure And Function c) Structures and functions of the d) cervical, thoracic, lumbar and sacral regions e) Muscles of the vertebral column f) General effects of aging ,injury and g) development deficits		
2	**BIOMECHANICS OF HIP AND PELVIS**		
	a) Structure and function of the hip joint Hip joint musculature b) Muscle function in stance Hip joint pathology c) 5.Structure and function of the pelvic complex		
3	**BIOMECHANICS OF KNEE JOINT**		
	1. Structure of the tibiofemoral joint □ Femoral articular surface □ Tibial articular surface □ Tibiofemoral articulation 2. Knee joint capsule, ligaments, bursae 3.Knee joint function- motions, muscles, stabilization 4.Patellofemoral joint □ Articular surface □ Joint congruence □ Joint reaction forces □ Medial and lateral stability 5. Effects of injury and disease		
4	**BIOMECHANICS OF ANKLE AND FOOT**		
	Ankle joint structure and function Structure and function of subtalar joint, talocalcaneonavicular joint, transverse tarsal joint, tarsometatarsal joint, metatarsophalangeal joint, interphalangeal joints Plantar arches – structure and function Muscles of the ankle and foot Deviations of normal structure and function – pes planus, pes cavus		
5	**POSTURE**		
	Introduction Static and dynamic posture control External and internal forces Optimal posture Analysis of posture Effects of age pregnancy, occupation and recreation on posture		

6	**GAIT**		
	1. Kinematics a. Phases of gait cycle b. Distance and time variable c. Joint motion d. Determinants of gait 2. Energy requirements 3. Kinetics a. External and internal force b. Sagittal plane analysis c. Frontal plane analysis 4. Kinematics and kinetics of trunk and upper extremity 5. Stair and running gaits 6. Joint motion and muscle activity in running 7. Gait		
7	**KINETICS AND KINAMATICS OF VARIOUS ACTIVITIES OF ADL**		
	1. Activities Of Daily Living a. Supine to sitting b. Sitting to standing c. Squatting d. Climbing up and down e. Lifting pulling, pushing, overhead activities f. Running, Jogging		
	Total	80	**80**

PRACTICAL

1. Shall be conducted for various joint movements in the lower limbs, Vertebral column and analysis of the same.
2. Demonstration may also be given as how to analyze posture and gait. The student shall be taught and demonstrated to analysis for activities of daily living – ADL – (like sitting to standing, throwing, lifting etc.)
3. The student should be able to explain and demonstrate the movements occurring at the joints, the muscles involved, the movements or muscle action produced, and mention the axis and planes through which the movements occur.
4. The demonstrations may be done on models or skeleton.

RECOMMENDED TEXT BOOKS

1. Joint structure and function – Cynthia c. Norkin and Pamela k. Levangie
2. Basic biomechanics explained - John low and Ann reed
3. Fundamentals of Biomechanics -Duane Knudson

The Physiology of the Joints- I. A. Kapandji MD

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: (20marks)
Internal assessment follows as per University pattern

ELECTROTHERAPY- II

Didactic –48 hrs+ Practical / Laboratory –96 hrs [TOTAL - 144 Hrs]

COURSE DESCRIPTION: This course tends to explore fundamental skills in application of electrotherapeutic modalities and knowledge of indications, contraindications and physiological principles needed for appropriate patient care. It includes topics such as Different types of Diathermy Modalities, Ultrasound, Actinotherapy rays, some of the superficial heat modalities etc.

S.NO	TOPIC	Didactic Hours	Practical Hours	Total
1	**Fundamentals of High Frequency Currents**	05	-	05
2	**Deep Heat Modalities**	15	30	45
3	**Ultra Sonic Therapy**	08	22	30
4	**Light Therapy**	08	24	32
5	**Superficial Heat Modalities**	08	14	22
6	**Cryotherapy**	04	06	10
	Total Hours	48	96	144

Objectives:

At the end of the course, the candidate will be able to:

Cognitive –

1. Acquire the knowledge about the physiological effects therapeutic and biological effects of Deep heat modalities.
2. Describe the Physiological effects, Therapeutic uses, indication & contraindications ofvarious High Frequency modes /Light therapy/Therapeutic Sound waves.
3. Describe the Physiological Effects & therapeutic uses of various therapeutic ions&
4. topical pharmaco -therapeutic agents to be used for the application of phonophoresis and various advanced high Frequency modalities.

Psychomotor –

1. Acquire the skills of testing and systematic maintenance of Electro therapeutic equipments.
2. Acquire the skills of application of the Electro therapy modes on models, for the purposeof Assessment & Treatment.
3. Acquire an ability to select the appropriate mode as per the tissue specific & areaspecific application.
4. Imitate the circuit diagrams of various electro therapeutic modalities.

Affective

At the end of training the student should be able to -The student should be able to correlate the knowledge of functioning and safety of the physical agents, and increase proficiency in understanding the effects of various types of electrotherapeutic modalities on the human body and its clinical application during treatment and also respect and be aware of the emotional aspects of human models without sexual discrimination.

Syllabus

S.NO	TOPIC	Didactic Hours	Practical Hours	Total Hours
1	**FUNDAMENTALS OF HIGH FREQUENCY CURRENTS**	**05**	**-**	**05**
	Oscillations, properties of high frequency currents Electromagnetic induction –production, Direction of induced EMF, Eddy currents. Magnetism Transformer Physical effects of heat Transmission of heat Radiant energy Laws governing Radiations. Electromagnetic spectrum. Rectifying devices Sound –Refraction /Reflection			
2	**DEEP HEAT MODALITIES:**	**15**	**30**	**45**
	SHORT WAVE DIATHERMY: Definition,frequency,wavelength, principles and production of SWD, circuit diagram, methods of application of SWD, types of SWD electrodes, placement and spacing of electrodes, tuning and testing of SWD, physiological, therapeutic effects, indications & contraindications, dangers, Dosage and parameters. **PULSED SHORTWAVE DIATHERMY:** Principles, production, parameters and uses. **MICROWAVE DIATHERMY:** Definition, wavelength, frequency, production, applicators, dosages, parameters, physiological &therapeutic effects, indications and contra indications, dangers of MWD. **OTHER HIGH FRQUECY MODALITIES** Shock wave therapy and its uses Long wave diathermy & its uses.			
3	**ULTRASOUND THERAPY:**	**05**	**20**	**25**
	Definition, frequency, piezo electric effect on tissues, direct, reverse, production of ultrasound, ultrasound fields, half valve distance, attenuation, coupling media, thermal& non thermal effects, principles and applications of US, direct method, water bag solid sterile gel pack method for wound, uses of US, indications, contra indications, dangers, dosage of US, ultrasound in wound healing, Phonophorosis: Definition, methods of application, commonly used for drugs, uses and dosages.			
4	**LIGHT THERAPY:**	**08**	**24**	**32**
	LASER: Definition, types, principles, production of LASER, methods of application, dosage, physiological, therapeutic effects, safety precautions, classification of laser, energy density and power density, LASER therapy in Wound healing. **INFRA RED RADIATION:** Definition, spectral values of IRA, IRB, IRC.Frequency, wavelength, parameters, IR generators, production of IRR, physiological and therapeutic effects, duration, preparation and precautions, dosage and Dangers of IRR.			

	ULTRA VIOLET RADIATION: Definition, spectral values, types, UVR generators, High pressure mercury vapour lamp, water cooled mercury vapour lamp, Kromayer lamp, Fluorescent tube, therakitin tunnel, PUVA apparatus, physiological, & therapeutic effects, sensitizers, filters, test dose calculation, erythema formation, indications, contra indications, dangers, dosages for different therapeutic Effects			
5	**SUPERFICIAL HEAT MODALITIES:**	**08**	**12**	**20**
	Paraffin Wax therapy: Principles, latent heat, composition of Wax, methods of application, physiological & therapeutic effects, indications and contraindications, dangers. Hydro collateral packs Hydro collateral packs, methods of applications, therapeutic uses, indications and contra indications, Cyclotherm : Principles of production, therapeutic uses, indications & contraindications. Fluidotherapy: construction, method of application, therapeutic uses, indications & Whirlpool bath: Construction, method of application, therapeutic uses, indications and contraindications.			
6	**CRYOTHERAPY**:	**04**	**04**	**08**
	Definition, principle, latent heat of fusion, physiological & therapeutic effects, techniques of application, indications and contraindications, dangers, contrast bath, cryokinetics.			
	TOTAL	**48**	**96**	**144**

RECOMMENDED TEXT BOOKS

1. Clayton's Electro Therapy- 3rd & 10th edition
2. Electro therapy Explained – Low & Reed
3. Electrotherapy Evidence Based Practice – Sheila Kitchen -11th edition
4. Therapeutic Modalities in Rehabilitation - William E. Prentice- 3rd Edition
5. Text Book of Electrotherapy- Jagmohan Singh, 2nd Edition

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	**80**
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

PRACTICALS /VIVA VOCE- 80 Marks	**Maximum Marks**
Total	**80**

INTERNAL ASSESSMENT: (20marks) for both theory and practical separately. Internal assessment given for Theory and Practical follows as per University pattern

GENERAL MEDICINE, PAEDIATRICS AND PSYCHIATRY

(SUBJECT CODE - SBVPT -403) (Didactic-80hrs) TOTAL = 80 Hrs

S. NO	TOPIC	Didactic hours	Practical/ Laboratory hours	Total hours
1	GENERAL MEDICINE	30		30
2	PAEDIATRICS	30		30
3	PSYCHIATRY	20		20
	TOTAL	80		80

OBJECTIVES:

Cognitive

1. Describe the cardio vascular diseases emphasizing on Systemic hypertension, cardiac conditions, valvular and congenital heart diseases.
2. Describe the diseases of the respiratory system, emphasizing on common infections, interstitial and occupational lung diseases.
3. Elaborate the dysfunctions of the endocrine system with more focus on diabetes, cussing syndrome, nutritional deficiencies and various Rheumatological conditions.
4. Describe pre-operative evaluation, surgical indications in various surgical approaches, management and post operative care in above mentioned areas with possible complications.
5. General examination of neonates, infants correlating normal developmental sequence with delayed development.

Psychomotor

1. Able to conduct a complete assessment of various systems of human body and identify their dysfunction.
2. Interpret the findings of various investigations like ECG, chest X-Ray, ABG and PFT. Examination and identification of developmental delay and high risk infants.

Affective

1. At the end of training the student should be able to -
2. Manage individuals with health ailments in elaborating their health status and counseling them.
3. The student becomes aware of possible problems in adults and in handling infants and children's with special needs.

SYLLABUS

Sl:No	TOPIC	Didactic	Practical	Total
1	**GENERAL MEDICINE**	**30**		**30**
	Cardio-vascular & respiratory medicine : Cardio-Vascular Diseases i) Hypertension – systemic ii) Cardiac Conditions- I.H.D. (Angina, Myocardial infarction) R.H.D. Infective Endocarditis Cardiomyopathy Heart Failure iii) Valvular Heart Disease Congenital Acquired Congenital Heart Disease Investigations **Diseases of the Respiratory System :** Common Infectious diseases like Tuberculosis, Pneumonia, Lung Abscess, and Bronchiectasis. Diseases of Pleura like Pleural Effusion, Pneumothorax, Hydropneumothorax, and Empyema. ILD & Occupational lung diseases like Silicosis, Asbestosis, Pneumoconiosis, Brucellosis, Farmer's Lung. Obstructive Airway Diseases (C.O.P.D. with Cor-Pulmonale, Pulmonary Hypertension, Bronchial Asthma & Cystic Fibrosis) ICU			
2	**PAEDIATRICS**	**30**		**30**
	General examination of neonate and neonatal reflexes Normal intra-uterine development of fetus with special reference to Central Nervous System, Neuromuscular System, Cardio vascular Respiratory system. Normal development milestone Immunization Sepsis, Prematurity, Asphyxia Hyperbilirubinemia and birth injuries Cerebral Palsy- Medical Management including early intervention Developmental disorders associated with spinal cord: Spinal Dysraphism, Spina bifida, Meningocele, Myelomeningocele, hydrocephalus Common infections C.N.S.& Peripheral Nervous System Typhoid, Rubella, Mumps, Measles, Diphtheria, Chicken pox, Malaria Epilepsy Down" s Syndrome Myopathies and neuro-muscular junction disorders Malnutrition and Vitamin deficiency conditions			
3	**PSYCHIATRY**	**30**		**30**
	Psychiatric Disorders: Classifications, Causes, Clinical manifestations and treatment methods used in Psychiatry. Modalities of psychiatric treatment, Psychiatric illness and physiotherapy, Brief description of Etio-pathogenesis, manifestations, and management of psychiatric illnesses -. Anxiety neurosis, Depression, Obsessive compulsive neurosis, Psychosis, Maniac-depressive psychosis, Post-traumatic stress disorder, Psychosomatic reactions: Stress and Health, theories of Stress – Illness. Etio-			

	pathogenesis, manifestations, and management of psychiatric illness Drug dependence and alcoholism, Somatoform and Dissociate Disorders – conversion reactions, Somatization, Dissociate Amnesia, and Dissociate Fugue, Personality disorders Child psychiatry - manifestations, and management of childhood disorders -attention deficit syndrome and behavioral disorders. Geriatric psychiatry.			
	Total	**80**		**80**

RECOMMENDED TEXT BOOKS

1. Essential for paediatrics - O.P.Ghai
2. Text book of general medicine - Davidson

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	**80**
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

Question Paper Pattern:

Section A: General Medicine (Total Marks: 30)

S. No	Description	No. of Questions	Marks Allotted	Total Marks
1.	Essay	01	15	15
2.	Short Notes	01	05	05
3.	Short Answer Questions	05	02	10

Section B – Paediatrics (Total Marks: 30)

S. No	Description	No. of Questions	Marks Allotted	Total Marks
1.	Essay	01	15	15
2.	Short Notes	03	05	15

Section C – Psychiatry (Total Marks: 20)

S. No	Description	No. of Questions	Marks Allotted	Total Marks
1.	Short Notes	02	05	10
2.	Short Answer Questions	05	02	10

Internal assessment as per University pattern: (20 marks)
The average IA of all three subjects will be calculated for 20 marks

NON EXAMINATION COURSE

BASIC COMPUTER AND INFORMATIVE SCIENCE

SUBJECT CODE: SBVPT - 405

Didactic hour - 32

Learning objective:

At the end of the course, the candidate will-

1. Develop good skills for better communication.
2. Effectively use Microsoft Office to communicate with patients while rendering care.
3. To utilize PowerPoint presentations and Picture management for effective teaching and learning.
4. To learn the use of computer for basic statistics using excel.
5. To learn the use of Internet services for Research and Documentation.

Sl: no	Topics	Didactic hour	lab	Total hour
1	Introduction of Computer application for Physiotherapy practice.	05		05
2	Introduction of use of computers in teaching, learning, research.	05		05
3	Windows, MS office, Word, Excel, Power Point.	05		05
4	Internet, Literature search.	06		06
5	Introduction to Statistical Package	06		06
6	Introduction to Hospital management information system	05		05
	Total	32		32

Reference books:

i) Fundamental of Computer system

NON EXAMINATION COURSE
COLLABORATION IN PHYSIOTHERAPY PRACTICE
SUBJECT CODE : SBVPT-406

learning objective :

As collaborators, physiotherapists should attain knowledge in order to work effectively with others to provide inter- and intra-professional care.

Sl:no	Topic of content	Didactic hour		Total hour
1.	Promote an integrated approach to client services	05		05
2.	Facilitate collaborative relationships	10		10
3.	Contribute to effective teamwork.	10		10
4.	Contribute to conflict resolution.	07		07
	Total	32		32

REFERENCE :

1. Canadian Interprofessional Health Collaborative. (2010). A National Interprofessional Competency Framework. https://www.cihc.ca/files/CIHC_IPCompetencies_Feb1210.

2. Woodburt, MG; Kuhnke, JL. Evidence-based Practice vs. Evidence- informed Practice: What‘s the Difference? Wound Care Canada. Vol 12, No 1, Spring 2014. 18-21

CLINICAL EDUCATION – I

COURSE CODE	COURSE	TOTAL HOUR	CREDIT
SBVPT -407	CLINICAL EDUCATION - I	128	4

Learning Objective:

At the end of clinical postings the student should be able to Demonstrate clinical observatory skill.

i) Understand the role of physiotherapy in various clinical conditions.

ii) Demonstrate the bed side manners, understanding of policy of the inpatient service and outpatient services.

iii) Understand the documentation of patient service. Student‘s Clinical activity:

iv) Student will be posted in Outpatient physiotherapy department and in-patient areas for observation. During the posting student must observe various clinical conditions treated with physiotherapy. They should document their understanding in log books.

Evaluation:

At the end of the posting their log book will be evaluated for the content, creativity, understanding and presentation.

V - SEMESTER

GENERAL SURGERY INCLUDING BURNS, PLASTIC SURGERY
(SUBJECT CODE - SBVPT -501)
Didactic- 80 hrs

S. NO	TOPIC	Didactic hours	Practical hours	Total hours
1	UNIT I & II	30		30
2	UNIT III & IV	30		30
3	UNIT V & VI	20		20
	TOTAL	80		80

SUBJECT DESCRIPTION

i) This subject follows the basic science subjects to provide the knowledge about relevant aspects of general surgery.
ii) The student will have a general understanding of the surgical conditions the therapist would encounter in their practice.
iii) The objective of this course is that after 60 hrs of lectures and discussion the student will be able to list the indications for surgery, etiology, clinical features and surgical methods for various conditions.

SYLLABUS

Sl. NO	TOPIC	Didactic hours	Practical/ Laboratory hours	Total hours
1	**UNIT – I**	15		15
	Fluid, Electrolyte and Acid-Base disturbances – diagnosis and management ; Nutrition in the surgical patient ; Wound healing – basic process involved in wound repair, basic phases in the healing process, clinical management of wounds, factors affecting wound healing, Scars – types and treatment. Hemostasis – components, hemostatic disorders, factors affecting bleeding during surgery. Transfusion therapy in surgery – blood components, complications of transfusion ; Surgical Infections ; General Post – Operative Complications and its management. Definition, Indication, Incision, Physiological changes and Complications following Common operations like Cholecystectomy, Colostomy, Ileostomy, Gastrectomy, Hernias, Appendicectomy Mastectomy, Neprectomy, Prostectomy			
2	**UNIT – II**	15		15
	Reasons for Surgery; Types of anaesthesia and its affects on the patient; Types of Incisons; Clips Ligatures and Sutures; General Thoracic Procedures – Radiologic Diagnostic procedures, Endoscopy – types, Biopsy – uses and types. Overview and Drainage systems and tubes used in Surgery. Causes, Clinical Presentation, Diagnosis and treatment of the following Thoracic Trauma situations – Airway obstruction, Pnuemothorax, Hemothorax, Cardiac Tamponade,Tracheobronchial disruption, Aortic disruption, Diaphragmatic disruption, Esophageal disruption, Cardiac and Pulmonary Contusions.			

3	**UNIT - III**	15		15
	Surgical Oncology – Cancer – definition, types, clinical manifestations of cancer, Staging of Cancer, surgical procedures involved in the management of cancer.			
4	**UNIT – IV**	15		15
	Disorders of the Chest Wall, Lung and Mediastinum Thoracic surgeries – Thoracotomy – Definition, Types of Incisions with emphasis to the site of insision, muscles cut and complications. Lung surgeries: Pnumonectomy, Lobectomy, segmentectomy – Indications, Physiological changes and Complications; Thoracoplasty, Pleurectomy, Pleurodesis and Decortication of the Lung. Cardiac surgeries – An overview of the Cardio-Pulmonary Bypass Machine – Extracardiac Operations, Closed Heart surgery, Open Heart surgery. Transplant Surgery – Heart, Lung and Kidney – Indications, Physiological changes and Complications			
5	**UNIT - V**	10		10
	Diseases of the Arteries and Veins: Definition, Etiology, Clinical features, signs and symptoms, complications, management and treatment of following diseases : Arteriosclerosis, Atherosclerosis, Aneurysm, Buerger's disease, Raynaud's Disease, Thrombophlebitis, Deep Vein Thrombosis, Pulmonary Embolism, Varicose Veins.			
6	**UNIT- VI**	10		10
	Burn: Definition, Classification, Causes, Prevention, Pathological changes, Complications, Clinical Features and Management. Skin Grafts – Types, Grafting Procedures, Survival of Skin Graft ; Flaps – Types and uses of Flaps. ENT: Common problems of ear, otitis media, Otosclerosis, functional achonia and deafness, management facial palsy classification, medical and surgical management of lower motor neuron type of facial palsy. **Ophthalmology:** Ophthalmologic surgical conditions, refraction's, conjunctivitis, glaucoma, corneal ulcer, iritis, cataract, retinitis, detachment of retina, defects of extra-ocular muscles-surgical management.			
	TOTAL	**80**		**80**

RECOMMENDED TEXT BOOKS

1. Short practice of surgery-- Bailey and Love
2. Textbook of Surgery – Das
3. Text book of general medicine - Davidson

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: (20 marks)

Internal assessment as per University pattern

CLINICAL ORTHOPAEDICS & TRAUMATOLOGY
(SUBJECT CODE - SBVPT -502)
DIDACTIC HOURS = 80 HRS

COURSE DESCRIPTION:

This course intends to familiarize students with principles of orthopedic surgery along with familiarization with terminology and abbreviations for efficient and effective chart reviewing and documentation. It also explores various orthopedic conditions needing attention, focusing on epidemiology, pathology, as well as primary and secondary clinical characteristics and their surgical and medical management. The purpose of this course is to make physiotherapy students aware of various orthopedic surgical conditions so these can be physically managed effectively both pre as well as postoperatively.

S. NO	TOPIC	Didactic hours	Clinical hours	Total hours
1	FRACTURES	15		15
2	DISLOCATIONS & SUBLUXATIONS	10		10
3	SOFT TISSUE AND TRAUMATIC INJURIES	10		10
4	DEFORMITIES AND ANOMALIES	13		13
5	DEGENERATIVE AND INFLAMMATORY CONDITIONS	10		10
6	MANAGEMENT OF METABOLIC DISORDERS	09		09
7	GENERAL ORTHOPAEDIC DISORDERS	08		08
8	TUMORS	05		05
	TOTAL	80		80

OBJECTIVES:

Cognitive

1. Be able to discuss the, etiology, pathophysiology, clinical manifestations & conservative/ surgical management of various fractures, dislocation and subluxation, soft tissue injuries and traumatic injuries. 2. Be able to describe the, etiology, pathophysiology, clinical manifestations & conservative/ surgical management of various degenerative and inflammatory conditions.

3. Be able to describe the, etiology, pathophysiology, clinical manifestations & conservative/ surgical management of various congenial and acquired deformities.

4. Able to categories different types of tumors, the principles of general management of benign and malignant tumor of musculoskeletal systems.

Psychomotor

1. Gain the skill of clinical examination; apply special tests & interpretation of the preoperative old cases & all the post-operative cases.

2. Be able to read & interpret salient features of the X-ray of the Spine & Extremities and correlate the radiological findings with the clinical findings.

3. Be able to interpret Pathological / Biochemical studies pertaining to Orthopaedic conditions.

Affective-

At the end of training the student should be able to -

The student should be able to understand the clinical manifestations of orthopedic conditions and interpret the prognosis based on the findings. The student should display behavioral values consistent with a single belief or attitude in situations where one is neither forced nor asked to comply. One is expected to demonstrate a high degree of commitment, accountability and responsibility.

SYLLABUS

Sl. NO	TOPIC	Didactic Hours	Clinical Hours	Total hours
1	**FRACTURES**			
	1. Definition, Classification, Causes, Clinical features, healing of fractures& Complications. 2. Principles of general management of • Fracture of the Upper Extremity • Fracture of the Lower Extremity • Fracture of the vertebral column, thorax and • Emergency care and first aid.			
2	**DISLOCATIONS & SUBLUXATIONS**			
	Definition, General description, Principles of general description and management of traumatic dislocation and subluxation of common joints			
3	**SOFT TISSUE AND TRAUMATIC INJURIES**			
	1. Introduction ,Anatomy & physiology general description, grade of injury and management of injuries of • Muscles and tendons injuries of upper and lower 2. Cervicolumbar injuries ,Whiplash of thecervical spine Crush injuries of hand & foot 3. Reconstructive surgeries			
4	**DEFORMITIES AND ANOMALIES**			
	1. Definition ,Causes , Classification, Congenital and acquired deformities Physical and clinical and radiological features, Complications 2. Principles of medical and surgical management of the deformities 3. General description of following deformities : i . Deformities of the spine:			

	a. Scoliosis b. Kyphosis c. Lordosis d. Flat back e. Torticollis ii . Deformities of the lower limb: a. C.D.H., coxa vara , coxa valga, anteversion, Retroversion b. Genu valgum, Genu varum, Genu recurvatum, C.D.K. c. Talipes calcaneo equinus, varus & valgus d. Pes cavus, Pes planus e. Hallux valgus & varus, Hallux rigidus and hammer toe iii. Deformities of Shoulder & Upper limb a. Sprengel's shoulder, Cubitus varus, Cubitus valgus b. Dupuytren's contracture			
5	**DEGENERATIVE AND INFLAMMATORY CONDITIONS**			
	a. Osteo-orthosis/Arthritis b. Spondylosis c. Spondylolysis and listhesis d. Pyogenic arthritis e. Rheumatoid arthritis f. Juvenile arthritis g. Tuberculous arthritis h. Gouty arthritis i. Haemophilic arthritis j. Neuropathic arthritis k. Ankylosing spondylitis l. Psoriatic arthritis			
6	**MANAGEMENT OF METABOLIC DISORDERS**			
	a. Osteoporosis b. Osteomalacia & Rickets			
7	**GENERAL ORTHOPAEDIC DISORDERS**			
	1. Carpel tunnel syndrome/ Entrapment nerve injuries 2. Compartment syndrome, Ischemic contracture 3. Avascular necrosis of bone in adult and children a. Gangrene b. Backache /P.I.D.			

8	**TUMORS**			
	1. Classification, Principles of general management 2. General description of benign and malignant tumors of musculoskeletal system			
	TOTAL	**80**		**80**

RECOMMENDED TEXT BOOKS

1. Outline of Fractures –Adams
2. Outline of Orthopedics.--Adams
3. Apley's systems of orthopedics and fractures by Louis Solomon, 9th edition

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=50 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: (20 marks)

Internal assessment as per University pattern

CLINICAL OBSTETRICS AND GYNECOLOGY AND ITS PHYSIOTHERAPY MANAGEMENT
(SUBJECT CODE - SBVPT -503)
(Didactic-48hrs + Clinical -96 hrs) TOTAL =144Hrs

COURSE DESCRIPTION:

This course intends to provide introduction to women`s health which includes problems related to pregnancy, osteoporosis, and other disorders specific to women. Topics will focus on medical terminology, clinical examination, evaluation, comparing contemporary, traditional interventions and the impact of evolving technology in this area. It also emphasizes on evaluation & medical treatment of pelvic floor dysfunctions.

OBJECTIVES:

Cognitive

1. Normal & abnormal physiological events, complications and management during Puberty.
2. Normal and abnormal physiological events, complications and management of pregnancy (Pregnancy, Labor, Puerperium)
3. Normal and abnormal physiological events, complications and management of menopause.
4. Normal and abnormal physiological events, complications and management of uro-genital dysfunction.(Antenatal, Postnatal, during menopause)

Psychomotor

1. The student will be able to acquire skill of clinical examination of the pelvic floor.
2. Able to assess, interpret and present urogenital dysfunction, antenatal and post natal care.
3. Interpret investigation related to Obstetrics and Gynecological conditions.

Affective -

At the end training the student should be able to -

The student should be able to show readiness to understand and educate the normal population regarding the maintenance of women health, precautions and care that are to be taken during pregnancy and post pregnancy complications.

S. NO	TOPIC	Didactic hours	Clinical hours	Total hours
1	ANATOMY	03	05	08
2	PHYSIOLOGY	03		03
3	OBSTETRIC CONCERN	12	35	47
4	GYNECOLOGICAL CONCERN	07	25	32
5	PHYSIOTHERAPY IN OBSTETRICS	13	18	31
6	PHYSIOTHERAPY IN GYNECOLOGY	10	18	28
	TOTAL	48	96	144

SYLLABUS

S. NO	TOPIC	Didactic hours	Clinical hours	Total hours
1	**ANATOMY**	**03**	**05**	**08**
	The Female Pelvis The Female Abdomen The Female Breast The Female Reproductive Tract			
2	**PHYSIOLOGY**	**03**		**03**
	a. Menarche b. Menopause c. Voiding and Anorectal function			
3	**OBSTETRIC CONCERN**	**12**	**35**	**47**
	a. Gestation week by week b. Physical and Physiological changes during pregnancy, Labor, Puerperium c. Complications of Pregnancy, Labor, Puerperium d. Events of Labor e. Lower segmental caesarean section, Episiotomy Indications , Types and Procedure f. Nutrition in Pregnancy g. Lactation and its complications h. Investigations – Pregnancy test, Basic investigations and findings in various trimesters of pregnancy- Hematological, urine analysis, USG. CTG – Interpretation			
4	**GYNECOLOGICAL CONCERN**	**07**	**25**	**32**
	a. Disorders associated with menstruation b. Post-menopausal complications c. Pelvic floor Dysfunction- Urinary incontinence, Anorectal Dysfunction, Pelvic organ Prolapse d. Gynecological surgeries- Indications, Type of Incision, Procedure e. Infertility f. Investigations- Dilatation & Curettage , PAP Smear, Colposcopy, Laparoscopy, Hysterosalpingography - Indications & findings			
5	**PHYSIOTHERAPY IN OBSTETRICS**	**13**	**18**	**31**
	a. Antenatal Assessment b. Antenatal education and exercises for normal pregnancy and special conditions. c. Post natal assessment & Physiotherapy Management d. For NVD and LSCS. e. Breast feeding techniques, complications and its Physiotherapy Management.			

6	**PHYSIOTHERAPY IN GYNECOLOGY**	**10**	**18**	**28**
	a. Pre Operative and post Operative assessments and Physiotherapy Management following Pelvic surgeries b. Pre Operative and post Operative assessments and Physiotherapy Management following Mastectomy c. Assessment for Pelvic Floor Dysfunction- Urinary incontinence, Anorectal Dysfunction, Pelvic organ Prolapse, Sexual Dysfunction and Physiotherapy Management includes pelvic floor exercise prescriptions, Vaginal Weights and other instruments pertaining to the condition.			
	TOTAL	**48**	**96**	**144**

PRACTICALS

CLINICALS

Evaluation & presentation of One case Each in:

i) Uro-genital dysfunction
ii) Antenatal care
iii) Postnatal care
iv) Following normal labor
v) Following Caesarean section
vi) Pelvic Inflammatory Diseases

Observation –One Normal & One Caesarean delivery & One Hysterectomy / Repair of the Uro- genital Prolapse

RECOMMENDED TEXT BOOKS

1. Text book of Gynecology – Datta – New Central Book Agency
2. Text book of Obstetrics –Mudhaliar
3. Text book for women‘s health- saposford
4. Physiotherapy in obstetrics and gynecology- Jill mantle

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	**80**
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

Section Separation and Marks Distribution:

Section A – CLINICAL OBSTETRICS AND GYNECOLOGY - 40 Marks
Section B – OBSTETRICS AND GYNECOLOGY PHYSIOTHERAPY - 40 Marks

Question Paper Pattern:

Section A: CLINICAL OBSTETRICS AND GYNECOLOGY (Total Marks: 40)

S. No	Description	No. of Questions	Marks Allotted	Total Marks (40)
1	Essay	01	15	15
2	Short Notes	03	05	15
3	Short Answer Questions	05	02	10

Section B – OBSTETRICS AND GYNECOLOGY PHYSIOTHERAPY (Total Marks: 40)

S. No	Description	No. of Questions	Marks Allotted	Total Marks (40)
4.	Essay	01	15	15
5.	Short Notes	03	05	15
6.	Short Answer Questions	05	02	10

PRACTICALS /VIVA VOCE- 80 Marks	**Maximum Marks**
Total	**80**

INTERNAL ASSESSMENT: (20 marks)

Internal assessment for theory and practical follows separately as per University pattern

MEDICAL/ PHYSIOTHERAPY LAW AND ETHICS
(SUBJECT CODE - SBVPT - 505)
Didactic hours: 64 hours

Course description:

Legal and ethical considerations are firmly believed to be an integral part of medical practice in planning patient care. Advances in medical sciences, growing sophistication of the modern society's legal framework, increasing awareness of human rights and changing moral principles of the community at large, now result in frequent occurrences of healthcare professionals being caught in dilemmas over aspects arising from daily practice.

Medical/ Physiotherapy ethics has developed into a well based discipline which acts as a "bridge" between theoretical bioethics and the bedside. The goal is "to improve the quality of patient care by identifying, analyzing, and attempting to resolve the ethical problems that arise in practice". Doctors are bound by, not just moral obligations, but also by laws and official regulations that form the legal framework to regulate medical practice. Hence, it is now a universal consensus that legal and ethical considerations are inherent and inseparable parts of good medical practice across the whole spectrum. Few of the important and relevant topics that need to focus on are as follows:

Sl no	MEDICAL/ PHYSIOTHERAPY LAW AND ETHICS	Didactic hour	Total hour
1.	Medical ethics versus medical law - Definition - Goal- Scope	03	03
2.	Introduction to Code of conduct	03	03
3.	Basic principles of medical ethics – Confidentiality	04	04
4.	Malpractice and negligence - Rational and irrational drug therapy	04	04
5.	Autonomy and informed consent - Right of patients	04	04
5.	Care of the terminally ill- Euthanasia	03	03
6.	Organ transplantation	04	04
7.	Medical diagnosis versus physiotherapy diagnosis.	03	03
8.	Medico legal aspects of medical records – Medico legal case and type- Records and document related to MLC - ownership of medical records - Confidentiality Privilege communication - Release of medical information - Unauthorized disclosure - retention of medical records - other various aspects.	11	11
9.	Professional Indemnity insurance policy	04	04
10.	Development of standardized protocol to avoid near miss or sentinel events	05	05
11.	Obtaining an informed consent.	02	02
12.	Biomedical ethical principles	02	02
13.	Code of ethics for physiotherapists	03	03
14.	Ethics documents for physiotherapists	04	04
15.	Laws affecting physiotherapy practice	05	05
	Total	64	64

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: 20 marks
Internal assessment as per University pattern.

CLINICAL EDUCATION - II

COURSE CODE	COURSE	TOTAL HOUR	CREDIT
SBVPT - 506	CLINICAL EDUCATION - II	128	4

Learning Objective:

At the end of clinical postings the student should be able to

1. Demonstrate understanding of clinical conditions resulting in functional limitation and participation restriction.
2. Demonstrate understanding various investigations done for diagnosing the conditions.
3. Demonstrate art of history taking and simple clinical measurement like ROM, muscle efficiency checking, limb length measurement etc.,

Student's Clinical activity:

1. Student will be posted in Outpatient physiotherapy department and in-patient areas for observation.
2. During the posting student must observe various clinical conditions treated with physiotherapy.
3. They should document their understanding in log books.

Evaluation:

At the end of the posting their log book will be evaluated for the content, creativity, understanding and presentation.

VI - SEMESTER

CLINICAL NEUROLOGY AND NEUROSURGERY
(SUBJECT CODE - SBVPT -601)
Didactic hours = 80 Hrs

COURSE DESCRIPTION:

This course intends to familiarize students with medical terminology & abbreviations for efficient & effective chart reviewing & documentation, It also explores select systemic diseases, focusing on epidemiology, etiology, pathology, histology as well as primary & secondary clinical characteristics & their management. It discusses & integrates subsequent medical management of Neurological & Pediatric conditions to formulate appropriate intervention, indications, precautions & contraindications.

S. NO	TOPIC	Didactic hours	Clinical hours	Total hours
NEUROLOGY				
1	INTRODUCTION	2	-	2
2	GENERAL NEUROLOGICAL ASSESSMENT	6		6
3	INVESTIGATIONS	4		4
4	CEREBROVASCULAR ACCIDENT	5		5
5	TRAUMATIC BRAIN INJURY	5		5
6	TRAUMATIC SPINAL CORD INJURY	4		4
7	SPINAL CORD LESIONS	5		5
8	DISEASES OF THE SPINAL CORD AND BRAIN	4		4
9	INFECTIONS OF THE NERVOUS SYSTEM	3		3
10	DEGENERATIVE DISORDERS	4		4
11	MOTOR NEURON DISEASES	3		3
12	DEMYELINATING DISEASES	3		3
13	CEREBELLAR DISORDERS	4		4
14	PERIPHERAL NERVE LESION	4		4
15	POLINEUROPATHY	2		2
16	DISEASE OF THE MUSCLE AND NEURO MUSCULAR JUNCTION	4		4
17	CONGENITAL/ DEVELOPMENTAL DISORDERS	5		5
18	DISORDERS OF ANS	1		1
NEUROSURGERY				
19	Introduction, Indications and Complications of following Neuro surgeries.	12		12
	TOTAL	80		80

Objectives:

Cognitive

1. Be able to describe Etiology, pathophysiology, signs & Symptoms & Management of the various Neurological conditions.
2. Be able to describe Etiology, pathophysiology, signs & Symptoms & Management of the various Pediatric conditions.
3. Acquire knowledge of various drugs used foreach medical condition to understand its effects and its use during therapy.

Psychomotor

1. Acquire skill of history taking and clinical examination of Neurological &Pediatric conditions as a part of clinical teaching.
2. Describe and perform neurological screening and examination.
3. History taking for localizing and predicting potential neurological disorders, assessment of higher mental function, cranial nerves, motor power, sensory function, tone, cerebellar function, gait abnormalities.

Affective-

At the end of training the student should be able to -

1. The student should be able to understand the clinical manifestations of neurological and neurosurgical conditions and interpret the prognosis based on the findings.

2. The student should display behavioral values consistent with a single belief or attitude in situations where one is neither forced nor asked to comply. One is expected to demonstrate a high degree of commitment, accountability and responsibility.

SYLLABUS

S. NO	TOPIC	Didactic hours	Clinical hours	Total hours
	NEUROLOGY			
1	Classification of neurological levels of lesion depending up on the involvement neurons			
2	**GENERAL NEUROLOGICAL ASSESSMENT**			
	History taking to determine whether the CNS, PNS, ANS is involved, Assessment of higher mental function, Perceptual, cranial nerves, Assessment of motor Function, Sensory Examination, Balance, Gait, Coordination, bladder and bowel.			
3	**INVESTIGATIONS**			
	Principles, methods, views, normal/abnormal values/ features, types of following investigative procedures- skull x-ray, CT, MRI, evoked potentials, lumbar puncture, CSF examination, EMG, NCV			
4	**CEREBROVASCULAR ACCIDENT**			
	Definition, etiology, classification – thrombotic, embolic, hemorrhagic, stroke syndromes, Clinical Features, Investigations and management.			
5	**TRAUMATIC BRAIN INJURY**			
	Etiology, classification, signs & symptoms, investigations, differential diagnosis, Medical and Surgical management, complications			
6	**TRAUMATIC SPINAL CORD INJURY**			
	Etiology, classification, syndromes, signs & symptoms, investigations, differential diagnosis, Medical and Surgical management, complications			
7	**SPINAL CORD LESIONS**			
	Quadriplegia, Paraplegia, Classification, Clinical Features, Investigations, Medical and Surgical management, Complications			

8	**DISEASES OF THE SPINAL CORD AND BRAIN**			
	Craniocerebral junction anomalies,Syringomyelia, Cervical and lumbar disc lesions, Intracranial Tumors, Tumors in spinal cord, Spinal archnoiditis			
9	**INFECTIONS OF THE NERVOUS SYSTEM**			
	Pyogenic meningitis sequelae, Tuberculous infection of CNS, Poliomyelitis, Tabes dorsalis, HIV, Encephalitis, Epilepsy			
10	**DEGENERATIVE DISORDERS**			
	Parkinson disease, Dementia , Alzheimer's Disease			
11	**MOTOR NEURON DISEASES**			
	Etiology, Pathophysiology, classification, clinical signs & symptoms, investigations, medical management, and complications.			
12	**DEMYELINATING DISEASES**			
	Acute disseminated encephalomyelitis, Transverse myelitis, Multiple sclerosis			
13	**CEREBELLAR DISORDERS**			
	Etiology, Pathophysiology, classification, clinical signs & symptoms, investigations, Management.			
14	**PERIPHERAL NERVE LESION**			
	Nerve injuries-Classification, Clinical Features, Investigations, Medical and Surgical management, Complications			
15	**POLINEUROPATH**			
	Etiology, classification, clinical features, Investigations and management			
16	**DISEASE OF THE MUSCLE AND NEURO MUSCULAR JUNCTION**			
	Myopathies, Muscular dystrophy, Spinal muscular atrophy			
17	**CONGENITAL/ DEVELOPMENTAL DISORDERS**			
	Cerebral palsy, Hydrocephalus, Spina bifida, Autism			
18	**DISORDERS OF ANS**			
	Clinical Features, Medical management			
NEUROSURGERY				
19	**Introduction, Indications and Complications of following Neuro surgeries.**			
	Craniotomy, Cranioplasty, Stereotactic surgery, Deep brain stimulation, Burr-hole, Shunting, Laminectomy, Hemilaminectomy, Rhizotomy, Microvascular decompression surgery, Endarterectomy, Embolization, Pituitary surgery, Ablative surgery - Thalamotomy and Pallidotomy, Coiling of aneurysm, Clipping of aneurysm, and Neural implantation.			
	TOTAL	**80**		**80**

References:

1. Principles of Neurology – Victor Adams
2. Brain‘s textbook of Neurology
3. The neurological examination – De Jong
4. Text book of Neurology-Bradley
5. Neurology and Neurosurgery Illustrated- Kenneth W. Lindsay

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	**80**
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=50 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: (20 Marks)
Internal assessment follows as per University pattern

CLINICAL CARDIOVASCULAR AND RESPIRATORY CONDITIONS
(SUBJECT CODE - SBVPT -602)
Didactic hours = 80 Hrs

COURSE DESCRIPTION:

This course intends to familiarize students with medical terminology & abbreviations for efficient & effective chart reviewing & documentation. It also explores selected systemic diseases, focusing on epidemiology, pathology, histology, etiology as well as primary & secondary clinical characteristics & their management. Discusses & integrates subsequent medical management of General, Rheumatology, Gerontology, Cardio- vascular & Respiratory systems, to formulate appropriate intervention, indications, precautions & contraindications.

OBJECTIVES:

Cognitive

1. Be able to describe Etiology, Pathophysiology, Signs & Symptoms & Management of the various Endocrine, Metabolic, Geriatric & Nutrition Deficiency.
2. Be able to describe Etiology, Pathophysiology, Signs & Symptoms, Clinical Evaluation & Management of the various Cardiovascular & Respiratory Conditions.
3. Be able to describe the principles of Management at the Intensive Care Unit.
4. Acquire knowledge of various drugs used for each medical condition to understand its effects and its use during therapy.

Psychomotor

1. Acquire skill of history taking and clinical examination of Musculoskeletal, Respiratory, Cardio-vascular & Neurological System as a part of clinical teaching.
2. Be able to interpret auscultation findings with special emphasis to pulmonary system.
3. Study Chest X-ray, Blood gas analysis, P.F.T. findings & Hematological studies, for Cardiovascular, Respiratory, Neurological& Rheumatological conditions.
4. Be able to acquire the skills of Basic Life Support.

Affective-

At the end of training the student should be able to -

1. The student should be able to understand the clinical manifestations of cardio-respiratory conditions and interpret the prognosis based on the findings.
2. The student should display behavioral values consistent with a single belief or attitude in situations where one is neither forced nor asked to comply. One is expected to demonstrate a high degree of commitment, accountability and responsibility.

SYLLABUS

Sl no	Topic	Didactic hour		Total hour
1.	**Cardio-Vascular Diseases:**	**45**		**45**
	Hypertension – systemic Cardiac Conditions- I.H.D. (Angina, Myocardial infarction) R.H.D. Infective Endocarditis Cardio myopathy Heart Failure Valvular Heart Disease -Congenital, Acquired Investigations: Basics of E.C.G. [Normal & Abnormal (Ischemia, Infarction & Arrhythmias)] Observation of conduction of stress test on patient 2D Echo (Ejection Fraction & Wall motion Open heart surgery Closed heart surgery Thoracotomy, Angioplasty, CABG, PT CA			
2.	**Diseases of the Respiratory System :**	**35**		**35**
	Common Infectious diseases like Tuberculosis, Pneumonia, Lung Abscess, and Bronchiectasis. Diseases of Pleura like Pleural Effusion, Pneumothorax, Hydropneumothorax and Empyema.ILD & Occupational lung diseases like Silicosis, Asbestosis, Pneumoconiosis, Brucellosis, Farmer's Lung. Obstructive Airway Diseases (C.O.P.D. with Cor Pulmonale, Pulmonary Hypertension, Bronchial Asthma & Cystic Fibrosis) Intensive Care Unit, Infrastructure, Instrumentation. Mechanical Ventilation (settings & monitoring) Assessment, monitoring & management of patient in I.C.U. Basic Life Support :Introduction & Demonstration Investigation: Normal & Abnormal Chest X-ray, Blood Gas Analysis PFT(Observation of conduction on patient) Medical And Surgical Management a.Thorocotomy b.Lobectomy c.Pneumonectomy d.Decortication			
	Total	**80**		**80**

RECOMMENDED TEXT BOOKS

1. API- Text book of Medicine, 5th edition
2. Medicine-- P.J. Mehta
3. Principles & Practice of Medicine -- Davidson

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	**80**
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=50 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: (20 Marks)
Internal assessment follows as per University pattern

PHYSIOTHERAPY IN ORTHOPAEDICS AND SPORTS INJURIES
(SUBJECT CODE - SBVPT -603)
(Didactic - 32 hours + Practical-64 hours) TOTAL = 96 HOURS

COURSE DESCRIPTION:

This course includes a study of applied anatomy and physiology of the Musculo-skeletal system along with pathological changes and patho-mechanics of the system. It discusses relevant tests and measures for determining impairment and differentiating the diagnosis based on the specificity and sensitivity of the assessment instruments as related to patients with disorders of the Musculo-skeletal system.

Musculo-skeletal Physiotherapy focuses on maximizing functional independence and well-being. The course uses a patient-centered model of care with multi-system assessment, evidence based interventions and a significant patient education component to promote a healthy, active lifestyle and community-based living.

The candidate will have a sound understanding of theory, scientific evidence and best practices in the areas of the Musculo-skeletal System including Movement Sciences, Psychosocial Sciences and Physiotherapy.

S. NO	TOPIC	Didactic hours	Clinical hours	Total hours
1	Use of ICF model in physiotherapy management of health condition of musculoskeletal system	01	-	01
2	Outcome measures - and Evidence Based Practice	02	-	02
3	Biomechanical / Physiological basis of physiotherapy intervention skills	02	05	07
4	Physiotherapy interventions with goal setting for dysfunctions due to musculoskeletal health conditions secondary to conservative or surgical management of:			
	a) Manifestations of trauma, surgery and their complications	07	20	27
	b) Degenerative Arthritis	03	05	08
	c) Inflammatory conditions	02	05	07
	d) Infectious Diseases of bones & joints	02	05	07
	e) Metabolic & Hormonal Disorders	01	04	05
	f) Congenital & Acquired Deformities	03	05	08
	g) Peripheral Nerve Injuries & Plexus Injuries	03	05	08
	h) Soft tissue injuries during sports and as a result of Over-use	01	03	04
	j) Tumors of bone	01	-	01
	k) Vascular disorders affecting musculoskeletal system	02	04	06
	l) Tumors of bone, Vascular disorders and Traumatic Amputations	02	03	05
	TOTAL	32	64	96

OBJECTIVES:

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

Cognitive:

1. Identify, evaluate, analyze & discuss primary and secondary musculo-skeletal dysfunction, based on biomechanical, kinesiological & patho-physiological principles.

2. Correlate the same with radiological, electrophysiological, biochemical/ hematological investigations as applicable & arrive at the appropriate Physiotherapy diagnosis with skillful evaluation of structure and function with clinical reasoning.
3. Understand the pharmaco-therapeutics, its interaction with physiotherapeutic measures and modify physiotherapeutic intervention appropriately.

4. Apply knowledge of psychosocial factors (personal and environmental factors in the context of disability associated with the musculo-skeletal system or multiple body systems) for behavioral and lifestyle modification and use appropriate training and coping strategies

Psychomotor:

1. Apply theoretical basis of physiological effects, indications, contraindications; and best available evidence on the effectiveness, efficacy and safe application guidelines for a full range of physiotherapeutic strategies and interventions, including appropriate modes of soft tissue & joint mobilization, electrotherapy, therapeutic exercise, and appropriate ergonomic advise that can be employed to manage problems of the individual‟ s structures, functions, activities and participation, capacity and performance levels associated with the Musculo-skeletal system, for relief of pain & prevention, restoration and rehabilitation measures for maximum possible functional independence at home, workplace and in community.
2. Prescribe and train for appropriate orthosis, prostheses and walking aids based on musculoskeletal dysfunction.

Affective:

Acquire professional, technical, ethical skills by demonstrating safe, respectful and effective performance of physical handling techniques taking into account the patient‘s clinical orthopedic condition, the need for privacy, the physiotherapist, the resources available and the environment.

SYLLABUS

S. NO	TOPIC	Didactic hours	Clinical hours	Total hours
1	**Use of ICF model in physiotherapy management of health condition of musculoskeletal system**			
	Use of ICF model (Bio, Psycho and Social) to plan Short term and Long term goals in physiotherapy management of health condition of musculoskeletal system Identification of short term and long term goals based on Documentation of disability and functioning. Red flags- Recognizing signs and symptom			
2	**Outcome measures – and Evidence Based Practice**			
	a)Introduction to functional scales as outcome measures– Generic and Disease specific. b)Evidence base practice in musculoskeletal health conditions- levels of evidence, clinical application Capacity and Performance related to activities and participation to enhance functioning Personal and Environment factors - facilitators and barriers that affect disablement and functioning			
3	**Biomechanical / Physiological basis of physiotherapy intervention skills**			
	a) Biomechanical Physiological basis of following modes physiotherapy interventions implemented during all three stages of tissue healing – b) Electrotherapeutic modes for pain- acute and chronic pain syndromes, swelling, wound healing, re-education Therapeutic exercise to alleviate pain, increase mobility, muscle performance (strength) endurance, motor control, muscle length, posture and gait training Taping techniques for pain relief , support and posture correction, Principles , Indications / Contraindications, Types of tapes and terminologies during Techniques			
4	**Physiotherapy interventions with goal setting for dysfunctions due to musculoskeletal health conditions secondary to conservative or surgical management of:**			
	The following topics are applicable to all conditions related to musculo-skeletal dysfunction throughout lifespan in acutecare setting, hospital, chronic conditions at home and in community on the basis of: Evaluation, interpretation of investigation and appropriate clinical reasoning for Functional diagnosis (ICF). Evidence-based analysis of tools and techniques, (including Quality of Life questionnaires), and planning,			

	prescription& implementation of short term & long term goals of Physiotherapy with appropriate documentation of the same. Application of appropriate electro therapeutic modes for relief of acute & chronic pain, swelling and for wound healing, muscle / movement re- education etc with clinical reasoning Application of appropriate exercise therapeutic modes for improving joint mobility, muscle strength & endurance and motor control. Application of advanced therapeutic modes of manual mobilization techniques (non-thrust techniques to be applied on extremities only), Friction Massage, Myofascial Release, Muscle Energy Techniques and Neuro Dynamic Techniques on patients Application of appropriate therapeutic exercise using therapeutic gymnasium tools as and when indicated, for relief of pain, enhancing structural stability, strength & endurance, and functional maintenance &/ or restoration including posture correction and gait training including preventive measures. Prescription of appropriate orthotic & prosthetic devices. Various taping techniques for support & pain relief; principles, indications, contra-indications, types of tapes used & relevant terminology. Appropriate Home Program & Ergonomic advise for preventive measures & functional efficiency at home, work place and during recreation. Advice to Parents & Care Givers.			
	Physiotherapy interventions with goal setting for dysfunctions due to impairments of Pain, Mobility, Muscle performance(Strength), Endurance, Motor Control, Muscle length, Posture and Movement Balance and Gait for common health conditions secondary to conservative or surgical management of the following regions, with appropriate consideration of red flags:			
	a) **Manifestations of trauma, surgery and their complications**			
	a)Bones – fractures & fracture-dislocations of extremities & spine and their complications & Management including THR,TKR etc Soft tissues injuries of extremities & spine and their complications & Management, contused lacerated wounds (CLWs) Burns complications and management, Crush injuries and its conservative and Post-Surgical Management. Musculo-skeletal complications in Cerebral Palsy & Poliomyelitis and reconstructive surgeries.			
	b) **Degenerative Arthritis**			
	a)Osteoarthritis of knee b)Peri-arthritis of shoulder			

	c)Spinal degenerative conditions like Spondylosis,Spondylolysis, , Spondylolisthesis, and Spinal Canal Stenosis			
	c) **Inflammatory conditions**			
	a)Rheumatoid, Gouty, Septic arthritis b)Spondylo-arthropathies e.g. Ankylosing Spondylitis. Cellulites and its complications. Post incisional inflammation and infection. Myositis ossificans and traumatica. f)Avascular necrosis			
	d) **Infectious Diseases of bones & joints**			
	Tuberculosis Osteomyelitis			
	e) **Metabolic & Hormonal Disorders**			
	Osteoporosis Osteomalacia			
	f) **Congenital & Acquired Deformities**			
	a)CTEV b)DDH c)Kyphosis d)Scoliosis Genu valgus / varus Cubitus varus / valgus Coxa vara / valga etc Deformities of the foot			
	g) **Peripheral Nerve Injuries & Plexus Injuries**			
	Complications & management			
	h) **Soft tissue injuries during sports and as a result of Over-use**			
	Conservative and operative management Like ACL,PCL Reconstructive Surgeries etc			
	i) Tumors of bone & j) Vascular disorders affecting musculoskeletal system			
	V.I.C., C.R.P.S., Compartment syndrome			
	j) Tumors of bone, Vascular disorders and Traumatic Amputations			
	Types, Complications and management inclusive of prosthetic prescription & training			
	TOTAL	**32**	**64**	**96**

RECOMMENDED TEXT BOOKS

1. Therapeutic Exercise - O‟ Sullivan
2. Orthopaedic Physical Therapy - Donatelli
3. Cash‟ s Textbook of Orthopedics & Rheumatology for Physiotherapists
4. Tidy‟ s Physical Therapy
5. Manual Mobilization of Extremity Joints - Kaltenborn
6. Therapeutic Exercise: Foundations and Techniques - Kolby & Carolyn Kisner
7. Physical Rehabilitation - Susan O'sullivan
8. Manual Therapy: Nags, Snags, MWMs, etc - 6th Edition Brian R Mulligan
9. Maitland's Peripheral Manipulation Elly Hengeveld
10. Neural tissue mobilization – Butler

11. Brukner & Khan's Clinical Sports Medicine - Peter Brukner, Karim Khan (Mcgraw Medical)
12. Therapeutic Exercise: Moving Toward Function - Carrie M. Hall, Lori Thein Brody
13. Manual Mobilization of Extremity Joints -Kaltenborn
14. Neural Tissue Mobilization - Butler
15. Taping Techniques –Rose Mac Donald
16. Clinical Orthopaedic rehabilitation-Broadsman

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	**80**
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=50 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

PRACTICALS /VIVA VOCE- 80 Marks	**Maximum Marks**
Total	**80**

INTERNAL ASSESSMENT: (20 Marks)
Internal assessment follows as per University pattern

COMMUNITY MEDICINE
(SUBJECT CODE - SBVPT-604)
Didactic hours = 64 Hours

COURSE DESCRIPTION:

The course is organized to introduce the concept of health care and management issues in Health Services. It will help them in assuming a leadership role in their profession and assume the responsibility of guidance. It will help them assume wider responsibilities at all levels of health services. It will help them in improving their performance through better understanding of the health services at all the levels of community.

S. NO	TOPIC	Didactic hours		Total hours
1	HEALTH AND DISEASES	05		05
2	EPIDEMOLOGY	05		05
3	PUBLIC HEALTH ADMINISTRATION	05		05
4	HEALTH PROGRAMMES IN INDIA	05		05
5	PREVENTIVE MEDICINE IN OBSTRECTICS PAEDIATRICS AND GERIATRICS:	10		10
6	NUTRITION AND ENVIRONMETAL HEALTH	11		11
7	ENVIRONMENT AND HEALTH	10		10
8	OCCUPATIONAL HEALTH	07		07
9	MENTAL HEALTH	03		03
10	HEALTH EDUCATION	03		03
	TOTAL	64		64

OBJECTIVES:

COGNITIVE

1. Describe the general concepts, determinants of health and diseases emphasizing on social, economic and environmental factors.
2. Describe the demography and objectives of national family welfare programmes and national population policies.
3. Overview of various communicable, noncommunicable and nutritional diseases affecting adults, neonates and infants.
4. Elaborate the principles, elements and applications in primary health care centers in health care delivery system in India.

PSYCHOMOTOR

1. Observation analysis of community settings through community visits to villages andfactories.
2. Display skilled qualities like presence of mind in instant decision-making, appropriateness of referral, community diagnosis, use and interpretation of statistical data, logical and rational plan of disease management.

AFFECTIVE

At the end of training the student should be able to –Have a clear understanding of the prevailing diseases and its prevalence, should also be able to understand the various types of diseases and the system of health delivery system in India.

SYLLABUS

S. NO	TOPIC	Didactic hours		Total hours
1	**HEALTH AND DISEASES**	**05**		**05**
	Definitions, Concepts, Dimensions and Indicators of Health, Concept of well-being, Spectrum and Determinants of Health, Concept and natural history of Disease, Concepts of disease control and prevention, Modes of Intervention, Population Medicine, The role of socio- economic and cultural environment in health and disease. Health care delivery system.			
2	**EPIDEMOLOGY**	**05**		**05**
	Definition and scope. Principles of Epidemiology and Epidemiological methods: Components and Aims, Basic measurements, Methods, Uses of epidemiology, Infectious disease, epidemiology, Dynamics and modes of disease transmission, Host defenses and Immunizing agents, Hazards of Immunization, Disease prevention and control, Disinfection. Screening for Disease: Concept Of screening, Aims and Objectives, Uses and types of screening. Respiratory infections, Intestinal infections, Arthropod borne infections, Zoo noses, Surface infections, Hospital acute and chronic infections Poliomyelitis, Meningitis, Encephalitis, Tuberculosis, Filariasis, Leprosy, Tetanus Measles. Non-communicable diseases: Cardio vascular diseases: Coronary heart disease, Hypertension, Stroke, Rheumatic heart disease, Cancer, Diabetes, Obesity, Blindness, Accidents and Injuries.			
3	**PUBLIC HEALTH ADMINISTRATION**	**05**		**05**
	An overview of the health administration set up at Central and state levels. The national health program- highlighting the role of social, economic and cultural factors in the implementation of the national programs. Health problems of vulnerable groups- pregnant and lactating women, infants and pre-school children, occupational groups			
4	**HEALTH PROGRAMMES IN INDIA**	**05**		**05**
	Vector borne disease control program, National leprosy eradication program, National tuberculosis program, National AIDS control program, National program for control of blindness, Iodine deficiency disorders (IDD) program, Universal Immunization program, Reproductive and child health program, National cancer control program, National mental health program. National diabetes control program, National family welfare program, National sanitation and water supply program, Minimum needs program.			
5	**PREVENTIVE MEDICINE IN OBSTRECTICS PAEDIATRICS AND GERIATRICS:**	**10**		**10**
	MCH problems, Antenatal, Intranatal and post natal care, Care of children, Child health problems, Rights of child and Nationa policy for children, MCH services and indicators of MCH care Social welfare			

	program for women and children, - -Preventive medicine and geriatrics. Demography and Family Planning, Demographic cycle, Fertility, Family planning objectives of national family planning program and family planning methods, A general idea of advantage and disadvantages of the methods MCH problems, Antenatal, Intranatal and post natal care, Care of children, Child health problems, Rights of child and Nationa policy for children, MCH services and indicators of MCH care Social welfare program for women and children, Preventive medicine and geriatrics. Demography and Family Planning, Demographic cycle, Fertility, Family planning objectives of national family planning program and family planning methods A general idea of advantage and disadvantages of the methods.			
6	**NUTRITION AND ENVIRONMETAL HEALTH**	**11**		**11**
	Classification of foods, Nutritional profiles of principal foods, Nutritional problems in public health, Community nutrition program. Nutritional Diseases: Malnutrition, Nutritional disorders, osteomalacia, Rickets, Neuropathies due to vitamin deficiency, skeletal deformities.			
7	**ENVIRONMENT AND HEALTH**	**10**		**10**
	Components of environment, Water and air pollution and public health: Pollution control, Disposal of waste, Medical entomology. Hospital waste management: Sources of hospital waste, Health hazards, Waste management. Disaster Management: Natural and manmade disasters, Disaster impact and response, Relief phase, Epidemiologic surveillance and disease control, Nutrition, Rehabilitation, Disaster preparedness.			
8	**OCCUPATIONAL HEALTH**	**07**		**07**
	Occupational environment, Occupational hazards, Occupational diseases, Prevention of occupational diseases. Social security and other measures for the protection from occupational hazard accidents and diseases. Details of compensation acts Outline the Employees State Insurance scheme and its benefit workmen compensation act.			
9	**MENTAL HEALTH**	**03**		**03**
	Characteristics of a mentally healthy person, Types of mental, illness, Causes of mental ill health, Prevention, Mental health services, Alcohol and drug dependence. Emphasis on community aspects of mental health.			
10	**HEALTH EDUCATION**	**03**		**03**
	Concepts, aims and objectives, Approaches to health education, Models of health education, Contents of health education, Principles of health education, Practice of health education. List the principles of health education, methods of communication and role of Health education in rehabilitation service-AV aids, planning a health education Program. Define the role of community leaders and health professional in health education. Outline the role of international health agencies in rehabilitation of the disabled.			
	TOTAL	**64**		**64**

RECOMMONDED TEXT BOOKS

1. Park‟ s Textbook of Preventive & Social Medicine - K. Park
2. Textbook of Preventive & Social Medicine - P.K. Mahajan & M.C. Gupta
3. Essential of Community Medicine - Baride and Kulkarni
4. Indian Social Problems - Madan, Vol-I-Madras

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	**80**
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=50 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: (20 Marks)
Internal assessment follows as per University pattern

NON EXAMINATION COURSE
YOGA IN PHYSIOTHERAPY (SUBJECT CODE - SBVPT -605)
DIDACTIC = 48 HOURS

COURSE DESCRIPTION

This subject would be providing an insight into the therapeutic effects of Yoga. This will also help the student to correlate the application of Yoga as a therapy for various disorders.

OBJECTIVES

At the end of the course the candidate will be compliant in following domains:

Cognitive –

1. On successful completion of the course the student will be able to
2. Elaborate the basics of YOGIC sciences and the relevance of YOGA in the field of Physiotherapy
3. List down different schools of YOGA, the origin and genesis of YOGA.
4. Discuss the scientific correlation for YOGA and the description of human anatomy according to YOGA
5. Comprehend and analyze Indian tradition, values and the role of YOGA in community

Psychomotor –

1. Demonstrate and preach the elements of Yamma, Niama, Asana,Pranayama, Prathyahara, Dharana, Dhyana, Samadhi
2. Perform various asanas sequentially and demonstrate the same to patients
3. Perform various types of Pranayama and demonstrate the same to patients
4. Perform Mudhras, Shathkryas, and give due consideration to indication and contraindication before prescribing them to patients

Affective

The student should be able to go to the community and impart knowledge about YOGA, teach the values of YOGIC life and the importance of individual discipline. The students should be able to assist the community in performin various asanas, pranayamas, mudhras and Kriyas.

SYLLABUS

Sr. No.	Topics	Didactic Hours	Total Hours
1.	Introduction to YOGIC sciences Relevance of yoga in field of physiotherapy Different schools of YOGA	08	08
2.	Scientific correlation for YOGA Indian tradition, values and the role of YOGA in Community Anatomy of Human body according to YOGIC sciences – Shath Chakras, DhasaNaadis, Prana, Varmasthanas. YOGA – Ashtaanga YOGAM – Yamma, Niama, Asana,Pranayama, Prathyahara, Dharana, Dhyana, Samadhi Major types of YOGA - Pathanjali yoga, Hatha yoga, Raja Yoga	28	28
3	Asanas – in supine lying, prone lying, sitting and standing. Biomechanical analysis of various asanas, muscle work, Indication and contraindications Pranayama – the basic science of Naadishudhi Kapalapaathy, sooryanadi, Bhasthrika, Sheethali, Sheethakari, Brahmari and Moorcha pranayama and relevance to physiotherapy breathing exercises. The science of Mudhras and various types. Shathkryas – Basic sciences, indication and contraindication. Evidence based practices in YOGA and future scope of researches	**20**	**20**
	TOTAL	**56**	**56**

REFERENCE TEXT:

1. Colgrove YS, Sharma N, Kluding P, Potter D, Imming K, et al. (2012) Effect of Yoga on Motor function in People with Parkinson's Disease: A Randomized, Controlled Pilot Study. J Yoga Phys Ther 2:112

2. Diamond L (2010) Links between obesity and mental health. Clinical Advisor. March 2010

3. Guarracino J, Savino S, Edelstein S (2006) Yoga participation is beneficial to obesity prevention, hypertension control and positive quality of life. Topics in Clinical Nutrition 21: 108-113

4. Leddy AL, Crowner BE, Earhart GM (2011) Functional gait assessment and balance evaluation system test: reliability, validity, sensitivity, and specificity for identifying individuals with Parkinson disease who fall. Phys Ther 91:102-113

5. Schilling BK, Karkage RE, LeDoux MS, Pfeiffer RF, Weiss LW, et al. (2009) Impaired leg extensor strength in individuals with Parkinson disease and relatedness to functionalmobility. Parkinsonism Rela Disord 15: 776-780

NON EXAMINATION COURSE
ERGONOMICS AND OCCUPATIONAL HEALTH
(SUBJECT CODE – SBVPT -606)

Didactic hour = 48

OBJECTIVES OF THE COURSE:

In this subject, the student will learn in detail about assessment and management of basic ergonomics.

OUTLINE OF THE COURSE:

Sr no	Title of the unit	Didactic hour
1.	INTRODUCTION	8
2.	ERGONOMICAL ASPECTS OF POSTURE & MOVEMENT	12
3.	ENVIRONMENTAL FACTORS & ERGONOMICS	5
4.	WORK ORGANIZATION	5
5.	OFFICE ERGONOMICS	18
	Total	48

DETAILED SYLLABUS:

1	**INTRODUCTION**	**8 hrs**
1.1	Definitions of terms: Ergonomics, Ergonomists.	
1.2	Social significance of ergonomics.	
2	**ERGONOMICAL ASPECTS OF POSTURE & MOVEMENT**	**12 hrs**
2.1	Biomechanical, Physiological & Anthropometric factors related to ergonomics.	
2.2	Ergonomical aspects of Postures like Sitting, Standing, Hand & arm postures.	
2.3	Ergonomical aspects of movements like Pushing, Pulling, Lifting & carrying.	
2.4	Work Related Musculo Skeletal Disorders.	
3	**ENVIRONMENTAL FACTORS & ERGONOMICS**	**5 hrs**
3.1	Noise, Light, Vibration, Climate & Chemical substances.	
4	**WORK ORGANIZATION**	**5 hrs**
4.1	Flexible forms of organizations, Autonomous groups, Coaching management styles.	
5	**OFFICE ERGONOMICS**	**18 hrs**
5.1	Computer & work station equipment.	
5.2	Work station analysis. Seating in industry.	
5.3	Various ergonomics protocol for occupational disorders	

STUDENT LEARNING OUTCOMES/OBJECTIVES:

1. At the end of the semester the student will be able:
2. Identify & analyze ergonomical aspects related to posture, movement, work & office.
3. Correct the faulty ergonomics & thereby refrain the individuals from musculoskeletal problems.

RECOMMENDED STUDY MATERIAL: TEXTBOOKS:

1. Ergonomics for Beginners. Jan dul & Bernard Weerdmeester, 2nd edition.
2. Ergonomics for Therapist. Karen Jacobs, Third edition
3. REFERENCE BOOKS:
4. Elements of Ergonomics Programs: A Primer Based On Workplace Evaluations of Musculoskeletal Disorders, Alexander L. Cohen.
5. Ergonomics and the management of musculoskeletal disorders, Martha J. Sanders.

CLINICAL EDUCATION – III

COURSE CODE	COURSE	TOTAL HOUR	CREDIT
SBVPT - 607	CLINICAL EDUCATION - III	128	4

At the end of clinical postings the student should be able to:

1. Explain the role of physiotherapy in various impairments Demonstrate the skill of positioning and handling patients in the bed
2. Demonstrate skill in rapport with patients, care givers and collecting relevant subjective date based on problem oriented medical record.
3. Demonstrate specific objective measures and interpret them.
4. Have skill in recording the subjective and objective findings on the body chart. Have skill in documenting the subjective and objective date in the case records. Use knowledge of orthotics and prosthetics wherever applicable.

Students' activity:

Student will be posted in outpatient physiotherapy department and inpatient areas. He/ she will be supervised and trained to collect subjective and objective data during their postings. They will be given opportunity to handle patients to position, to provide simple exercises, helping during mobilization. The student should improve their skill in documentation and handling during this posting.

Evaluation:

Student is expected to write minimum three patients per posting. The cases will be presented and discussed by the faculty. The presentation and evaluation skill along with documentation ability will be evaluated.

VII - SEMESTER

PHYSIOTHERAPY IN NEUROLOGY AND PSYCHOSOMATIC DISORDERS
(SUBJECT CODE - SBVPT -701)
(Didactic 32 hrs + Clinical 64 hrs) TOTAL 96 Hrs

COURSE DESCRIPTION:

This course includes a study of applied anatomy and physiology of the neuromuscular system along with the pathological changes and patho-mechanics of the system. It discusses relevant tests and measures for determining impairment and differentiating the diagnosis based on the specificity and sensitivity of the assessment instruments as related to patients with disorders of the neuromuscular system.

Neurophysiotherapy curriculum emphasizes the selection and use of measurement tools and management techniques based on the best available evidence. Physiotherapy strategies for assessment and treatment address structural & functional impairments and activity limitations of individuals and population (both adults & pediatric) in the context of their personal needs/goals including participation restrictions and the environment they live in.

The permanence of many neurological impairments mandates that, where possible, emphasis is placed on prognosis and criterion – referenced outcomes to establish realistic goals.

The therapeutic approach is patient and family focused with a biopsychosocial emphasis that embraces inter professional collaboration and requires ongoing communication, education and negotiation with the client, family, care giver and healthcare team.

S. NO	TOPIC	Didactic hours	Clinical hours	Total hours
1	PRINCIPLES OF ASSESSMENT AND MANAGEMENT	10	22	32
2	NEURO PHYSIOLOGICAL APPROACHES	07	12	19
3	PHYSIOTHEAPY MANAGEMENT OF NEUROLOGICAL CONDITIONS IN ADULT	08	22	30
4	PHYSIOTHEAPY MANAGEMENT OF NEUROLOGICAL CONDITIONS IN PAEDIATRICS	07	08	15
	TOTAL	32	64	96

OBJECTIVES:

At the end of the course, student will

Cognitive:

1. Be able to identify and analyze movement dysfunction due to neuromuscular skeletal disorders in terms of biomechanical and biophysical basis, correlate the same with the health condition, routine electrophysiological, radiological and biochemical investigations, and arrive at appropriate physical therapy diagnosis using WHO-ICF with clinical reasoning.
2. Be able to plan realistic goals based on the knowledge of prognosis of the disease of the nervous system and prescribe appropriate, safe evidence based physiotherapy interventions with clinical reasoning.
3. Understand infection control principles, best practices and techniques applicable to a range of setting where clients with neurological conditions would receive physiotherapy services.
4. Know determinacy of health (environmental, nutritional, self-management/ behavioral factors) and chronic disease management principles related to neurological health.

Psychomotor:

1. Be able to develop psychomotor skills to implement timely and appropriate physiotherapy assessment tools/techniques to ensure a holistic approach to patient evaluation in order to prioritize patient‟s problems.
2. Be able to select timely physiotherapeutic interventions to reduce morbidity and physiotherapy management strategies, suitable for the patients‟ problems and indicator conditions based on the best available evidence.
3. Implement appropriate neuro-physiotherapeutic approaches, electrotherapeutic modalities, joint and soft tissue mobilizations and ergonomic advice for neuromuscular skeletal systems, contextual factors to enhance performance of activities and participation in society.

Affective:

Acquire professional, technical, ethical skills by demonstrating safe, respectful and effective performance of physical handling techniques taking into account the patient‘s clinical neurological condition, the need for privacy, the physiotherapist, the resources available and the environment.

SYLLABUS

S. NO	TOPIC	Didactic hours	Clinical hours	Total hours
1	**PRINCIPLES OF ASSESSMENT AND MANAGEMENT**	**10**	**22**	**32**
	Higher Mental Function And Cognitive Disorders, and Its PT Management Cranial Nerves Assessment and Its PTManagement Perceptual disorders and Its PT Management Motor assessment and Its PT Management Tone Assessment Types, Patho Physiology and Its PT Management Sensory System and Sensory Re-Education Balance, Posture, Coordination Assessment and Its PT Management Gait Assessment and Its PT Management Assessment of Bladder and Bowel, Functional ability and its Management ICU Management and Management Of Unconscious Patient			
2	**NEURO PHYSIOLOGICAL APPROACHES**	**07**	**12**	**19**
	Motor control and learning to understand various neuro physiological Approaches Motor Relearning Program Roods Approach Proprioceptive Neuromuscular Facilitation Vojta‘s Approach Brunstrom Approach Ndt/Bobath Johnstone, Conductive Education			
3	**PHYSIOTHEAPY MANAGEMENT OF NEUROLOGICAL CONDITIONS IN ADULT**	**08**	**22**	**30**
	Stroke MND Multiple Sclerosis			

	Polyneuropathy Spinal Cord Lesions TBI Peripheral Nerve Injury Parkinson's Disease			
4	**PHYSIOTHEAPY MANAGEMENT OF NEUROLOGICAL CONDITIONS IN PAEDIATRICS**	**07**	**08**	**15**
	Cerebral Palsy Spina Bifida and Hydrocephalus Poliomyelitis Muscular Dystrophy			
	TOTAL	**32**	**64**	**96**

RECOMMENDED TEXT BOOKS:

1. Cash's Text book for Physio Therapist in Neurological disorders-Jaypee bros.
2. Proprioceptive Neuro muscular Facilitation – Herman Kabat
3. Practical Physical Therapy – Margaret Hollis
4. Therapeutic exercise – O" Sullivan
5. Right in the middle – Patricia Davis
6. Stroke rehabilitation – Margaret Johnstone
7. Pediatric Physiotherapy – Roberta Shepherd.

SUPERVISED CLINICAL PRACTICE

During the supervised clinical practice, student should be able to successfully execute the competencies in assessment, physical diagnosis on ICF basis, plan of care and therapeutic interventions relating to neuromuscular dysfunctions. Student should become familiar with performance of these skills in all settings (inpatient and outpatient) as well as on all types of conditions (surgical, non-surgical, pediatric and geriatric). Student should learn to objectively perform these skills under the supervision of trained physical therapists. Student is required to keep a performance record of all listed competencies during the clinical practice and successfully perform on real patients during the final evaluation of the course.

CLINICAL SKILLS:

Learning of facilitatory and inhibitory Neurotherapeutic techniques related to adult and paediatric neurological conditions

1. Sensory testing – Sensory Re-education
2. MMT / voluntary control – muscle re-education
3. Use of appropriate electrical modalities for muscle reeducation / pain relief
4. Management of tone
5. Postural assessment & postural correction
6. Transfer training

7. Functional re-education
8. Gait assessment- gait training
9. Co-ordination testing & training
10. Strategies for balance training
11. Fitness training for patients having neurological problems.
12. Use of outcome measures & quality of life questionnaire.

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

PRACTICALS /VIVA VOCE- 80 Marks	**Maximum Marks**
Total	**80**

INTERNAL ASSESSMENT: (20marks) for both theory and practical separately. Internal assessment given for Theory and Practical follows as per University pattern

PHYSIOTHERAPY IN CARDIOVASCULAR AND RESPIRATORY CONDITIONS

(SUBJECT CODE - SBVPT -702)
(Didactic 32 hrs + Clinical 64 hrs) TOTAL = 96 Hrs

COURSE DESCRIPTION:

This course includes a study of applied anatomy and physiology of the Cardiovascular and Respiratory system along with pathological changes and patho-mechanics of the system. It discusses relevant tests and measures for determining impairment and differentiating the diagnosis based on the specificity and sensitivity of the assessment instruments as related to patients with disorders of the Cardiovascular and Respiratory system.

Cardiovascular and Respiratory Physiotherapy focuses on maximizing functional independence and well-being. This course uses a patient-centered model of care with multi-system assessment, evidence based interventions and a significant patient education component to promote healthy active lifestyle and community-based living. The candidate will have a sound understanding of theory, scientific evidence and best practices in the areas of the Cardio vascular and Respiratory System including critical care, Psychosocial Sciences, Movement Sciences and Physiotherapy.

S. NO	TOPIC	Didactic hours	Clinical hours	Total hours
1	REVIEW OF BASIC APPLIED ANATOMY & PHYSIOLOGY	01	-	01
2	INVESTIGATION AND EXERCISE TESTING	04	04	08
3	EXERCISE PHYSIOLOGY	02	05	07
4	PHYSIOTHERAPY SKILLS	02	10	12
5	APPLICATION OF ICF MODEL	01	-	01
6	PHYSIOTHERAPY MANAGEMENT	10	20	30
7	CARDIAC REHABILITATION	03	06	09
8	PULMONARY REHABILITATION	02	06	08
9	ICU EVALUATION & MANAGEMENT	02	06	08
10	INTRODUCTION TO FUNCTIONAL SCALES	02	02	05
11	BASIC LIFE SUPPORT (C.P.C.R.)	03	05	08
	TOTAL	32	64	96

OBJECTIVES:

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

Cognitive:

1. Identify and analyze cardio-vascular & pulmonary dysfunction in terms of bio-mechanical, and Bio-physical basis and correlate the same with the Health condition, routine electrophysiological, radiological, and biochemical investigations and arrive at appropriate Physical therapy diagnosis using WHO-ICF tool (Disability, Functioning and contextual factors) with clinical reasoning.
2. Plan, prescribe appropriate, safe physiotherapy interventions with clinical reasoning for and prevention of impairments, activity limitations, participation restrictions and environmental barriers related to cardio-vascular & pulmonary dysfunction in acute care settings, at home , work place, in society & in leisure activities.

Psychomotor:

1. Utilize skills such as executing exercise tests, PFT, Ankle brachial index, arterial & venous insufficiency tests
2. Utilize psychomotor skills to implement appropriate bronchial hygiene therapy, therapeutic exercise, electrotherapeutic modalities, CPCR, Intensive (critical) care, joint and soft tissue mobilizations, offering ergonomic & energy conservation advice for patients with cardio-vascular & pulmonary dysfunction.
3. Utilize the knowledge about contextual factors to enhance capacity and performance of activities and participation in society
4. Utilize the skill to deliver cardiac, pulmonary & vascular rehabilitation

Affective:

Acquire professional, technical, ethical skills by demonstrating safe, respectful and effective performance of physical handling techniques taking into account the patient's clinical cardiorespiratory condition, the need for privacy, the physiotherapist, the resources available and the environment.

SYLLABUS

S. NO	TOPIC	Didactic hours	Clinical hours	Total hours
1	**REVIEW OF BASIC APPLIED ANATOMY & PHYSIOLOGY**	**01**	**-**	**01**
	Pulmonary Anatomy & Physiology Cardiac anatomy & Physiology Cardiac and Respiratory Pharmacology Biomechanics of Thorax (Revision)			
2	**INVESTIGATION AND EXERCISE TESTING**	**04**	**04**	**08**
	Investigation & Clinical Implication - X-ray, PFT, ABG, ECG, ABI, claudication time, pulses, auscultation, postural hypotension Stress testing Minute Walk test & Harward Step test Skill & Interpretation Shuttle Walk Test & Modified Bruce Protocol (should be interpretation only)			
3	**EXERCISE PHYSIOLOGY**	**02**	**05**	**07**
	Nutrition(Bioenergetics) Total energy expenditure (MET) sources Acute and chronic adaptation to exercise Complication of bed rest/ Immobilization & prevention Aerobic & Anaerobic Training, Principles of Exercise Prescription Aging in Cardiovascular & Respiratory System			
4	**PHYSIOTHERAPY SKILLS**	**02**	**10**	**12**
	Bronchial Hygiene Therapy-Postural Drainage, Forced Expiratory Technique, Breathing Exercise, ACBT, Autogenic Drainage Adjunct Therapy – Flutter & PEP Therapy Therapeutic positioning to improve ventilation & perfusion matching Therapeutic positioning to alleviate dyspnoea Nebulisation &			

	Humidification Lung Expansion Therapy Neurophysiologic facilitation of respiration Electrotherapeutic modalities for pain, swelling &wound healing. Therapeutic exercise program to alleviate pain, to achieve mobility, to correct posture and improve peripheral circulation. Therapeutic exercise program to strengthen respiratory muscles Deliver Ergonomic advice, energy conservation advice, Home Exercise Program & modifications of contextual factors. Applied Yoga in Cardio-respiratory conditions			
5	**APPLICATION OF ICF MODEL**	**01**	**-**	**01**
	To plan effective Short term and long term goals to enhance functioning of Cardiovascular & Respiratory Dysfunction Set patient specific goals and expected outcome within time frame with clinical reasoning Documentation			
6	**PHYSIOTHERAPY MANAGEMENT**	**10**	**20**	**30**
	Medical & Surgical Cardiovascular Diseases i) Hypertension ii) I.H.D. , Myocardial Infarction iii) Valvular Heart Disease iv) Congenital v) Acquired vi) Thrombosis, Phlebitis and Phlebothrombosis vii) Varicose Veins and ulcers viii) Other Arterial disorders **Obstructive & Restrictive Respiratory disorders** i) Bronchitis ii) Emphysema iii) Bronchial Asthma iv) Cystic Fibrosis v) Occupational lung diseases vi) Interstitial Lung Diseases **General Respiratory Infection** i) Tuberculosis ii) Pneumonia iii) Lung Abscess iv) Bronchiectasis v) Pneumothorax vi) Hydropneumothorax vii) Atelectasis viii) Pleuritis ix) Pleural Effusion x) Empyema & other Pleural Disorders **Neonatal & Paediatric Respiratory Infection** i)ARDS ii) Meconium aspiration iii) Pneumonitis iv) Pneumonia v) Childhood Asthma			

	vi) Cystic fibrosis and chronic lung disease **e. Pulmonary Surgeries** Traumatic and Surgical conditions of Chest, Lung, Pleura and Mediastinum **f. General abdominal & Oncological Surgeries** i) Pre and Post Operative care ii) Complication & Management. **g. Burns (Head Face neck & thoracic, inhalation burns)** Acute care Management Only **h. Diabetic & Vascular Ulcer** Amputations (Stump care only) **i. Metabolic Syndrome** i) Diabetes (Mellitus & Insipidus) ii) Obesity **j. Musculoskeletal dysfunction** i) Flail chest ii) Scoliosis iii) Kyphosis			
7	**CARDIAC REHABILITATION**	**03**	**06**	**09**
	i) Definition, ii) Indications, Contraindications iii) Phases(I,II,III,& IV) iv) Outcome Measures			
8	**PULMONARY REHABILITATION**	**02**	**06**	**08**
	i) Definition, ii) Indications iii) Contraindications iv) Components of management v) Outcome measures			
9	**ICU EVALUATION & MANAGEMENT**	**02**	**06**	**08**
	a) Basic evaluation b) Principles of ICU Monitoring c) Mechanical Ventilator modes d) Suctioning & Humidification e) Therapeutic intervention in i)Tetanus, Head Injury ii)Pulmonary Edema iii) Multiple Organ Failure iv) Neuromuscular Disease v)Smoke Inhalation vi) Poisoning, vii) Aspiration near Drowning viii) A.R.D.S ix) Shock x)Guillian Barre Syndrome xi) Spinal Cord Injury & Other Acute xii) Respiratory Disorders			

10	**INTRODUCTION TO FUNCTIONAL SCALES**	**02**	**02**	**05**
	i) Generic and disease specific ii) Patient's perception of his disability an functioning and correlating the same with therapist evaluation			
11	**BASIC LIFE SUPPORT (C.P.C.R.)**	**03**	**05**	**08**
	TOTAL	**32**	**64**	**96**

S.NO	**PRACTICAL**
1	Positioning, breathing control strategies (e.g. Pursed Lip Breathing, Sustained Maximal Inspiration, deep breathing), ventilator muscle training. Relaxation training, positioning, early mobilization.
2	Airway clearance techniques, Suctioning, use of mechanical assistive devices (e.g. Positive Expiratory Pressure, Flutter, Vest, etc.), postural drainage and percussions, coughing maneuvers, medication delivery e.g. Nebulization ,oxygen
3	Physical handling Techniques (e.g. positioning and donning, doffing, fitting and adjusting Stockings for vascular disorders, bandaging , dressing, taping, splints and orthotics pertaining to cardiovascular and pulmonary impairments)
4	PNF for breathing facilitation and inhibition
5	Ability to use a variety of exercise/movement equipment (e.g. treadmill, heart rate monitor, Oximeter, pressure biofeedback unit, free weights, balance boards, theraballs, etc)
6	Prescription and education: aerobic, endurance and interval exercise training, resistance (strength, Endurance and power) training, flexibility training. Formulating cardiac, pulmonary rehabilitation program.
7	Develop skills to monitor compliance of the client in executing rehabilitation program & identifying co-morbid & contextual factors affecting it.
8	Familiarity and skill of use of various monitoring and treatment equipments in ICU
9	Use of physical and electrical agents for pain relief and wound care
10	Skill of administering basic life support

Documentation:

Presentation & Documentation of 8 cases for patient management using ICF Model as following:
(Assessment, Evaluation, Diagnosis, Prognosis, Intervention, Outcome)

i) Medical Respiratory condition
ii) Pediatric respiratory condition
iii) Thoracic Surgical condition
iv) Cardiac Medical condition
v) Cardiac Surgical condition
vi) Peripheral vascular disorders
vii) Burns of Head, Neck & Face (Acute phase only)
viii) Abdominal surgical condition

RECOMMENDED TEXT BOOKS

i) Cash's Textbook for Physiotherapists in Chest, Heart & Vascular diseases
ii) Cash's text book in General Medicine & Surgical conditions for Physiotherapists

iii) Chest Physical therapy & pulmonary rehabilitation -- Donna Frown Filter
iv) Brompton's hospital guide
v) Physiotherapy in respiratory and cardiac problem - Pryor and Prasad
vi) Physiotherapy in Cardio – Vascular rehabilitation – Webber
vii) Chest physiotherapy in intensive care Colin Mackenzie
viii) Mechanical ventilation – Ashfaq Hasan
ix) Management of Mechanical ventilation – Pierce

RECOMMENDED REFERENCE BOOKS

i) Exercise & the Heart – Wenger
ii) ECG – P.J. Mehta
iii) Cardiopulmonary Physical Therapy -- Irwin Scott
iv) Fundamental of respiratory care – Egan's
v) Essential of cardio pulmonary physical therapy – Hillgass And Sodosky
vi) Exercise physiology, energy, nutrition and human performance – M"cardle
vii) Exercise testing and prescription - Skinner
viii) Exercise in health and disease-Pollock

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

PRACTICALS /VIVA VOCE- 80 Marks	**Maximum Marks**
Total	**80**

INTERNAL ASSESSMENT: (20marks) for both theory and practical separately. Internal assessment given for Theory and Practical follows as per University pattern

RESEARCH METHODOLOGY AND BIOSTATISTICS

(SUBJECT CODE - SBVPT -703)

Didactic hours = 64hrs COURSE DESCRIPTION:

To provide the students with the necessary concepts of statistics to enable them to realize a research project in the field of Physiotherapy. It involves selection of appropriate statistical techniques to address questions of medical and physiotherapeutic relevance; selects and applies appropriate statistical techniques for managing common types of medical / physiotherapeutic data. It uses various software packages for statistical analysis and data management. It interprets the results of statistical analyses and critically evaluates the use of statistics in the medical literature. It communicates effectively with statisticians and the wider medical community, in writing and orally through presentation of results of statistical analyses. It explores current and anticipated developments in medical statistics as applied to physiotherapists. It is designed to teach entry-level physical therapy students the fundamentals of reading and understanding research methods, design, and statistics.

Objectives Cognitive

i) Judge and justify the need for evidence based physiotherapy practice.

ii) Enumerate the steps in Physiotherapy research process.

iii) Describe the importance & use of biostatistics for research work.

Psychomotor

i) Acquire skills of reviewing literature, formulating a hypothesis, collecting data, writing research proposal etc.

ii) Develop skill in utilizing the computer knowledge for data processing, presentation and interpretation.

Affective

At the end of training the student should be able to -

i) The student should be able to understand the research process and the components involved in a research process.

ii) The student is expected to demonstrate a high degree of reasoning, commitment and accountability.

SYLLABUS

S. NO	TOPIC	Didactic hours
1	**RESEARCH IN PHYSIOTHERAPY**	**05**
	1. Introduction 2. Research for Physiotherapist: Why? How? When? 3. Research – Definition, concept, purpose, approaches 4.Internet sites for Physiotherapists.	
2	**RESEARCH FUNDAMENTALS**	**05**
	1. Define measurement 2. Measurement framework 3. Scales of measurement 4. Pilot Study 5. Types of variables 6. Reliability & Validity 7. Drawing Tables, Graphs, Master chart	
3	**WRITING A RESEARCH PROPOSAL**	**05**
	1. Defining a Problem 2. Review of Literature 3. Formulating a question, Operational Definition 4. Inclusion & Exclusion criteria 5. Methodology- Forming groups Data collection & method for analysis 6. Informed Consent Steps of documentation – Title to Scope of study	
4	**RESEARCH ETHICS**	**05**
	1. Importance of Ethics in Research 2. Main ethical issues in human subjects" research 3. Main ethical principles that govern research with human subjects 4. Components of an ethically valid informed consent for research.	
5	**OVERVIEW OF STUDY DESIGNS**	**05**
	1. Observational- a. Descriptive- Case study/ series, Cross sectional, Normative, Correlational b. Analytical; case control, cohort 2.Experimental- True & quasiexperimental	
6	**SAMPLING**	**08**
	1. Random and non-random sampling. 2. Various methods of sampling – simple random, stratified, systematic, cluster and multistage. Sampling and non-sampling errors and methods of minimizing these errors.	
7	**BASIC PROBABILITY DISTRIBUTIONS AND SAMPLING DISTRIBUTIONS**	**10**
	1. Concept of probability and probability distribution. 2. Normal, Poisson and Binomial distributions, parametersand application. 3. Concept of sampling distributions. 4. Standard error and confidence intervals. 5. Skewness and Kurtosis	

8	**TESTS OF SIGNIFICANCE**	**07**
	1. Basics of testing of hypothesis – Null and alternate hypothesis, type I and type II errors, level of significance and power of the test, p value. 2. Tests of significance (parametric) - t- test (paired and unpaired), Chi square test and test of proportion, one way analysis of variance. 3. Repeated measures analysis of variance. 4. Tests of significance (non-parametric)- Mann-Whitney u test, Wilcoxon test 5. Kruskal-Wallis analysis of variance. Friedman's analysis of variance.	
9	**CORRELATION AND REGRESSION**	**06**
	Simple correlation – Pearson's and Spearman' s; testing the significance of correlation coefficient, linear and multiple regressions.	
10	**STATISTICAL DATA**	**05**
	Tabulation, Calculation of central tendency and dispersion, Using software packages, Analysis, Presentation of data in diagrammatic & Graphic form	
11	**RESEARCH REPORT**	**05**
	Overview, Types and Publication	
	TOTAL	**64**

RECOMMENDED TEXT BOOK

1. Methods in Biostatistics - B.K. Mahajan
2. Research for physiotherapist-Hicks

Section Separation and Marks Distribution:

Section A – Research methodology - 40 Marks
Section B – biostatistics - 40 Marks

Question Paper Pattern:

Section A: Research methodology **(Total Marks: 40)**

S. No	Description	No. of Questions	Marks Allotted	Total Marks (40)
1	Essay	01	15	15
2	Short Notes	03	05	15
3	Short Answer Questions	05	02	10

Section B - biostatistics **(Total Marks: 40)**

S. No	Description	No. of Questions	Marks Allotted	Total Marks (40)
1	Essay	01	15	15
2	Short Notes	03	05	15
3	Short Answer Questions	05	02	10

INTERNAL ASSESSMENT: (20marks)

Internal assessment as per University pattern

internal assessment average of both research methodology and biostatistics will be calculated to 20 marks

COMMUNITY BASED REHABILITATION

(SUBJECT CODE - SBVPT -704)

Didactic hour = 64 hours

COURSE DESCRIPTION

This course equips the student with community based rehabilitation perspective. It provides knowledge on women health problems, geriatric issues handled by physiotherapists. Health promotion, sports related issues and industrial requirements of physiotherapy are also covered.

LEARNING OBJECTIVES

After 75 hours of lectures, demonstration student will be able to explain role of physiotherapy in health promotion in community and women"s health. He/ she will be able to demonstrate evaluation and training of geriatric population, sports personnel. He/ she will be able to articulate need of physiotherapy in a industrial set up and explain ergonomic assessment.

COURSE OUTLINE

Sl no:	Topic	Didactic hour	Practical hour	Total hour
1	**UNIT I: women's health**	**15**		**15**
	Physiological adaptation & consideration of exercise during puberty; pregnancy; & menopause-choice of concern evaluation, planning & management. Prenatal & antenatal exercises; relief of pain. Relaxation exercises & specific breathing pattern during labor. Post natal care including care of the breasts- use of special garments. Post natal exercise & management of scar following caesarian section. Diastases recti management. Urogenital dysfunction – management of incontinence – electro & exercise re-education, care of the scars. Exercise programme for obesity related sterility. Abdominal; pelvic floor & back extension exercises following gynecological surgeries; Relief of pain. Deep heat therapy for pelvic infection			
2	**UNIT II**: Geriatrics	**10**		**10**
	Physiology of ageing process. Degenerative systemic changes – musculoskeletal (atrophy, osteoporosis) stiffness, hypotonia, cardio- respiratory problems, post menopausal changes, neurological changes- senile mental changes-role of physical therapeutics. Psycho-socio-economical aspects of ageing. Assessment & evaluation- prescription of exercise & training. Institutionisation of the aged role of physiotherapy in planning; developing & management.			
3	**UNIT III:** Health promotion	**07**		**07**
	Exercise: testing, evaluation, prescription & training for maintenance of health for (i) children growth, body composition, (ii) general health, (iii) aged persons. Exercise in clinical set up: obesity & diabetic testing & training. Exercise for mental health / stress: prescription & training.			

4	**UNIT IV:** Sports physiotherapy	**17**		**17**
	Energy for physical activity: Energy value of food, energy transfer in the body, energy transfer in exercise, human energy expenditure. Applied exercise physiology: Training for anaerobic andaerobic power, Muscle strength training. Effect of nutrition in sports & general health. Sports testingfor individual event: fitness testing. Body temperature: effect of environment & climatic condition on sports performance: adaptations / training. Sports injuries (musculoskeletal / open injuries) pathomechanics – preventive measures – testing / prescription training – emergencies on the field: management. hormones: females in sports. Sports & general health			
5	**UNIT V - Industrial health: Fitness testing & Ergo therapeutics**	**17**		**17**
	Factors responsible for occupational hazards: stress, faulty working conditions (biomechanical aspects) thermal stress; overuse; pollution: noise, air, water & food. Accidents: electrical, mechanical, thermal & chemical. Disability evaluation (functional), interpretation & legislation: principles, techniques: suggestions for compensation. Ergonomic evaluations: evaluation of working area; type of work; fitness testing for the same. Work capacity evaluation & work hardening. Preventive physiotherapy measures. Fitness programmes for specific work. Sports & industry. Planning, developing & management towards work efficiency productivity, avoidance of accidents & other use. Relaxation program for stress.			
	Total	**64**		**64**

EVALUATION:
Unit tests, term examinations, seminars and assignments are given to evaluate the student.

Text Books

S.NO	Title
1	Physiotherapy in Gynaecological &Obstetrical conditions – by Poldon – Jaypee
2	Text book of Work Physiology - Astrand P A Rodahe K
3	Therapeutic Exercise – By Kisner & Colby**.**
4	Text book of community medicine &Community Health – by Bhaskar Rao**.**
5	Geriatrics Physiotherapy – By Andrew Guccione**.**
6	Industrial Therapy – by Glenda Key
7	Preventive &Social Medicine –by Park

Reference Books

SI:No	Title
1	Mural K F –Ergonomics: Man in his working environment
2	Exercise Physiology-by Mc 'Ardle.
3	Musculoskeletal Disorders in work place: Principle &Practice-by Nordin Andersons pope.
4	Indian Social Problem Vol 2 – by G R Madan.
5	Disability 2000 - RCI.
6	Legal Rights of disabled in India-by Gautam Bannerjee.
7	ICF –WHO Health Organisation 2001 publication.

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: (20 Marks)

Internal assessment follows as per University pattern

NON EXAMINATION COURSE
DIAGNOSING IMAGING FOR PHYSIOTHERAPIST

COURSE CODE : SBVPT-707
DIDACTIC HOURS = 48 HOURS

Course Description :

This course covers the study of common diagnostic and therapeutic imaging tests. At the end of the course students will be aware of the indications and implications of commonly used diagnostic imaging tests as they pertain to patient‘s management. The course will cover that how X-Ray, CT, MRI, Ultrasound and Other Medical Images are created and how they help the health professionals to save lives.

Sl:No	Topics	Didactic hour	Practical	Total hour
1	**IMAGE INTERPRETATION**	08		08
	History A New Kind of Ray How a Medical Image Helps What Imaging Studies Reveal Radiography(x-rays) Fluoroscopy, Computed Tomography (CT) Magnetic Resonance Imaging (MRI) Ultrasound, Endoscopy.			
2	**RADIOGRAPHY AND MAMMOGRAPHY**	06		06
	Equipment components Procedures for Radiography & Mammography Benefits versus Risks and Costs Indications and contraindications.			
3	**FLUOROSCOPY**	05		05
	What is Fluoroscopy? Equipment used for fluoroscopy Indications and Contra indications How it helps in diagnosis The Findings in Fluoroscopy Benefits versus Risks and Costs.			
4	**COMPUTED TOMOGRAPHY (CT)**	06		06
	What is Computed Tomography? Equipment used for Computed Tomography Indications and Contra indications How it helps in diagnosis The Findings in Computed Tomography Benefits versus Risks and Costs.			
5	**MAGNETIC RESONANCE IMAGING (MRI)**	06		06
	What is MRI? Equipment used for MRI Indications and Contra indications How it helps in diagnosis The Findings in MRI Benefits versus Risks and Costs Functional MRI.			

6	**ULTRASOUND**	**08**		**08**
	What is Ultrasound? Equipment used for Ultrasound Indications and Contra indications How it helps in diagnosis The Findings in Ultrasound Benefits versus Risks and Costs.			
7	**ENDOSCOPY**	**05**		**05**
	What is Endoscopy? Equipment used for Endoscopy Indications and Contra indications How it helps in diagnosis The Findings in Endoscopy Benefits versus Risks and Costs.			
8	**NUCLEAR MEDICINE**	**04**		**04**
	What is Nuclear Medicine? Equipment used for Nuclear Medicine Indications and Contra indications How it helps in diagnosis. Benefits versus Risks and Costs.			
	Total	**48**		**48**

Reference books :

Diagnostic Imaging for Physical Therapists , 1st Edition

Authors: James Swain Kenneth Bush Juliette Brosing , **eBook ISBN:** 9781455757398,

eBookISBN: 9781416069508, **eBook ISBN:** 9781455777006, **Hardcover ISBN:** 9781416029038

Imprint: Saunders, **Published Date:** 21st October 2008, **Page Count:** 336

CLINICAL EDUCATION - IV

COURSE CODE	COURSE	TOTAL HOUR	CREDIT
SBVPT - 708	CLINICAL EDUCATION - IV	128	4

LEARNING OBJECTIVE:

At the end of clinical postings the student should be able to

1. List down relevant objective findings with respect to clinical conditions.
2. Demonstrate skill in objective examination and interpret them.
3. Set appropriate goals and pain treatment.
4. Handle patients under supervision.
5. Demonstrate skill of handling equipments
6. Have developed time management in clinical area.
7. Prepare and handle the patient for therapy
8. Demonstrate clinical application of gym equipments for therapy

Students's activity:

Student will be posted in outpatient physiotherapy department and inpatient areas. He/ she will be supervised and trained to collect subjective and objective data during their postings. They will be given opportunity to handle patients to position, to provide simple exercises, helping during mobilization. The student should improve their skill in documentation and handling during this posting.

Evaluation:

Student is expected to write minimum three patients per posting. The cases will be presented and discussed by the faculty. The presentation and evaluation skill along with documentation ability will be evaluated

VIII - SEMESTER

ADVANCED PHYSICAL AND FUNCTIONAL DIAGNOSIS

(SUBJECT CODE - SBVPT -801
Didactic(32) + Practical Hour(64) = 96 hour

COURSE DESCRIPTION:

1. Functional Diagnosis & Physiotherapeutic Skills is a stepping stone to introduce students to actual concepts of PT assessment and later to the treatment concepts
2. Functional Diagnosis focuses on the assessment of all the body systems i.e. Musculoskeletal, Neurological and Cardiovascular-Respiratory in order to study the various impairments and their impact on activity and participation of the individual taking into consideration the contextual factors as well. It also emphasizes on the clinical reasoning of the underlying components of a universal evaluation tool (ICF) for a better understanding of the patient in a holistic manner. The student is also subjected to learn basics of manipulative, cardiovascular-respiratory and neuro-therapeutic skills on models so that he/she will be able to apply these principles eventually on patients.
3. The student will also gain a sound knowledge of electro-diagnosis, which is an integral partof Functional Diagnosis.

S. NO	TOPIC	Didactic hours	Practical / Laboratory Skill hours	Total hours
1	SECTION-I INTERNATIONAL CLASSIFICATION OF FUNCTION, DISABILITY & HEALTH (ICF)	05		05
2	SECTION-II MUSCULOSKELETAL EVALUATION & MANIPULATIVE SKILLS	10	22	32
3	SECTION –III CARDIO VASCULAR RESPIRATORY EVALUATION & RELATED SKILLS	07	22	29
4	SECTION – IV NEUROTHERAPEUTIC EVALUATION & ELECTRO DIAGNOSIS	10	22	32
	TOTAL	32	64	96

COURSE OBJECTIVES:

Cognitive:

1. At the end of the course, student will be able to:
2. Understand the use of ICF.
3. Acquire the knowledge of human growth and development from new life to birth and adulthood
4. Understand structure and function of nerve and muscle as a base for understanding the electro-diagnostic assessment.
5. Understand the use of appropriate tools or instruments of assessment in Musculoskeletal, Neurological and Cardio-vascular conditions.
6. Understand the theoretical basis and principles of manipulative skills, neurotherapeutic skills and skills of cardiopulmonary care and resuscitation
7. Document results of assessment to evaluate the patient from time to time.

Psychomotor:

1. Student will be able to:
2. Perform assessment of measures of body structures and functions related to tissue mechanics.
3. Perform assessment of measures of body structures and functions related to motor control affecting activity and participation, quality of life and independence.
4. Perform the skill of electro-diagnosis (SD Curve) and observe skills of EMG and NCV studies, to understand the documentation of finding of these studies.
5. Interpretation and analysis of assessment and findings.
6. Demonstrate skills of manual therapy musculoskeletal, neurotherapeutics and cardiovascular and respiratory skills on models (Laboratory work).

Affective:

1. Student will be able to:
2. Select appropriate assessment techniques to facilitate safety, sensitive practices in patient comfort and effectiveness.
3. Demonstrate safe, respectful and effective performance of physical therapy handling techniques taking into account patient" s clinical condition, need for privacy, resources available and the environment.
4. Follow the principles of appropriate handling technique that is draping, hand placement, body part positioning, manual techniques, lifting and transfer techniques.
5. Communicate with patients and their families/caregivers regarding the need and uses of various assessment techniques.

SYLLABUS

S. NO	TOPIC	Didactic hours	Practical / Laboratory Skill hours	Total hours
1	**SECTION-I INTERNATIONAL CLASSIFICATION OF FUNCTION, DISABILITY & HEALTH (ICF)**	**05**		**05**
2	**SECTION-II MUSCULOSKELETAL EVALUATION & MANIPULATIVE SKILLS**	**10**	**22**	**32**
	Assessment of Musculoskeletal System: a) Soft tissue flexibility b) Joint mobility c) Muscle strength & Endurance d) Trick movements e) Sensations f) Limb length			

	g) Abnormal posture h)Gait deviations due to musculoskeletal dysfunction **Assessment of Joints with special tests: (Including all relevant tests)** **Cervical Spine**: Foraminal compression, Distraction, Shoulder depression, vertebral artery, Dizziness tests. **Shoulder**: Yergason's, Speed's, Drop-Arm, Supraspinatus, Impingement, Anterior & Posterior Apprehension, Allen, Adson. **Elbow**: Cozen's, Miller's, Tinel's sign **Forearm, Wrist &Hand**: Phalen' s, Bunnel-Littler, Froment's sign **Lumbar Spine**: Schober's, SLR, Prone Knee Bending, Slump **Sacro Iliac joint**: Faber- Patrick's, Gaenslen, Gillet, March **Hip:** Nelaton's line, Bryant's triangle, homas, Ober's, Tripod sign, Trendlenburg sign. **Knee:** Tests for collateral & cruciate ligaments (valgus, varus, Lachman, Sag, Drawer"s, McMurray"s, Fluctuation, Patellar tap, Q-angle, Clarke) **Ankle & Foot**: Anterior Drawer, Talar Tilt, Homan" s & Moses (for D.V.T.) **Response of soft tissues to trauma :** 1. Trigger points 2. Spasm 3. Ligament Sprains 4. Muscle Strains **Basics in Manual Therapy and Applications with Clinical Reasoning:** Assessment of Articular and extra-articular soft tissue status Contractile tissues Non contractile tissues Examination of joint integrity Accessory movement End feel **Examination of musculoskeletal Dysfunction :** Subjective examination Objective examination Special tests Functional Diagnosis using ICF **Assessment of Pain:** a) Types of pain: Somatic, Somatic referred, Neurogenic, Visceral b) Subjective Assessment: Location, duration, progression, distribution, quality, diurnal variations, modifying factors. Severity, nature of pain, tissue irritability c) Objective Measurement & Documentation			

	Visual Analogue Scale (V.A.S). Numerical Rating Scale(N.R.S.) McGill's modified questionnaire (including Body charts) **Basic principles, indications, contradindications of mobilization skills for joints and Soft tissues:** a) Maitland b) Mulligan c) Kaltenborn d) Mckenzie e) Cyriax f) Myofascial Release Technique g) Muscle Energy Technique			
3	**SECTION –III CARDIO VASCULAR RESPIRATORY EVALUATION & RELATED SKILLS**	**07**	**22**	**29**
	Assessment of Cardio Vascular & Pulmonary System: a) Vital parameters b) Chest expansion c) Symmetry of chest movement d) Breath Holding Test e) Breath Sounds f) Rate of Perceived Exertion (R.P.E.) g) Energy Systems & Exercise Physiology Physiological response to immobility and Activity Aerobic & Anaerobic metabolisms Evaluation of Functional Capacity using sub maximal tests (Exercise Tolerance – Six Minutes Walk test) Theoretical bases of different protocols for maximal exercise testing (e.g.: Bruce Protocol, Modified Bruce Protocol, Balke) h) Interpretation of reports – A.B.G., P.F.T., P.E.F.R., E.C.G.- (Normal & Variations due to Ischemia & Infarction), X-ray Chest, Biochemical Reports i) Ankle Brachial Index j) Tests for Peripheral Arterial & Venous circulation. **Examination of Cardiovascular Respiratory Dysfunction** Subjective examination Objective examination Special tests: Exercise Tolerance Testing – 6 Minutes Walk Test, Breath Holding Test, P.E.F.R Functional Diagnosis using I.C.F. **Assessment of Fitness & Health** a) Screening for risk factors b) Body composition-B.M.I., use of skin fold calipers, Girth measurement c) Physical fitness: Flexibility, Strength, Endurance, Agility d) Physical Activity Readiness Questionnaire			

	e) Screening for health and fitness in childhood, adulthood and geriatric group f) Quality of life g) Principles & components of exercise prescription for healthy			
4	**SECTION – IV NEUROTHERAPEUTIC EVALUATION & ELECTRO DIAGNOSIS**	**10**	**22**	**32**
	General principles of Human development & maturation 1. Aspects a) Physical b) motor c) Sensory d) Cognitive & Perceptive e) Emotional f) Social 2. Factors influencing human development & growth a) Biological b) Environmental inherited 3. Principles of maturation in general & anatomical directional pattern – a) Cephelo – caudal b) Proximo – distal c) Centero – lateral d) Mass to specific pattern e) Gross to fine motor development f) Reflex maturation tests 4. Development in specific fields – Oromotor development, sensory development, neurodevelopment of hand function **Basics in Neuro Therapeutics Skills & Applications with Clinical reasoning.** Principles, Technique & Indications for Application of Bobath Neuro Developmental Technique Rood‟ s Technique P.N.F. Brunnstrom, Techniques of Motor Relearning Program (M.R.P.) Higher functions Cranial nerves Sensations , sensory organization & body image Joint mobility Tone Reflexes-Superficial & Deep Voluntary control Muscle Strength Co-ordination			

	Balance Endurance Trick movements Limb Length Posture deviations Gait deviations due to neurological dysfunction Functional Diagnosis using I.C.F. Interpretation of Electro diagnostic findings, routine Biochemical investigations **Electro diagnosis** Physiology of resting membrane potential, action potential, Propagation of Action Potential Physiology of muscle contraction Motor unit & Recruitment pattern of motor unit – Size principle Therapeutic current –as a tool for electro diagnosis. Electrophysiology of muscle & nerve Faradic Galvanic Test, Strength Duration Curve-tests should be carried out on relevant patients Test for Sensory & Pain Threshold/ Pain Tolerance – technique only Electro-Myography . a) Definition Instrumentation – Basic components like C.R.O., Filter, Amplifier & Preamplifier an Types of Electrodes b) Normal & Abnormal E.M.G. pattern □ at rest □ on minimal contraction □ on maximal contraction c) Nerve Conduction Studies □ Principles & Technique □ F wave □ H reflex			
	SCALES: Berg Balance, Modified Ashworth, F.I.M., Barthel Index, G.C.S., D.G.I., M.M.S., S.T.R.E.A.M. & A.S.I.A.			
	TOTAL	**32**	**64**	**96**

DOCUMENTATION

A	Documentation & Interpretation of following investigations: 1. Electro diagnosis : 2 each □ S.D.C. □ Faradic Galvanic Test 2. E.M.G. & N.C. Studies 3. Cardio Vascular & Pulmonary: (1 each) – A.B.G., P.F.T., E.C.G., X-ray Chest,Exercise Tolerance Test. 4. Neurological Scales (1 each)– Modified Ashworth, Berg‟s Balance, D.G.I., Glasgow 5. Coma, Barthel Index, F.I.M.
B	Case presentation with Functional diagnosis : Total 12 cases Three cases each in Musculoskeletal Neurological Cardiovascular & Respiratory (Including General Medical & Surgical Cases) General & Community Health (Including Fitness & Health, Women & Child Health, Occupation Health)

RECOMMENDED TEXT BOOKS

1. Orthopaedic Physical Examination –Magee
2. Clinical Electro Therapy – Nelson – Currier --- Appleton & Lange publication
3. Clinical Electromyography – Mishra
4. Therapeutic Exercises - Colby & Kisner
5. Physical Rehabilitation, Assessment and treatment - Susan B O‟ s Sullivan
6. Neurological Examination - John Patten
7. Maitland's book on Manual therapy,
8. Mobilisation of Extremities – Kaltenborn
9. Clinical Electromyography – Kimura
10. Orthopaedic Physical therapy – Donnatelli
11. NAGS, SNAGS and MWMS - Brian Mulligan
12. Exercise & Heart – Wenger
13. Facilitation techniques based on NDT principles - Lois Bly Allison Whiteside
14. Exercise Physiology – William D Mc‟ Ardle
15. Movement therapy in Hemiplegia – Brunnstrom
16. Cash textbook of Physiotherapy in neurological conditions - Patricia Downie
17. Physical Dysfunction - Trombly Scoot
18. Infant Motor Development- Jan Piek
19. Neurology & Neurosurgery Illustrated (3rd edition)-Bone & Callander
20. Neuro-developmental Therapy –Janett Howle

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

PRACTICALS /VIVA VOCE- 80 Marks	**Maximum Marks**
Total	**80**

INTERNAL ASSESSMENT: (20marks) for both theory and practical separately. Internal assessment given for Theory and Practical follows as per University pattern

BIOENGINEERING IN PHYSIOTHERAPY

(SUBJECT CODE - SBVPT -802)

Didactic hours = 64 HRS

COURSE DESCRIPTION:

The course is designed to give knowledge & application of biomechanical principles related to Orthotics & Prosthetics. Students will also learn the principles of the prescription & the checkout procedures of aids & appliances as per the physical dysfunction of the person. They will learn to fabricate simple splints.

S. NO	TOPIC	Didactic hours	Practical / Laboratory Skill hours	Total hours
1	UNIT I & II	37		37
2	UNIT III	27		27
	TOTAL	64		64

OBJECTIVES:

At the end of the course, the candidate shall

Cognitive:

1. Acquire knowledge about biomechanical principles of application of variety of aids & appliances used for ambulation, protection & prevention.
2. Acquire in brief knowledge about various material used for splints/ Orthoses & prostheses and their selection criteria

Psychomotor:

Acquire the skill of fabrication of simple splints made out of Low cost material

Affective:

1. After the end of training, the student should be able to:
2. Correlate the condition of the patient and suggest the appropriate orthosis/prosthesis. Check the orthosis/prosthesis.
3. Assess the functioning of the orthosis/prosthesis.

SYLLABUS

S. NO	TOPIC	Didactic hours	Practical / Laboratory Skill hours	Total hours
1	**UNIT I & II**	**37**		**37**
	Introduction to bioengineering Classification of Aids & appliances (Splints/ Orthoses for spine, upper & lower limb; Prostheses for Lower limbs & Upper limbs)			
2	**UNIT III**	**27**		**27**
	Biomechanical principles in designing of appliances & assessment; Procedures for static & dynamic alignment of the Orthoses & Prostheses: a. Introduction to Orthotics, Solid Ankle foot Orthoses (AFO) b. Articulated AFO, Various Shoe modifications c. Knee Ankle Foot Orthoses (KAFO) d. Knee Orthoses (KO) e. Hip Knee Ankle Foot Orthoses (HKAFO), Hip Orthoses (HO) f. Fracture Bracing and Flexible Lumbo-sacral Orthoses (LSO) and Thoraco-Lumbo-sacral Orthoses (TLSO) g. Rigid TLSOs and Cervical Orthoses (CO) h. Orthotic mgmt. of Scoliosis, Milwaukee and low profile scoliosis orthoses, Scheuermann‟s Kyphosis & Osteoporosis i. Orthoses for LBP, Introduction to Upper limb Orthotics and Shoulder orthoses (SO) j. Shoulder (SO),Elbow Orthoses (EO) & Wrist Hand Orthoses (WHO) k. Introduction to Gait in relation to the use of Orthoses / Prostheses l. Prosthetic management of Forefoot amputees m. Prosthetic management of Syme‟s and hind foot Amputees n. Below Knee Prosthesis & Prosthetic foot pieces o. Alignment of Below Knee Prosthesis and gait deviations p. Prosthetic Knees and Knee Disarticulation mgmt. q. Above Knee Prosthesis, alignment, gait deviations r. AK Checkouts, Prosthetic mgmt. of Hip Disarticulation, hemipelvectomy, Bilateral amputees and Congenital cases s. Introduction to Upper Limb Prosthetics, Prosthetic mgmt. Of Partial Hand amputees t. Cosmetic Prostheses for all levels of Amputations u. Task Specific Prostheses, Prosthetic mgmt. of v. Wrist Disarticulation, Myoelectric Below Elbow prosthesis w. Body Powered Below Elbow Prostheses and it‟s components x. Harnessing in BE y. Prosthetic mgmt. of Elbow Disarticulation and z. Above Elbow Amputation.			
3	**Project**			
	Temporary splints: To fabricate ONE splint each [to use P.O.P, aluminum strips /sheets /wires rubber			

	bands, Rexin, Orfit,etc] Splinting- Practical Demonstration of the following a) Cock up (dorsal/volar) b) Outrigger c) Opponence splint d) Anterior and posterior guard splints for gait training e) Foot drop splint f) Facial splint g) Mallet Finger Splint h) C bar for 1st web space of hand			
	TOTAL	**64**		**64**

RECOMMENDED REFERENCE BOOKS

- Orthotics in Functional Rehabilitation of Lower limb- Deborah A. Nawoczenski, Marcia E. Epler
- Orthotics –clinical Practice and Rehabilitation Technology- Published by-Churchill Livingstone
- Atlas of Orthotics- Biomechanical principles and application (American Academy of Orthopedic Surgeons)- The C. V. Mosby Company

SCHEME OF UNIVERSITY EXAMINATION

INTERNAL ASSESSMENT :(20 Marks) Internal assessment as per University pattern

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	**80**
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

Clinical Reasoning And Evidence Base Physiotherapy
(SUBJECT CODE - SBVPT -803)
DIDACTIC HOUR : 48 HOURS

Course Description :

In this subject, the student will learn about the concept of evidence based physiotherapy, various steps involved in it, critically appraising the research articles and its practical applications in the management of individual patient care.

OUTLINE OF THE COURSE:

Sr. No.	Title of the unit	Minimum number of hours
1.	INTRODUCTION	05
2.	STEPS IN THE PRACTICE OF EBP	05
3.	LEVELS OF EVIDENCE AND ITS SIGNIFICANCE	05
4.	SOURCES OF EVIDENCE	05
5.	CRITICAL APPRAISAL OF EVIDENCE	10
6.	APPLICATION OF EVIDENCE INTO PRACTICE	10
7.	BARRIERS AND LIMITATIONS OF EBP	08

DETAILED SYLLABUS:

1	**INTRODUCTION**		
	Evidence based physiotherapy- Definition History of evidence based healthcare in general and physiotherapy in particular. Need for evidence based physiotherapy		
2	**STEPS IN THE PRACTICE OF EBP**		
	Sackett's steps of evidence based practice		
3	**LEVELS OF EVIDENCE AND ITS SIGNIFICANCE**		
	Systematic reviews and Meta-analysis Randomized Controlled trials Clinical practice guidelines Cohort studies and cross sectional studies Case reports and case series Expert opinion		

4	**SOURCES OF EVIDENCE**		
	Pubmed , CINAHL, PEDro, Google Scholar, OVID, APTA's Hooked on Evidence		
5	**CRITICAL APPRAISAL OF EVIDENCE**		
	Process of critical appraisal Critical appraisal of evidence about the effects of intervention (treatment) Critical appraisal of evidence about diagnostics tests Critical appraisal of evidence about prognosis Critical appraisal of clinical practice guidelines		
6	**APPLICATION OF EVIDENCE INTO PRACTICE**		
	Practical application of evidence about the effects of intervention (treatment) in actual patient scenario with clinical case examples. Practical application of evidence about the diagnostic test for an individual patient, in actual patient scenario with clinical case examples. Practical application of evidence about the prognosis for an individual patient, in actual patient scenario with clinical case examples. Practical application of clinical practice guideline for an individual patient, in actual patient scenario with clinical case examples.		
7	**BARRIERS AND LIMITATIONS OF EBP**		
	TOTAL	48	48

RECOMMENDED STUDY MATERIAL:

a. Practical Evidence-Based Physiotherapy by Rob Herbert, Gro Jamtvedt, Judy Mead, Kare Birger Hagen**.**

b. Evidence-Based Medicine: How to Practice and Teach EBM (Book with CD-ROM) by David L. Sackett , Sharon E. Straus, W. Scott Richardson , William Rosenberg , R. Brian Haynes.

SCHEME OF UNIVERSITY EXAMINATION

INTERNAL ASSESSMENT :(20 Marks) Internal assessment as per University pattern

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	**80**
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

NON EXAMINATION COURSE
PROFESSIONALISM AND VALUES

COURSE CODE : SBVPT-806

DIDACTIC HOURS = 32 HOURS

COURSE DESCRIPTION:

The module on professionalism will deliver the concept of what it means to be a professional and how physiotherapy profession is different from a usual vocation. It also explains how relevant is professionalism in terms of healthcare system and how it affects the overall patient environment

SL NO:	TOPIC	DIDACTIC HOUR	TOTAL HOUR
1	UNIT - 1	12	12
	Professional values- Integrity, Objectivity, Professional competence and due care, Confidentiality. Core values- Accountability, Altruism, Compassion/ caring, excellence, integrity, professional duties, social responsibility. Personal values- ethical or moral values Attitude and behavior- professional behavior, treating people equally Code of conduct , professional accountability and responsibility, misconduct Differences between professions and importance of team efforts Cultural issues in the healthcare environment Entry level health care practitioner, direct access, autonomy in profession, practitioner of practice and evidence based practice.		
2	UNIT - 2 - The five roles of the Physiotherapist -	20	20
	The five roles of the Physiotherapist - 1. The Physiotherapist as Patient/Client manager a. Evaluation and diagnosis Diagnosis as clinical decision making Prognosis Discharge planning and discontinuance of care Discontinuance of care Outcomes Clinical decision making Referral relationships Interpersonal relationships Ethical and legal issues Informed consent Managed care and fidelity. 2. The Physiotherapist as Consultant a.Physiotherapy consultation b. Building a consulting business a. The consulting process b. The skills of a good consultant c. Trust in the consultant/client relationship d. Ethical and legal issues in consultation		

	e. Components of a consulting agreement f. The Physiotherapist as Critical Inquirer g. History of critical inquiry h. Evidence-based practice i. Outcomes research j. Whose responsibility is research? k. Roles of the staff physiotherapist in critical inquiry f. Collaboration in clinical research l. Ethical and legal issues in critical inquiry The Physiotherapist as Administrator History of physiotherapy administration Contemporary physiotherapy administration Patient/client management First-line management Midlevel managers and chief executive officers Leadership Ethical and legal issues. The Physiotherapist as Educator History of physiotherapy education Contemporary educational roles of the physiotherapist Teaching opportunities in continuing education Academic teaching opportunities Theories of teaching and learning in professional education Ethical and legal issues in physiotherapy education.		
	Total	**32**	**32**

Recommended Books:

Professionalism in Physical Therapy: History, Practice, & Development, Lisa L. Dutton, PT, PhD
APTA. Guide to Physical Therapy Practice: Revised second edition. Alexandria, VA: American Physical Therapy Association; 2003. ISBN: 978-1-887759-85-

CLINICAL EDUCATION - V

COURSE CODE	COURSE	TOTAL HOUR	CREDIT
SBVPT - 806	CLINICAL EDUCATION - V	192	6

LEARNING OBJECTIVE:

a. At the end of clinical postings the student should be able to Demonstrate ability to rationalize goals set and therapy planned.
b. Demonstrate ability to modify the assessment/treatment based on clinical situation.

c. Demonstrate skill in recording the findings and treatments in a precise manner based on principles of clinical decision making. Physical diagnosis.

STUDENTS'S ACTIVITY:

Student will be posted in outpatient physiotherapy department and inpatient areas. He/ she will be supervised and trained to collect subjective and objective data during their postings. They will be given opportunity to handle patients to position, to provide simple exercises, helping during mobilization. The student should improve their skill in documentation and handling during this posting.

Evaluation:

Student is expected to write minimum three patients per posting. The cases will be presented and discussed by the faculty. The presentation and evaluation skill along with documentation ability will be evaluated

GENERIC ELECTIVE COURSES

GENERIC ELECTIVE- I
BASIC SCIENCE SUBJECT CODE : GE-1

Didactic Hours = 48

Course Objectives:

To understand the concept of application and the principles of basic physics applied in electrotherapeutic equipments.This also enables the student to understand the components involved in the functioning of these equipments and indentify the components.

SL:NO	TOPICS	DIDACTIC HOUR	PRACTICAL HOUR	TOTAL HOUR
1	**PHYSICS**	33		33
	Electromagnetic waves Electromagnetic spectrum			
	Light a. Theories of the nature of light b. Laws of Reflection of inverse square law c. Laws of refraction_ d. Interference of light – principle & condition of super position of waves Interference e. Emission and absorption spectrum Principle of Laws f. Characteristics of laws Laser action g. Optical pumping h. Conditions to achieve Laser action Ruby Laser i. Application of Laser			
	j. Magnetic dipoles k. Attraction & repulsion between magnetic poles l. Magnetic field – magnetic Inductive /fluse density m. Properties of magnet			
	n. Coulomb_s inverse square law o. Lines of force p. Electric potential – volt q. Electr4ostatic induction r. Electrophorus s. Distribution of change on a conductor t. Capacitance of conductor u. Principle of capacitor v. Principle of capacitor w. Effect of dielectric			
	Current electricity a. Electric current b. Flow of current in metal c. Ohm_s law d. Resistivity Conductivity Potentiometer e. Thermal effect of current f. Heat produced in a conductor due to flow of current g. Joule_s law of heating			

	Magnetic effect of current a. Magnetic field around current carrying conductor Magnetic field due to circular loop b. Magnetic field due to solenoid Direction of magnetic field & current c. Ampere_s swimming rule d. Wax well_s right hand cork screw rule e. Magnitude of force f. Direction of force – Fleming_s left hand rule Definition of Ampere g. Electromagnetic Induction & alternating current Magnetic flux h. Electromagnetic induction i. Faraday_s law j. Fleming_s Right hand rule k. Self-induction Mutual Inductance l. AC and DC generators Eddy current Transformer m. Power losses Alternating current			
	Atomic physics a. Production of Cathode rays b. X ray spectra c. X ray diffraction d. Bragg_s law			
	Particle nature of energy a. Photo electric effect b. Laws of photo electric effect c. Bohr_s atom model			
	Microwave a. Magnetron oscillator b. Properties of microwaves			
2	**CHEMISTRY**	15		15
	a. Medical chemistry Anesthetics Analgesics Antipyretic Antimicrobial, Sulfa drugs Antibiotics Antiseptic Tranquilizers b. Drug abuse & health hazards. Drug addiction c. Types of salts d. Dilute solutions e. Osmotic pressure, laws f. Beckman thermometer g. Brownian movement h. Electrophoresis i. Electro osmosis j. Exothermic & endothermic reactions Reversible & irreversible reactions Homogenous & nitrogenous reactions Catalysis – Types characteristics Electrochemistry – conductors & insulators Electrolysis k. PH & POH l. Acid & bases m. Lactic acid n. Salicylic acid synthesis basis o. Biomolecules **a.** Saponification of acts& facts			
	Total	48		48

Reference books: (physics)

1. Concepts of Physics *by H. C. Verma*
2. NCERT- Physics Part 1 and Part 2
3. D C Pandey Objective Physics
4. Fundamentals of Physics *by Halliday, Resnick and Walker*
5. Problems in General Physics *by I. E. Irodov*

Reference books: (chemistry)

1. Physical Chemistry *by O.P. Tandon*
2. Organic Chemistry *by Morrison and Boyd* for Organic Chemistry
3. Modern's ABC of Chemistry for class 11th and 12th
4. Concise Inorganic Chemistry *by J. D. Lee* for Inorganic Chemistry
5. Dinesh Chemistry

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: 20 marks
Internal assessment as per University pattern

GENERIC ELECTIVE –II (HOSPITAL LAWS)
SUBJECT CODE : GE-2

DIDACTIC HOURS = 48
COURSE DESCRIPTION:

This course helps the student to understand the functioning territories of health care system in India and the laws which are regulating the hospital its health care services, the health care professionals and the rights of the patients.

LEARNING OBJECTIVE:

The objective of this course is that 45 hrs of lectures to understand the rights of the patient, regulation of the hospital and the health care system in India under its judicial system.

COURSE OUTLINE:

	Medical Laws in India	
1	Emergency health care and laws.	12
2	Criminal Liability in medical profession	12
3	Laws governing the qualification practice and conduct of the Law governing the Professionals.	12
4	Laws governing	12

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: 20 marks
Internal assessment as per University pattern

GENERIC ELECTIVE - III
HOSPITAL SAFETY AND MANAGEMENT
SUBJECT CODE - SBVPT - GE-3

Didactic hour : 48 hour

Sl no	Topics	Didactic hour	Total hour
1.	INTRODUCTION AND GUIDE LINES Vision, Objectives, Scope How does a safety and health management system work? An overview What are the core elements of a safety and health management system? Safety and health management systems in hospitals: best practices and examples **The Core Elements**	02	02
2.	**Management leadership** What management leadership means Why management leadership is important What management leadership involves How managers demonstrate leadership Special considerations for worksites with multiple employers Management leadership: best practices and examples	04	04
3.	**Employee participation** What employee participation means Why employee participation is important What employee participation involves Employee participation: best practices and examples	02	02
4.	**Hazard identification and assessment** What hazard identification and assessment means Why hazard identification and assessment is important What hazard identification and assessment involves Hazard identification and assessment: best practices and examples	03	03
5.	**Hazard prevention and Control** What hazard prevention and control means Why hazard prevention and control is important What hazard prevention and control involves Hazard prevention and control: best practices and examples	03	03
6.	Education and training What safety and health management system education and training means Why safety and health management system education and training is important What safety and health management system education and training involves Education and training: best practices and examples	05	05
7.	System evaluation and improvement What system evaluation and improvement means Why system evaluation and improvement is important What system evaluation and improvement involves System evaluation and improvement: best practices and examples	03	03
8.	Hospital & Disaster, Expected Disaster Scenarios for Hospitals Safe Hospitals	04	04

9.	Awareness Generation Scope Communication Goals Stakeholders/Target Group	**03**	**03**
	Key Elements of Awareness Generation for Hospital Safety Awareness Generation Exercises		
10.	Hospital Disaster Preparedness and Response Coordination & Management Planning, Training and Drills Safety and Security Continuity of Essential Support Services Triage Post-Disaster Recovery Patient Handling Volunteer Involvement and Management Area Level Networking of Hospitals	**06**	**06**
11.	Fire Safety in Hospitals Scope Expected Levels of Fire Safety in Hospitals Structural Elements of Fire Safety Non-Structural Elements of Fire Safety	**04**	**04**
12.	Maintenance and Inspection for Safe Hospitals Maintenance and Inspection Maintenance of Occupational and Functional Components Maintenance of Structural Systems Inspection of Structural Components Inspection of Occupational and Functional Components	**04**	**04**
13.	Licensing and Accreditation Scope Important Definitions Licensing Requirements Accreditation Requirements	**04**	**04**
14.	National Action Framework for Hospital Safety Scope Priority Areas and Outcomes	**02**	**02**
	Total	**48**	**48**

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: 20 marks
Internal assessment as per University pattern

GENERIC ELECTIVE – IV BEHAVIOURAL SCIENCE
SUBJECT CODE - SBVPT - GE-4

Didactic Hour = 48

Course Description:

This course introduces student's behavior based knowledge and principles in studying the behavior of Individuals, groups and Societies. This course surveys knowledge stemming from disciplines of Psychology, Social Psychology, Health Psychology and Medical Psychology.

S. NO	TOPIC	Didactic hours	Clinical hours	Total hours
1	UNIT I	22		22
2	UNIT II	26		26
	TOTAL	48		48

OBJECTIVE

Cognitive

1. Enumerate various Psychiatry disorders with special emphasis to movement / pain & ADL
   - describe the various causative factors & method of assessment & management. Acquire the knowledge in brief, about the pathological &etiological factors, signs/symptoms & management of various Psychiatric conditions.

Psychomotor

2. Integrate briefly the various treatment modalities commonly used in improving quality of life of patients with mental illness.

Affective

3. At the end of training the student should be able to -
4. The student should be able to show readiness to understand and educate the people with behavioral problem using counseling and various behavioral modification tools.

SYLLABUS

S. NO	TOPIC	Didactic hours	Clinical hours	Total hours
1	UNIT I & II			
	a. Psychiatric History & examination of mental status. b. Classification of mental illness. c. Schizophrenia and its types – Brief Psychotic disorder, delusional disorder , schizoaffective disorders , post – partum psychosis, mood disorders, organic mental disorders, Anxiety disorders, phobia, obsessive compulsive dissociative conversion disorder, hypochondriasis, post – traumatic disorder, psycho somatic disorder, personality disorder, substance related disorder, adjustment and impulse control disorder, psycho –			

	sexual disorders, psychiatric emergencies, suicide, stress management , disorder of infancy – childhood & adolescence disruptive behavior , conduct disorder, attention deficit and hyper – reactivity – eating disorder, tic disorder, elimination disorder – child abuse, enuresis a. Management–ECT, chemotherapy, group therapy, Psychotherapy, cognitive behavioral therapy. b. Management of chronic patients with mental illness.			
	TOTAL	**48**		**48**

Textbook

1.A short book of psychiatry – 3rd edition by Ahuja Jaypee brothers – medical publishers

2.Shah L.P Handbook of psychiatry.

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: 20 marks

1. Internal assessment as per University pattern

GENERIC ELECTIVE – V
DIET AND NUTRITION
SUBJECT CODE - SBVPT - GE-5

Didactic Hours- 48 Hrs

Course Description: The course ―Fundamentals of Food and Nutrition‖ aims at developing basic understanding about nutrition, its effect on human health and newer advances in food technology. This course encompasses physiological, biochemical and social aspects of food and discusses relationship between metabolites and human health. Moreover, the course is focused on the advances in the most emerging area of applied science of Nutraceuticals (where food is the medicine). The knowledge of nutrition under extreme climate conditions, space nutrition, and sports nutrition empowers students' knowledge and skills to utilize food as a powerful tool for physical, mental, and social wellbeing

SL NO	TOPIC	DIDACTIC HOUR		TOTAL HOUR
1	**Unit 1:**	**18**		**18**
	Introduction to Nutrition: Concepts & various aspects, Role of nutrition in healthy body Food: Role in nutrition & medicinal values, Elements of nutrition : Macro & micro nutrients, Calorie &Basal Metabolic Rate, Food groups Carbohydrates, Proteins, Fats :-Classification & caloric value ,Recommended daily allowance ,Dietary sources Functions ,Digestion, Absorption & Storage Malnutrition : Deficiencies & Over consumption Water & Electrolytes :- Water : Daily requirement, sources, regulation of water metabolism Electrolytes: Types, sources ,composition of body fluids, Vitamins & minerals:-classification, recommended daily allowance, dietary sources, functions, absorption and storage, deficiencies & hyper vitaminosis Energy: - Requirement of different categories of people Measurement of energy, Body Mass Index and basic metabolism, Basal Metabolic Rate determination and factors affecting it, Nutrition during childhood, adulthood and special conditions			
2.	**Unit 2 :**	**10**		**10**
	Medical Nutrition Therapy/Clinical Nutrition/Dietetics/Nutrition in Health and Disease: Principles of diet therapy, Modifications of diets in febrile conditions, Oral and dental conditions, Gastrointestinal and hepato-biliary disorders, Disorders of energy metabolism-obesity, underweight, Non-communicable diseases such as cardiovascular disorders, diabetes mellitus, hypertension and renal diseases, pulmonary disorders, Nutrition in critical care, cancer and allergies and food intolerances.			
3.	**Unit 3 :**	**10**		**10**

	Food Science and Food Microbiology Food groups, Food preparation methods, Food preservation techniques, Food analysis – proximate composition, Sensory analysis			
	and Food processing techniques, Food safety, Food security, and Food hygiene. Food borne illnesses, hazard analysis and critical control points and good manufacturing practices, Role of microorganisms in food processing, Food additives, Food fortification and Food packaging.			
4.	**Unit 4 :**	**10**		**10**
	Nutrition through Lifecycle Balanced diet, Meal planning, Nutrition during pregnancy, lactation, infancy, toddlerhood, preschool stage, school going children, and adolescence. Growth and development during different stages of lifecycle, nutrition for adults, older adults and old populations.			
	TOTAL	**48**		**48**

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: 20 marks
Internal assessment as per University pattern

GENERIC ELECTIVE – VI PHYSIOTHERAPY IN HEALTH AND WELLNESS
SUBJECT CODE - SBVPT - GE- 6

Didactic Hours = 48

COURSE DESCRIPTION

This course enriches the student with knowledge on normal health and the implication of physical activity on developing and maintaining good health and the various systems of the human body. It also gives emphasis on the role of fitness in various realms of life, namely, the normal human being, the athlete, the industrial worker, the adolescent and the elderly.

S. NO	TOPIC	Didactic hours	Practical hours	Total hours
1	UNIT I & II	20		20
2	UNIT III & IV	28		28
	TOTAL	48		48

COURSE OBJECTIVE

The objective of this course is that after 60 hours of lectures, demonstrations and practical. The student will be able to assess the health status of an individual and the response of the various systems of the human body to a given task. The student will be able to identity and prescribe the required levels of Physical activity and training to maintain a good health and fitness level and prevent injuries.

SYLLABUS

1	**UNIT I**	10	**10**
	Bio energetics of exercise and training: Biological energy systems. Substrate depletion and repletion. Bioenergetic limiting factors in exercise performance. Oxygen uptake and the aerobic and anaerobic contributors to exercise. Metabolic specificity of training **Performance enhancing substances and methods:** Types of performance enhancing substances. Hormones. Dietary supplements		
2	**UNIT II**	**10**	**10**
	Health appraisal and fitness testing: Pre test considerations: Health appraisal. Contra indications and risk stratification. Informed consent. Fitness testing: General considerations Clinical exercise testing **Behavior Change** Theories of Behavior Change. Facilitating Health Behavior Change. Healthy stress management **Warm-up and flexibility training:** Warm-up, Flexibility, Types of stretching.		
3	**UNIT III**	**10**	**10**
	Aerobic program design: Neural adaptations. Muscular adaptations. Connective tissue adaptations. Endocrine responses and adaptations to anaerobic training. Cardiovascular and respiratory adaptations to anaerobic training. Over training. Detraining. Principles of cardio respiratory endurance programming. Weight management.		

	Anaerobic program design: Acute responses to aerobic exercise. Chronic adaptations to aerobic exercise. Adaptations to aerobic endurance training. External and individual factorsinfluencing Adaptations to aerobic endurance training. Overtraining: definition, prevalence, diagnosis and potential markers. Principles of anaerobic training. **Program design and technique for plyometric training:** Plyometric mechanics and physiology. Program design. Age considerations. Plyometrics and other forms of exercise. Safety considerations		
4	**UNIT IV**	**18**	**18**
	Exercise Programming for Special Populations Exercise for Individuals With Controlled Cardiovascular, Pulmonary, and Metabolic Diseases. Exercise Programming for Individuals with Musculoskeletal Limitations. Exercise Programming Across the Lifespan: Children and Adolescents, Pregnant Women, and Older Adults Safety, injury prevention and emergency care: General considerations. Risk of participation in exercise. Safety in the facility Weight room safety. Testing and evaluation area. Safety during exercise testing and training. Emergency management. Injury prevention. Contraindications to exercise testing. Musculoskeletal injuries. Medical emergencies and associated treatment **Metabolic calculations:** Expressions of energy. ACSM metabolic formula. Solving the ACSM metabolic formula.		
	TOTAL	**48**	**48**

References:

1. Essentials of strength training and conditioning. 4th edition. G.gregory Haff & N. Travis Triplett.
2. ACSM's Guidelines for Exercise Testing and Prescription 5th edition
3. ACSM's Resources for The Exercise Physiologist 3rdEdition
4. ACSM_s certification Review 2nd Edition

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	**80**
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT :(20 Marks)

1. Internal assessment follows as per University pattern

GENERIC ELECTIVE – VII
ENTREPRENEURSHIP IN PHYSIOTHERAPY
SUBJECT CODE - SBVPT - GE-7

DIDACTIC HOURS = 48

Sl:no	Topics	Didactic hour	Practical hour	Total hour
1	**Concept of entrepreneurship**	13		13
	Define entrepreneuruship Who is entre preneur What is entre preneur What is entrepreneurship Example of Entrepreneur Functions of Entrepreneur Qualities of entrepreneur Characterstic of Entrepreneur			
2	**Types of Entrepreneurship**	10		10
	Small business entrepreneurship Scalable start up entrepreneurship Large company entrepreneurship Social Entrepreneurship			
3	**Characteristics of Entrepreneurship**	10		10
	Economic and dynamic activity Related to innovation Profit potential Risk bearing Entrepreneurial process			
4	**Entrepreneurial wheel**	10		10
	Leadership Culture Marketing Finance Product & Service Administration Human Resource Tips for opening business			
5	**Importance of Entrepreneurship** **Factor affecting entrepreneurship**	05		05
	Total	48		48

SCHEME OF UNIVERSITY EXAMINATION:

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: 20 marks as per University pattern

GENERIC ELECTIVE – VIII
LEADERSHIP IN PHYSIOTHERAPY
SUBJECT CODE - SBVPT - GE-8

DIDACTIC HOURS = 48

Sl:no	Topic	Didactic hour	Practical hour	Total hour
1	**Demonstrating Personal Qualities**	**12**		**12**
	Developing Self Awareness *Managing Yourself* *Continuing Personal Development* *Acting with Integrity*			
2	**Working with Others**	**11**		**11**
	Developing Networks *Building and Maintaining Relationships* *Encouraging Contribution* *Working within Teams*			
3	**Managing Services**	**08**		**08**
	Planning *Managing Resources* *Managing People* *Managing Performance*			
4	**Improving Services**	**05**		**05**
	Ensuring Patient Safety *Critically Evaluating* *Encouraging Improvement and Innovation* *Facilitating Transformation*			
5	**Setting Direction**	**05**		**05**
	Identifying the Contexts for Change *Applying Knowledge and Evidence* *Making Decisions* *Evaluating Impact*			
6	**promote innovation in health care**	**03**		**03**
7	**Contribute to leadership in profession**	**03**		**03**
	Total	**48**		**48**

Reference Book:

APTA. Guide to Physical Therapy Practice: Revised second edition. Alexandria, VA: American Physical Therapy Association; 2003. ISBN: 978-1-887759-85-

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: 20 marks
Internal assessment as per University pattern.

GENERIC ELECTIVE – IX
ACUPUNCTURE SUBJECT CODE - SBVPT - GE-9

DIDACTIC HOURS = 48

COURSE DESCRIPTION

Acupuncture is a form of alternative medicine in which thin needless are inserted into the body. It is a key component of traditional Chinese medicine.

Contents:

UNIT.	Topics	Hours
1.	Introduction to acupuncture	1
2.	Basic medical sciences	2
3.	Theories of acupuncture	3
4.	Meridians in acupuncture	15
5.	Techniques in acupuncture	15
6.	Applied acupuncture	5
7.	Ancillary therapies related to acupuncture	4
	TOTAL	45

REFERENCE BOOK:

1. Acupunctur the Classic Hr. E.Ganesan
2. Clinical Acupuncture – Dr. Anton Jayasuriya Huang Di- nej jing – Su wen
3. Nature, Knowledge, Imagery in an Ancient Chinese Medical Text Paul U. Unschuld
4. Essentials of Chinese Acupuncture / Foreign Languages Press - Beijing
5. Atlas for Standard Location of Acupuncture Meridian Points By ZhaoXin
6. Principles and Practice Contemporary Acupuncture/ Sung Liao, Mathew H.M.Lee,LorenzK.

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: 20 marks 1. Internal assessment as per University pattern

GENERIC ELECTIVE – X DIABETIC EDUCATION
SUBJECT CODE - SBVPT - GE-10

DIDACTIC HOURS = 48

Course Description
This course enables the candidate to develop a in depth understanding of Diabetes Mellitus. This will prepare the candidate to be capable enough to counsel a patient and educate the patient with regards to management and identifying the complications and the care for the same.

Elective Course **DIABETIC EDUCATION**				
Sl:no	**Topics**	**Didactic Hours**	**Practical Hours**	**Total Hours**
1.	**UNIT – I** Physiology, pathogenesis, Diagnosis and classification of Diabetes Mellitus (DM). Nutrition in DM Secondary Diabetes and other specific types of DM Childhood of Adolescent DM Laboratory of analytical methods used in DM	15		15
2.	**UNIT – II** Exercise in DM Oral Antidiabetic Agent Parenteral Therapertic Agents. Insulin therapy –Theory of practical aspects. Self monitoring of blood glucose	10		10
3.	**UNIT III** Peripheral neuropathies in DM Foot, foot care and neuro arthropathy Nephropathy in DM Hypertension, cardiovascular Diseaseand Dyslipidenmia in DM Ocular Disease, retinopathy, Infections in DM Autonomic Neuropathy in DM Emergencies‘ in Diabetes mellitus.	13		13
4.	UNIT IV Clinical case recording, monitoring Counseling techniques for physiotherapies YOGA in DM Recent Advances in DM	10		10
	TOTAL	48		48

REFERENCE:

1. Diabetes mellitus a practical guide department of endocrinology cmc vellore, 5th edition, academa publication, Vellore
2. Clinical endocrinology of Diabetes Mellitus, volume I of II, Y. Sachdev, Jaypee publication
3. Diabetes and exercise prevention of management, A literature review, Palan Nihar, Lambert Academic Publications
4. Management of Diabetes Mellitus, A guide to the Pattern approach, Diana W. Guthrie, 6th edition, Springer publication
5. Nutrition Therapy for Diabetes, American Diabetes Association Guide, and Edition.

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: 20 marks
Internal assessment as per University pattern

GENERIC ELECTIVE – XI INTEGUMENTARY PHYSICAL THERAPY
SUBJECT CODE - SBVPT - GE-11

DIDACTIC HOURS = 48

Course Description:
This course includes a study of anatomy and physiology of the Integumentary system and pathological changes of the system and function, including diagnostic tests and measurements.
The use of evidence-based physical therapy intervention for Integumentary conditions is emphasized. Topics will focus on comparing contemporary and traditional interventions and theimpact of evolving technology in this area. Topics will focus on medical terminology, clinicalexamination, evaluation, comparing contemporary, traditional interventions and the impact ofevolving technology in this area.

SL:NO	TOPICS	DIDACTIC HOUR	PRACTICAL HOUR	TOTAL HOUR
1	**Medical Terminology Regarding Cardiopulmonary System** **Wound Care Concepts**	**23**		**23**
	Quality of Life and Ethical Issues Regulation and wound Care Skin, an Essential Organ Acute and Chronic Wound Healing Wound assessment Wound Bioburden Wound Debridement Wound Treatment Options Nutrition and wound care Seating, Positioning and support surfaces Pain Management and wounds			
2	**Wound Classifications and Management Strategies**	**25**		**25**
	Pressure Ulcers Vascular Ulcers Diabetic Foot Ulcers Sickle Cell Ulcers Wounds in special Populations Complex wounds Atypical Wounds Wound Care; where we were, where we are, and where we are going			
	TOTAL	**48**		**48**

RECOMMENDED TEXTBOOK:

1. Wound Care Essentials, practice principles, By Sharon Baranoski & Elizabeth A. Ayello
2. APTA. *Guide to Physical Therapy Practice: Revised second edition*. Alexandria, VA:
3. American Physical Therapy Association; 2003. ISBN: 978-1-887759-85-

SCHEME OF UNIVERSITY EXAMINATION

THEORY	**Marks**
*The question paper will give appropriate weightage to all the topics in the syllabus	
Essay Q1-Essay-15 Marks Q2-Essay-15 Marks	**30**
Short Notes Answer all the questions 6x5=30 6 questions- 5 marks each	**30**
Short Answer questions Answer all the questions10x2=20 10 questions- 2 marks each	**20**
Total	**80**

INTERNAL ASSESSMENT: 20 marks Internal assessment as per University pattern

MODEL QUESTION PAPER

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science Semester - 1 Subject: Anatomy - 1
Course Code: SBVPT- 101

Time: 3 Hrs **Max .Marks (80)**

I) Long essay (write any 2) (2X15=30)

1. Explain Anatomy of shoulder joint, muscles attached, and its functions.
2. Describe the course and relations of sciatic nerve and its distribution.
3. Write about the adductor pollicis and describe the 1st carpometacarpal joint.

II) Short essay (write any 6) (6X5=30)

4. Femoral triangle.
5. Brachial Plexus.
6. Lumbar vertebrae.
7. Broncho pulmonary segments.
8. Explain Mitosis and Meiosis.
9. Explain Axis and Movements in synovial joint.
10. Chambers of heart, valves and its functions.

III) Ultra Short answer (10X2=20)

11. Biceps (Orgin & insertion).
12. Land marks of scapula.
13. Branches of axilary artery.
14. Distinguish right and left lung.
15. Pelvic floor Muscles.
16. Types of Ossification.
17. Cubitus Varus.
18. Hamstrings.
19. Radioulnar joint.
20. Muscles of respiration.

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science Semester - 1

Subject: Physiology - 1

Course Code: SBVPT-102

Time: 3 Hrs Max .Marks (80)

Long essay (write any 2) (2X15=30)

1. Define cardiac output. Describe the factors that regulate cardiac output.
2. With a well labeled graph discuss the ionic basis of action potential.
3. Name the respiratory centers. Explain the neural regulation of respiration.

Short essay (write any 6) (6X5=30)

4. Enumerate the functions of saliva.
5. Briefly describe the regulation of GFR by the kidney.
6. Define hypoxia. Differentiate the types of hypoxia
7. Describe the features of sensory homunculus.
8. Enumerate the functions of liver.
9. Briefly outline the contraction cycle of a skeletal muscle.
10. Draw and label the normal ECG waves. Enumerate its uses.

Ultra Short answer (10X2=20)

11. Define Dyspnoea.
12. What are anti – coagulants. List any four anti – coagulants.
13. List the primary taste sensations. Locate their area on the tongue.
14. Define saltatory conduction in a nerve fibre.
15. What is apex beat? Mention its clinical significance.
16. Define a muscle tone.
17. What is referred pain? Give two examples.
18. Define shock. Name the types of shock.
19. Define physiological dead space.
20. Intra pleural pressure.

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science Semester - 1
Subject: Biochemistry Course
Code: SBVPT- 103

Time: 3 Hrs **Max .Marks (80)**

Long essay (write any 2) **(2X15=30)**

1. Explain hormonal regulation of blood glucose. Add a note on glycosuria.
2. Describe the sources, RDA, Absorption, Metablioc functions and deficiency symptoms of calcium.
3. Describe beta oxidation of palmitic acid. How many ATPs are produced by the complete
    a. oxidation.

Short essay (write any 6) **(6X5=30)**

4. Denaturation of proteins.
5. Glycogenolysis.
6. Structure and functions of cholesterol.
7. Nitrogen balance.
8. Functions of proteins.
9. Digestion and absorption of carbohydrates.
10. Specific dynamic action.

Ultra Short answer **(10X2=20)**

11. Epimers.
12. Zwitter ions.
13. Essential fatty acids.
14. Isoenzymes.
15. Respiratory acidosis.
16. Role of aldosterone in electrolyte balance.
17. What are provitamins, give examples.
18. Name one reducing and one non reducing disaccharides.
19. Rotheras test.
20. Normal levels of blood urea and cholesterol

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science Semester - 1
Subject: General Psychology and sociology Course Code:
SBVPT- 104

Time: 3 Hrs total Marks (80)

Section -A (psychology) = 40 marks

Long essay (write any 1) (1X15=15)

1. What is learning? Explain Pavlov's classical conditioning.
2. What is perception? Explain various principles of perception.

Short essay (write any 3) (3X5=15)

3. Clinical psychology.
4. Development and growth of Behavior during infancy and childhood .
5. Physiological changes during Emotion.
6. Classification of personality.

Ultra Short answer (5X2=10)

7. Schools of Psychology.
8. Independent and dependent variables.
9. Thirst motive.
10. Psychological needs.
11. Feeling and Emotion.

(Section -B) (Sociology) = 40 marks

Long essay (write any 1) (1X15=15)

1. Define sociology? Describe the importance of sociology with special reference to health care professionals.
2. Explain the problems due to over population.

Short essay (write any 3) (3X5=15)

3. Modern family.
4. Technological factors of social change.
5. Advantages and disadvantages of joint family system.
6. Social survey method.

Ultra Short answer (5X2=10)

7. Urbanization.
8. Monogamy.
9. Two ill effects of alcoholism.
10. Causes of poverty.
11. Unemployment.

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science Semester - II
Subject: Anatomy- 2 Course
Code: SBVPT- 201

Time: 3 Hrs Max .Marks (80)

Long essay (write any 2) **(2X15=30)**

1. Explain basal ganglia.
2. Name the ganial nerves in order. Explain facial nerve in detail.
3. Describe the structure and functional anatomy of the kidney.

Short essay (write any 6) **(6X5=30)**

4. External carotid artery.
5. Lateral ventricle.
6. Uterus.
7. Mid brain.
8. Sebaceous glands.
9. Middle cerebral artery.
10. Parts of brain stem.

Ultra Short answer **(10X2=20)**

11. Paranesal air sinus and its location.
12. Styloidapparatus.
13. Parts of Pancreas.
14. 4 Muscles of tongue.
15. 4 Muscles of facial expression.
16. Enumerate sense organs.
17. Name the structures in the roof of posterior triange.
18. Draw the transverse sections of Spinal cord.
19. Name the ear ossicles.
20. Sternocleido muscle.

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science Semester - II
Subject: Physiology - 2 Course
Code: SBVPT- 202

Time: 3 Hrs Max .Marks (80)

Long essay (write any 2) (2X15=30)

1. Explain the sliding filament theory of contraction. State Starlings law of force of contraction..
2. Draw nephron and describe the structure and its function.
3. Name the ascending pathways. Trace the pathway for pain and fine touch.

Short essay (write any 6) (6X5=30)

4. Explain the Wallerian degeneration.
5. Define Anemia. Explain the clinical classification of Anemia.
6. Explain the phases of cardiac cycle taking place during ventricular systole.
7. Draw a spirogram. Define the different lung volumes and write their normal values.
8. Functions of saliva.
9. Differentiate between myelinated and non-myelinated nerve fibres.
10. Define immunity. Briefly describe the types of immunity.

Ultra Short answer (10X2=20)

11. Define chronaxie and rheobase.
12. Define Lymph. List two functions.
13. Define secondary active transport mechanism.
14. Trace the visual pathway.
15. Action of ADH.
16. Define a muscle tone.
17. Define chloride shift.
18. Structure of muscle spindle.
19. Define motor unit.
20. Source of energy for muscle contraction.

Mahatma Gandhi Medical College and Research Institute Faculty of Allied Health Science
Subject: Exercise Therapy - I
Course Code: SBVPT- 203

Time: 3 Hrs Max .Marks (80)

Long essay (write any 2) (2X15=30)

1. Describe various PNF techniques of facilitation for mobility..
2. Describe the technique of moblising the ankle joint.
3. Discuss the various physiological changes that occurs during aerobic exercises.

Short essay (write any 6) (6X5=30)

4. Describe how would you measure the range of movement of supination and pronation using goniometer.
5. Describe the ranges of muscle work with examples.
6. Describe the technique of petrissage.
7. Describe the various derived positions in kneeling position.
8. Discuss the various methods for improving standing balance.
9. Examples for free exercises with diagrams for spinal extensors.
10. What is yoga? Mention its basic principles.

Ultra Short answer (10X2=20)

11. Strain.
12. Name the critical elements of exercises.
13. Two limitations of joint mobilization.
14. Name the test for inco-ordination.
15. Define posture.
16. What is vertical suspension?
17. Two contra indications of inverted asanas.
18. Uses of hip hiking.
19. Two uses of assisted exercises.
20. SAID Principle.

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science Semester - II
Subject: Exercise physiology

Course Code: SBVPT- 204

Time: 3 Hrs **Max Marks (80)**

Long essays (answer any 2) 2x15=30

1. write in detail about about energy delivery system and its utilization?
2. write a note on energy transfer and energy adaptations during exercise?
3. discuss the role of energy metabolism in muscular contraction?

Short essays(answer any 6) 6x5=30

4. Describe the physiological effects during exercise training?
5. write a note on electron transport chain?
6. Discuss the Measurement of human energy expenditure?
7. write a note on control of ATP-CP systems?
8. kerbs cycle
9. electron transport chain
10. exercise prescription in high altitude

Ultra short essays 10x2=20

11. 1.Gas transport
12. 2.Control opg bioenergetics
13. 3.Resitance training
14. 4.Energy transfer
15. 5.Acid base balance
16. 6.Altitude training
17. 7.Vo2 max.
18. Ergogenic Aids
19. environmental effects on physical performance?
20. glycolysis.

Mahatma Gandhi Medical College and Research Institute Faculty of Allied Health Science
Subject: Exercise Therapy – ii
Course Code: SBVPT- 301

Time: 3 Hrs **Max .Marks (80)**

Long essay (write any 2) (2X15=30)

1. Describe various PNF techniques of facilitation for mobility..
2. Describe the technique of moblising the ankle joint.
3. Discuss the various physiological changes that occurs during aerobic exercises.

Short essay (write any 6) (6X5=30)

4. Describe how would you measure the range of movement of supination and pronation using
5. goniometer.
6. Describe the ranges of muscle work with examples.
7. Describe the technique of petrissage.
8. Describe the various derived positions in kneeling position.
9. Discuss the various methods for improving standing balance.
10. Examples for free exercises with diagrams for spinal extensors.

Ultra Short answer (10X2=20)

11. Strain.
12. Name the critical elements of exercises.
13. Two limitations of joint mobilization.
14. Name the test for inco-ordination.
15. Define posture.
16. What is vertical suspension?
17. Two contra indications of inverted asanas.
18. Uses of hip hiking.
19. Two uses of assisted exercises.
20. SAID Principle.

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science Semester - v
Subject: Kinesiology-1

Course Code: SBVPT- 302

Time: 3 Hrs Max .Marks (80)

LONG ESSAYS (Answer any Two) **2 x 15= 30 Marks**

1. Describe the structure of hip joint. Add a note on kinetics and kinematics. 2.Write in detail of Analysis of posture.
3. Explain biomechanics of thorax and chest wall

SHORT ESSAYS (Answer any SIX) **6 x 5= 30 Marks**

4. Scapulo humeral rhythm 5.Locking and unlocking mechanism 6.Explain levers in detail.
7. Describe the types of joints.
8. Explain the parts of goniometric and its types. 9 Describe stress and strain.
10. Explain Newton law of motion.

SHORT ANSWER **10 X 2 = 20 MARKS**

11. Carrying angle
12. Scoliosis
13. Concurrent force systems
14. Stair climbing
15. Patella Plica
16. Visco elasticity
17. Pes Planus and Pes Cavus
18. Pulleys
19. Open Kinematic chain
20. Palmar arches

Mahatma Gandhi Medical College and Research Institute Faculty of Allied Health Science
Subject: Electrotherapy - 1
Course Code: SBVPT- 303

Time: 3 Hours **Max. Marks: 80 Marks**

Draw neat-labeled diagrams wherever necessary

Long Essays (Answer any two) **2 x 15 = 30 marks**

1. Classify infrared generators. Explain the production and effects of various types
2. Describe production of LASER. Write notes on dosage of LASER.
3. Define faradic current. Explain the physiological and therapeutic effect faradic current

Short Essays (Answer any six) **6 x 5 = 30 marks**

4. Nerve conduction velocity
5. Therapeutic uses of whirl pool bath
6. Explain various method of application of cryotherapy
7. Indication and contra-indication for micro-wave diathermy
8. Various parameter of dosage in ultrasound
9. Physiological and therapeutic effects of Russian current
10. Define electricity and its types

Short Answers **10 x 2 = 20 marks**

11. Define Joules' law
12. What is salutatory conduction
13. Define Rheobase?
14. Define inverse square law
15. Beat frequency
16. Drugs used for iontophoresis
17. Define motor unit
18. Skin impedance
19. Define Cavitation?
20. Define collimations?

Mahatma Gandhi Medical College and Research Institute Faculty of Allied Health Science
Subject: PATHOLOGY/MICROBIOLOGY/PHARMOCOLOGY
Course Code: SBVPT- 304
SECTION-A (PATHOLOGY)

Total = 30 marks

Long Essays (Answer any one) **1 x 15 = 15 marks**

1. Define thrombus, discuss aetiopathogenesis and fate of thrombus
2. Define anemia, classify anemias and write laboratory diagnosis of iron deficiency aneamia

Short Essays (Answer any one) **1 x 5 = 5 marks**

3. Pathological calcification
4. Classification of leprosy

Short Answers **5 x 2 = 10 marks**

5. Eosinophilia
6. Types of Cirrhosis
7. Mentions four complication of Diabetes Mellitus
8. Mention types of Hypersensitivity reactions
9. ATROPHY

SECTION-B (MICROBIOLOGY)
Total = 30 marks

Long Essays (Answer any one) **1 x 15 = 15 marks**

1. Define and classify hypersensitivity reactions. Discuss type-1 hypersensitivity
2. Define pyrexia of unknown origin Enumerate the organisms causing it. Discus the laboratory diagnosis of typhoidfever

Short Essays (Answer any one) **1 x 5 = 5 marks**

3. Prophylaxis against tetanus
4. ELISA

Short Answers **5 x 2 = 10 marks**

5. Define adjuvant and give two examples
6. Name four bacteria causing urinary tract infections
7. Interferons
8. Quailing reaction
9. Mention two difference between endotoxin and exotoxin

SECTION-C (PHARMOCOLOGY)
Total = 20 marks

Short ESSAY (answer any four) **4 x 5= 20 marks**

1. Antibiotics used in gram +ve, gram –ve and both infection,
2. Drugs used in viral infection including HIV
3. Drugs used in Leprosy
4. antipsychotic drugs
5. Antidepressants

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science Semester - v
Subject: Kinesiology-II Course
Code: SBVPT- 401

Time: 3 Hrs **Max .Marks (80)**

LONG ESSAYS (Answer any Two) **2 x 15= 30 Marks**

1. Describe the structure of hip joint. Add a note on kinetics and kinematics.
2. Write in detail of Analysis of posture.
3. Explain biomechanics of thorax and chest wall

SHORT ESSAYS (Answer any SIX) **6 x 5= 30 Marks**

4. Scapulo humeral rhythm
5. Locking and unlocking mechanism
6. Explain levers in detail.
7. Describe the types of joints.
8. Explain the parts of goniometric and its types.
9. Describe stress and strain.
10. Explain Newton law of motion.

SHORT ANSWER **10 X 2 = 20Marks**

11. Carrying angle
12. Scoliosi
13. Concurrent force systems
14. Stair climbing
15. Patella Plica
16. Visco elasticity
17. Pes Planus and Pes Cavus
18. Pulleys
19. Open Kinematic chain
20. Palmar arches

Mahatma Gandhi Medical College and Research Institute Faculty of Allied Health Science
Subject: Electrotherapy - 2 Course
Code: SBVPT- 402

Time: 3 Hours **Max. Marks: 80 Marks**

Draw neat-labeled diagrams wherever necessary

Long Essays (Answer any two) **2 x 15 = 30 marks**

1. What is Piezzo electric effect? Describe the production of ultrasound with a neat diagram. Mention the indications and contraindications of ultrasound.
2. Describe the production of LASER. Write a note on the dosage of LASER.
3. Describe the production of IRR. Add a note on dosage and dangers of IRR.

Short Essays (Answer any six) **6 x 5 = 30 marks**

4. Cavitation in ultrasound
5. Describe the cable method of SWD.
6. Physiological and therapeutic effects of MWD
7. Explain the principle of biofeedback.
8. Mechanism of propagation of action potential
9. Indications and contraindications of IRR
10. Physiological and therapeutic effects of UVR

Short Answers **10 x 2 = 20 marks**

11. What is standing wave in ultrasound?
12. What is magnetron?
13. Define Rheobase and Chronaxie.
14. What is attenuation?
15. Methods of application of wax bath
16. Name dangers of UVR
17. FG test
18. Beat frequency in IFT
19. Accommodation
20. Sinusoidal current

Mahatma Gandhi Medical College and Research Institute Faculty of Allied Health Science
Subject: GENERALMEDICINE/PAEDIATRICS/PSYCHIATRY
Course Code: SBVPT- 403

Time: 3 hrs **total Marks (80)**

SECTION - A (GENERALMEDICINE) **MAX MARKS = 30**

Long essay (write any 1) **(1X15=15)**

1. Classify Obesity. Add a note on management in obesity.
2. Definition, types, etiology, pathogenesis, clinical features and management of Pneumonia.

Short essay (write any 1) **(1X5=5)**

3. Cushing's syndrome.
4. Define cyanosis. Mention its causes.

Ultra Short answer **(5X2=10)**

5. MMR vaccine.
6. Marasmus.
7. Cardiac arrest – definition.
8. Causes of GI bleeding.
9. Define Lung abscess.
10. Problems of Low birth weight infants.

SECTION - B (PAEDIATRICS) **MAX MARKS = 30**

Long essay (write any 1) **(1X15=15)**

1. Classify congenital heart diseases. Explain tetrology of fallot in detail.
2. explain in detail about developmental milestone

Short essay (write any 3) **(3X5=15)**

1. Myopathies and neuro-muscular junction disorders
2. Malnutrition and Vitamin deficiency conditions
3. Developmental disorders associated with spinal cord
4. Early intervention of cerebral palsy

SECTION - C (PSYCHIATRY) **MAX MARKS = 20**

Short essay (write any 2) **(2X5=10)**

1. management of psychiatric illness
2. management of childhood disorders
3. attention deficit syndrome and behavioral disorders

Ultra Short answer **(5X2=10)**

1. Anxiety neurosis
2. Depression
3. Obsessive compulsive neurosis
4. Psychosis
5. Maniac-depressive psychosis

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science Semester - v
Subject: GENERAL SURGERY including burns and plastic surgery Course Code: SBVPT- 501

Time: 3 Hrs Max .Marks (80)

LONG ESSAYS (Answer any Two) **2 x 15= 30 Marks**

1. List out general postoperative complications and the management.
2. Write an essay on Abdominal incisions
3. What is incontinence? Mention the types, causes and management of stress incontinence.

SHORT ESSAYS (Answer any six) **6x 5 =30Marks**

4. Valvotomy and valve replacement
5. Factors affecting wound healing.
6. Hysterectomy
7. Menopause, its effects on musculoskeletal system
8. Skin grafts – types
9. Cholecystectomy
10. Utero vaginal prolapse – causes, types.

SHORT ANSWERS **10 x 2 = 20 Marks**

11. Mention two differences between hypertrophic scar and keloid scar.
12. Raynauds phenomenon
13. Pneumonectomy
14. Tetrology of fallot – features.
15. Complications of blood transfusion
16. Wallace rule of nine
17. Define lung abscess
18. TNM classification of cancer
19. X-ray features of pleural effusions.
20. Glaucoma

*****

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science Semester - v
Subject: Clinical Orthopedics and Traumatology Course Code: SBVPT- 502

Time: 3 Hrs **Max .Marks (80)**

LONG ESSAYS (Answer any Two) **2 x 15 = 30 Marks**

1. What is arthroplasty? Explain the types of arthroplasty. What are the indications, contraindications and complications of THR? Add a note on rehabilitation for the same.
2. What is ankylosing spondylitis. What are the causes, clinical features, investigations, complications and management of ankylosing spondylitis.
3. Define and classify cerebral palsy. Explain the clinical features, complications and management (medical and rehabilitation) of cerebral palsy.

SHORT ESSAYS (Answer any Six) **6 x 5 = 30 Marks**

4. Cervical rib
5. Monteggia fracture
6. Pilon fracture of ankle
7. Septic arthritis
8. Recurrent dislocation of patella
9. Slipped capital of femoral epiphysis
10. Meniscus injury of knee joint

SHORT ANSWERS **10 x 2 = 20 Marks**

11. Pathological fracture
12. Malignant bone tumour
13. Jones fracture
14. Classification of leprosy
15. Bankart's repair
16. Fat embolism
17. Deformities in Rheumatoid Arthritis
18. Internal fixators
19. Arthroscopy
20. Charcot joints

*****

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science
Semester - V
Subject: Clinical Obstetrics and Gynecology and its physiotherapy management Course Code: SBVPT- 503

Time: 3 Hrs **Max .Marks (80)**

LONG ESSAYS (Answer any Two) **2 x 15=30 Marks**

1. Physiological changes of pregnancy.
2. Explain the role of pelvic floor muscles in female and the physiotherapy management for pelvic floor dysfunction.
3. Write in detail about physiotherapy management of Musculoskeletaldysfunction during pregnancy.

SHORT ESSAYS (Answer any 6) **6 x 5 = 30 Marks**

4. Importance of prenatal exercise and benefits of exercise during pregnancy.
5. Contraceptive methods.
6. Breech presentation.
7. Post operative complication following caesarean.
8. Changes occurring in ovary during ovulation.
9. Physiotherapy management for Lymphodema.
10. Physiotherapy management for Urinary incontinence in nuerological disorders.

SHORT ANSWERS **10 x 2 = 20 Marks**

11. Menarche.
12. Labor pain.
13. Uterus prolapse.
14. Infertility.
15. Colposcopy.
16. Breast feeding technique.
17. Mastectomy.
18. LSCS.
19. Urinary incontinence.
20. PCOD.

****

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science Semester - v
Subject: Community Medicine Course
Code: SBVPT- 504

Time: 3 Hrs **Max .Marks (80)**

LONG ESSAYS (Answer any Two) **2 x 15 = 30 Marks**

1. Define epidemiology. Mention the principles of epidemiology. Describe various epidemiological studies.
2. Define health. Explain dimension and indicators of health.
3. Describe various health programmes. Explain national tuberculosis programme.

SHORT ESSAYS TYPE (Answer any Six) **6 x 5 = 30 Marks**

4. Community nutrition programmes
5. Screening for cancers
6. Disaster management
7. World health organization
8. Pulse polio immunization
9. Causes of maternal mortality
10. National family welfare programme

SHORT ANSWERS **10 x 2 = 20 Marks**

11. Complication of hypertension
12. Child abuse
13. Vitamin A prophylaxis
14. Prevention of iron deficiency anemia
15. Street and fixed virus
16. Nosocomial infection
17. National policy programme
18. Window period in HIV
19. Incineration
20. Classification of food

*****

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science Semester - VI
Subject: Clinical Neurology and Neurosurgery Course Code: SBVPT- 601

Time: 3 Hrs **Max .Marks (80)**

LONG ESSAYS (Answer any Two) **2 x 15 = 30 Marks**

1. What are muscular dystrophies? Write in detail about clinical features and management of Duchenne muscular dystrophy.
2. Define Guillian-Barre syndrome. Explain pathophysiology and management of the same
3. Define hydrocephalus, its clinical features and management.

SHORT ESSAYS TYPE (Answer any Six) **6 x 5 = 30 Marks**

4. Explain clinical features of cerebellar ataxia.
5. Discuss various types of motor neuron disease.
6. Write a note on Tetanus.
7. Syringomyelia and its clinical features.
8. Surgical management in cerebral palsy and its importance.
9. Types of spinaltumors.
10. Deep brainstimulation.

SHORT ANSWERS **10 x 2 = 20 Marks**

11. Transient ischemic attack
12. Foot drop
13. Difference between spasticity and rigidity
14. Dysarthria
15. What is spinal shock?
16. Uses of MRI.
17. Hemi Laminectomy
18. Stereotactic surgery
19. Burr Hole surgery
20. Cranioplasty

****

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science Semester - VI
Subject: Clinical Cardiovascular and Respiratory conditions Course Code: SBVPT- 602

Time: 3 Hrs **Max .Marks (80)**

LONG ESSAYS (Answer any Two) **2 x 15 = 30 Marks**

1. Define pulmonary rehabilitation. Explain the goals, components, structure and benefits of pulmonary rehabilitation.
2. Discuss the physiotherapy management after CABG.
3. Enumerate the different techniques to reduce work of breathing. Add a note on management of a breathless patient.

SHORT ESSAYS(Answer any Six) **6 x 5 = 30 Marks**

4. Oxygen therapy delivery system.
5. Describe neurophysiological facilitation of respiration.
6. ACBT
7. Humidification and nebulization
8. Incentive Spirometer
9. Anatomical difference between adult and paediatric lung.
10. Broncho pulmonary segments.

SHORT ANSWERS **10 x 2 = 20 Marks**

11. Arterial blood gas analysis
12. What is IPPB?
13. Define respiratory failure.
14. What is painful perineum?
15. Types of endotracheal tube
16. Rib springing
17. PEP
18. Tetrology of fallot
19. Blood Pressure.
20. what is low level exercise testing.

****

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science Semester - VI
Subject: Physiotherapy in Orthopedics & Sports Course Code: SBVPT- 603

Time: 3 Hrs **Max .Marks (80)**

LONG ESSAYS (Answer any Two) **2 x 15=30 Marks**

1. Set down a detail plan of rehabilitation following L2 vertebral level fracture treated surgically with a spinal fixation device and presently in recovery phase, after one month.
2. Compile a physical therapy assessment and treatment aims and means for a 20 year old cricket pace bowler who sustained a rotator cuff partial tear which was treated conservatively with sling for 3 weeks.
3. Mention physical therapy assessment (with any 2 special tests) and treatment regime for a child of three months referred for further management following congenital dislocation of hip.

SHORT ESSAYS (Answer any 6) **6 x 5 = 30 Marks**

4. Define cervical brachialgia. Mention physical therapy objectives for the treatment.
5. What is the difference between true and functional limb length discrepancies? Howis functional limb lengthmeasured?
6. Note down a home program including DO‘s and DON‘T‘s for a 30 year old lady working as a receptionist, who sustained intervertebral disk prolapsed at L5-S1 level.
7. What is volkmann‘s ischemic contracture? Mention the physical therapy treatment for the same.
8. Gait deviations following TOTAL HIP REPLACEMENT
9. What is periarthritis shoulder? What are the rehabilitation principles of it?
10. Physical therapy Treatment protocol from day one following the injury, for a young female who sustained a grade 1 ACL injury at right knee.

SHORT ANSWERS **10 x 2 = 20 Marks**

11. Loose packed position of a joint.
12. Cozens test
13. Dermatomes – define.
14. Lumbo sacral angle
15. Any 2 indications of osteotomy
16. Straight leg raising test
17. Pes planus – Any two causes.
18. Two causes for patellar lateral dislocation.
19. Carpal tunnel syndrome
20. Centralization phenomenon

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science

Semester - VII

Subject: Medical/Physiotherapy Law and ethics.

Course Code: SBVPT- 604

Time: 3 Hrs **Max .Marks (80)**

LONG ESSAYS (Answer any Two) **2 x 15=30 Marks**

1. Write in detail about the code of ethics for physiotherapists.
2. Discuss the medico-legal aspects of maintaining the medical records.
3. Describe the autonomy and the informed consent procedures obtained by the patients.

SHORT ESSAYS (Answer any 6) **6 x 5 = 30 Marks**

4. Laws affecting the physiotherapy practice.
5. Needs of retention of medical records.
6. Write a note on confidentiality privilege.
7. Basic principles of medical ethics.
8. MLC and roles of the medical records in MLC.
9. Physiotherapy diagnosis and its importance.
10. Role of ethics in physiotheapy.

SHORT ANSWERS **10 x 2 = 20 Marks**

11. Informed consent.
12. 13.MLC.
13. EUTHANASIA.
14. Insurance policy.
15. Confidentiality.
16. Mal practice.
17. Patients rights.
18. Ownership of medical records.
19. Define medical laws.
20. Definition of organ transplantation.

****

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science Semester - VII
Subject: Physiotherapy in neurology and psychosomatic disorder Course Code: SBVPT- 701

Time: 3 Hrs **Max .Marks (80)**

LONG ESSAYS (Answer any Two) **2 x 15=30 Marks**

1. Define Cerebral palsy. Write in detail about assessment and management of 2 year old spastic diplegic Cerebral Palsy.
2. Write classification of spina bifida. Write about physiotherapy management of a one year old child who was operated for myelomeningocoele at L-2,3 spinal level.
3. Enumerate the Neuro Physiological techniques. Explain any one in detail about the principles and effects.

SHORT ESSAYS (Answer any 6) **6 x 5 = 30 Marks**

4. Write about spinal reflexes.
5. PT management of acute median nerve palsy
6. Discuss associate problems in cerebral palsy
7. Management for hemiplegic shoulder
8. Explain the PT management of Duchene's muscular dystrophy.
9. Explain the PT management of sensory ataxia.
10. Importance of early identification of risk babies

SHORT ANSWERS **10 x 2 = 20 Marks**

11. Sunderland's classification of nerve injury
12. Festination Gait
13. Char cot'striad
14. ASIA scale
15. Dystrophin
16. Dysdiadochokinesia
17. Any 4 differences between spasticity and rigidity
18. Any four clinical features of brain tumor
19. Functions of fifth cranial nerve
20. Importance of developmental screening.

****

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science Semester - VII
Subject: Physiotherapy in Cardio vascular and Respiratory conditions Course Code: SBVPT- 702

Time: 3 Hrs **Max .Marks (80)**

Draw neat, labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) **2 x 15=30 Marks**

1. Define pulmonary rehabilitation. Explain the goals, components, structure and benefits of pulmonary rehabilitation.
2. Discuss the physiotherapy management after CABG.
3. Enumerate the different techniques to reduce work of breathing. Add a note on management of a breathless patient.

SHORT ESSAYS (Answer any 6) **6 x 5 = 30 Marks**

4. Physiotherapy management after Appendicectomy
5. Oxygen therapy delivery system
6. Physiotherapy management for ventilator dependent patient
7. Describe neurophysiological facilitation of respiration.
8. Humidification and nebulization
9. Physiotherapy management after right lower lobectomy
10. Incentive Spirometer.

SHORT ANSWERS **10 x 2 = 20 Marks**

11. Arterial blood gas analysis
12. What is IPPB?
13. Define respiratoryfailure.
14. What is painfulperineum?
15. Types of endotracheal tube
16. Rib springing
17. PEP
18. Tetrology of fallot
19. Any four factors affecting exercise performance
20. What is low level exercise testing?

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science Semester - VII
Subject: research methodology
Course Code: SBVPT- 703

Time: 3 Hrs **Max .Marks (80)**

LONG ESSAYS (Answer any Two) 2 x 15 = 30 Marks

1. Problems encountered by researchers in India
2. Methods of data collection in research
3. Probability and standard distribution

SHORT ESSAYS (Answer any six) **6 x 5 = 30 Marks**

4. Analysis of variance (ANOVA)
5. Criteria for good research
6. Basic principles of experimental design
7. Computers and researcher
8. Explain different types of sampling design
9. Techniques of developing measurement tools
10. Difference between explorative and descriptive research design

SHORT ANSWERS **10 x 2 = 20 Marks**

11. Nominal scale
12. Median
13. Need for sampling
14. Descriptive vs Analytical research
15. Stratified sampling
16. Define research
17. Dependent vs Independent variable
18. Research problem
19. Experimental research designs
20. What is hypothesis?

*****

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science
Semester - VII
Subject: Physiotherapy in Community based Rehabilitation Course Code: SBVPT- 704

Time: 3 Hrs **Max .Marks (80)**

Draw neat, labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) **2 x 15=30 Marks**

1. Define community based rehabilitation? How is CBR different from institution based rehabilitation? Describe the various models of CBR
2. Define aging? Describe in detail the changes occurring in various musculoskeletal and cardio respiratory system during aging? What is the role of physiotherapist in geriatric rehabilitation.
3. What is Ergonomics? Explain in detail the industrial accidents due to physical agents and role of physiotherapist in the industrial set – up?

SHORT ESSAYS (Answer any 6) **6 x 5 = 30 Marks**

4. Role of multipurpose Rehabilitation worker (MRW) in CBR
5. Explain in detail about the principles of CBR
6. Define impairment and Disability with 2 examples for each
7. Discuss the changes in the Nervous system due to aging
8. Define is genetic counseling? What are the indications for genetic counseling
9. Define urinary incontinence? Role of physiotherapy in management of urinary incontinence
10. Discuss the role of social worker in Rehabilitation

SHORT ANSWERS **10 x 2 = 20 Marks**

11. CBR geriatric rehabilitation
12. National immunization programmes
13. Discuss the functions of Red Cross organization in CBR
14. Functions of Anganwadi workers
15. Drawbacks of CBR
16. Define community
17. World health organization‘s role in CBR
18. Home programme for a patient with Alzheimer‘s disease
19. Meals on wheels.
20. Write a short note on Disability in down‘s syndrome.

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science

Semester - VII

Subject: Advanced physical and functional Diagnosis Course Code: SBVPT- 801

Time: 3 Hrs **Max .Marks (80)**

LONG ESSAYS (Answer any Two) **2 x 15=30 Marks**

1. Write a note on Pulmonary Function Testing and its interpretation in various lung diseases.
2. Write in detail on body composition and its various assessment procedures to measure fat percentage and body density.
3. Write in brief about motor relearning program.

SHORT ESSAYS (Answer any 6) **6 x 5 = 30 Marks**

4. Describe shortly on exercise stress testing.
5. Write a short note on principles and application ofNCV.
6. Write a short note on principles and application ofEMG.
7. Write in detail about the Principles & components of exercise prescription for healthy.
8. Describe about the theoretical bases of different protocols for maximal exercise testing.
9. Write a note on various Knee Tests for collateral & cruciate ligaments.
10. Discuss the Functional Diagnosis by using ICF.

SHORT ANSWERS **10 x 2 = 20 Marks**

11. Dizziness test.
12. Tinel's sign.
13. Q angle.
14. Breath Holding Test.
15. Strength Duration-Curve-tests.
16. Faradic Galvanic Test.
17. Trendlenburg sign.
18. schober's test.
19. Blood pressure.
20. Talar tilt.

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science

Semester - VII

Subject: Bio-engineering in physiotherapy Course

Code: SBVPT- 802

Time: 3 Hrs **Max .Marks (80)**

LONG ESSAYS (Answer any Two) **2 x 15=30 Marks**

1. Outline the architectural barriers likely to be faced by a wheelchair dependant housewife and explain the modifications that can be made.
2. Discuss the alignment of Below Knee Prosthesis and gait deviations.
3. Discuss the Prosthetic management of Elbow Disarticulation and Above Elbow Amputation

SHORT ESSAYS (Answer any 6) **6 x 5 = 30 Marks**

4. Hip Knee Ankle Foot Orthosis (HKAFO).
5. Levels of amputation in lower limb.
6. Functional Electrical Stimulation (FES).
7. Define gait, and enumerate pathological gaits.
8. Ideal features of an amputee stump.
9. What is total claw hand? Describe the orthotic management of claw hand.
10. Hearing AIDS.

SHORT ANSWERS **10 x 2 = 20 Marks**

11. MET (Metabolic Equivalent Task).
12. Infantile hemiplegia.
13. Volkmann‘s sign.
14. Reverse Knuckle bender splint.
15. Jersey finger.
16. Sheltered workshop.
17. Persons with Disability (PWD) Act.
18. Thoracolumbosacral orthoses (TLSOs).
19. Foot deformities in Leprosy.
20. Jaipur foot

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science

Semester - VIII

Subject: Evidence base physiotherapy Course Code: SBVPT- 803

Time: 3 Hrs **Max .Marks (80)**

LONG ESSAYS (Answer any Two) 2 x 15=30 Marks

1. Explain The Pratical Application Of Evidence Into Practice While determening The Intervention?
2. Discuss The Barriers And Limitations Of Evidence based practice?
3. Discuss the Sackett's steps of evidence based practice?

SHORT ESSAYS (Answer any 6) 6 x 5 = 30 Marks

4. write a note on Cohort studies and cross sectional studies
5. Critical appraisal of evidence about diagnostics tests
6. Critical appraisal of evidence about prognosis
7. Critical appraisal of clinical practice guidelines
8. patient scenario with clinical case examples
9. Process of critical appraisal
10. History of evidence based healthcare

SHORT ANSWERS 10 x 2 = 20 Marks

11. CINAHL
12. PEDRO
13. critical appraisal
14. Define EBP?
15. clinical expertise
16. client values
17. patient values
18. PICO
19. Electronic resources
20. what is journal club?

MODEL QUESTION PAPER FOR GENERIC ELECTIVE

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science GENERIC ELECTIVE- I
Subject: BASIC SCIENCE
Subject Code : GE-1

Time: 3 Hrs Max .Marks (80)

ESSAY: (ANSWER ANY TWO) (2X15=30)

1. write a note on Interference of light – principle & condition of super position of waves Interference?
2. Describe in detail about the
   a) Characteristics of laws Laser action
   b) Theories of the nature of light
   c) Application of Laser
3. write in detail about Drug abuse & health hazards and Drug addiction

SHORT NOTES: (ANSWER ANY six) (6X5=30)

4. Discuss shortly about Laws of refraction'
5. Laws of Reflection of inverse square law
6. Properties of magnet
7. Principle of capacitor
8. Direction of force – Fleming_s left hand rule Definition of Ampere
9. AC and DC generators Eddy current Transformer
10. Production of Cathode rays

SHORT ANSWER QUESTIONS: (10 X 2 = 20)

11. Electrophoresis
12. Electro osmosis
13. Osmotic pressure
14. Bragg_s law
15. Faraday_s law
16. Ohm_s law
17. Electric current
18. Lines of force
19. Coulomb_s inverse square law
20. Laws of refraction

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science GENERIC ELECTIVE- II
Subject: Hospital Laws
Subject Code : GE-II

Time: 3 Hrs **Max .Marks (80)**

ESSAY: (ANSWER ANY TWO) **(2X15=30)**

1. Discuss the conduct, etiquette and ethics in emergency medical care?
2. explain the Laws governing management of patients?
3. describe in detail about the Criminal Liability in medical profession?

SHORT NOTES: (ANSWER ANY SIX) **(6X5=30)**

4. Physician Relationships with Hospitals
5. 6 ―aimsǁ of quality
6. Principles of Hospital Liability
7. Ethical guidelines for biomedical research
8. Births, Deaths and Marriage registration Act
9. Transplantation of Human Organ Act
10. Laws governing sale, storage and safe medication

SHORT ANSWER QUESTIONS: **(10 X 2 = 20)**

11. Medical ethics
12. Right to property
13. Right to freedom of speech
14. Hospital Licensure
15. NABH
16. labor relations
17. Boilers Act
18. Gas Cylinder Rules
19. Explosives Act
20. Bankruptcy

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science GENERIC ELECTIVE- III
Subject: HOSPITAL SAFETY AND MANAGEMENT
Subject Code : GE-III

Time: 3 Hrs Max .Marks (80)

ESSAY: ANSWER ANY TWO **2 X 15 = 30**

1. Decribe about the Safety and health management systems in hospitals
2. write in detail about the Management leadership: best practices and examples
3. Discuss briefly about Post-Disaster Recovery

SHORT NOTES: (ANSWER ANY six) **(6X5=30)**

4. write a note on Fire Safety in Hospitals
5. role of Volunteer Involvement and Management during disaster
6. Education and training in safety and health management
7. Maintenance of Occupational and Functional Components
8. Licensing and Accreditation requirements.
9. Scope of National Action Framework for Hospital Safety.
10. What are the core elements of a safety and health management system?

SHORT ANSWER QUESTIONS: : **(10 X 2 = 20)**

11. Expected Levels of Fire Safety in Hospitals
12. What employee participation means
13. What hazard identification and assessment means
14. What hazard prevention and control means
15. Why safety and health management system education and training is important
16. Safe Hospitals
17. Stakeholders
18. Patient Handling
19. Licensing and Accreditation
20. types of Disaster

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science GENERIC ELECTIVE- IV
Subject: BASIC SCIENCE
Subject Code : GE-IV

Time: 3 Hrs Max .Marks (80)

ESSAY: (ANSWER ANY TWO) (2X15=30)

1.write in detail about Psychiatric History & examination of mental status.
2.Discuss about the Classification of mental illness.
3. Describe Schizophrenia and its types.

SHORT NOTES: (ANSWER ANY SIX) (6X5=30)

4. Management of chronic patients with mental illness
5.Management–ECT
6. Discuss about cognitive behavioral therapy
7. chemotherapy
8.psychotherapy
9.grouptherapy
10. adolescence disruptive behavior

SHORT ANSWER QUESTIONS: : (10 X 2 = 20)

11. suicide stress management
12.attention deficit
13. enuresis
14.child abuse
15.personality disorder
16.eating disorder
17. adolescence disruptive behavior 18.psychiatric emergencies
19. post – partum psychosis
20. hypochondriasis

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science GENERIC ELECTIVE- V
Subject: Diet and nutrition
Subject Code : GE-V

Time: 3 Hrs Max .Marks (80)

ESSAY: (ANSWER ANY TWO) (2X15=30)

1. write in detail about the Principles of diet therapy and Modifications of diets in febrile conditions
2. Describe briefly about basic metabolism, Basal Metabolic Rate determination and factors affecting it.
3. write a note on Meal planning, Nutrition during pregnancy

SHORT NOTES: (ANSWER ANY SIX) (6X5=30)

4. Role of nutrition in healthy body Food
5. composition of body fluids
6. Measurement of energy, Body Mass Index and basic metabolism
7. Basal Metabolic Rate determination and factors affecting it,
8. Principles of diet therapy,
9. Modifications of diets in febrile conditions,
10. Food preservation techniques,

SHORT ANSWER QUESTIONS: : **(10 X 2 = 20)**

11. Malnutrition
12. Food borne illnesses
13. Food additives
14. Food hygiene.
15. Balanced diet
16. lactation
17. underweight
18. Disorders of energy metabolism 19. food fortification
20. food preservation.

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science GENERIC ELECTIVE- VI
Subject: Physiotherapy In Health And Wellness Subject Code : GE-VI

Time: 3 Hrs **Max .Marks (80)**

ESSAY: (ANSWER ANY TWO) **(2X15=30)**

1. write a note on Fitness testing and General considerations following Clinical exercise testing
2. Describe in detail about Exercise Programming for Special Populations
3. Principles of cardio respiratory endurance programming and Weight management

SHORT NOTES: (ANSWER ANY SIX) **(6X5=30)**

4. Adaptations to aerobic endurance training.
5. Principles of anaerobic training
6. Warm-up and flexibility training
7. Theories of Behavior Change
8. Healthy stress management
9. Neural adaptations.
10. Contraindications to exercise testing.

SHORT ANSWER QUESTIONS: : **(10 X 2 = 20)**

11. Metabolic Diseases
12. Plyometrics
13. Flexibility training
14. Health appraisal.
15. Detraining
16. ACSM metabolic formula.
17. Cardiac adaptation
18. Cinical exercise testing
19. Biological energy systems
20. Substrate depletion

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science GENERIC ELECTIVE- VII
Subject: ENTREPRENEURSHIP IN PHYSIOTHERAPY
Subject Code : GE-VII

Time: 3 Hrs Max .Marks (80)

ESSAY: (ANSWER ANY TWO) (2X15=30)

1. Discuss the importance of Entrepreneurship and Factor affecting entrepreneurship.
2. Describe in detail on Entrepreneurial wheel and tips for opening business.
3. Describe the different Characteristics of Entrepreneurship.

SHORT NOTES: (ANSWER ANY SIX) (6X5=30)

4. Functions of Entrepreneur.
5. Small business entrepreneurship
6. Characterstic of Entrepreneur
7. Large company entrepreneurship
8. Describe the Theoretical model of the entrepreneur potential.
9. Classification of Entrepreneurs based on functional characteristics: 10. Classification of Entrepreneurs based on motivation level

SHORT ANSWER QUESTIONS: : (10 X 2 = 20)

11. Example of Entrepreneur
12. Risk bearing
13. Leadership
14. administratio n 15.human resource
16. innovator
17. Classification of Entrepreneurs
18. entrepreneurship credibility
19. Creativity
20. marketing

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science GENERIC ELECTIVE- VIII
Subject: LEADERSHIP IN Physiotherapy Subject
Code : GE-VIII

Time: 3 Hrs Max .Marks (80)

ESSAY: (ANSWER ANY TWO) (2X15=30)

1. Describe the role of contribution to leadership in profession
2. Discuss The Role Of Being A Leader In Physical Therapy
3. What are your leadership qualities and strategies to enhance leadership?

SHORT NOTES: (ANSWER ANY SIX) (6X5=30)

4. Describe Levels Of Leadership
5. How to Integrate concepts of leadership into his/her practice
6. Describe The Qualities Of Effective Leaders
7. Improving Services by ensuring services
8. Improving Services by critical evaluating
9. Encouraging Improvement and Innovation
10. Describe the concepts of leadership in physical therapy practice

SHORT ANSWER QUESTIONS: : (10 X 2 = 20)

11. Positive leadership
12. Servant leadership
13. lesson learned
14. personel leadership
15. professional leadership
16. collective leadership
17. define leadership
18. mentor
19. profession advocacy
20. critical evaluation

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science GENERIC ELECTIVE- IX

Subject:

Acupuncture

Subject Code :

GE-IX

Time: 3 Hrs Max .Marks (80)

Long essay (write any 2) (2X15=30)

1. Describe the various theories of Acupuncture in detail.
2. Define meridian and describe all the meridians.
3. Define Acupuncture and explain in detail about various techniques in acupuncture.

Short essay (write any 6) (6X5=30)

4. Shiatsu.
5. Moxibustion.
6. Auricular therapy.
7. Define Li4.
8. Complication of acupuncture.
9. Methods of needling.
10. Du / Ren meridian.

Ultra Short answer (10X2=20)

11. Define Acupressure.
12. K3.
13. Types of Needles.
14. Indication of acupuncture.
15. H7.
16. Du20.
17. Tsun.
18. Conditions treated by acupuncture.
19. Risks in acupuncture.
20. Sp6.

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science GENERIC ELECTIVE- X
Subject: Diabetic education Subject
Code : GE-X

Time: 3 Hrs Max .Marks (80)

ESSAY: (ANSWER ANY TWO) (2X15=30)

1. Write a note on Physiology, pathogenesis, Diagnosis and classification of Diabetes Mellitus(DM)?
2. Describe the role and responsibilities of diabetic educator?
3. Describe the role of YOGA in DM?

SHORT NOTES: (ANSWER ANY SIX) (6X5=30)

4. Write a note on Insulin therapy –Theory of practical aspects. 5.Describe the role of Exercise in DM
6. Discuss about Oral Ant diabetic Agent
7. Counseling techniques for physiotherapies
8. Recent Advances in DM
9. Emergencies' in Diabetes mellitus.
10. Autonomic Neuropathy in DM

SHORT ANSWER QUESTIONS: : **(10 X 2 = 20)**

11. types of diabetis
12.insulin
13.diabetes pills
14.types of lipids
15.diabetic foot
16.Diabetic complications 17.meal plan 18.pherpheral neuropathy
19. ideal members of diabetic education team
20. risk factors affecting diabetes mellitus.

Mahatma Gandhi Medical College and Research Institute Bachelor Of Physiotherapy - Faculty of Allied Health Science GENERIC ELECTIVE- XI

Subject: INTEGUMENTARY PHYSICAL THERAPY

Subject Code : GE-XI

Time: 3 Hrs **Max .Marks (80)**

ESSAY: (ANSWER ANY TWO) **(2X15=30)**

1. Describe the roles of the various team members involved in interdisciplinary woundmanagement
2. how to Identify positive and negative signs for healing of closed surgical wound
3. Describe methods used in the prevention of pressure ulcers

SHORT NOTES: (ANSWER ANY SIX) **(6X5=30)**

4. Discuss potential situations in which a physical therapist would need to contact apatient's physician or surgeon
5. Possible members of a wound management team
6. Biophysical agents and other adjunctive interventions 7.Discuss the importance of pressure relieving techniques
8. Discuss wound management interventions relevant to the treatment of periwound tissue
9. Demonstrate universal precautions when working with patients
10. Discuss various techniques for dealing with pain during wound interventions including

SHORT ANSWER QUESTIONS: : **(10 X 2 = 20)**

11. Splinting
12. Casting
13. Orthotics
14. Skin care
15. Off loading
16. Seating/pressure mapping 17.therapeutic positioning
18. Kinesthesia
19. Hyperkeratosis
20. erythema

ANNEXURE

Mahatma Gandhi Medical College and Research Institute
Department Of Physiotherapy - Faculty of Allied Health Science

BPT – STUDENTS CLINICAL EDUCATION EVALUATION SHEET

Name of the Student: **Reg No:**
Name of the Faculty (Under Posted):
Year/Semester:
Duration Of Posting…..…..Days From……To……. **Name of the Department:**

Date	Time	Present /Absent	Remarks	Number Of Cases			Faculty sign
				Observed / Evaluated / Treated	Presented	Students Sign	

BPT - STUDENTS CLINICAL EDUCATION SCORING FORMAT

Attendance					
Category	Less than 80%	Satisfactory	Fair	Good	Excellent
Max- 20 Marks		80-84.9%	85-89.9%	90-94.9%	95-100%
	Not Eligible	8 Marks	12 Marks	16Marks	20 Marks

Discipline

S.No	Max-40 Marks	Poor-0	Satisfactory-2	Fair-4	Good-6	Excellent-8
1	Dress Code					
2	Punctuality					
3	Time Management					
4	Behavior/ Attitude					
5	Responsibility					

Knowledge

S.No	Max-40 Marks	Poor-0	Satisfactory-2	Fair-4	Good-6	Excellent-8
1	Theory					
2	Clinical Skill					
3	EBP/CR					
4	Application of Treatment Technique					
5	Logbook					
					Total Marks Scored	

Name and Signature of the Faculty:
Date:

Name and Signature of the Clinical In charge:
Date:

Office seal: **HOD / Principal**

BPT - STUDENTS ATTENDANCE SCORING FORMAT

Sl no	Attendance % in Range	Marks
1	80 - 84%	1
2	85 - 89%	2
3	90 - 94%	3
4	95 - 99%	4
5	100%	5

Note : candidates having less than 80% attendance will not be able to appear for university examination.

BPT - STUDENTS DISCIPLINE SCORING FORMAT

Sl no	Discipline components	Marks
1	Dress Code	1
2	Punctuality	1
3	Time Management	1
4	Attitude	1
5	Responsibility	1
	Total	5 marks